



MUNICIPAL WATER
CONSERVATION PLAN
FOR THE
CITY OF OTTAWA

Municipal Water Conservation Plan For the City of Ottawa

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PLAN REVISION, MONITORING AND EVALUATION

The Kansas Legislature mandated in Section 7 of House Bill No. 2703 that:

“Each member of a water assurance district shall adopt conservation plans and practices for such member. Such plans and practices shall be consistent with the guidelines for conservation plans and practices developed and maintained by the Kansas Water Office pursuant to K.S.A. 74-2608, and amendments thereto. Prior to entering into a contract with an assurance district, the director of the Kansas Water Office, in consultation with the chief engineer, shall determine whether such plans and practices are consistent with the guidelines for conservation plans and practices adopted by the Kansas Water Office.”

In compliance with the state requirements for members of water assurance districts, the City of Ottawa, as a member of the Marais des Cygnes River Water Assurance District, has developed the following Water Conservation Plan. The plan was formulated using the “Municipal Water Conservation Plan Guidelines” issued by the Kansas Water Office in August 2007.

BACKGROUND INFORMATION

Ottawa is located on the banks of the Marais des Cygnes River in Franklin County in the northeast part of the state. The population of Ottawa according to the adjusted 2010 census is 12,887. Ottawa's water system currently serves approximately 15,000 people, including rural water districts. Service connections within the city number approximately 5,150.

The water utility is municipally owned and operated as a division of the City's Department of Utilities. The water supply is surface water drawn from the Marais des Cygnes River. Pomona and Melvern Reservoirs are the major storage reservoirs upstream from Ottawa.

Ottawa's treatment plant is rated at 5.58 million gallons per day. Maximum day usage was 3.804 million gallons on July 24, 2001. Average daily usage is approximately 1.6 million gallons. Ottawa has water rights and water assurance of 896.741 million gallons per year.

The Ottawa water system is entirely metered with the following exceptions: leakage from mains, customer meter under registration, fire fighting, main flushing, and street washing. Non-metered water use is approximately 13 percent of production.

Residential water use accounts for about 42 percent of the total metered sales, exclusive of rural water district use. Commercial and industrial water use accounts for the remaining 52 percent. Current residential per capita use is about 87 gpcd. The consumer is charged for water on a declining block rate schedule.

The City of Ottawa has undertaken several measures to insure the citizens of Ottawa an uninterrupted, adequate and safe supply of drinking water. Those measures include:

- New treatment plant was completed in 1980 with a 5.58 MGD treatment capacity.
- Two holding ponds with a total capacity of 35 million gallons were constructed in 1980
- Black & Veatch study of the distribution system and computer model, to assist in improving fire flows and future system expansion was completed in 1993, updated by PEC in 2003 and 2007.
- Participation in the Marais des Cygnes River Assurance District No. 2, allows for storage releases from Pomona and Melvern Reservoirs during low river flows.

Conservation Plan Goals

The following basic conservation goals are recommended to insure adequate quantities of high quality water for the consumers of the City of Ottawa.

- Maintain an adequate supply of water for essential personal, commercial, and industrial needs, as well as sufficient supply for fire fighting.
- Extend the availability of storage in Pomona and Melvern Reservoirs during a drought through reduced usage.
- Maintain non-metered water use at less than 15 percent of total production.
- Reduce usage during drought situations by 10 percent.
- Educate the water consumers of the need to eliminate the waste of water, reduce water use during drought conditions and methods to conserve water.

Water use reductions will limit or postpone costly treatment plant expansions and distribution system improvements.

