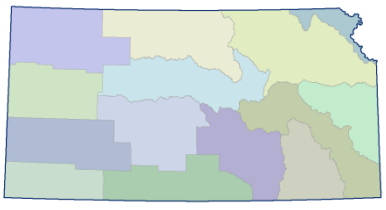
Program Objectives

To implement an education plan that builds upon existing efforts and leads to the development of new statewide programs that focus on water resources. Water resource education should begin at the kindergarten level, develop into secondary education, prepare students to go into the workforce in a water related field at the university level, and continue to provide information to the general public and key stakeholders in our state. The ultimate goal is to raise awareness of water issues within the state and increase the knowledge of those working within water-related careers.

Proposed Activities

The activities proposed in this section are Phase I action items assembled from the Governor's Vision for the Future of Water Supply in Kansas Education Public Outreach Supplement. This Education Supplement, and the included action items, were created and approved through public meetings involving any and all state and federal entities that found value in participating in drafting this supplement, as well as members of varying education sectors. The Phase I action items are the highest priority and will be initiated, but not necessarily completed, during the first year of this draft of the Education Supplement.

- Develop and enhance a statewide marketing campaign
- Establish a brand recognizable centralized website
- Hire, or designate internally, a website administrator responsible for working with the firm on the website design, development and content management
- Collect and incorporate information about the state's water resources on the website and create a clearinghouse for resource libraries on the website
- Initiate development and promotion of the centralized website
- Create opportunities to encourage collaboration between organizations currently involved in water education for youth with the following activities
- Hold Governor's roundtable including the Kansas Commissioner of Education, the President and CEO of the Kansas Board of Regents, and leadership from organizations involved in water-related education for youth and which establishes a commitment for integrating efforts in water education.
- Hold a statewide Summit on Water Education for educators and educational organizations to share best practices, resources, curriculum and services
- Develop a grant program for new and existing water education organizations to provide professional development, curriculum and resources which build on statewide messaging efforts. Grant monies:
- Create a Board of Water Education with selected members to represent areas of focus
- Establish and hire Community Outreach Specialist position(s). The ideal candidate(s) will possess a water conservation background coupled with strong community discussion, education and facilitation skills
- Begin evaluation of higher education institutions current academic offerings and identify water-related courses and curriculum and partner in water programs within universities
- Establish the "Top 3" water conservation measures for each Regional Planning Area for household, agriculture and industrial/municipal water use. Implementation cost to help RACs promote in their Region



- Coordinate regional/topical workshops to facilitate development of partnerships between higher education and business and industry. Partnerships will analyze existing academic degree programs leading to water-related careers
- Hold a 2 day Workshop, 2/year in various areas of the state:
- Develop a grant-sponsored internship/mentorship program in water-related careers, sponsored across water agencies.
    - Employ university student interns at various statewide locations in water-related careers from policy to technical work:
    - Conduct week long mentorship programs for high school students in at various state wide locations in water-related careers from policy to technical work.

Recent Success

- Hired the marketing firm Walz Tetrick to initiate the Statewide Marketing Campaign
    - Conducted two focus groups conducted, 1 for Wichita area residents and 1 for Johnson County, KS area residents
    - Survey created to assess Kansas knowledge about water
- Communication began with partnering universities to align curriculum and workforce goals

Program Budget

- $500,000 for Year 1 – FY2019

Additional Funding Resources

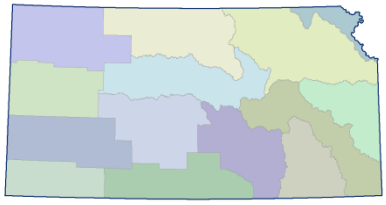
- Partnering State Agencies: KDA, KDHE, KDWP&T, and KWO
- Private Business Funding

Vision Implementation Total Needs

- $425,000 annually

Consequences of not funding

Decrease in overall Vision Implementation success. Water resource knowledge will not improve and water related careers will not be increased. The value of water in Kansas will not be elevated to appropriate levels. This could lead to waste and decline of water as a resource and lead to economic decline within the state.



Watershed Conservation Practice Implementation

Kansas Water Office

Program Objective

To protect water supply storage and improve water quality in reservoirs across Kansas that provides water to municipal and industrial customers through implementation of watershed best management practices (BMPs) within Vision priority watersheds. BMPs are individual or a combination of practices that are determined to be the most effective and practicable (including technological, economic, and institutional considerations) means of controlling point and non-point sources of pollution at levels compatible with resource and economic goals. BMPs which can be utilized to reduce sediment and nutrient runoff in watersheds above water supply sources in Kansas include but are not limited to terraces, grassed waterways, and buffer strips. Water storage is being diminished over time due to reservoir sedimentation and water quality is being impacted by nutrient runoff, potentially resulting in harmful algae blooms, taste and odor issues with drinking water, and impacts to recreation in Kansas. Nutrient loading also contributes to water quality issues present in other downstream waters of importance.

