

CIMARRON PRIORITY GOAL #1

REDUCE THE RATE OF DECLINE OF THE OGALLALA AQUIFER IN THE REGION THROUGH VOLUNTARY, INCENTIVE-BASED CONSERVATION AS ASSESSED EVERY FIVE YEARS

CIMARRON PRIORITY GOAL #2

EXTEND THE USABLE LIFETIME OF THE OGALLALA AQUIFER IN THE REGION THROUGH TECHNOLOGY ADOPTION (IRRIGATION, INDUSTRIAL, MUNICIPAL, ETC.), NEW CROP VARIETIES AND CONSERVATION FOR ALL USES AND FOR MANY GENERATIONS

Goals 1 and 2 seek to reduce water use in the region therefore the following actions apply to both

ACTION STEPS

- Define and quantify the regional aquifer decline, establishing a baseline for comparison
- Work with partners, including KDA and NRCS, to develop baseline of water saving technologies in use and voluntary incentive based conservation occurring and a method to track participation. Consider using the annual water reporting system, producer surveys and other means to identify water saving efforts if needed.
- Secure funding, including statutory SGF transfer to SWPF, to support water conservation programs and evaluation of technologies, crop varieties and water management to save water.
- Provide water users with information on available tools and programs, including but not limited to; LEMAS, WCAs, Multi-Year Flex Accounts, Water Banks, Irrigation Scheduling, RCPP-Soil Probe program through GMDs, K-State Extension tools, K-State Research/farms and additional tools and programs as made available.
- Change producer perception from a “use it or lose it” mentality.
- Use demonstration projects to educate producers to economically reduce water used. (Water technology farms, LEMAS, WCAs, K-State Research and Extension farm projects and other water management and water efficiency projects can provide valuable examples and information to producers to encourage their participation in water saving efforts.)
- GMD3 and DWR work with producers to establish LEMAs and WCAs.
- Build a network of agencies, organizations, researchers, industry and producers to disseminate credible, accurate information on water use, conservation and technology, programs and tools to reduce water use.
 - Utilize K-State and others to develop technologies and crop varieties to enhance water savings methodologies and deliver information.

- Work with producer and farm groups to reach other producers.
- Include municipal and industrial users in outreach.
- Evaluate the effectiveness of technologies and crop varieties to develop voluntary incentives and tools to economically reduce water usage.
 - Support water technology farms (WTF) in the region for evaluation of technologies and management methods to reduce the current level of water use with a goal of at least one WTF in a water stressed area and one in a non-stressed area.
 - Develop mobile drip irrigation (MDI) statistics so funds could become available for technology upgrades through state and federal programs.
 - Work with federal partners to make additional water saving technologies eligible for federal programs.
 - Disseminate scientific and economic information on technology efficiencies and crop varieties as well as other relevant information from pilot studies, research and water technology farms.
- Use positive press releases to spread the word as WCAs are developed.
- Public water suppliers and industrial users should consider alternative uses of non-potable water and existing water supplies before developing any new water supplies.
- Public water suppliers should consider water rate structures to promote water conservation.

CIMARRON PRIORITY GOAL #3

IF INDIVIDUALS ELECT TO CONSERVE THEN THEY WOULD BE AFFORDED FLEXIBILITY (E.G. - ALLOWING QUANTITIES TO BE MOVED, WATER BANK MOVEMENT, WATER CONSERVATION AREAS, ETC.) INDIVIDUALS MAY CHOOSE TO REMAIN WITH CURRENT WATER USE BUT NOT BE AFFORDED THE FLEXIBILITIES.

ACTION STEPS

- Increase adoption of water conservation through education by those who are currently using the technology.
- Identify existing conservation success stories and share with area producers, industry or municipalities as applicable.
- Initiate demonstration projects with willing producers in the region (technologies, crop varieties and management techniques) to reduce water use.

CIMARRON PRIORITY GOAL #4

AS MEASURED THROUGH INCREASE IN ADOPTION BY 50% AS ASSESSED EACH FIVE YEARS, PROMOTE THE ADOPTION OF IRRIGATION EFFICIENT TECHNOLOGY AND INVEST IN UNIVERSITY RESEARCH TO EVALUATE THE EFFECTIVENESS OF SUCH TECHNOLOGY AND CROP VARIETIES TO DEVELOP VOLUNTARY INCENTIVES AND TOOLS TO ECONOMICALLY REDUCE WATER USAGE. RECOMMENDED STRATEGY TO ACHIEVE GOAL - INCREASE ADOPTION THROUGH EDUCATION BY THOSE WHO ARE CURRENTLY USING THE TECHNOLOGY.

ACTION STEPS

- Educate water users on new technologies through local papers, extension, meetings of producer groups, irrigation organizations, conservation districts, GMD3 and other means.
- Develop and disseminate results from the use of water saving tools by those who have adopted technology and management tools to economically reduce water usage.
- Use local demonstrations of technology/demo farms in region to share techniques.
- Provide Water Conservation Area (WCA) information, including dissemination with water use reports.
- Develop widespread awareness of EQIP, CRP, RCPP, CIG and other program availability and increase participation.
- Encourage improvement of municipal conservation plans, municipal rate structures and other means to encourage water use reductions.

EQUUS-WALNUT REGIONAL ADVISORY COMMITTEE ACTION PLANS

EQUUS-WALNUT PRIORITY GOAL #1

ACHIEVE AND MAINTAIN SUSTAINABLE BALANCE OF GROUNDWATER WITHDRAWALS WITH ANNUAL RECHARGE IN THE EQUUS BEDS AQUIFER BY 2020. ENSURE SAFE YIELD AND RECHARGE RATE CALCULATIONS IN THE EQUUS BEDS AQUIFER ARE ACCURATE THROUGH A DISTRICT WIDE INTEGRATED GROUNDWATER AND SURFACE WATER MODEL BY 2018.

Initial efforts will be focused on developing a refined understanding of the current balance of groundwater appropriations and sustainable yield. Subsequent efforts will focus future management strategies on achieving a long term balance between withdrawals and recharge.

ACTION STEPS

- Complete ongoing KGS modeling effort currently scheduled for completion during 2016.
- Utilize the model results to support refinement of aquifer recharge rates.
- Consider application of the revised recharge rates to support safe yield calculations within modeled boundaries.
- Complete expansion of existing USGS Equus Beds MODFLOW Model to cover all of GMD2.

- Continue to encourage communication and collaboration between all responsible agencies and organizations tasked to implement this action.
- Utilize modeling results to inventory areas of over-appropriation or within the Equus Beds Aquifer.
- Consider implementation of management strategies for over-appropriated areas identified by model within the Equus-Walnut Region.

AGENCIES/ORGANIZATIONS

- GMD2, DWR, KWO, KGS, Equus Beds Stakeholders and Stakeholder Organizations.

RESOURCES NEEDED

- Continuation of joint funding agreement between GMD2 and KWO.

TIMEFRAME:

- The timeframe for completion of the actions required to support this goal are outlined in the attached document. The actions are generally anticipated to be completed by the end of 2018

GEOGRAPHIC SCOPE:

- The action items identified generally cover the majority of the Equus Beds Aquifer. The modeling activities will help define the most vulnerable areas within the aquifer and facilitate prioritization of areas for safe yield adjustments.

REGULATION/POLICY CHANGES:

- Consider adjustment of GMD2 and DWR safe yield calculation criteria to reduce potential future over appropriation. Develop resource management strategies focused on achieving a long term balance between withdrawals and recharge.

EQUUS-WALNUT PRIORITY GOAL #2

EACH PUBLIC WATER SUPPLIER IN THE REGION WILL DEVELOP A LONG TERM WATER SUPPLY PLAN AND REVISE EVERY FIVE YEARS TO MEET THEIR INDIVIDUAL FORECASTED NEEDS. WATER SUPPLIERS SHOULD CONSIDER ALTERNATIVE USES OF NON-POTABLE WATER AND EXISTING WATER SUPPLIES BEFORE DEVELOPING ANY NEW WATER SUPPLY PROJECTS.

ACTION STEPS

- The Kansas Water Office (KWO) will coordinate with the Kansas Department of Health & Environment (KDHE) -Bureau of Water and Kansas Department of Agriculture - Division of Water Resources (DWR) on a database of all public water suppliers within the Equus-Walnut Regional Advisory Committee (RAC) that includes contact information and chief responsible staff person and chief governance person for each supplier by December 31, 2016.
 - *Database will be updated every 1-3 years*
- The KWO will develop a survey document to ascertain the current state, practice, and plans of each public water supplier as to their long term water supply plan, including their consideration of non-potable water and existing water supplies by March 31, 2017. The results of this survey document will be made available to each public water supplier within the Equus-Walnut Planning Region.

- The KWO will communicate the planning survey to each public water supplier by June 30, 2017.
- The RAC will work with the KWO to prepare a report to the Kansas Water Authority (KWA) that conveys the results of the survey and identifies any further actions that may be necessary in pursuit of the goal.
- KWA will establish a 5-year frequency for submitting updated water plans by year end 2017
- Promote a regulatory framework for the use of graywater both on-site and off-site.
- Recommendations for the use of surface water and groundwater by water suppliers will be reviewed by the KWA to prioritize, depending upon local conditions, the use of excess surface water before ground water by 2018. Incentives should be in alignment with water resource conservation philosophy.
- The Equus-Walnut RAC, in conjunction with the KWA, will develop an over-arching water resource conservation strategy that prioritizes how water resources will be allocated.