INTRODUCTION

The primary objectives of the Water Conservation Plan for the City of Ottawa 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 Treatment Plant 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 Ottawa has undertaken a number of steps to ensure a dependable water supply for our customers during the past 25 years. The City's water supply is surface water drawn from the Marais des Cygnes River. Pomona and Melvern Reservoirs are the major storage reservoirs upstream from Ottawa. Treated water storage facilities consist of one 1,200,000 gallon underground reservoir, one 750,000 gallon and two 400,000 gallon elevated tanks. 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 Ottawa 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 Ottawa used 87 gallons per person per day (GPCD) in 2010. This GPCD figure included:

Water sold to residential/commercial customers;
Water distributed for free public services (parks, cemeteries, swimming pools 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 2009 Kansas Municipal Water Use Publication, our City is located in Region 8. From this publication it was determined that our City GPCD water use was 85, which was 30 percent below the regional average of 122 GPCD among cities in Region 8 during 2009. The City desires to set a water use conservation goal for usage not to exceed 90 GPCD based on the City's average of the last ten years (2001-2010). 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 of Ottawa's current billing system can show gallons of water used during the billing period. The City has made tours of the treatment plant and conservation literature available to any groups or organizations requesting them.

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. Water conservation tips will be provided with the monthly water bills during the summer months.	Implemented

Management

The City of Ottawa 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.

The City of Ottawa completed an initial change out of all water meters in 1991. Since then approximately 98% of all meters have been replaced by 2007. All connections are metered although some are not billed (swimming pool, recreation, etc.). Customer meters are checked for accuracy upon receiving a request from the customer or meter readers. Meters exceeding 3% plus or minus accuracy are replaced.

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

Water leaks in the distribution system are repaired when a City employee or customers report significant leaks from water mains. System pressure is continually recorded at the treatment plant.

The water rate structure for the City was passed in 2008 with demand charges and a stepped water rate increase plan as follows. Reevaluation of the rate structure is scheduled for late 2011.

DEMAND CHARGE

WATER METER SIZE	2008	2009	2010	2011
5 / 8 inch	2.75	2.89	3.03	3.18
3 / 4 inch	3.30	3.47	3.64	3.82
1 inch	5.50	5.78	6.06	6.37
1 - 1 / 2 inch	9.35	9.82	10.31	10.82

STEP RATE

STEP	2008	2009	2010	2011
First 1 CCF	10.18	10.68	11.22	11.78
Next 11 CCF/CCF	1.71	1.79	1.88	1.97
All over 12 CCF/CCF	1.02	1.07	1.13	1.18

The City of Ottawa 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 Ottawa 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 (excluding fire lines), 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).	September 2012
5. 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
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. 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
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.	2012

Regulation

The City of Ottawa 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.

The City of Ottawa has adopted the International Plumbing Code. The code regulates maximum flow rates for water fixtures and fittings.

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

DROUGHT RESPONSE

The City of Ottawa 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. Rates and penalties for these stages are to be as provided by City Commission approved ordinance. The Director of Utilities 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 within a normal amount of time;
2. Water has stopped flowing over the top of Second Street dam;
3. Raw water pumpage is in excess of 3.67 million gallons per day for 3 consecutive days;
4. The Kansas Water Office has issued a water watch based on the remaining water assurance storage in the Water Assurance District lakes.

Requirements for Termination of Stage 1 Water Watch:

Stage 1 shall terminate when the condition listed as the triggering event has ceased to exist for a period of five consecutive days.

Education Actions

1. As conditions warrant the City will make news releases to the local media describing present conditions and indicating the water conditions and indicating the water supply outlook for the upcoming season.
2. The city will provide water conservation tips to the local news media.
3. Previous month 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. System pressure will be maintained below 80 pounds per square inch.
3. The City will monitor its use of water and will curtail nonessential activities.
4. Use of water from fire hydrants shall be limited to fire fighting, related activities, and/or other activities necessary to maintain the health, safety and welfare of the citizens of Ottawa. Water for street sweeping shall only be allowed to the extent necessary for maintaining the health, safety and welfare of the citizens of Ottawa.

Regulation Actions

1. Employ voluntary water conservation measures by reducing the use of water.
2. Voluntarily implement even/odd day watering for exterior use.
3. Limit nonessential water use and eliminate the waste of water.
4. The City may request that citizens restrict time spent showering or washing and they not wash cars.

