

WATER CONSERVATION PLAN

City of Dodge City, Kansas

2016



The City of Dodge City endeavors to ensure that its citizens are provided with a dependable water supply for our immediate needs and long term requirements of the community. This water conservation plan will begin to address additional ways in which potable water can be conserved and preserved by the City, residents and the business community.

Construction of the water well system began over one hundred years ago with the Ogallala Aquifer as the primary source of potable water. There are fifteen active wells located throughout the City with an additional eleven wells used for industrial and irrigation only. The City will remain proactive in exploring new water rights and will continue to maintain its existing wells, as well as drill new wells as needed.

In partnership with the State of Kansas' efforts, the City believes that water conservation measures need to be established and become common practice. The primary objective in developing and utilizing a water conservation plan is to maintain the City's water system to provide the necessary water for the daily activities and maintain levels in the storage facilities to aid in any emergency that may occur. The plan should also make the City's customers aware that conserving consumption and changing their water use habits will protect our water supply for many generations to come.

BACKGROUND

The City of Dodge City used 130 gallons per person per day (GPCD) in 2015 and has used an average of 178 million gallons per day from 2010-2015. Included in the quantity shown below are:

- Water sold to all residential/commercial/industrial customers.
- Water furnished for public facilities including public buildings, parks and zoo, swimming pools, recreational facilities, and public landscape areas being irrigated for beautification purposes.
- Leaks in the distribution system.
- Water metered or sold for construction purposes in and around the City.

However, the GPCD figure does not include municipally supplied water for industries that use over 200,000,000 gallons per year. According to Figure 1, shown in the 2014 Kansas Municipal Water Use Publication, our City is located in Region 4. From this publication it was determined that our City GPCD water use was 167, which was 1 percent below the regional average of 178 GPCD among cities in Region 4 during 2014. The City desires to set a water use conservation goal for usage not to exceed 175 GPCD based on the regional average of the last five years (2010-2014). Our City anticipates not exceeding this goal by carrying out the specific actions that are outlined in our plan.

AVERAGE GPCD USE FOR PUBLIC WATER SUPPLIERS IN REGION 4 KANSAS, 2010-2014

Public Water Supplier	Region	2010	2011	2012	2013	2014	AVG
Regional Average	4	168	196	199	175	154	178
Almena	4	84	104	166	183	227	115
Arnold	4	124	98	109	140	153	113
Ashland	4	218	276	286	212	195	237
Bazine	4	115	123	135	109	101	117
Bogue	4	198	211	282	225	200	223
Brownell	4	107	189	188		105	147
Bucklin	4	148	175	169	145	159	159
Clayton	4	100	97	85	129	77	98
Collyer	4	89	107	140	99	96	106
Dodge City	4	164	199	183	159	132	167
Englewood	4	398	677	444	284	220	405
Ford	4	249	289	317	232		272
Hanston	4	202	213	223	170	160	194
Hill City	4	225	227	247	250	253	240
Jetmore	4	175	222	230	215	137	196
Lenora	4	189	209	175	193	176	188
Minneola	4	184	241	215	200	159	200
Morland	4	255	195	255	215	169	218
Ness City	4	161	153	142	133	125	143
Norton	4	199	175	211	186	179	190
Norton Co. RWD #01	4	43	46	58	47	38	46
Ransom	4	128	130	124	114	99	119
Spearville	4	131	194	177	152	141	159
Trego Co. RWD #01	4	116	132	143	149	120	132
Trego Co. RWD #02	4	129	163	206	200	183	176
Utica	4	214	257	255	242	227	239
WaKeeney	4	178	181	214	177	173	185

WATER CONSERVATION EDUCATION

The City will be implementing and continuing the following education methods to promote conservation practices for the upcoming year:

- The City water bill currently shows the total number of gallons used during the billing period and the cost of the water. This will help the customer to evaluate if they can improve their conservation practices.

- Water conservation information will be submitted to local news media, including the newspaper, radio, television, website and Facebook and any other methods deemed appropriate.
- The City will display water conservation tips at the water office and other public exposure points within the City offices.

CONSERVATION PRACTICE

- Conservative watering and accountability for its own water practices will be set by the City of Dodge City.
- A low water use demonstration plot, including xeriscaping techniques, will be established by the City of Dodge City showing how water conservation landscaping can be utilized in residential and commercial areas. The demonstration area will use low water demand grasses and shrubs, limited turf areas and efficient irrigation systems, as well as, use of various types of mulches suitable for the Dodge City area.
- Departmental water usage reports will be distributed to all department heads monthly to justify water usages within their departments.
- Irrigation of greens and tees at the golf course were converted to use reclaimed water from the water reclamation plant built in 2011.

WATER MANAGEMENT MONITORING

The City of Dodge City 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.

Dodge City replaced and/or completely reconditioned all its well head meters in 1992 as part of a new utility monitoring and control system. These meters are read by the utility monitoring system continuously but also provide a monthly total readout approximately the last day of each month. The meters are also physically read and an accuracy calculation performed to make sure they are within 2% variance of the gallons pumped per the SCADA system.