AGENCIES/ORGANIZATIONS

- KWO, Equus-Walnut RAC, KWA, DWR, KDHE (source of data on public water suppliers within the RAC and coordination with existing water planning required/expected of public water suppliers)

RESOURCES NEEDED

- Initially, KWO staff time to perform the action steps above. The process could lead to additional actions that might require additional resources. A potential example could be an outreach effort to train and support public water suppliers in the development of long term water supply plans.

TIMEFRAME OF COMPLETION

- Complete the initial survey and report within two years. If follow up actions is indicated the scope of that work will dictate the additional time required to complete.

GEOGRAPHIC SCOPE

- The geographic scope will be determined by the location of the source of supply of all public water suppliers located within the Equus-Walnut RAC planning area.

REGULATION/POLICY CHANGES

- If it is found that some of the public water suppliers are not engaging in long term water supply planning, the potential role of existing and new regulations and policy changes that might result in the planning being universally accomplished would need to be evaluated by the Equus-Walnut RAC, the other RACs, the KWA, the KWO, and the KDHE at a minimum.

EQUUS-WALNUT PRIORITY GOAL #3

IMPLEMENT AND MAINTAIN WATERSHED PROTECTION ACTIVITIES TO MAINTAIN REGIONAL RESERVOIR STORAGE CAPACITY FOR AN ADDITIONAL 100 YEARS BEYOND THE DESIGN LIFE.

MAINTAIN OR REDUCE THE RATE OF SEDIMENTATION AND NUTRIENT LOADING THROUGH THE ENCOURAGEMENT OF BEST MANAGEMENT PRACTICES (BMPS) ON 50% OF THE HIGH PRIORITY ACRES IN THE WATERSHED ABOVE WATER SUPPLY RESERVOIRS. ENSURE PRACTICES ARE SUSTAINED AND MAINTAINED FOR THE LONG-TERM AND PRIORITIES ARE REASSESSED EVERY FIVE YEARS.

ACTION STEPS

- Identify market based funding sources.
- Increase Information & Education activities which keep in mind human nature.
- Re-establish a Kansas buffer initiative program.
- Property owners should be compensated for use of their property for implementation of BMPs through existing or enhanced conservation programs. Discourage shot gun approach to BMP implementation.
- Maintenance payments for upkeep of conservation practices beyond their contract life.
- Conservation Farms demonstrating practices which reduce sediment runoff.
- Let Corps of Engineers (COE) Water Storage Contract Holders use Operations & Maintenance (O&M) money for watershed practices to help reduce sedimentation.
- Add additional fees to water bills to be used for BMP implementation in watersheds.
- Increase partnership between Natural Resource Conservation Service (NRCS), Kansas Department of Health and Environment (KDHE), Kansas Department of Agriculture - Division of Conservation & K-State Research & Extension (KSRE) to improve efficiency of BMP implementation.
- Determine/define high priority areas.
 - Establish a “Streambank Stabilization Initiative” for priority areas.
- Continue to focus on BMPs as highlighted within Watershed Restoration and Protection Strategies (WRAPS) 9 Element Watershed Plans as well as streambank stabilization and erosion control dams.
- Ensure revisions to WRAPS 9-Element Watershed Plans covering areas above regional water supply reservoirs to implement best management practices which lead to regional reservoir storage capacity for an additional 100 years beyond the design life.
- Conduct sediment source analysis within watersheds above regional water supply reservoirs. Results of this analysis can lead to modifications of BMP implementation types (i.e. streambank stabilization or cropland/upland areas of focus).

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- Kansas Water Office (KWO), Kansas Department of Agriculture (KDA), KDHE/WRAPS, NRCS, Farm Service Agency (FSA), U.S. Environmental Protection Agency (EPA), county Conservation Districts, Kansas Rural Center, Kansas Alliance of Wetlands and Streams (KAWS), KSRE, Kansas Farm Bureau, Kansas Livestock Association, State Association of Kansas Watersheds, local stakeholders.

RESOURCES NEEDED

- NRCS, local Conservation Districts, and WRAPS for technical assistance with staffing based on specific priorities (i.e. Buffer specialist).
- BMP funding through Conservation Reserve Program (CRP), State Water Plan, WRAPS/EPA 319.
 - Establish baseline funding from previous 15 years for available dollars for water quality practices and estimates costs for determined priority areas.
- Additional funding should not come at the expense of reducing funding for non-priority areas.

TIMEFRAME OF COMPLETION

- One year of education and training to get staffing in place.
- Years 2 through 5 BMPs are implemented on the ground.

GEOGRAPHIC SCOPE

- Watersheds above any public water supply reservoir within the Equus-Walnut Region.

REGULATION/POLICY CHANGES

- Relax haying restriction on CRP-contracted land with payment adjustments.
- Provide more flexibility at the county level to determine specs for cost-shared practices.
- Discussions with COE regarding use of O&M funds for watershed protection and restoration activities.
- Provide up to 100% cost share for BMP implementation:
 - Lifetime contracts with maintenance payments to landowners.
 - Potentially set cropping boundaries/set-backs along streams.

EQUUS-WALNUT PRIORITY GOAL #5

ALLOCATE NECESSARY RESOURCES (\$1-5 MILLION) WITHIN FIVE YEARS TO IDENTIFY AND PRIORITIZE CURRENT CONTAMINATION ISSUES IMPACTING THE EQUUS BEDS AQUIFER AND DEVELOP A PLAN TO MANAGE AND MITIGATE THE CONTAMINATION. REVIEW EXISTING STUDIES AND EMERGING TECHNOLOGIES TO DEVELOP A NEW CONCEPTUAL PLAN WITH ESTIMATED COSTS. BEGIN IMPLEMENTATION OF THE PLAN WITHIN 10 YEARS OF COMPLETING THE STUDY.

ACTION STEPS

- Develop an inventory of known contamination sites within the Equus Beds Aquifer.
 - GMD2 to lead effort, anticipated completion by 12/2017
- Concurrent with development of contamination site inventory, identify data gaps associated with inventoried sites, this could include lack of definition regarding vertical or horizontal extent of contamination, concentration of contaminants or the source of contamination of an identified site.
 - GMD2 to lead effort alongside collaboration with KCC and KDHE.
- Prioritize sites for additional investigation utilizing development of prioritization criteria.
- Utilize and refine existing groundwater models to address site specific data needs associated with the performance of additional investigations.
- Install additional monitoring wells and piezometers as necessary to collect data where needs are identified.
- Complete a remediation feasibility study for the top three prioritized sites.
- Complete pilot studies as required to facilitate groundwater remediation feasibility.
- Develop a process to address the contaminated sites within the Equus-Walnut Region.

AGENCIES/ORGANIZATIONS

- GMD2 will lead the effort in collaboration with Equus Beds Stakeholders and Stakeholder Organizations, KDHE, KCC, KWO, KGS and DWR.

RESOURCES NEEDED

- Successful implementation of this goal will require significant financial resources. It is estimated that completion of action steps I-III will require funding of approximately \$100,000 over the next two years. Funding levels associated with the remaining action items will be developed during the inventory and prioritization process. For planning purposes the total estimated funding requirements for the prioritized sites is in the 1-5 million dollar range.

TIMEFRAME

- Achieve the initiation of active remediation within 5-10 years.

GEOGRAPHIC SCOPE

- The prioritization process will identify the sites offering the greatest return or cost benefit results. Stakeholder engagement will be utilized in the prioritization process.

REGULATION/POLICY CHANGES

- The need for regulatory or policy change will be identified throughout the process and additional action items developed to initiate any changes required.

WHILE FOCUSED ON THE PRESERVATION OF OUR WATER RESOURCES AGRICULTURAL WATER USERS WILL DOUBLE THE VALUE OF IRRIGATION-BASED PRODUCTION OVER THE NEXT 50 YEARS. COORDINATE WITH PUBLIC/PRIVATE RESEARCH AND DEVELOPMENT PROGRAMS TO DEVELOP AND PROMOTE LESS WATER AND NUTRIENT INTENSIVE CROPS. PROVIDE INCENTIVES FOR OPERATORS TO IMPLEMENT IRRIGATION EFFICIENCY IMPROVEMENTS IMMEDIATELY. INCREASE EFFORTS TO IMPLEMENT WATER CONSERVING AGRICULTURAL PRODUCTION PRACTICES UTILIZING NO-TILL METHODS, COVER CROPPING SYSTEMS AND A RANGELAND CEDAR TREE MANAGEMENT PROGRAM.

ACTION STEPS

- Preserve water resources and coordinate programs to develop less water-intensive crops.
 - Develop 4 water demonstration farms which compare multiple less water intensive crops.
- Coordinate public/private research and development for development of viable drought tolerant crops.
 - Invest in Center for Sorghum Improvement.
- Identification and development of markets for alternative crops.
- Establish a technology farm within the Equus-Walnut Region where no-till, cover cropping systems and a rangeland management program can be evaluated. Rely on expertise of state and local experts to identify an appropriate location for technology farm within the Equus-Walnut Region.
- Provide and support workshops and field days starting in February/March 2017 in advance of annual burn season for fire management of invasive vegetation for improved rangeland management.
 - Outcome of these efforts and previously mentioned technology farm would be improved soil health, improved moisture holding capacity of soils, and increased groundwater recharge potential through increased education and awareness area residence

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- State of Kansas, Kansas Department of Agriculture, Kansas Water Office, Kansas State University, Grain Associations, willing farmers, Kansas Livestock Association, Kansas Farm Bureau, Kansas Grazing Land Coalition

RESOURCES NEEDED

- \$80,000 for equipment and consultant salary for water demonstration farms.
- \$400,000 for investment in Center for Sorghum Improvement.
- Funding for Land Grant College Research.
- Payments to farmers for research plots.

TIMEFRAME OF COMPLETION

- Complete within 2 years.