Proposed Activities

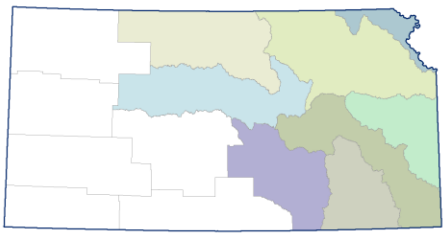
- Watershed conservation practice implementation funding to be initially distributed to KWO
- KWO coordinates with Interagency Watershed Conservation Practice Implementation Team including the Kansas Department of Agriculture – Division of Conservation (KDA-DOC) and Kansas Department of Health and Environment – Bureau of Water (KDHE) for allocation of watershed conservation practice implementation funding.
    - Prioritize funding to address Regional Advisory Committee Action Plans addressing watershed practice implementation
- Coordination in 2017 among Interagency Watershed Conservation Practice Implementation Team to develop watershed conservation practice implementation model:
    - Determination of Vision Action Plan implementation areas
    - Determination of Watershed Restoration and Protection Strategy (WRAPS) targeted areas for conservation practice implementation
    - Determination of eligible conservation practice types
    - Determination existing KDA-DOC & KDHE programs to be most efficiently utilized to allocated project funding

Recent Success

- TMDL Initiative between DOC and KDHE to focus BMP implementation funding in select watersheds identified in WRAPS watershed plans
- 11 water bodies removed from the Kansas 303(d) list of impaired waters
- Nationally-ranked load reductions from BMPs implemented with Natural Resource Conservation Service (NRCS), DOC, & WRAPS funding sources

Program Budget

- $1,800,000 in FY 2019



Watershed Conservation Practice Implementation

Additional Funding Resources

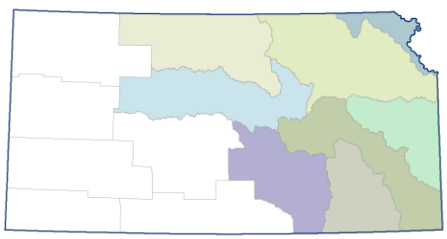
- Natural Resource Conservation Service (NRCS)
- Environmental Protection Agency (EPA) 319 Program
- Farm Service Agency (FSA)
- Kansas Water Plan

Vision Implementation Total Needs

In excess of $546,000,000

Consequences of not funding

- Continued nutrient and sediment runoff & soil erosion at or worse than current rates
- Continued reservoir sedimentation at or above current sedimentation rates at or worse than current rates
- Continued nutrient loading for reservoirs with a history harmful algal blooms at or worse than current rates



Milford Lake Watershed RCPP Project

Kansas Water Office

Program Objectives

The Regional Conservation Partnership Program (RCPP) is a Natural Resources Conservation Service (NRCS) initiative which encourages partners to join in efforts with producers to increase the restoration and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales. Through the program, NRCS and partners help producers install and maintain conservation activities in selected project areas through existing NRCS conservation programs. Partners leverage RCPP funding in project areas and report on the benefits achieved. The Kansas Water Office (KWO), serving as the Lead Partner, has submitted a project proposal to establish a RCPP project to address water quality concerns in the Milford Lake watershed.

Nutrient runoff within the Milford Lake watershed in Kansas is a source of nutrient loading contributing to aquatic conditions which promote formation of harmful algal blooms (HABs) within Milford Lake. This RCPP project will look to implement conservation practices within the Milford Lake watershed to decrease nutrient runoff, thus decreasing the introduction of new nutrient loading contributing to the formation of HABs in Milford Lake. Additional benefits from project implementation include decreased sediment runoff from entering Milford Lake watershed surface waters, improvements to fish and wildlife habitat, and improved plant productivity.

Program Activities

KWO on September 7, 2017, submitted the full project proposal to NRCS for their review. NRCS anticipates notification of project proposals which were accepted to take place in November or December 2017.

Recent Success

KWO was notified in June 2017 that the project pre-proposal submitted was of high enough ranking that a full project proposal could be submitted. Project partners were recruited and include representation from agricultural associations, municipalities, private industry, electric production, lake-based recreation, county conservation districts, not-for-profit organizations, university research and state government agencies.

Program Budget

KWO is requesting $200,000 per year over a 5 year period to provide additional partnership contribution to this project to advance conservation practice implementation within the Milford Lake Watershed. This includes $200,000 in both FY18 and FY19.

Additional Funding Resources

If awarded funding, NRCS could be providing over $4 million in support of project implementation. Project partners in addition to KWO would provide over $3 million in financial or in-kind support. Current project partners as of the submittal date include (in alphabetical order):

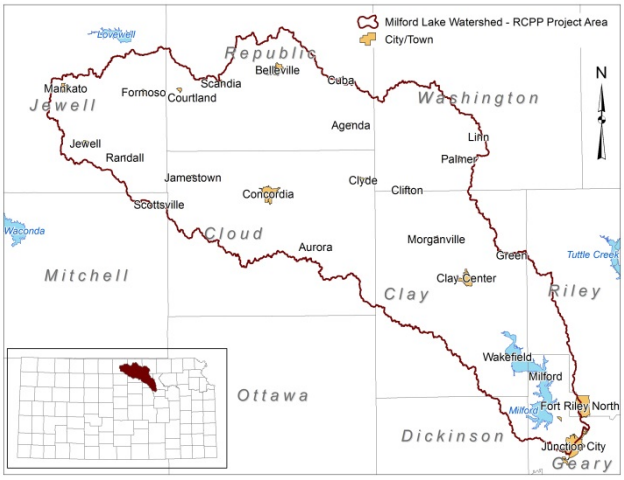
- Acorns Resort
- City of Lawrence
- City of Olathe
- City of Topeka
- City of Wakefield
- Clay County Economic Development Group
- Clay County, KS
- EcoPractices (Sustainability Partners)
- Flagstop Resort & RV Park
- Friends of the Kaw
- Johnson County WaterOne
- Kansas Alliance for Wetlands and Streams
- Kansas Biological Survey
- Kansas Corn Growers Association
- Kansas Department of Agriculture- Division of Conservation
- Kansas Department of Health and Environment
- Kansas Department of Wildlife, Parks and Tourism
- Kansas Farm Bureau
- Kansas Forest Service
- Kansas Soybean Commission
- National Sorghum Producers
- Riley County Conservation District
- Sustainable Environmental Consultants
- The Nature Conservancy
- Thunderbird Marina & Resort
- Washington County Conservation District
- Westar Energy