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. Falling elevated and ground storage reservoir levels, which do not fill above 70% overnight;
2. Water is 1 foot below the top of Second Street dam ;
3. Raw water pumpage is in excess of 3.9 million gallons per day for 3 consecutive days;
4. The Kansas Water Office has issued a water warning based on the remaining water assurance storage in the Water Assurance District lakes.

Requirements for Termination of Stage 2 Water Warning:

Stage 2 shall terminate when all of the conditions listed as triggering events have ceased to exist for a period of five consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

Education Actions

1. The City will make weekly news releases describing the present conditions and outlook for the upcoming week.
2. Water conservation articles will be provided to local news media.
3. Notices will be posted throughout the city indicating water conservation tips.
4. Previous week summaries of precipitation, temperature, water levels and storage will be made public at the beginning of each week.

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.
4. Reserve supplies, such as standby well fields or lakes, will be prepared for use.
5. Intakes will be adapted to operate with low flows.

Regulation Actions

1. An even/odd system for irrigation will be mandatory. Consumers with even numbered addresses may irrigate on even numbered days. Those with odd numbered addresses may irrigate on odd number days. Watering with a hand held hose or bucket will be permitted any time provided no waste of water occurs. Commercial nurseries and similar establishments are exempt from this restriction but are required to curtail all nonessential water use.
2. Golf courses may irrigate fairways on alternate days from sunset to sunrise and tees and greens every day from sunset to sunrise. Syringing of greens is allowed.
3. Washing of automobiles, trucks, trailer, boats, airplanes, and other types of mobile equipment is allowed only on designated irrigation days between midnight and noon. Washing of mobile equipment may be done any time on the immediate premises of a commercial car wash.
4. The sprinkling of foundations is allowed only on designated irrigation days between midnight and noon.
5. The refilling or adding of water to swimming and/or wading pools is allowed only on designated irrigation days between midnight and noon.
6. The operation of any ornamental fountain or other structure making similar use of water is prohibited, except for those fountain/structures with a recycling system. The uses of treated water to fill, refill, or maintain the level of any fountain is prohibited.
7. The waste of water is absolutely prohibited.

8. All restaurants are prohibited from serving water to their customers, except when specifically requested by the customer.
9. New connections outside the city limits to the City's distribution system, including any connections to rural water districts served by the City of Ottawa water system will be suspended except those agreements for individual service connections entered into by the City prior to the effective date of the declaration of emergency.
10. The use of water sprinklers to cool air conditioners and flat roofed buildings shall be limited only to the amount needed to provide for the essential health needs of the citizens of Ottawa provided that no waste of water occurs.

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. Continually falling elevated and ground storage reservoir levels, which do not refill above 50 percent overnight - equipment or system failures which cause unprecedented loss of capability to provide services;
2. Water is 2 feet below the top of Second Street dam;
3. Raw water pumpage is in excess of 4.32 million gallons per day;
4. Emergency conditions related to repairs or water quality.
5. The Kansas Water Office has issued a water emergency based on the remaining water assurance storage in the Water Assurance District lakes.

Requirements for Termination of Stage 3 Water Emergency

Stage 3 shall be terminated when all of the conditions listed as triggering events have ceased to exist for a period of five (5) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

Education Actions

1. The City will make news releases to the local media describing present conditions and indicating the water supply outlook.
2. Summaries of precipitation, temperature, water levels and storage will be made public as conditions warrant.

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 12 hours of detection.
3. System pressure will be maintained below 60 pounds per square inch.
4. Use of water from fire hydrants shall be limited to fire fighting, related activities, and/or other activities necessary to maintain the health, safety, and welfare of the citizens of Ottawa, Water for street sweeping shall only be allowed to the extent necessary for maintaining the health, safety and welfare of the citizens of Ottawa.
5. The City will seek additional emergency supplies from other users, the state or the federal government.

Regulation Actions

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

PLAN REVISION, MONITORING & EVALUATION

The City of Ottawa 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 Ottawa 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 Division of Water Resources 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.