GEOGRAPHIC SCOPE

- Sedgwick and Harvey Co for water demonstration farm development.
- Statewide area of impact for Center for Sorghum Improvement.

REGULATION/POLICY CHANGES

- GMO approvals

EQUUS-WALNUT PRIORITY GOAL #7

ENCOURAGE MUNICIPAL, COMMERCIAL, AND INDUSTRIAL USERS OF WATER TO INCREASE THE EFFICIENCY OF NET WATER USE BY REDUCING THE VOLUME OF WATER USED PER UNIT OF MEASURE BY 5% PER DECADE. PROVIDE INCENTIVES FOR USERS TO IMPLEMENT WATER EFFICIENCY IMPROVEMENTS.

ACTION STEPS

- The RAC will discuss the regional vs. statewide nature of this goal. If this discussion supports pursuing the goal on an Equus-Walnut RAC basis that will dictate a significantly different approach to outreach than if it becomes statewide in scope. This process needs to be completed before any further development of an action plan for this goal. Place this question on the May Equus-Walnut RAC meeting agenda for discussion and possible message to the KWA.
- By Q1 2017, identify a comprehensive list of major water users in each of the three categories (municipal, commercial, and industrial) for the RAC. Will need to decide on how small to go on commercial users.
- Communicate with all of the targeted entities in each category to determine if they would be willing to attend a “brainstorming session” on the goal and how it might be effectively and efficiently implemented. Consider as a special session during the annual Governor’s Water Conference in November 2017.
- Have entities that have recently implemented water efficiency projects to present their success to the attendees of the “brainstorming session”.
- Analyze the results from Step 2 to determine a plan forward.
- Integrate action items of Goal 7 with Goal 2
- Consider incentives that have been successful in other parts of the country that encourage water efficiency projects.
- By the end of 2017, ask major water users to include a 5% improvement in water use efficiency per decade in their annual goals.

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- KWO; Equus-Walnut RAC; Kansas Water Authority; KDHE source of data on public water suppliers within the RAC and coordination with existing water planning required/expected of public water suppliers.

RESOURCES NEEDED

- Initially, KWO staff time to perform the action steps above. The process could lead to additional actions that might require additional resources.

TIMEFRAME OF COMPLETION

- Complete within 5 years.

GEOGRAPHIC SCOPE

- Equus-Walnut RAC

REGULATION/POLICY CHANGES

- N/A

GREAT BEND PRAIRIE REGIONAL ADVISORY COMMITTEE ACTION PLANS

GREAT BEND PRAIRIE PRIORITY GOAL #1

ACHIEVE WATER USE SUSTAINABILITY WITHIN THE GREAT BEND PRAIRIE REGIONAL PLANNING AREA BY 2025 WITH A STARTING POINT BEING NO NEW NET DEPLETIONS THAT INCLUDES A REASONABLE RAISING OR LOWERING OF THE WATER TABLE BASED ON AVERAGE WEATHER CONDITIONS.

BACKGROUND

- There are several challenges this region has to face when designing an Action plan to address long-term water use sustainability. Big Bend Groundwater Management District #5 overlaps approximately 2/3 of the RAC planning area. GMD#5 has developed, in coordination with state and federal agencies, a high-resolution hydrologic model (“BBGMDMOD”). The BBGMDMOD is designed with seven layers, each representing a geologic formation below the ground surface. This allows for the analysis of water movement between these layers. This is important for analysis of groundwater quality, which is a significant concern of GMD#5 and RAC. However, due to the complexity of BBGMDMOD, KDA–DWR has, in coordination with S.S. Papadopoulos and Associates, simplified BBGMDMOD by collapsing the seven layers into a single layer model (KDAMOD). While this simplification does lose the ability to analyze vertical water movement between layers, it maintains the ability to track water movement throughout the entire model area. The KDAMOD will be utilized to assist with identifying management units within the RAC. Further refinement of the units with BBGMDMOD is recommended prior to evaluating any water use reductions through this Action Plan. This region is generally data-rich in most areas. Further data from various stakeholder groups will add to the final plan.
- The RAC has reviewed several maps and datasets regarding the current conditions of the aquifer and actions that result in the current state of the aquifer. The RAC has evaluated the appropriate methods for assessing current aquifer status and strategies for achieving future sustainability. Discussion

revolves around the currently authorized quantities for the water rights vs the historical water use of the area. The long-term plan must review both measures to better understand the operations of the region's water users. In order to prioritize the areas in need, the historical use within the region will be compared against the rate of aquifer recharge. This approach provides hydrologic accounting of the aquifer. It also identifies areas that are over drafting the aquifer. Any solution needs to address this issue head-on.

- The RAC thinks future remedies should utilize and incentivize voluntary programs to soften the economic impact of potential water reductions. Voluntary programs require time, financial resources, and education before actual water use reductions will occur. There are several programs available to water users in the RAC, offered by various organizations and agencies. The regional goal “water use sustainability by 2025”, in terms of groundwater response, this is a very short timeframe. Thus, the RAC recommends utilizing voluntary, incentivized programs through 2022.
- When evaluating long-term action plans, participation in voluntary conservation programs must be taken into account. The RAC recognizes the importance of priority in Kansas Water Law. The design and nature of management strategies will require more meetings with stakeholders to finalize the plan. Future management strategies will be based on the certified water right quantities not water use history. With the legislative amendment to K.S.A. 82a-718, the premise of using historic water use as a basis for administration has issues. This method, in effect, rewards water users that maximized historic usage and penalizes more conservative water users within the same area. Furthermore, utilizing certified water appropriations reinforces the value of existing water right property values.

ACTION STEPS

- Short-term Actions
 - Identify existing voluntary conservation programs and determine if new incentivized conservation programs are needed to compliment current programs.
 - Work with the appropriate agencies to insure that cost-shares are current and economically competitive.
 - Hold stakeholder meetings in conjunction with the appropriate agencies to inform the public about the various programs available.
- Long-term Actions
 - Utilize the KDAMOD to determine rate of withdrawal from the aquifer from all uses (irrigation, industrial, evapotranspiration, municipal, etc.) versus the rate of recharge to the aquifer from all sources (precipitation, streambank, infiltration, etc.) for the GBP RAC area.
 - Compile the model data into presentation materials for area stakeholder groups/agencies to identify appropriate management units for further analysis with BBGMDMOD. This data will analyze the rate of depletion spatially across the area to assist with prioritization of projects and funding.

- Coordinate with state agencies & GMD#5 to assess and implement appropriate management controls to bring areas of concern into balance.

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- Kansas Department of Agriculture – Division of Water Resources (KDA–DWR); Kansas Department of Agriculture – Division of Conservation (KDA-DOC); Kansas Department of Wildlife, Parks and Tourism; Kansas Water Office (KWO); Big Bend Groundwater Management District #5 (GMD#5); Local Watershed Districts; Kansas Geological Survey (KGS); Water PACK; Central Kansas Water Bank Association (CKWBA); Kansas Livestock Association (KLA); Kansas Farm Bureau (KFB); Kansas Forest Service; United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS); United States Department of Agriculture – Farm Service Agency (USDA-FSA); United States Department of Interior – US Fish and Wildlife Service (USFWS); Farm Credit; Local banks

RESOURCES NEEDED

- Model scenarios (\$50,000 each)
- Annual model update and calibration (\$10,000 annually)
- Incentive enhancement funds (amount TBD)

TIMEFRAME OF ACTION PLAN

- Identify existing programs and coordinate with agencies
- Model scenario completion (4-5 months)
- Stakeholder outreach meetings (ongoing)
- Coordination with agencies (ongoing)
- Draft management strategies for review by public (December 2017)
- Stakeholder meetings (2 months)
- Finalize management strategies for RAC (April 2018)

GEOGRAPHIC SCOPE

- Great Bend Prairie aquifer extent of RAC

REGULATION/POLICY CHANGES

- None at this time

EXISTING PROGRAMS/MANAGEMENT TOOLS

- USDA-NRCS
 - CREP (Conservation Reserve Enhancement Program)
 - CSP (Conservation Stewardship Program)
 - EQIP (Environmental Quality Incentive Program)
 - RCPP (Regional Conservation Partnership Program)
- KDA-DWR
 - IGUCA (Intensive Groundwater Use Control Area)
 - WCA (Water Conservation Area)
 - MYFA (Multi-Year Flex Account)
- KDA-DOC
 - CREP (Conservation Reserve Enhancement Program)

- Big Bend Groundwater Management District #5
 - Groundwater Management Program
 - LEMA (Local Enhanced Management Program)
 - Water Right Purchase
 - RCPP (Regional Conservation Partnership Program)

- Central Kansas Water Bank Association
 - Deposit / Lease Program
 - Savings Account Program

GREAT BEND PRAIRIE PRIORITY GOAL #2

DEVELOPED FOR MUNICIPALITIES AND RURAL WATER DISTRICTS. - MAINTAIN ANNUAL TRAINING FUNDS OF 15% FROM CLEAN WATER DRINKING FEE AND INCREASE TECHNICAL TRAINING SUPPORT TO PUBLIC WATER SUPPLY (PWS) SYSTEMS TO ENHANCE NEW TECHNOLOGY AND INCREASE WATER EFFICIENTLY AND EFFECTIVELY, THUS REDUCING WATER LOSS. UTILIZE AVAILABLE MUNICIPAL/RESIDENTIAL/COMMERCIAL “LAWN” IRRIGATION TRAINING PROGRAMS PROVIDED BY THE IRRIGATION ASSOCIATION.

RESPONSIBLE AGENCIES/ORGANIZATIONS

- Cities/Rural Water Districts or Public Water Suppliers: The Clean Drinking Water Fee is paid by the city water departments, rural water districts and any other organization that is selling water at retail.