All residential, commercial and industrial customers are currently metered. The City has continued to replace manual read meters with radio read meters and has reached 90% completion. Any new meters installed are radio read meters to increase the efficiency of reading the meters. There is a program in place to replace meters as they are deemed unreliable or nonfunctioning.

The City's leak detection program involves the meter reader and Naviline. Obvious leaks, including leaking services from meters to the main line, are documented and repaired as quickly as circumstances allow. Leaking services from the meter to the building are the responsibility of the occupant. If discovered by the City, the occupant is notified of these

leaks and required to make repairs. If the customer refuses to repair the leak after forty-eight (48) hours of being notified, the City may shut-off the service and remove the meter. This will not only prevent loss of water, but in some cases will prevent damage to property.

Water pressure is monitored continuously using the SCADA system at 703 W. Trail St. There are multiple points where pressure readings are taken throughout the City. These come from well sites, tower locations and the reservoir. Residential pressure is checked when an inquiry or concern is expressed by a customer.

Water use rates are set by resolution with a consumer price index (CPI) clause requiring an automatic adjustment annually. Customers are billed for the amount of water used as well as a base fee. Rates for 2013, 2014, 2015 and 2016 are as follows:

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
Water base fee	\$ 7.85	\$ 7.93	\$ 8.05	\$8.17
Rate per 1000 gal water	\$ 2.11	\$ 2.13	\$ 2.16	\$2.19
Sewer base fee	\$15.80	\$15.96	\$16.19	\$16.43
Rate per 1000 gal sewer	\$ 2.14	\$ 2.16	\$ 2.19	\$2.22

MANAGEMENT CONSERVATION PRACTICE

The City understands that a plentiful water supply will assure our future. The City has been using recycled wastewater since the early 1980's. The south reclamation plant sent to irrigation pivots 1.5 billion gallons of recycled wastewater in 2012. We have expanded the use of recycled water to significant levels in the north zone of the City as well. The wastewater reclamation site processed 90 million gallons of wastewater in 2012. This recycled water is used to irrigate Mariah Hills Golf Course and saved emergency well #13 19 million gallons. These reclamation sites are beneficial to the community as a whole and vital to the preservation of our water table that has seen little to no recharge in many years.

The City desires to continue to be a good steward of water use by repairing, or if at all possible, preventing leaks. The billing system provides valuable data to initiate investigation into variances of consumption within the City's system.

- A. All source water is metered and an accuracy test will be conducted every three years beginning in 2014. Meters will be repaired or replaced if its test measurements are not within industry standards (such as AWWA standards). Source water meters will be repaired or replaced within two weeks when malfunctions occur.
- B. All meters for source water are read at least on a monthly basis and meters at individual service connections will be read at least once every two months.

- C. The City currently utilizes a portion of its treated wastewater to irrigate approximately 2900 acres of farmland.
- D. The recently constructed water reclamation plant in the north part of town has been designed to supply irrigation water to Mariah Hills Golf Course and is permitted so that other sites can be added in the future. At some point in the future, the well currently used at Mariah Hills for irrigation will be returned to emergency municipal use.
- E. Our ongoing leak detection and repair program will continue to be utilized to target unusual consumption within the system. Our billing system is the first line of defense for service lines. A closer inspection of the water system will be initiated whenever the amount of unsold water exceeds 20 percent of the total source water for a four-month time period beginning January 2014.
- F. The City may need to consider a proposal to change the City water use rate schedule. Any change will be presented to the City Commission. A proposed rate schedule with an increasing block rate will encourage conservation practices. This will create a situation which will require users to pay more if they choose to exceed conservative use.
- G. City irrigation systems will also need to be programmed to operate with conservation practices as a priority. Watering shall occur during early morning hours for minimal evaporation. Irrigation shall be set to eliminate water dependency. The City will encourage landscaping with drought tolerant plants.
- H. Water sales are based on the amount of water used and the gallons are clearly stated on the bill.

REGULATION

Dodge City currently has added the specific water conservation practice of a moisture indicator for new irrigation/sprinkler systems. The following regulations for irrigation systems should be reviewed:

- A. Regulations to control irrigation system design and installation will be considered. All plans for such systems would require City review and approval prior to installation by development service & inspections and park departments.
- B. Separate meters will be required on all irrigation systems which irrigate more than one acre of turf.

DROUGHT/EMERGENCY CONTINGENCY

The City of Dodge City 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 City Manager is authorized by Ordinance No. 3583 to implement the appropriate conservation measures. The purpose of the ordinance is to provide for the declaration of a water supply watch, warning and/or emergency and the implementation of voluntary and mandatory water conservation measures throughout the City in the event a drought stage is declared.

The City of Dodge City requires the implementation of a drought/emergency contingency when one of the following occurs:

STAGE 1: WATER WATCH. The goals of this stage are to heighten awareness of the public of water conditions and to maintain the integrity of the water supply system. A water watch may be declared if one or more of the following occurs:

- City's water storage falls below 75% and does not recover within 12 hours.
- Demand for five days exceeds an average of 10.75 million gallons per day. Under a water watch, the public is made aware of water conditions and is encouraged to participate in water conservation efforts.