Vision Implementation Total Needs

$27,770,000 is the estimated financial amount needed currently to fully implement the Milford Lake Watershed Restoration and Protection Strategy (WRAPS) watershed plan.

Consequences of not funding

- Continued nutrient and sediment runoff contributing to degraded water quality conditions including the formation of HABs on Milford Lake.
- Missed opportunity to leverage SWP funding with local, private and federal government funding to support conservation practice implementation within the Milford Lake watershed.



Streambank Stabilization

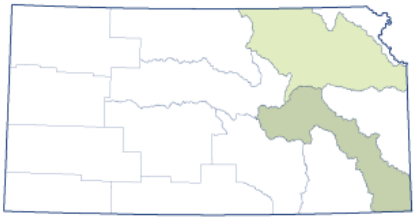
Program Objective

Since the late 1990s several state agencies have been working to reduce the amount of sediment entering our federal reservoirs. This has been accomplished by working with landowners to implement streambank protection projects. Watershed assessments have shown that streambanks are a major sediment contributor to the reservoirs. It is well known that erosion and sedimentation are natural occurrences in our watersheds and waterways. However, alterations to our watersheds have led to an increase in erosion and sedimentation which in turn leads to reduced reservoir storage capacity. This loss in storage capacity is a vital concern as we are relying more and more on the water in our federal reservoirs for both current and future use. In October 2013, Governor Brownback issued a call to action to his administration to develop a 50-Year Vision for the Future of Water in Kansas stating, "Water and the Kansas economy are directly linked. Water is a finite resource and without further planning and action we will no longer be able to meet our state's current needs, let alone growth."

As part of this vision and keeping in mind coordination and cooperation are key to the success of any process, the Kansas Department of Health and Environment (KDHE) (Watershed Management Section), the Kansas Department of Agriculture (KDA) (Division of Conservation), and the Kansas Water Office (KWO) have refined a process utilizing the strengths and responsibilities of each agency to accomplish streambank protection work to reduce erosion and sedimentation in the watersheds and waterways above our highest priority reservoirs. One key element of this process is the understanding that landowner participation is key to the success of the protection projects. In order to complete projects in the most efficient and cost effective manner, the group has adopted a "pooled funding" concept. Funds available through agency programs for streambank protection projects are targeted to priority areas and administered by this group. The Kansas Forest Service, Kansas Department of Wildlife, Parks, and Tourism, local conservation districts and local Watershed Restoration and Protection Strategy (WRAPS) groups are also important to the success of this process.

Proposed Activities

- Streambank stabilization efforts continue to be concentrated in the following priority Kansas watersheds above Federal reservoirs: Big Blue/Little Blue Rivers above Tuttle Creek Lake; Delaware River above Perry Lake; and Neosho/Cottonwood Rivers above John Redmond Reservoir.



Streambank Stabilization

- In FY18, the Kansas Legislature appropriated $1 million for streambank stabilization projects. This funding will be utilized for the implementation of multiple sites in all three of the priority watersheds.

- Sites for implementation have been prioritized based on the highest estimated sediment yield and proximity to the downstream reservoir.

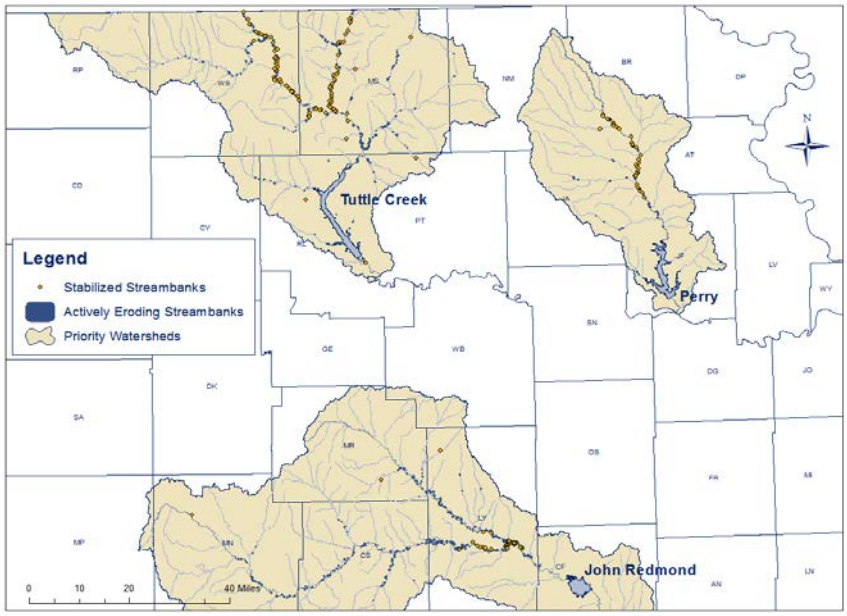
- Landowner agreements for construction and maintenance of the project, as well as the installation and maintenance of a riparian buffer will be obtained as part of the project.