- Kansas Water Office (KWO): authorizing the Kansas water office, with approval of the Kansas water authority, to establish the clean drinking water fee by rules and regulations and imposing a cap on such fee

- Kansas Department of Health and Environment: Contracts out for Technical Assistance.

- Kansas Department of Agriculture – Division of Conservation: promulgate rules and regulations in coordination with the Kansas water office establishing the project application evaluation criteria for the use of such moneys under subsection (c)(2)(B) (Chapter KSA 82a: Waters and Watercourses; Article 21, Clean Drinking Water Fee)

- Kansas Department of Revenue (KDR): Collects and Distributes Clean Water Drinking Fee in accordance with state statues.

- Kansas Rural Water Association: provides technical assistance and funded as an expenditure of the Clean Drinking Water Fee.

RESOURCES NEEDED

- Continue to provide a minimum of 15% and increase more (up to 30%) of Clean Drinking Water Fee for technical assistance by the Kansas Rural Water Association for Public Water Suppliers.

- Contract for Services with Kansas Rural Water Association by KDHE.

- Obtain free training opportunities from the Irrigation Association for LAWN irrigators and landscapers.

TIMEFRAME

- Current – maintain existing statutes and policies.
- Implement Review of technical assistance through KDHE and water reports on annual water loss.
- KDHE implement technical assistance from the Irrigation Association by 2018.
- PWS attain goal of less than 20% water loss within region by 2025.
- PWS attain goal of less than 15% water loss within region by 2035.
- PWS attain goal of less than 10% water loss within region by 2045.

GEOGRAPHIC SCOPE

- All public water users in Great Bend Prairie Water District
- All lawn irrigators in Great Bend Prairie Water District
- All lawn landscape operators in Great Bend Prairie Water District

REGULATION/POLICY CHANGES

- None -- Retain KSA 82a: Waters and Watercourses; Article 21, Clean Drinking Water Fee
- NOTE: “Guiding Principle Ensure regulations and programs put into place are reviewed to ensure various water use groups are not adversely affected by regulations and programs intended for an individual water use group”
- NOTE: Clean Drinking Water Fee – Senate Bill 332 (2001 Legislative Session) Implementation.
 - The Clean Water Drinking Fee is paid by city water departments, rural water districts and any other organization selling water. Collectively all of these organizations are called ‘public water supply systems.’ The Clean Drinking Water Fee is three (.03) cents per 1,000 gallons of water sold. The law specifically forbids the public water supply systems from adding this fee to their customers’ water bill.
 - The Clean Drinking Water Fee is reported quarterly on the same form as the Water Protection Fee. The return requires two entries - one for the Water Protection Fee and one for the Clean Drinking Water Fee.
- KSA: July 1, 2007, 5/106 of such amount shall be credited to the state highway fund and the remaining amount shall be credited to the state water plan fund created by K.S.A. 82a-951, and amendments thereto, for use as follows: (A) Not less than 15% shall be used to provide on-site technical assistance for public water supply systems, as defined in K.S.A. 65-162a, and amendments thereto, to aid such systems in conforming to responsible management practices and complying with regulations of the United States environmental protection agency and rules and regulations of the department of health and environment; and (B) the remainder shall be used to renovate and protect lakes which are used

directly as a source of water for such public water supply systems, so long as where appropriate, watershed restoration and protection practices are planned or in place.

- Proposal for Increase to 13 cents. HB 2014 “Since municipal water fees and clean drinking water fees, which are largely paid by public water systems, are already responsible for about half the total revenue for the water plan fund, those fees should not be increased,” the league’s legal counsel, Michael Koss, said in a memo to legislators.

GREAT BEND PRAIRIE PRIORITY GOAL #3

ENHANCE THE MONITORING OF POOR QUALITY WATER IN AREAS WHICH HAVE SALT WATER DISPOSAL LINES, DISPOSAL WELLS AND AREAS WITH HIGH SALT SOURCES TO ENSURE THAT CONTAMINATION OF FRESH WATER SOURCES DOES NOT OCCUR AS WELL AS TO STOP AND REVERSE FURTHER CONTAMINATION OF FRESH WATER SOURCES. ESTABLISH A SELF-REPORTING PROGRAM UNDER PENALTY OF LAW IF A PROBLEM IS OBSERVED TO ENSURE THE PROBLEM DOES NOT GET WORSE. START USING MAPPING TECHNIQUES AND DISPOSAL LINE MAINTENANCE AND REPLACEMENT TO ENSURE THIS GOAL IS MET. SET UP A REVIEW PROGRAM BY 2020.

ACTION STEPS

- Evaluate extent of KDHE surface water monitoring network in petroleum producing areas and areas with high salt sources within Great Bend Prairie Regional Planning Area.
 - Work with KDHE to modify surface water monitoring network if evaluation finds that necessary.
- Develop inventory of current active and legacy salt water disposal lines in Great Bend Prairie Regional Planning Area.
- Continue programs to evaluate current extent of salt water disposal well inventory.
- Evaluate effectiveness of current spill and escape notification requirements.
 - Work with KCC to modify current spill and escape notification requirements if evaluation finds that necessary.
- For all Sensitive Groundwater Areas in the Great Bend Prairie Regional Planning Area:
 - Check the integrity of active and known legacy disposal systems.
 - Investigate the integrity of plugged abandoned wells suspected of leaking.
 - Continued programs to conduct Mechanical Integrity Tests on all injection or disposal wells.
 - Develop a routine groundwater quality program to help determine extent and sources of contamination.
- Educate public in Great Bend Prairie Regional Planning Area about causes and trends of salinity issues.

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- Kansas Corporation Commission, Environmental Protection Agency, Kansas Department of Health and Environment, Kansas One-Call, GMD5, Kansas Geological Survey, Kansas Water Office, Petroleum Industry, Local Landowners

RESOURCES NEEDED

- Financial resources for development of inventory of active and legacy saltwater disposal lines (cost TBD).
- Financial resources for development of continuous groundwater quality program (cost TBD).
- Technical/financial resources associated with evaluations, inventories, investigations, and tests (cost TBD).

TIMEFRAME OF COMPLETION

- All action steps should be completed or initiated by 2026.

GEOGRAPHIC SCOPE

- Past and current oil production areas within Great Bend Prairie Planning Region and Sensitive Groundwater Areas.

REGULATION/POLICY CHANGES

- Explore reporting requirement exemptions noted in K.A.R. 82-3-603(b)(3)
- Disposal lines should be GPSed and tracer lines installed.
- One-Call will contact the operator to identify lines.
- Proposal for Increase to 13 cents. HB 2014 “Since municipal water fees and clean drinking water fees, which are largely paid by public water systems, are already responsible for about half the total revenue for the water plan fund, those fees should not be increased,” the league’s legal counsel, Michael Koss, said in a memo to legislators.

GREAT BEND PRAIRIE PRIORITY GOAL #4

INITIATE RESEARCH AND DEVELOPMENT OF FEED WHEAT AS AN ALTERNATIVE FEED SOURCE WITHIN THE GREAT BEND PRAIRIE PLANNING REGION. TECHNOLOGY TRANSFER FROM THIS RESEARCH WOULD HAVE BENEFITS IN AREAS OF KANSAS WHERE WATER IS NOT AVAILABLE FOR PRODUCTION OF WATER-INTENSIVE CROPS. DUAL RESEARCH PROGRAM: PLANT BREEDING AND LIVESTOCK FEEDING. ACHIEVE LARGE SCALE FEEDING TRIALS BY 2025.

ACTION STEPS

- Coordinate with the Kansas Department of Agriculture (KDA) to improved adoptability of feed wheat, along with other alternative crops, through marketing, commodity segregation, research and education as stated within the *Vision for the Future of Water Supply in Kansas*.
- Create a program to be able to roll out small and large scale feeding trials
 - Find several feedlots to help roll out program
 - Utilize membership of stakeholder groups to solicit interest

- Coordinate with KDA to implement demonstration plots for yield evaluation within the Great Bend Prairie Regional Planning Area.
- Coordinate with KDA develop markets for Great Bend Prairie-grown feed wheat and other alternative crops for use feed sources.

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- Kansas Department of Agriculture; Kansas State University; Other regional research institutions; Kansas Wheat Commission; Kansas Association of Wheat Growers; Kansas Farm Bureau; Kansas Livestock Association; Private wheat breeders; Grain Industry; Feedlot Industry; Local Producers; Kansas Water Office

RESOURCES NEEDED

- Funding for field trials in the Great Bend Prairie Regional Planning Area.

TIMEFRAME OF COMPLETION

- Achieve small scale feeding trials by 2018.
- Achieve large scale feeding trials by 2025.

GEOGRAPHIC SCOPE

- Anywhere within the Great Bend Prairie Regional Planning Area.

REGULATION/POLICY CHANGES

- None

GREAT BEND PRAIRIE PRIORITY GOAL #5

WORK TOWARDS SUSTAINABILITY OF WATERSHEDS SO THAT FLOOD CONTROL CAPACITY IS MAINTAINED WHILE MAINTAINING STREAMFLOW TO MEET DOWNSTREAM WATER NEEDS. PROGRESS TOWARDS SUSTAINABILITY WOULD BE TO HAVE 50% OF THE DRAINAGE AREA WITHIN WATERSHED DISTRICTS CONTROLLED BY WATERSHED STRUCTURES BY 2065. BEST AVAILABLE INFORMATION/DATA WILL BE EVALUATED EVERY 10 YEARS TO TRACK PROGRESS TOWARDS MEETING THIS GOAL.

