

# Walnut River Basin Management Categories

January 2009

## MANAGEMENT CATEGORIES

The following categories include issues identified in the [Walnut basin](#) plan as items that require attention in addition to the basin priority issues. These issues are addressed within the following management categories:

- Water Management
- Water Conservation
- Public Water Supply
- Water Quality
- Wetland and Riparian Management
- Flood Management
- Water-Based Recreation

These categories also correspond to the statewide management categories and policies of the *Kansas Water Plan* found in [Volume II](#). These documents contain new policy issues and the existing policy and statutory framework that relate to the management categories.

## ISSUE: [WATER MANAGEMENT](#)

The major streams in the basin are closed to new appropriations during the May to September timeframe. There are two sites where minimum desirable streamflows have been set. One is on the Whitewater River before the confluence with the Walnut River and the other is on the Walnut River above Arkansas City. ([Basin Map](#))

### Applicable *Kansas Water Plan* Objectives

- Achieve sustainable yield management of Kansas surface and ground water sources outside of the Ogallala-High Plains aquifer and areas specifically exempt by regulation. Sustainable yield management would be a goal that sets water management criteria to ensure long term trends in water use will move as close as possible to stable ground water levels and maintenance of sufficient streamflows.
- Meet minimum desirable streamflow at a frequency no less than the historical achievement for the individual sites at time of enactment.

### Applicable Programs

The following programs help to meet the objectives in the Water Management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Water Office: Water Marketing Program
- Kansas Water Office: Water Assurance Program

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas Geological Survey, Kansas Department of Agriculture-Division of Water Resources: Water Well Measurement
- Kansas Water Office: State Water Planning Program
- USDA-NRCS: Environmental Quality Incentive Program

## ISSUE: WATER CONSERVATION

Water conservation is essential for the effective management of water resources in the basin to assure that a sufficient, long-term, supply of water is available for the beneficial uses of the people of the state. Conservation is defined as a careful preservation and protection of something, especially the planned management of a natural resource to prevent exploitation or destruction.

[Water usage](#) in gallons per capita per day (gpcd) is calculated for each water system in the state from reported

data on water use and [population](#) served. Average gpcd figures for large, medium and small water suppliers are calculated in eight regions of the State based on similar geographic areas. The Walnut basin is located in region 7. Average gpcd for large, medium and small suppliers in region 7 are: 145, 107 and

100 gpcd respectively. This serves as a reference to indicate if individual supplies are above or below average usage for the region.

Unaccounted for water includes any unmetered uses, such as water used for fire fighting plus water loss in the distribution system. High amounts of unaccounted for water may result from water line breaks, under registering customers, unmetered uses, faulty metering or inaccurate accounting. The statewide average percentage of unaccounted for water use in 2006 was 14%. Technical assistance is available through KWO for systems with more than 30% unaccounted for water.

### 2007 Kansas Municipal Water Conservation



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Management of unaccounted for water is a fundamental and manageable tool in providing adequate water supply. Some unaccounted for water represents water that has been treated and then has been wasted and lost the potential to be put to beneficial uses.

The KWO develops and maintains guidelines for water conservation plans and practices. The primary goal of water conservation plans is to achieve more efficient use of the limited water resources of the state. The Water Conservation Plan Guidelines were updated in 2007. Of the 33 public water suppliers in the Walnut basin, 25 have approved water conservation plans, but all but four of these need to update the plans to comply with the 2007 guidelines. All other plans were developed based on guidelines from 1990.

The four basic types of water rate structures used in Kansas are described as flat rate, decreasing block rate, uniform block rate, and increasing block rate. Utilities with a flat rate charge each customer a fixed amount per month regardless of the amount of water used. With a decreasing block rate, the unit cost of water decreases as usage increases. The unit cost of water is the same for all levels of usage with a uniform block rate. With an increasing block rate, the unit cost of water rises as usage increases.

The type of rate structure can affect gpcd usage. Systems with flat rates tend to use considerably more water per capita than systems that meter customer use. The other three types of rate structures, in which cost depends on amount of water used, have a less dramatic effect on gpcd. Decreasing block rates are assumed to discourage conservation because customers are charged lower rates for high-volume usage. Increasing block rates are considered an effective way to promote conservation among high-volume users while keeping the cost of moderate use affordable. However, the use of these types of rate structures does not appear to influence usage by individual customers as much as does the total monthly water cost and the geographic area in which they live.