- Contract with the Kansas Forest Service to oversee the enrollment, planting and maintenance of adjacent crop field or pasture acres into a riparian forest buffer program is a requirement of a completed project.

Recent Success

- In 2017, awarded construction contracts for the stabilization of 9 streambank sites and initiated designs for 13 new sites above John Redmond and Tuttle Creek Reservoirs

- Updated assessment information for all three priority watersheds with updated aerial imagery



Program Budget

- $1,000,000 in FY19

Additional Funding Resources

- KDA-Division of Conservation
- Kansas Water Pollution Control Revolving Loan Fund (KDHE)
- Environmental Protection Agency 319 Program
- Kansas State Water Plan Fund
- John Redmond Dredging Bond Authority Funds
- Kansas Water Office Water Marketing Funds

Vision Implementation Total Needs

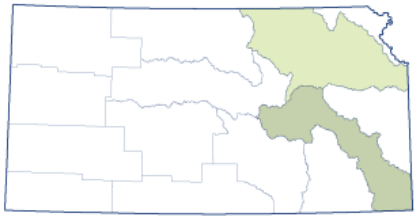
Based on KWO's current assessment information, the following table indicates the total estimated streambank implementation needs within each of the priority watersheds.

Priority Watershed	Sites Previously Addressed	Total Sites Remaining to be Addressed		Total Estimated Need*
		Number	Est. Bank Length (linear feet)*	
John Redmond Reservoir Watershed	33	332	165,027	$16,502,700
Tuttle Creek Lake Watershed	96	215	168,830	$14,350,550
Perry Lake Watershed	35	81	27,931	$2,374,135
Total	164	628	361,788	**$33,227,385**

*The estimated bank length is based on the assessment information. Actual project lengths and costs may vary from those included in the above table based on design plans and final site construction.

Consequences of not funding

- Continued reservoir sedimentation at or above current rates, or worse than current rates; consequential loss of reservoir storage capacity.



Harmful Algae Bloom-In-Lake Treatment

Kansas Water Office

Program Objectives

Investigate and demonstrate in-lake treatment options such as ultrasound, superoxide or other chemical treatments in the vicinity of the Clay County Park at Milford Lake. The objective is to assess the effectiveness of such treatment options at minimizing the impact of Harmful Algae Blooms (HABs) around the City of Wakefield. Approximately $350,000 of the requested $400,000 would be used for such demonstrations. The remaining $50,000 would be utilized to develop a long-term HAB Mitigation Strategy for Milford Lake that would evaluate the best mitigation practices throughout the United States and preferred long-term options for Milford (and possibly other Kansas lakes). This would include implementation of such identified strategies which may include sonar, additional circulation, phosphorus harvesting, etc.

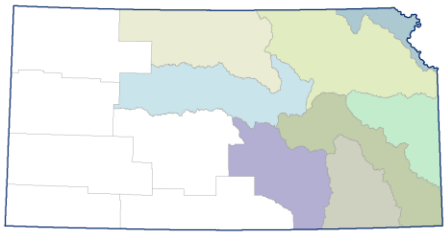
Program Activities

Recent Success To date, in-lake treatment to reduce the frequency or duration of HABs in Kansas has been limited. Below is a summary of in-state efforts to date:

- Two rough fish demonstrations have been conducted, one at Marion Reservoir and again at Milford Lake. This involved removal of ground bottom feeding fish which can stir up sediment, thereby releasing nutrients and feeding the algae. The results have been mixed, but other states have demonstrated success.
- KDHE and the U.S. Army Corps of Engineers have explored pool level management at Milford through the 4th of July. Anecdotally this has been viewed as a successful option at reducing the duration of blooms.
- The Kansas Department of Wildlife Parks and Tourism (KDWPT) has demonstrated the use of liquid alum to reduce the amount of phosphorus in the water at Veteran's Lake. This effort was successful at reducing phosphorous levels from approximately 250 mg/L to 70 mg/L.
- The Kansas Department of Health and Environment (KDHE) has funded two floating wetland projects, one at Lake Meade and one at Lake Shawnee. Lake Meade had positive samples depicting significant nutrient uptake, however the study was impacted by drought. The Lake Shawnee project was inconclusive, but did prove that scale is essential in demonstrating success for this type of treatment.
- Currently, KDHE is pursuing a partnership with KDWPT to demonstrate Ultrasonic at Central Park Lake in Topeka.

Program Budget

There is not currently a dedicated source of funding for in-lake HAB demonstration projects and studies. Recommendation is for $400,000 in FY2018 and $500,000 in FY2019. Historically, KDHE has partnered with other agencies, utilized 319 funding or State Water Plan Funds



(SWPF) for the above referenced projects. The current program budget at this time is limited to the conceptual Central Park project and is estimated at $5,000 in SWPF.