ACTION STEPS

- Determine percent controlled by watershed structures within watershed districts in Great Bend Prairie Regional Planning Area.
- Work with landowners to promote watershed dams and the important role they have in the community and environment.
- Work with watershed boards and community leaders.
- Determine groundwater recharge potential of watershed structures through modeling efforts.

- Work with watershed districts to determine costs (needs inventory) associated with building additional structures leading up to 50% of drainage area within districts controlled by structures.
- Evaluate the potential of a Multipurpose Small Lake through KDA-DOC in the Great Bend Prairie Regional Planning Area.

RESPONSIBLE AND ASSISTING AGENCIES/ORGANIZATIONS

- Wet Walnut Watershed District; Pawnee Watershed District; State Association of Kansas Watersheds; U.S. Army Corps of Engineers; Kansas Department of Agriculture; Division of Water Resources; Division of Conservation; KDWPT; NRCS; Ducks Unlimited; The Nature Conservancy; KWO

RESOURCES NEEDED

- TBD pending outcome of needs inventory.
- Financial resources for modeling

TIMEFRAME OF COMPLETION

- 50% of the drainage area within watershed districts controlled by watershed structures by 2065.

GEOGRAPHIC SCOPE

- Watershed districts within the Great Bend Prairie Regional Planning Area.

REGULATION/POLICY CHANGES

- Many federal regulations provide challenges:
 - Mitigation requirements
 - 3rd party easement requirements
 - Stream mitigation guidelines (getting credit for pool area as to how it relates to creation of habitat).

KANSAS REGIONAL ADVISORY COMMITTEE ACTION PLANS

KANSAS PRIORITY GOAL #1

INCREASE WATER STORAGE CAPACITY AND AVAILABILITY IN FEDERAL RESERVOIRS. BY 2020, PURCHASE ALL AVAILABLE STORAGE IN FEDERAL RESERVOIRS TO SECURE AN ADEQUATE WATER SUPPLY FOR THE REGION. BY 2025, EVALUATE THE ABILITY TO RAISE THE CONSERVATION POOL IN EACH FEDERAL RESERVOIR.

ACTION STEPS

- Increase water storage capacity and availability in federal reservoirs. By 2020, purchase all available storage in federal reservoirs to secure an adequate water supply for the region.
 - The Kansas Water Office should conduct an analysis of the impacts of the draw downs at Milford, Tuttle Creek and Perry reservoirs due to Missouri River navigation support. The results

of this study will inform the decision as to whether or not to accelerate the purchase of the remaining storage at the aforementioned reservoirs.

- Working with Kansas River Water Assurance District, KDHE, KDWPT and other stakeholders, determine the amount of storage necessary within Milford and Perry reservoirs to meet instream purposes through controlled releases.
- Complete necessary background work to support a request to reallocate storage from water supply to water quality in Milford and Perry reservoirs.
- Determine amount of additional annual costs for calling into service the remaining water supply storage not needed to meet instream purposes and request full funding. When funding is secured, call into service storage not to be included within reallocation request.
- Request reallocation of remaining storage from water supply to water quality.
- By 2025, evaluate the ability to raise the conservation pool in each federal reservoir.
 - Using existing modeling, determine amount of additional yield that can be gained in each reservoir by permanently raising the conservation pool by 1, 2 and 3 feet.
 - Working with Kansas River Water Assurance District, KDHE, KDWPT, KDA-DWR and other stakeholders, begin NEPA evaluation of impacts and benefits at the reservoirs with increased pool level
 - Work with the U.S. Army Corps of Engineers (USACE) to determine updated costs of reallocation and purchase of storage.
 - Secure federal funding for reallocation study.
 - Where feasible and appropriate based on cost and impact evaluation, request the USACE reallocate storage from flood control to water supply storage.
- The Kansas Water Office shall gather data to determine steps to maintain consistent storage levels at specific reservoirs. As a long term goal, KWO should incorporate existing studies and information to study the possibility of future dredging and other measures by the State of Kansas on a more consistent basis to maintain storage.
- As articulated in the *“Basin Restoration Approach: Kansas Lower Republican,”* the Kansas RAC directs the KWO to improve coordination with the USACE on reservoir releases, management plans, and future actions to address water quality and quantity issues.

KANSAS PRIORITY GOAL #2

BY 2050, EXPLORE ADDITIONAL STORAGE POSSIBILITIES SUCH AS CONSTRUCTION OF MULTIPURPOSE LAKES SO THAT NEW WATER SOURCES CAN BE BROUGHT ONLINE.

ACTION STEPS

- Use the existing Kansas Water Office *“Basin Restoration Approach: Kansas Lower Republican”* as a guide for planning future storage in the Region.
- Maintain an updated inventory of existing reservoir sites not built, along with pertinent data.
- Contract with a consulting firm to determine the feasibility of building larger reservoir sites based on the *“New Site Selection Criteria”* from the *“Basin Restoration Approach: Kansas Lower Republican”*, with the addition of the potential sedimentation rate and upstream protection practices.
- Working with KDA-DOC, NRCS and local watershed districts, identify existing watershed structures that are in need of restoration and have potential to be made larger and provide supplemental water supply.
- Working with KDA-DOC, NRCS and local watershed districts, identify watershed dam sites that were not constructed, but could be built to provide supplemental water supply.
- KWO shall develop criteria to determine whether these sites should be expanded or built based on a broad range of issues.
- Seek partnership and funding opportunities to rehabilitate existing watershed reservoirs and/or construct new reservoirs that meet the established criteria.

KANSAS PRIORITY GOAL #3

REDUCE THE CUMULATIVE SEDIMENT RATE OF FEDERAL RESERVOIRS AND OTHER WATER SUPPLY LAKES BY 10 PERCENT IN THE KANSAS REGION EVERY 10 YEARS THROUGH IMPLEMENTATION OF WATERSHED BEST MANAGEMENT PRACTICES.

ACTION STEPS

- Utilize the Kansas Basin Watershed Management System (KBWM System) to reduce the overall sediment rate by 10 percent for the entire Kansas basin, not per reservoir, over 10 years.
 - All new funding allocated to meet RAC sedimentation reduction goals will utilize the KBWM System. See the attached document for a description of the KBWM System as well as a process chart illustrating how it functions.
 - KBWM System utilizes and provides for the implementation of best management practices (BMPs) related to the reduction of sediment loading, which include a large range of measures.

Approval and recommendation of BMPs for sediment reduction will be determined by the KBWM Interagency Committee (refer to KBWM System description).

- This is accomplished by funding a minimum of \$5 M annually to the System specifically for the reduction of sedimentation in the Kansas basin. At this funding rate, the goal is expected to be achieved within 30 years.
- Within five years, all state and federal lands surrounding each reservoir in the watershed must have implemented best management practices as identified through the KBWM System.
- Individual WRAPS' plans and conservation district goals must include the concept of reservoir sustainability with the goal of maintaining storage capacity in Kansas Basin reservoirs.
- Reservoir sustainability and reduction of sedimentation must be added as primary goals of the Kansas WRAPS Work Group.
- The KBWM System will allow for the modification or inclusion of additional sedimentation goals as they are developed by Regional Advisory Committees (RACs)
- Establish programs with local universities to leverage relevant departments for expertise and student resources.
- Existing funding allocations will continue to be distributed and managed as they have been historically with an enhanced focus on communication and coordination among funding providers. This increase in communication and coordination is an anticipated byproduct of the KBWM System.
- Additional funding for sedimentation through the KBWM System is critical to meeting the Kansas RAC Sedimentation Goals.
 - One key element of additional funding will be to secure adequate technical assistance advisors and providers for timely delivery and implementation of recommended best management practices.
 - Additional technical assistance at the state level must be developed, even with the current level of funding. NRCS currently provides technical assistance, but due to current funding and decreased staffing capacity, NRCS cannot always meet the state's implementation schedule. With additional state technical assistance providers, NRCS can dovetail and assist with projects, but projects will move forward in the event NRCS is not available. This encourages collaboration between the two groups, and reduces reliance on NRCS.
- Achieving the stated goals requires the broadest participation possible. To affect a science-based solution, it is important that all relevant lands within a specific watershed be analyzed to assess their issues, determine their priority with respect to a defined problem (e.g. sedimentation of reservoirs) and identify and prioritize solutions. This may be a long-term process.
- The Kansas RAC encourages landowners in the Kansas Basin to develop and implement voluntary Comprehensive Conservation Plans for lands in the areas of resource concern.

- Education about the KBWM System and its goals and functions should be included in the Governor’s Water Vision Education and Outreach Program
 - Specific educational and outreach programs, resources and items shall be created, distributed and taught throughout the Kansas Basin focusing on the specific goals of the Kansas Basin.

KANSAS PRIORITY GOAL #4

BY 2035, REDUCE PER CAPITA WATER CONSUMPTION BY 10 PERCENT BY 2035 THROUGH CONSERVATION, EDUCATION AND PRICING MECHANISMS.

