



**MUNICIPAL WATER  
CONSERVATION PLAN  
FOR THE  
CITY OF  
PAWNEE ROCK**

# Municipal Water Conservation Plan For the City of Pawnee Rock

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## INTRODUCTION

The primary objectives of the Water Conservation Plan for the City of Pawnee Rock 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 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 Pawnee Rock has undertaken a number of steps to ensure a dependable water supply for our customers. The water supply for our City is obtained from wells. These wells were drilled in 1982. Treated water storage facilities consist of one 100,000 gallon elevated tank. Our City water supply and distribution system have ample capacity to meet current customer demands and future projected demands for several years. The City of Pawnee Rock 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 Pawnee Rock used 82 gallons per person per day (GPCD) in 2015. This GPCD figure included:

Water sold to residential/commercial customers; population 252.  
Water distributed for free public services (parks, fire hydrants, 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 Figure 1, shown in the 2015 Kansas Municipal Water Use Publication, our City is located in Region 6. From this publication it was determined that our City GPCD water use was 82, which was same as the regional average GPCD among cities in Region 6 during 2015. The City desires to set a water use conservation goal for usage not to exceed 121 GPCD based on the regional average of the last five years (2011-2015). 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 and has not encouraged the Board of Education and 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.

<b>Education Conservation Practices to be Taken</b>	<b>Target Date</b>
1. Water bills will show the amount of water used in gallons and the cost of the water.	Implemented

## **Management**

The City of Pawnee Rock 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. These meters are read daily.

Water meters were installed for all residential/commercial customers by 1982. 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 Pawnee Rock 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 4<sup>th</sup> week of the month; however, the meter reader sometimes deviates from the scheduled time period.

Water leaks from the City public water distribution system are repaired when customers report significant leaks from the water mains or are located by City Personnel. Water pressure is not checked unless customers complain that their water pressure is too low.

The water rate structure for the City was passed on July 15, 2013. The minimum monthly water bill is \$35.00 for residential customers, which allows each customer to use up to 2,000 gallons of water each month. Water use in excess of 2,000 gallons is charged \$5.00 per 1,000 gallons. The sewer rate for all customers is a flat rate of \$28.00 per month.

The City of Pawnee Rock realizes that much greater 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 Pawnee Rock 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 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 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. All meters for 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
5. A reading will be taken at each source water meter at the same time that meters for individual service connections are read.	Implemented
6. 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 source water for a four month time period.	Implemented
7. Water sales will be based on the amount of water used.	Implemented

## **Regulation**

The City of Pawnee Rock 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.

Pawnee Rock 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.

## **DROUGHT RESPONSE**

The City of Pawnee Rock 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 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 45,000 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. Water levels and storage will be made public at the beginning of each month.
3. Water-saving tips will be included in billings to water utility customers.

#### **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 50,000 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. Water levels and storage will be made public each week.
3. Water conservation articles will be provided to the local newspaper.
4. Water-saving tips will be included in billings to water utility customers.

### **Management Actions**

1. The City water supplies will be monitored daily.
2. Leaks will be repaired within 24 hours of detection.
3. Pumpage 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. The City will contact DWR for permission to require private well owners to comply with the City's drought response regulations as authorized under K.S.A. 82a-733(i).

### **Regulation Actions**

These regulation actions apply to City residents(including private domestic well users, if authority is delegated by the Chief Engineer under K.S.A. 82a-733(i)).

1. Outdoor water use, including lawn watering and car washing will be restricted to before 10:00 am and after 9:00 pm.
2. Refilling of swimming pools will be allowed one day a week after sunset.
3. Excess water use charges for usage of water over the amount used in the winter will be considered.
4. 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 and will not recover;
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 53,000 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. 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.
3. Pumpage 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 (including private domestic well users, if authority is delegated by the Chief Engineer under K.S.A. 82a-733(i)).

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

## **PLAN REVISION, MONITORING & EVALUATION**

The City of Pawnee Rock 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 Pawnee Rock 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.