Additional Funding Resources

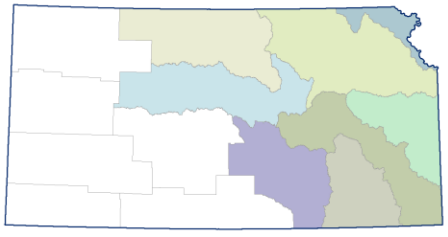
KDHE administers the Clean Water Act Section 319 program, the Watershed Restoration and Protection Strategy (WRAPS) program, Non-point Source Program and the Total Maximum Daily Load program. The latter three are funded by the SWPF and have intended purposes. That being said, limited resources could be targeted for in-lake demonstrations and studies, as could 319. Additionally, the department has a Water Program Management Fee Fund, which again has intended purposes, but limited resources may be utilized for in-lake treatment demonstrations. All funding options could also be used as match for other grant opportunities.

Vision Implementation Total Needs

The Vision is appropriately focused on implementation of Best Management Practices within targeted watersheds to abate nutrients before they enter a given water body. This proposal is directly linked to treatment of existing HABs, but does not stop or prevent the root cause. Rather, this effort is aimed at addressing the frequency and duration of the effect.

Consequences of not funding

HABs would continue at their natural maximum duration and maximum frequency without disruption of anthropogenic efforts. This could extend the timeframe in which beaches and lakes are closed, maximize impact to the aquatic communities and increase the risk of microcystin exceeding EPA health advisories for both recreation and drinking water.



Contamination Remediation

Kansas Water Office

Program Objective

The KDHE Orphan Sites Program (OSP) uses State Water Plan (SWP) funding for the evaluation, monitoring, and remediation of contaminated soil and groundwater sites when the responsible party is unknown or is unable to undertake the necessary action. The OSP was developed with the specific objective of providing a mechanism to address contaminated sites which fall outside the parameters of other clean-up programs. These sites, referred to as orphan sites, generally do not have federal or state funding sources available for complete investigation and cleanup activities or performing long-term operations and maintenance actions. The program is designed to address contaminated sites that have no responsible party in a timely manner to protect human health and the environment.

Program Activities

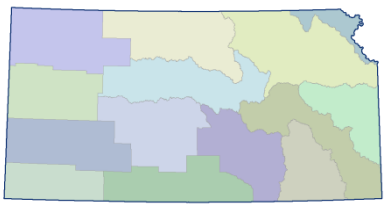
The OSP conducts cleanup and monitoring activities at 94 contaminated orphan sites.

KDHE also uses SWP to meet its funding requirements for the federal Superfund Program (Superfund). The Environmental Protection Agency (EPA) is the lead agency at most Superfund sites in Kansas. The Superfund sites are orphaned sites that require state match because the remedial action is funded with EPA Superfund money. The federal Superfund law requires states to provide a 10 percent cost match for the remedial action and the state must take over the long-term operation and maintenance of those remedial systems after they have been determined to be operational and functional.

For example, KDHE is responsible for the long-term operations and maintenance actions performed at the Ace Services site in Colby and the Cherokee County Superfund site. The Ace Services Superfund site in Colby includes operation of a groundwater treatment system where the chromium contaminated water is treated and returned to beneficial use to the city's public water supply system. The Cherokee County Superfund site operation and maintenance includes filling and capping newly-opened mine shafts and maintenance of protective soil repository covers. These actions reduce human and biota exposure to heavy metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, zinc) contaminants

Recent Success

OSP activities in FY2017 resulted in two (2) sites being closed, twelve (12) investigations implemented at contaminated sites and two (2) remedial actions completed. The Arkansas City Refinery site was remediated by excavation and encapsulation of 3,100 cubic yards of refinery waste. Furthermore, OSP provided 33 residences in Derby, KS with a permanent public water supply via connections to Sedgwick County RWD #3. Over 91 million gallons of water was treated at the Ace Services Superfund Site and used as drinking water in the Colby, KS. The OSP provided emergency whole house treatment for eleven properties with private domestic drinking water wells.



Program Budget

- $400,000 in FY 2019

Contamination Remediation

Additional Funding Resources

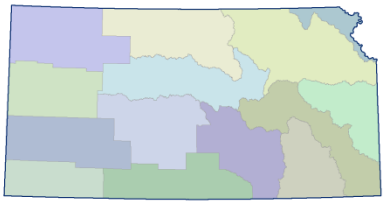
Superfund match of 10 percent of the remedial action cost is required for Federal Superfund Sites using federal appropriation funds. Total amount depends on the project progress each year.

Vision Implementation Total Needs

An additional $3,000,000 is needed to complete investigation work on currently inventoried sites. Once investigation work is complete additional funding will be needed to conduct remediation activities on the sites.

Consequences of not funding

- Continued contamination of soil and groundwater resources
- Potential human health threat from groundwater in contaminated areas



Interstate Water Compact Compliance

Kansas Water Office

Program Objectives

Additional interstate water engineer position within Kansas Department of Agriculture – Division of Water Resources in Garden City to monitor Colorado's compliance with the CO-KS Arkansas River compact. Colorado has a staff of over 25 to manage the Arkansas River basin in Colorado. Kansas has two. It would be beneficial to Kansas water users to have more capacity to monitor Colorado actions in the basin.