ACTION STEPS

- The Kansas Regional Advisory Committee (RAC) recognizes the need for water conservation in our region varies widely from year to year, season to season, and even throughout the region during any one time period. Regardless of the season or the current availability of water, the Kansas RAC is committed to promoting and supporting wise water use throughout the region.
- **Action Plan Section 1: Unaccounted For Water**
 - Whether or not water is in short supply, we should always use it wisely. One of the most significant issues that can and should be addressed with regard to water use is unaccounted for water (UFW). This is water that public water suppliers have paid to pump, convey and/or treat, and which is unaccounted for due to leakage in the distribution system, failures within the water utility infrastructure, accounting system errors and/or unmetered water distribution. This UFW calculation currently includes a range of unmetered uses, which includes hydrant flushing, tower flushing for maintenance, etc.
 - The Kansas Municipal Water Conservation Plan Guidelines approved by the Kansas Water Authority (KWA) in 2007 currently recommend that a utility implement a water management review when UFW exceeds 20% for a 4-month period. The average UFW for all utilities in the region in 2014 was 16.6%. The guidelines for the Kansas Region should raise the bar higher by encouraging utilities to undertake the review at 15% for a 4-month period, monitored monthly. The Kansas Water Office (KWO) should ensure technical assistance to conduct those management reviews when necessary, and technical assistance to address acute UFW.
 - Historically, UFW has been difficult to track, as water usage was not metered consistently. By 2017, however, this will change. The Kansas Department of Agriculture, Division of Water Resources required the installation of a flowmeter or other suitable water measuring device on all non-temporary, non-domestic water uses in 2014, with meter installation required for all water users by the end of 2016 and compliance required by the end of 2017. All public water suppliers currently meter their source of supply; a small number, however, remain that do not meter individual customer water usage. The RAC recommends that all public water suppliers implement customer water metering at the earliest opportunity.
 - The water metering requirement and customer metering will allow for all types of water usage to be tracked and analyzed by 2018. The most important short term benefit of the installation of water flow meters is that it will allow for appropriate accounting of water

usage. This accounting not only allows for the identification of the location and nature of leaks in the system, but the information gathered is also critical to determining the nature of water usage and where conservation measures can be wisely implemented. This information will allow communities and individual users to strategize appropriate water usage and save themselves and/or the community water and money over time.

- Over time, large users should be encouraged to sub-meter which will improve their understanding of the nature of their water consumption and allow for more effective implementation of wise water use measures.
- The KWO should educate communities about the availability of funding for utilities to conduct assessments of distribution and transmission systems and develop a proactive replacement and repair schedule to minimize water loss within the system. Utilities should, where feasible, collaborate with larger utility partners in the area for assistance with assessments. The KWO should also actively educate communities about the availability of funding for investments in infrastructure improvements to minimize water loss for all water utilities in the Kansas Region.
- **Action Plan Section 2 - Water Conservation Plans**
 - The KWO should evaluate current conservation plan guidelines adopted by the KWA in 2007, to ensure they adequately address the Vision and Kansas Region goals, and provide assistance in updating plans as necessary.
 - The KWO should work with public water suppliers in the region to ensure that all have an approved water conservation plan consistent with the updated Guidelines approved by the KWA that reflect the Vision and Kansas Region goals.
 - The KWO should work with public water suppliers that have experienced drought vulnerability in the last 10 years to ensure they have robust drought response plans, with meaningful and implementable triggers and responses.
 - The KWO should develop a Best Management Practices (BMP) Conservation Guide for communities, highlighting available resources and success stories. This BMP Conservation Guide shall be updated bi-annually.
 - The Kansas RAC recommends that communities throughout the Kansas Region adopt wise water use in public buildings and on public grounds as identified in the BMP guide.
- **Action Plan Section 3 – Education**
 - The KWO should make use of existing educational resources from federal, state and non-governmental organizations such as the EPA's WaterSense program and WaterSense partners, and materials produced by the American Water Works Association and the Alliance for Water Efficiency.
 - The Kansas RAC supports the mission of the Kansas Water Vision Educational Task Force. Any education efforts should be carried out in collaboration with the Kansas Water Vision Education Program.

- Develop a rewards and recognition program for successful Kansas conservation activities to highlight communities, individuals, businesses and industry that implement local conservation best management practices successfully.
- Create a private “water audit” certification program such as Leadership Energy and Environmental Design (LEED) to identify individuals achieving highly efficient water use and conservation.
- Promote smart water use in public buildings and on public grounds such as lower volume toilets and reduced lawn watering.
- Fund K-State Extension programming on low or no water use landscaping

KANSAS PRIORITY GOAL #5

AFTER 2020, REDUCE DURATION AND FREQUENCY OF HARMFUL ALGAL BLOOMS DISRUPTING RECREATION IN LAKES SUCH THAT BLOOMS LAST UNDER A WEEK AND DO NOT OCCUR UNTIL AFTER LABOR DAY.

ACTION STEPS

- Utilize the Kansas Basin Watershed Management (KBWM) System to reduce the level of nutrients entering the reservoirs and water supply lakes.
 - All new funding allocated to meet RAC nutrient reduction goals will utilize the KBWM System. See the attached document for a description of the KBWM System as well as a process chart illustrating how it functions.
 - KBWM System utilizes and provides for the implementation of best management practices (BMPs) related to the reduction of nutrient loading, which include a large range of measures. Approval and recommendation of BMPs for nutrient reduction will be determined by the KBWM Interagency Committee (refer to KBWM System description).
 - This is accomplished by a minimum allocation of \$1.5 million per year to be directed to BMPs in the Milford Watershed, with a total request of \$3 million per year, with the remaining \$1.5 million to be distributed throughout the watershed through the KBWM System.
- Within five years, all state and federal lands surrounding each reservoir in the watershed must have implemented best management practices to address harmful algal blooms (HABs) as identified through the KBWM System.
- Individual WRAPS’ Plans and local Conservation Districts’ goals must include the concept of minimizing nutrient inflow to lakes with the goal of reducing the potential for HABs.
- The reduction of nutrients must be added as a primary focus of the Kansas WRAPS Work Group.

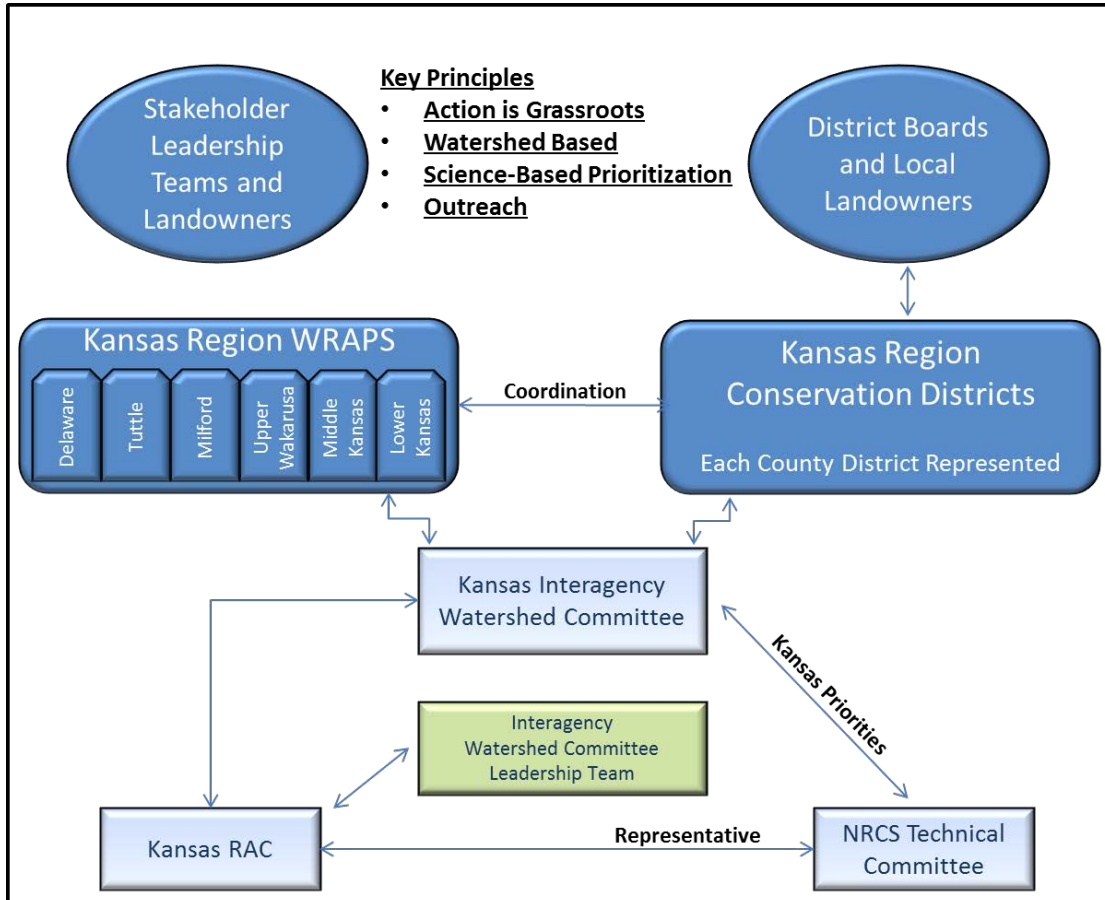
- The Kansas Water Office and the Kansas Department of Health and Environment must coordinate with the US Army Corps of Engineers (USACE) on management of releases during HABs, and provide notice to downstream communities of the level of release.
- Ensure that the Kansas Water Office and KS RAC promote the inclusion of lake communities, downstream public water supply systems, and other water users into HAB meetings and discussions.
- Underscore that the preferred methodology is to use best management practices (BMPs), which include a large range of measures which will be vetted through the KBWM System. BMPs should be prioritized to address HABs.
- Recognize that in the near-term, dollars will need to be spent on treatment of the problem in the lakes (e.g. chemical treatment), but the goal is to shift those dollars upstream to prevention of the problem at the source – which is to prevent nutrients from flowing into the lakes.
- The RAC supports ongoing research for identification and remediation of the causes, prevention and treatment of HABs, including potential in-lake technologies.
- Establish programs with universities to leverage relevant departments for expertise and student resources.
- Achieving the stated goals requires the broadest participation possible. To affect a science-based solution, it is important that all relevant lands within a specific watershed be analyzed to assess their issues, determine their priority with respect to a defined problem (e.g. HABs) and identify and prioritize solutions. This may be a long-term process.
- The RAC encourages landowners in the Kansas Basin to develop and implement voluntary Comprehensive Conservation Plans for lands in the areas of resource concern.
- Education about the KBWM System and its goals and functions should be included in the Governor’s Water Vision Education and Outreach Program.
 - Specific educational and outreach programs, resources and items shall be created, distributed and taught throughout the Kansas Basin focusing on the specific goals of the Kansas Basin including the reduction of HABs.
 - Establish a region wide education and communication plan with regard to HABs and include best and worst management practices.