The "Water Watch" will be terminated when the triggering events have ceased to exist.

Education actions are as follows:

- The City will make news releases to the local media (print, radio, television, online web, social media and any other methods deemed appropriate) describing present conditions and indicating the water supply outlook for the upcoming season, along with water saving tips.
- Previous months' summaries of precipitation, temperature, water levels and storage will be made public at the beginning of each month.

Management actions are as follows:

- Minimal washing of City vehicles and equipment and flushing of hydrants will be rescheduled.
- The City wells will be kept operational in regards to maintenance and equipment failure.
- Leaks will be repaired within forty-eight (48) hours of detection.
- Reduce watering times on parks and public grounds by 10%.

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, do not let faucets run, etc.

STAGE 2: WATER WARNING. The goal of this warning stage is to reduce peak demand consumption by 20% and to reduce overall consumption by 10%. This measure will be triggered by one of the following conditions:

- When the water tower storage falls below 65% or the underground pumping station has fallen below 50%, or a mechanical failure happens at either location.
- Total system storage does not recover above 65% within 12 hours.
- Demand for a three-day average exceeds 12.0 million gallons.

The "Water Warning" shall terminate when the triggering events have ceased to exist for a period of fourteen (14) consecutive days.

Education actions are as follows:

- A weekly news release describing existing conditions and projecting the water supply outlook for the following week.
- Totals for rainfall, water consumption and storage will be published weekly with a summary of temperature.
- Water conservation articles will be provided to all media sources and any other methods deemed appropriate.

Management actions are as follows:

- City water supplies will be monitored daily.
- All leaks discovered will be repaired within twenty-four (24) hours.
- Well #13 and Well #14, available for stand-by emergency use, will be prepared for service. Watering from Well #13 at the municipal golf course shall be minimized. Reuse water, provided by the north reclamation plant, will be under restrictions only per its permit.
- Reduce watering on parks and public grounds to every third day not including Mariah Hills Golf Course and City athletic complexes.
- The City will continue to observe water conservation practices, review the monthly water use for their departments, and make use of the information to see where further reductions might be made.

Regulation actions are as follows:

- Outdoor water use, including lawn watering and car washing, will be restricted to before 10:00 am and after 9:00 pm.
- Golf course will water tees and greens after sunset.
- Refilling of swimming pools will be allowed one day a week after sunset.
- Waste of water will be prohibited – a water warning will be issued to customer.

WATER EMERGENCY. The goals of this condition are to reduce peak demands by 40% and the overall consumption by 25%. This measure will be triggered by any one of the following conditions:

- The total City storage has fallen below 55%.
- Total system storage does not recover within 12 hours
- Demand for two days is in excess of 14.0 million gallons.

The "Water Emergency" shall be terminated when the triggering events have ceased to exist for a period of fourteen (14) consecutive days. Upon termination of a "Water Emergency", "Water Warning" becomes operative.

Education actions are as follows:

- Make daily news releases to local media describing current conditions and giving the following day's supply projections.
- Summaries of total rainfall, water consumption and storage will be published weekly along with average temperatures.

Management actions are as follows:

- City water supply is monitored daily by the SCADA system and personnel.
- Leaks will be repaired within twelve (12) hours of detection.
- Mariah Hills Golf Course – reduce irrigation on tees and fairways to every third day. Hand water greens and reduce green structure irrigation by 10%. All watering at the clubhouse and driving range would be shut off until further notice.
- Athletic fields – reduce irrigation on common areas and non-essential fields to every third day. Reduce overall watering times by 10%.
- Parks & public grounds – reduce watering times an additional 10% from previously established levels.
- The standby well #13 at the golf course will be connected to the City's system until the emergency has passed if deemed necessary by public works, parks, and city manager's office.

Regulation actions are as follows:

- Outdoor water use will be banned.
- Waste of water will be prohibited. Fines will be issued as per City code.

PROVISIONS FOR PLAN REVISION, MONITORING AND EVALUATION

Dodge City will continue to review its management practices on a monthly basis, reviewing totals for water pumped, water sales and water leaks. Having a continuous review of data will prevent us from falling behind on goals stated in this plan. As problems are detected, they will be corrected as soon as possible. With the intention of maintaining our goals set within this plan, the utility division will continue to review the water conservation practices of city departments and pass that information to department heads so that they may best evaluate where they might improve their usage and practices.

The City of Dodge City municipal water conservation plan will be reviewed during the month of March each year and more frequently as water conditions are deemed to be under storage or drought conditions. If the water conservation gallons per capita per day (GPCD) goals for the previous year are not met, 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 the plan and provide a status report to the Division of Water Resources (DWR) and Kansas Water Office (KWO) with the current water consumption in relation to the yearly allocations. Upon review, it may be determined that additional water conservation practices may need to be taken to achieve and maintain its water use conservation GPCD goals.