Proposed Activities

Monitor Colorado water laws, rules & regulations, on-ground management activities, and court decrees to ensure Kansas' interests in the Arkansas River are protected. Help to compile the Colorado water use records and other information needed to operate the hydrologic-institutional groundwater model that determines Colorado's compliance with the compact. Interact with federal agencies on operations of their projects, proposed changes to those operations, and compact related issues. Assist with distributing Kansas' water by coordinating water releases from John Martin Reservoir in Colorado. It takes years to learn this job. This position would also ensure that succession in staff is appropriately and responsibly planned for.

Recent Success

Colorado has been in compliance with the compact for the last 10 years. As part of their plan to comply with the compact and continue to irrigate, Colorado has chosen to forgo using river water to irrigate some lands in the basin in order to pump groundwater. This dried-up acreage has been inspected by Kansas since 2001. Each year, some tracts of land are disqualified after inspection which reduces Colorado's compliance balance. Colorado water management information is regularly inspected by Kansas; errors are found and corrected before the information is used in the hydrologic-institutional model that determines Colorado's compliance with the compact.

Program Budget

- $100,000 for Year 1 – FY2019

Additional Funding Resources

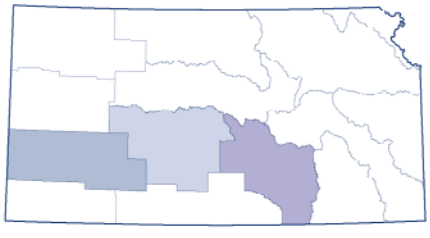
- None

Vision Implementation Total Needs

The new position funded by this enhancement would continue as permanent staff at a cost of $80,000 per year.

Consequences of not funding

At current staffing levels, Kansas does a good job of protecting its interests in the river, but without additional staff resources, Kansas risks missing opportunities to scrutinize a greater number of water transactions in Colorado and to monitor and influence Colorado water policy to strengthen Kansas' position.



Water Structures Inspections

Kansas Water Office

Program Objectives

Additional engineers in the Kansas Department of Agriculture (KDA) Stafford and Parsons Field offices to review water structures plans and perform inspections of water structures, channel changes and stream obstructions. These positions would benefit Kansans by reducing travel time and thus increasing timeliness and efficiency of responding to complaints and issuing permits.

Proposed Activities

The positions would do professional engineering work, involving specialized activities of water resources engineering. The activities include independent review of complex engineering calculations and construction documents for dams, channel changes, stream obstructions, floodplain fills and levees in order to process water structure permits. The work includes field inspections of construction and completed projects, safety inspections, resolution of conflicts, and communication with landowners, contractors and other engineers. These positions would ensure that succession in staff is appropriately and responsibly planned for.

Recent Success

In 2013 the American Society of Civil Engineers (ASCE) rated Kansas' dam infrastructure a D- citing increasing age and lack of funding for regulation and maintenance as the reason for the poor grade and encouraged significant steps be made in terms of funding for oversight of the infrastructure. With no additional staffing or funding, the latest draft ASCE report card rating is a C. Water structures staff has prioritized safety inspections and developing Emergency Action Plans (EAPs) for significant and high hazard structures. Efficiency for permitting has also been reduced to a processing time of 34 days for water structures and complaint resolution in 25 days.

Program Budget

- $200,000 for Year 1 – FY2019

Additional Funding Resources

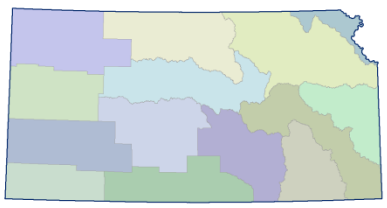
- none

Vision Implementation Total Needs

These new positions funded by this enhancement would continue as permanent staff at a cost of $80,000 per position per year.

Consequences of not funding

At current staffing levels, Kansas does a good job of protecting citizen's property and life, but without additional staff resources, Kansans risk loss of property and life due to a water structure failure. Additionally, citizens may experience delays in the permitting process thus missing opportunities to construct in a timely and efficient manner.



Irrigation Technology Adoption

Kansas Water Office

Program Objective

Promote adoption of irrigation efficiency technologies, implement research-based technology, and develop career and technical education programming related to water resource management and technology to build the needed workforce.

Proposed Activities

- Target funding to irrigators located in Water Conservation Areas (WCAs) and Local Enhanced Management Areas (LEMAs) to accelerate irrigation technology adoption.
- Identify the most efficient system technologies for use by Kansas irrigators by working with irrigation system and water management technology manufacturers, Kansas State University (KSU), crop consultants, groundwater management districts (GMDs) and others
- Ensure appropriate irrigation efficiency technology and irrigation management practices are eligible under the Environmental Quality Incentives Program (EQIP) by working with USDA Natural Resource Conservation Service (NRCS). Work with NRCS to ensure eligibility criteria is appropriate in targeted areas and practices
- Ensure appropriate irrigation efficiency technology and irrigation management practices are eligible under the state's Water Resources Cost-Share Program. For emerging irrigation technologies, consider application for USDA's Conservation Innovation Grant funding to accelerate technology transfer and adoption of promising technologies
- Determine optimum plant development stages for most efficient water application opportunities by collaborating with the seed industry, KSU, crop consultants and others. Demonstrate various technologies at KSU Agricultural Experiment Stations