KANSAS REGIONAL ADVISORY COMMITTEE BASIN WIDE WATERSHED MANAGEMENT SYSTEM

- The Kansas Basin Watershed Management System (KBWM) is a System proposed by the Kansas RAC to be used for all new funds allocated to meet the relevant Kansas Regional Goals.
- The KBWM System is based on four key principles, all of which must be met in order for projects to receive (new) funding.

- Action is Grassroots – Property owners in a targeted region must be an integral part of the process. Property owners’ input informs the prioritization of projects for the watershed. “Action is Grassroots” means that all projects are voluntary, and that local landowners continue to work through existing systems and programs to coordinate, encourage, and commit to high priority projects. This allows for bottom-up decision-making as local landowners utilize their knowledge of the region to determine what projects are best for the area.
- Watershed Based – All projects and associated funding are prioritized based on the needs in the watershed rather than political boundaries.
- Science-Based Prioritization – All projects and associated funding are prioritized through a science-based system within the watershed.
- Outreach – Critical projects within a watershed are identified, and outreach is conducted to encourage and support participation by key (high priority in the watershed based on science-based analysis) property owners in the watershed.
- The KBWM System is coordinated by the Kansas Water Office, and consists of an Interagency Watershed Committee and an Interagency Watershed Leadership Team. (See attached chart).
 - The Kansas Water Office serves as the initial repository of new funds.
 - The Kansas Interagency Watershed Leadership Team is made up of 1 Representative from Each Member Group
 - Kansas Water Office (Coordinator)
 - KDA - Division of Conservation
 - KDHE – WRAPS
 - NRCS
 - Kansas Forest Service
 - Kansas RAC
 - The Leadership Team is coordinated by the Kansas Water Office.
 - The Interagency Watershed Leadership Team is responsible for prioritization on a watershed basis, allocation of funding and accountability.
 - The Interagency Watershed Leadership Team coordinates all key agencies to ensure that efforts are coordinated, not duplicative, and allows for the greatest leverage of all funding allocated to a region.
 - The Interagency Watershed Leadership Team would develop recommendations on distribution of funding (local, state, or federal) to the appropriate region and entity.
 - The Interagency Watershed Leadership Team would be represented at annual Kansas NRCS State Technical Committee Meetings to request assistance in the implementation of the action plans and to advocate for USDA resources to be targeted to best management practices (BMPs) in KS RAC priority areas.

- The Kansas Interagency Watershed Committee is a broader group where much of the work of region prioritization and accountability is done.
- The Kansas Interagency Watershed Committee is managed by the Kansas Water Office.
- The KBWM System expands upon the already existing coordination among relevant state and federal agencies.
- The KBWM System encourages cross-jurisdictional coordination with the State of Nebraska and federally-recognized Tribes.
- The KBWM System is designed to incorporate additional goals as they are developed by Regional Advisory Committees (RACs).
- The KBWM System allows for the utilization of all best management practices (BMPs), which include a large range of measures, as established by the Interagency Watershed Committee Leadership Team and informed by the Kansas Interagency Watershed Committee.
- The methodology of allocation of funding will be determined by the Interagency Watershed Committee Leadership Team.
- The KS RAC will request an annual report from all entities involved in BMP implementation in the watershed and RAC targeted areas. This annual report will commence in 2016 for all existing and future funding sources.



MARAIS DES CYGNES PRIORITY GOAL #1

REDUCE CUMULATIVE SEDIMENT LOADS ENTERING PUBLIC WATER SUPPLY IMPOUNDMENTS BY 10 PERCENT IN THE MARAIS DES CYGNES RIVER BASIN EVERY 10 YEARS TO EXTEND THE LIFE OF EXISTING INFRASTRUCTURE.

MARAIS DES CYGNES PRIORITY GOAL #2

INCREASE SOURCES OF SUPPLY, AT A MINIMUM OF ONE MULTIPURPOSE STRUCTURE, TO MEET INCREASED DEMAND IN SPECIFIC GROWTH AREAS BY 2035. IN ADDITION, ENSURE WATER SUPPLY AVAILABLE FROM STORAGE EXCEEDS PROJECTED DEMAND BY AT LEAST 10% THROUGH THE YEAR 2050.

ACTION STEPS

- A RAC representative will work with each WRAPS group within the Marais des Cygnes Region to assess their 9 Element Plan and their willingness to work with the RAC to meet the Marais des Cygnes Regional goal of sedimentation reduction. A RAC representative will also work with each conservation district within the Marais des Cygnes Region to assess their goals and their willingness to work with the RAC to meet the Marais des Cygnes Regional goal of sedimentation. If the goals of the conservation district and the 9 Element Plan of the WRAPS groups align with the RAC sedimentation goal then funding will be sought to leverage funds to meet Regional Goals. These two groups have a system in place to distribute cost share funds and to identify projects that need to be implemented to decrease sedimentation. They also provide educational opportunities for landowners.
- In order to fund these efforts, the first plan of action is to not create a new funding source, but instead to ensure current funding sources are funded; we cannot continue to see funds being diverted away from water quality, water quantity and water conservation efforts within the state budget if we truly want to work to reach the goals of the RAC and the Vision. This would also include working to see that the State Water Plan Fund is funded to maximum levels and funds from the State Water Plan are allocated as they were originally intended; this should include pesticide and fertilizer fees being rerouted back into the water plan fund and therefore assisting with funding goal implementation. If these funds are not adequate, then new sources will need to be sought. These sources could include, but are not limited to applying a 1 cent/1000 fee on water used by all beneficial uses not already paying a usage fee and or a 1 to 3 cent per bottle water tax applied to bottled water sold in Kansas.
- RAC members will also encourage local support of goal implementation through conservation districts, WRAPS groups, producers, municipalities, etc. This will be done through education and awareness of the RAC.
- The Kansas Water Office, along with the Marais des Cygnes RAC, will evaluate cost estimates of calling-in the unallocated storage in Melvern Reservoir, as well as the evaluation of a pool rises at Pomona and Hillsdale Reservoirs with the estimated cost of constructing a new reservoir for water supply. The entire Marais des Cygnes Region's population projections will be evaluated for their supply needs to

ensure that the demand can be met and exceeded by 10% through the year 2050. Both mainstem and off-stream storage supply will be evaluated to ensure all counties within the Marais des Cygnes region have their water supply needs met. The reduction of sediment loads created by the work with the WRAPS groups and the Conservation Districts to implement BMPs such as, but not limited to, cover crops, No-Till, terraces, etc. will be evaluated for these practices' potential to meet projected water needs through 2050, and, as an alternative to constructing a new storage structure. The RAC is, in effect, going to consider whether Goal 2 can essentially be met by achieving Goal 1 in conjunction with purchasing the reserve supply in Melvern Reservoir and the already purchased, but largely underutilized, supply in Hillsdale Reservoir.

MISSOURI REGIONAL ADVISORY COMMITTEE ACTION PLANS

MISSOURI PRIORITY GOAL #1

SINCE GROUNDWATER QUALITY IS NOT WELL KNOWN, COMPILE EXISTING AND COLLECT ADDITIONAL DATA OVER THE NEXT 5 YEARS TO ESTABLISH A BASELINE. WITHIN 3 YEARS AFTER THE BASELINE IS ESTABLISHED, A PLAN TO IMPLEMENT BEST MANAGEMENT PRACTICES WILL BE DEVELOPED TO MAINTAIN AND IMPROVE EXISTING CONDITIONS. MONITORING AND REEVALUATION OF GROUNDWATER QUALITY CONDITIONS AND SHOULD CONTINUE AT 5 YEAR INTERVALS.

MISSOURI PRIORITY GOAL #3

COLLECT ADDITIONAL INFORMATION TO IMPROVE SAFE YIELD ESTIMATE OF GROUNDWATER AND TRIBUTARY STREAMS WITHIN 3 YEARS. PLACE A MORATORIUM ON ADDITIONAL PERMITS UNTIL SAFE YIELD IS IDENTIFIED. ONCE DETERMINED, ONLY ISSUE PERMITS THAT DO NOT EXCEED THAT YIELD. SAFE YIELD SHOULD THEN BE CONTINUOUSLY MONITORED.

PREAMBLE

Groundwater quality and groundwater quantity are closely related and the approaches to understanding each are similar. For that reason, the 2 goals and the overall guiding principle are recognized in this action plan.

GUIDING PRINCIPAL

Over the next 50 years, there needs to be an adequate, sustainable and affordable quality water supply in the Missouri Region, while protecting Tribal water rights and sacred and cultural sites. All government agencies, local through state, shall vigorously uphold and enforce all water conservation and management rules and regulations throughout the state.

ACTION STEPS

- Evaluate what is known about groundwater quantity and quality in glacial, alluvial and bedrock aquifers in the Missouri Region
 - Any and all available information about groundwater quality and quantity will be collected and compiled.