### Applicable Kansas Water Plan Objectives

- Reduce the number of public water suppliers with excessive “unaccounted for” water by first targeting those with 30% or more “unaccounted for” water.
- All non-domestic points of diversion meeting predetermined criteria will be metered, gaged, or otherwise measured.

- Conservation plans will be required for water rights meeting priority criteria under K.S.A. 82a-733 if it is determined that such a plan would result in significant water management improvement.



Tallgrass Prairie, Butler County, Kansas. Photo courtesy KGS.

### Applicable Programs

The following programs help to meet the objectives in the Water Conservation management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas State University Research and Extension: Water Conservation and Management Program
- State Conservation Commission: Water Resources Cost-Share Program
- Kansas Water Office: Water Conservation Program
- USDA-FSA: Conservation Reserve Program

### ISSUE: PUBLIC WATER SUPPLY

See [Surface Water Management and Conservation Basin Priority Issue](#).

The primary approach to addressing public water supply issues in the basin focuses on ensuring that there are adequate supplies of [surface](#) and ground water within the basin to meet future water demands, reducing the number of public water supply systems that are vulnerable to drought, and ensuring that systems have the technical, financial and managerial capacity to meet future needs for water quality and quantity.

There are 33 [public water suppliers](#) in the Walnut basin, of which 16 are rural water districts (RWD). There is one

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public wholesale water supply district (PWWSD) in the basin. PWWSD #8 was established in 1982 and is operated by Butler County RWD #3 and El Dorado State Park. The district supplies water to members through a water purchase contract with the City of El Dorado. PWWSDs are considered to enhance the long-term availability of water supply in the areas of the basin they serve.

Drought vulnerable water supplies are those supplies most likely to be first impacted by drought due to basic source, distribution system or treatment capacity limitations; or that rely on a single well as a water supply source. Drought vulnerable water supplies were surveyed in 2003 and 2006. The number of public water suppliers considered drought vulnerable in the Walnut basin decreased from 14 to 4 between the two surveys (Table 1).

<b>Supplier Name</b>	<b>Limitation</b>
Butler RWD # 04	Contractual
Cambridge	Contractual
Dexter	Contractual
Leon	Basic Source

Drought Stage Triggers (Table 2) are the signals that water shortage or other conditions indicative of drought have reached certain stages or levels. They act as the signal to begin implementation of the appropriate stage. Triggers may be related to supply conditions or demand levels. A given stage should have more than one trigger to confirm that conditions are worsening. A water utility or other municipal water entity should enact the appropriate stage whenever the agreed upon set of triggers is reached. Delay in action may lead to a major disruption of the water supply system at a later time.

**Table 2.**  
**Drought Stage Triggers used by public water suppliers with surface water sources:**

1. Lake level in terms of elevation or capacity.
2. Stream level in terms of flow or stage.
3. Water level in relation to the dam.
4. Peak daily demand levels.
5. Percent capacity of treatment plant operations over a number of days.
6. Capacity of water system storage and ability to recover.
7. The provider for purchased water has issued a drought stage.
8. Emergency conditions related to repairs or water quality.
9. The Kansas Water Office has issued a drought stage based on the remaining water marketing storage in a basin reservoir.

Every drought response plan should be set up in stages, each one more stringent than the one before it. Triggering mechanisms should be identified to signal the start of a given stage and specific goals should be identified as the desired outcome for each stage. Finally, appropriate conservation practices in the areas of education, management and regulation should be listed under each stage. Stages are appropriate to implement drought response practices or actions because the impact of conservation practices of a moderate stage may preclude the need for the municipal water entity to enact more severe conservation practices at a subsequent stage.

### **Applicable Kansas Water Plan Objectives**

- Ensure that sufficient surface water storage is available to meet projected year 2040 public water supply needs for areas of Kansas with current or potential access to surface water storage.
- Less than five percent of public water suppliers will be drought vulnerable.
- Ensure that all public water suppliers have the technical, financial and managerial capability to meet their needs and to meet Safe Drinking Water Act requirements.