Recent Success

- Three Water Technology Farms were developed for the 2016 growing season in response to public input and identified in the Kansas Water Vision. They are demonstration farms that allow the installation and testing of the latest irrigation technologies on a whole field scale
- An additional 13 Water Technology Farms were developed for the 2017 growing season to further enhance irrigation efficiency technology evaluation in western Kansas

Program Budget

- $1,000,000 in FY 2019

Additional Funding Resources

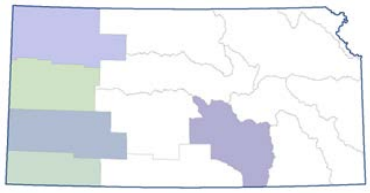
There is a potential for expanding federal grant options with changes to EQIP requirements. Localized grant options are also feasible. Cost sharing with producers to implement technology improvements will be sought.

Vision Implementation Total Needs

It is currently estimated that total annual financial needs within Kansas for irrigation technology adoption projects is at least $1,500,000.

Consequences of not funding

Reduced adoption rate and future development of irrigation technology, which will be critical to support continued water conservation efforts while maintaining long-term economic viability for agricultural producers.



Water Technology Farms

Kansas Water Office

Program Objective

Continued development and enhancement of demonstration farms that allow the installation and testing of the latest irrigation technologies and soil moisture management, as well as the opportunity to evaluate the effectiveness of conservation practice implementation in reducing sediment and nutrient runoff on a whole field scale.

Program Activities

- Provide continued support for established Water Technology Farms
- Collaborate with partners on development of additional Water Technology Farms for water conservation purposes
- Collaborate with partners on development of a new type of Water Technology Farm where land management scenarios are evaluated for impacts to water quality conditions

Recent Success

- Three Water Technology Farms were developed for the 2016 growing season in response to public input and identified in the Kansas Water Vision. They are demonstration farms that allow the installation and testing of the latest irrigation technologies on a whole field scale
- An additional 13 Water Technology Farms were developed for the 2017 growing season to further enhance irrigation efficiency technology evaluation in western Kansas
- Working in partnership with the Northwest Kansas Technical College's newly developed Precision Agriculture program, it is currently being planned to develop Water Technology Farms in 2017 with the assistance of Precision Agriculture students to incorporate workforce development.

Program Budget

- $250,000 in FY 2019

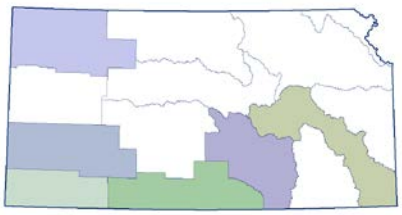
Additional Funding Resources

Current Water Technology Farms success can be attributed to the public-private partnerships for cash and in-kind contributions from 22 agencies and partners.

Vision Implementation Total Needs

Consequences of not funding

Lack of progress made informing irrigators on improved technology and management scenarios yielding conservation of groundwater resources.



Vision Implementation Research

Kansas Water Office

Program Objective

In an effort to promote state-wide collaboration and support of the research needs identified in the Vision, a state-wide research coordination effort has been underway with representatives of K-State Research and Extension, Kansas Geological Survey, Kansas Biological Survey, the University of Kansas, U.S. Geological Survey, Kansas Department of Agriculture, Kansas Department of Health and Environment and the Kansas Water Office. The purpose of this group is to coordinate research needs and to facilitate statewide collaboration to support implementation of the Vision.

Proposed Activities

- Recently, the group has identified three major areas on which to concentrate efforts at this time: Water Quality, Ogallala-High Plains Groundwater Depletion, and Reservoir Sedimentation
- Under each of these broad categories, the group has further identified specific focus areas in need of additional research. The areas that will be addressed first include streambank stabilization effectiveness, irrigation technologies and harmful algal blooms
- Small research coordination teams focusing on each of these areas are being convened to meet and discuss the needs for future research. The objective of these meetings is to provide an opportunity for subject matter experts to work together to identify gaps in the research and existing data, determine what is needed to fill those gaps, foster better collaboration among the state's institutions, and maximize funding opportunities
- Research and related activities to be funded through this program will be identified and prioritized by the research group/teams and approved by the Kansas Water Authority

Recent Success

- First team meeting took place on Aug. 15, 2017 with a focus on streambank stabilization effectiveness and quantification of sediment load reductions. Streambank stabilization efforts have been identified as a critical need for reservoir protection and sustainability. Reviewing current methodologies and quantifying benefits is important to the goals of the project
- Subsequent meetings will be scheduled for each area of research identified by the group, at which new research needs and projects planned for additional funding requests will be determined

Program Budget

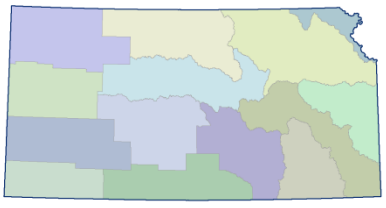
- $500,000 in FY 2019: Includes research regarding streambank stabilization effectiveness, harmful algal blooms (HABs), and reservoir bathymetry and biological research.

Additional Funding Resources

There is a potential for federal funding/grant options depending on the specific research focus area.

Vision Implementation Total Needs

The Research Coordination Group will continue to identify Vision-related research area needs and promote projects that will further Vision implementation.