### **Applicable Programs**

The following programs help to meet the objectives in the Public Water Supply management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas Department of Health and Environment: Public Water Supply Program
- Kansas Water Office: State Water Planning Program
- Kansas Water Office: Water Conservation Program

### **ISSUE: WATER QUALITY**

See [Watershed Restoration and Protection Strategy Basin Priority Issue](#)

Water quality and related water resource issues are addressed through a combination of watershed restoration and protection efforts utilizing voluntary, incentive based approaches, as well as regulatory programs.

### **Applicable Kansas Water Plan Objectives**

- Reduce the average concentration of bacteria, bio-

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chemical oxygen demand, solids, metals, nutrients, pesticides and sediment that adversely affect the water quality of Kansas lakes and streams.

- Ensure that water quality conditions are maintained at a level equal to or better than year 2000 conditions.
- Reduce the average concentration of dissolved solids, metals, nitrates, pesticides and volatile organic chemicals that adversely affect the water quality of Kansas ground water.
- Maintain, enhance, or restore priority wetlands and riparian areas.
- Nutrient reduction goals will be included in all WRAPS projects within the basin.
- All public water suppliers will complete and implement a source water protection plan.



Stone Bridge over Badger Creek, Cowley County  
Photo courtesy Kansas Geological Survey

## Applicable Programs

The following programs help to meet the objectives in the Water Quality management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Health and Environment: State Water Plan Program (Contamination Remediation)
- Kansas Corporation Commission: Conservation Division Programs
- Kansas Department of Health and Environment: Local Environmental Protection Program
- Kansas Department of Health and Environment: Watershed Management Program
- State Conservation Commission: Nonpoint Source Pollution Control Program

- State Conservation Commission: Water Resources Cost-Share Program

## ISSUE: WETLAND AND RIPARIAN MANAGEMENT

See [Watershed Restoration and Protection Basin Priority Issue](#) for more information.

The primary approach to wetland and riparian management in the basin focuses on providing technical and financial assistance to landowners to protect and restore these resources in priority watersheds through the implementation of best management practices.

## Applicable Kansas Water Plan Objectives

- Maintain, enhance or restore priority wetlands and riparian areas.

## Applicable Programs

The following programs help to meet the objectives in the Wetland and Riparian category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Wildlife and Parks: Wildlife Habitat Improvement Program
- Kansas Department of Wildlife and Parks: State Parks and Wildlife Areas Planning and Development
- Kansas Forest Service: Forest Stewardship Program and Conservation Tree Planting Program

## ISSUE: FLOOD MANAGEMENT

See [Comprehensive Flood Assessment Basin Priority Issue](#)

## Applicable Kansas Water Plan Objectives

- Reduce the vulnerability to damage from floods within identified priority communities or areas.

## Applicable Programs

The following programs help to meet the objectives in the Flood Management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Agriculture-Division of Water Resources: Water Structures Program/Floodplain Management

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- State Conservation Commission: Watershed Dam Construction Program
- State Conservation Commission: Watershed Planning Assistance Program
- Kansas Division of Emergency Management: Hazard Mitigation Grants Program
- FEMA: National Flood Insurance Program

## **ISSUE: WATER-BASED RECREATION**

See [Recreational Access to the Walnut River Basin Priority Issue](#)

Even though the Walnut basin has a wide variety and fairly high number of public water recreation sites proportional to the area covered, there is a demand for more water based recreation facilities, to meet the needs of a comparatively large population. The approach to enhancing opportunities for recreation is to improve access to water bodies that exist in the basin that are open to the public.

### **Applicable *Kansas Water Plan* Objectives**

- Increase public recreational opportunities at Kansas lakes and streams.

### **Applicable Programs**

The following programs help to meet the objectives in the Water-Based Recreation management category. For more information on the programs and associated policies, see the [Programs Manual](#).

- Kansas Department of Wildlife and Parks: Rivers and Stream Access
- Kansas Department of Wildlife and Parks: Walk In Hunting Access Program
- Kansas Department of Wildlife and Parks: Fishing Impoundments and Stream Habitats (F.I.S.H.) Program/Walk in Fishing