Consequences of not funding

Decrease in overall Vision Implementation success.

Telemetry

Program Objectives

Approximately 450 telemetry installations plus staff to install and maintain the installations. Telemetry would allow for remote observation of water right operations to increase management opportunities, study the effects of groundwater pumping on local aquifers and on neighboring wells in near-real time, and enhance enforcement in certain situations.

Proposed Activities

Hire one technical staff. Purchase one truck. Purchase and install about 450 telemetry units with a varying mix of water level transducers to measure the water level in the aquifer, and flow rate loggers to measure the pumping rate at the well. The telemetry units would transmit the data recorded from the water level transducers and the rate loggers to a website where the well owner and Kansas Department of Agriculture (KDA) would have access to the data.

Recent Success

KDA Division of Water Resources (KDA-DWR) currently has about 20 telemetry units, all of which have served well beyond their design lives and are in various states of repair. These units have been key to studying and understanding complex well-to-well and aquifer interactions mostly in the central and western part of the state. The data collected from these units has been used to verify and augment other regular water level measurements and to develop reports on groundwater impairment.

Program Budget

- $850,000 for Year 1 – FY2019

Additional Funding Resources

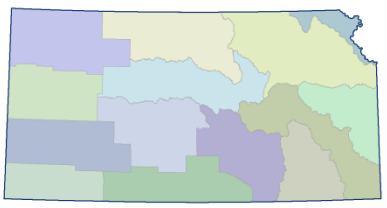
- None

Vision Implementation Total Needs

- $100,000 per year for permanent staff, travel and supplies to deploy and maintain the telemetry system.

Consequences of not funding

If this project is not funded, Kansas will miss an opportunity give producers a very powerful tool with which to monitor not only their water use, but the health of the local aquifer that they depend on in near-real time. KDA-DWR and other agencies and institutions will also miss the opportunity to gain a wealth of knowledge about how different parts of the aquifer respond to pumping which would enhance the ability to develop site-specific and effective management strategies.



Waters Leaving the State

Program Objective

During the 2016 Legislative Session, Senate Substitute for HB 2059 proposed amendments to the Kansas Water Appropriations Act process pertaining to water right applications proposing to transfer waters exiting the state. The original bill passed the Senate and died in conference committee. The Kansas Water Authority opposed the bill and offered to conduct a policy review of the proposal and report back to the Legislature with its' findings and offer any recommendations for legislation.

Proposed Activities

A study team comprised of John Peck, University of Kansas School of Law, David Pope, former Chief Engineer of the Division of Water Resources, Burke Griggs, Professor of Law, Washburn University and Leland Rolfs, former lead attorney for the Division of Water Resources was requested to develop the study proposal. The major tenants of the proposal include:

1. 2016 S. Sub. for HB 2059, which sought to amend certain procedures for the appropriation of surface water that would otherwise leave the State of Kansas.

2. The effect of large-scale transfers of interstate water supplies on Kansas' relations with the water rights and interests of Native American Tribes within the Missouri River Basin and also in Oklahoma.

3. The legal and policy implications of large-scale transfers of interstate water supplies as they relate to the pursuit of effective and optimal methods of securing Kansas's ability to harvest Missouri River Basin flood flows.

The Kansas Water Authority accepted the proposal from the study team and has included $200,000 in its' FY 2019 recommendations to the Governor and Legislature.

Recent Success

Program Budget

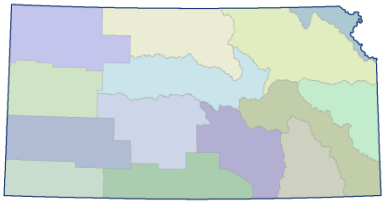
- $200,000

Additional Funding Resources

Vision Implementation Total Needs

$0

Consequences of not funding



Equus Beds Chloride Plume Project

Kansas Water Office

Program Objective

Chloride contamination within the Equus Beds Aquifer resulting from previous oil field production has resulted in areas of groundwater which is unsuitable for most uses. Remediation of areas of high chloride concentrations within the Equus Beds would help generate an additional water supply source as well as help protect and prolong the useable lifespan of groundwater wells around areas of chloride contamination.

Program Activities

- Collaborate with the City of Wichita on development of a U.S. Bureau of Reclamation WaterSMART project proposal.
- Develop the framework for a pilot treatment project within the Equus Beds Aquifer for remediation of the Burrton chloride plume impacting groundwater within the region as well as the City of Wichita's groundwater well field.
- Secure funding for pilot project through the WaterSMART program or other sources of funding as they become known.

Recent Success

Discussions between the U.S. Bureau of Reclamation, the City of Wichita and the Kansas Water Office have identified the opportunity pursue funding through the WaterSMART program.

Program Budget

- $500,000 in FY 2019

Additional Funding Resources

- U.S. Bureau of Reclamation WaterSMART Program
- City of Wichita

Vision Implementation Total Needs

Successful implementation of this project will provide a better understanding of what type of treatment technology is necessary for a full-scale remediation project. Total project costs for a full-scale remediation project could exceed $50,000,000

Consequences of not funding

Continued movement of the Burrton chloride plume within the Equus Beds Aquifer towards the east-southeast, leading to impacts with the City of Wichita's groundwater well field as well as other regional groundwater users.