- Digital database from the collected historical and online existing data would be constructed.
- Digital maps of updated bedrock surface topography, saturated aquifer thickness, pre-glacial drainage ways, water use, and groundwater quality from digital databases would be prepared
- An assessment report would be prepared that includes:
 - A determination of groundwater in storage and groundwater quality conditions in the glacial, alluvial and bedrock aquifers in the area.
 - A determination of the greatest needs for collection of additional data.
 - Recommendations on the need for, and number and location of wells to allow for well level and quality monitoring on a continuing basis.
- This phase would be conducted by the KGS for at a cost of \$50,000. The work would take 12 months, beginning August 2016.
- Collection of additional data and re-evaluation of groundwater information
 - Based on needs as determined in the evaluation phase, obtain a scope of work on collection of additional data that would improve the characterization of the glacial, alluvial and bedrock aquifers. Main expected field activities would include: drilling, hydraulic testing, and groundwater sampling and analysis.
 - Enter new data into databases developed in the evaluation phase.
 - Re-evaluate groundwater recharge estimates at a more detailed scale than the currently available potential annual recharge estimates based on soils.
 - Combine existing and new data to establish safe groundwater yields and a groundwater quality baseline
 - On the basis of future climate and water usage conditions, establish a plan to periodically update safe yield estimates of groundwater resources.
 - This phase would be a minimum of 18 months, as determined in the evaluation phase. Cost would be determined in Phase 1.
- Maintain and Improve groundwater quality conditions
 - Evaluate groundwater quality protection practices based on needs as determined in the assessment.
 - Within 3 years after the baseline is established, a plan to implement best management practices will be developed to maintain and improve existing conditions.

- Ongoing monitoring and evaluation
 - Expand groundwater level monitoring wells as determined during Assessment phase.
 - Monitoring and reevaluation of groundwater quality conditions should continue at 5 year intervals.

MISSOURI PRIORITY GOAL #2

TO ENSURE A RELIABLE SURFACE WATER SUPPLY IN THE FUTURE, BEST MANAGEMENT PRACTICES WILL BE IMPLEMENTED SO SURFACE WATER QUALITY IN IDENTIFIED DRAINAGES IS MAINTAINED OR IMPROVED USING GOALS AND MILESTONES AS IDENTIFIED IN THE MISSOURI WATERSHED RESTORATION AND PROTECTION AREA 9 ELEMENT PLAN.

GUIDING PRINCIPAL

Over the next 50 years, there needs to be an adequate, sustainable and affordable quality water supply in the Missouri Region, while protecting Tribal water rights and sacred and cultural sites. All government agencies, local through state, shall vigorously uphold and enforce all water conservation and management rules and regulations throughout the state.

ACTION STEPS

- Collection of Additional Data
 - Collect data on a voluntary basis to evaluate the benefits of tile outlet terrace systems within the Missouri Region. Prior to proposing any design changes to outlets of tile terraces in the Missouri Region, conduct research on cropland field input amounts (rates, dates applied, how it was applied, etc.) and collect water samples to evaluate the water runoff into the streams in the region. Collect data working with interested local landowners with assistance of area conservation districts, Kansas Department of Health and Environment (KDHE), Natural Resources Conservation Service (NRCS) and other existing agencies. Collection sites will be: tile terrace runoff, waterway runoff, land with no conservation work or no conservation tillage, and land with no conservation work but using no-till.
 - Collect data on the benefits of capturing and reusing water on a producer's property.
 - Gather existing information on the impact of extreme events (droughts and floods) on water quality and availability of water resources into the future in the Missouri Region.
 - Assess what other interest groups, agencies and individuals locally and from states with similar topography and precipitation (Iowa, South Dakota, Nebraska, and Missouri,) can provide on alternative projects that could contribute to water quality in the Missouri Region.

- Implementation
 - Support and encourage implementation of the best management practices (BMPs) in the adopted 9-Element Plan. Those BMPs are: No-till, cover crops, grassed and forested buffers, convert steep slopes, sediment basins, pasture management, nutrient management, livestock waste management, alternative watering supplies, streambank stabilization, onsite wastewater system repair, urban lawn management, pet waste management. The Plan should be updated every 5-years.
 - Focus on finding local volunteers that are willing to adopt and promote new practices, including streambank stabilization.
 - Ensure the value of maintenance of BMPs is understood to allow BMPs to have the desired long term effects, through education and outreach.
 - Recognize the value of protection of water quality through education and outreach.
 - Prevent sedimentation by using existing cost - share programs through the Kansas Department of Agriculture, Division of Conservation (DOC); KDHE; and NRCS, to fund conservation practices in the Missouri Region.
 - Continue to use the NRCS for technical assistance on implementation practices suited to the unique topography of the Missouri Region.
 - Prioritize the existing ranking systems from agencies, to secure funding for protecting water quality and water supply in the Missouri Region.
 - Raise awareness about water quality and the importance of proper urban lawn application.
- Monitoring
 - Determine if additional monitoring sites are needed to better characterize and prioritize project priorities in the Region.
- Funding Needs
 - To ensure water quality is maintained and improved, the state should fully fund the Kansas Water Plan for implementation of best management practices through programs of the DOC, KDHE and others as needed.
 - Ensure continued and improved coordination with the NRCS to access and make the best use of funding for priority projects for water quality protection in the Region.
 - Assess possible involvement of other agencies, businesses and interest groups to determine interest and possible funding of water quality projects in the Region.
 - Continue to ensure that funding from the Clean Drinking Water Fee Fund for technical assistance for small public water supply systems is maintained at least at the current level.

- Include funding for streambank stabilization projects as identified in the WRAPS 9 Element Plan.
- Fully fund the 9-Element Plan implementation (approximately \$140,000/year).
- Develop a funding strategy within the next year for additional data collection and implementation as identified above in a phased manner in conjunction with DOC, NRCS, and KDHE and others as appropriate. Funding needs will then be reviewed on an annual basis and brought to the KWA.

NEOSHO REGIONAL ADVISORY COMMITTEE ACTION PLANS

NEOSHO PRIORITY GOAL #1

PROLONG THE WATER SUPPLY STORAGE IN JOHN REDMOND RESERVOIR TO THE YEAR 2065 BY REDUCING THE SEDIMENTATION RATE BY AN AVERAGE OF 300 ACRE-FEET PER YEAR THROUGH WATERSHED PRACTICES SUCH AS NO-TILL, FILTER STRIPS AND STREAMBANK STABILIZATION. BY 2025, ALL STREAMBANK HOTSPOTS WILL BE STABILIZED. BY 2030, 80% OF THE PRIORITY CROPLAND IN NEED OF CONSERVATION WILL BE TREATED WITH NO-TILL PRACTICES.

ACTION STEPS

- The Kansas Water Office (KWO) is directed to work with the Streambank Team (KWO, KDHE, and KDA-DOC) to stabilize all streambank hotspots, as defined by the KWO, by 2025 in the Cottonwood-Neosho Region above John Redmond Reservoir. Funds will need to be created to fund the stabilization of the streambanks each year to complete reaches in order as they proceed from the reservoir.
- The Kansas Water Office, in cooperation with the Kansas Department of Health and Environment, the Kansas Department of Agriculture-Department of Conservation, and the local WRAPS groups, is directed to treat 80% of priority cropland, as defined by the WRAPS 9 element plans, with no-till practices, such as cover crops. In addition, treat with other sedimentation reduction farming practices, filter strips, terraces, and waterways by 2030 in the Cottonwood-Neosho Region above John Redmond Reservoir. Additional funds will need to be created to fund this action as well.
 - As a component of this plan a review of the sedimentation rate of John Redmond Reservoir will be evaluated. This evaluation will include scheduling and completing a bathymetric survey every 5 years and installing sedimentation monitoring stations to monitor the sedimentation rate and the progress and benefit of sedimentation reduction practices.
 - As an additional component, the effectiveness of best management practices for effects on hydrology and reduction of sediment and nutrients will be assessed and the information and education will be provided to those implementing practices. The education and information portion can be accomplished through the implementation of a Water Technology Farm (WTF) that incorporates no-till practices and other agriculture BMPs that address sedimentation, along with a possible streambank stabilization project.

- To ensure that there are funds available each year a steady funding source must be established. The best funding source at this time appears to be the issuing of bonds to commence early implementation, and is recommended by the RAC, however, other funding sources are not excluded. Bonds should be sought at an amount no less than 8.5 million/year.

NEOSHO PRIORITY GOAL #2

REDUCE VULNERABILITY TO DROUGHT BY THE INCREASING RESERVOIR STORAGE AT MARION AND COUNCIL GROVE RESERVOIRS THROUGH A PERMANENT RAISE IN CONSERVATION POOL ELEVATION. BY 2025, EVALUATE THE FEASIBILITY OF PERMANENT CONSERVATION POOL RISE AT MARION AND COUNCIL GROVE RESERVOIRS. BASED ON THE OUTCOME AND FINDINGS OF THE FEASIBILITY STUDY, STAGE INCREASES IN PERMANENT POOL ELEVATION BASED ON SUPPLY NEEDS. ENSURE WATER SUPPLY AVAILABLE FROM STORAGE EXCEEDS PROJECTED DEMAND BY AT LEAST 10% THROUGH THE YEAR 2050.

ACTION STEPS

- The Kansas Water Office will continually work with the U.S. Army Corps of Engineers on refining reservoir operations and developing Drought Contingency Plans.
- A working group will be created that provides input on the pool rises at Marion, Council Grove, and John Redmond Reservoirs. This group will include the KWO, KDWP&T, KDHE, NRCS, USACE, and USFW.
 - The working group will look at costs associated with the pool rises and the benefits of increased supply.
- Based on the input from the working group and the cost benefit ratio analysis, the feasibility of the pool rises at Marion, Council Grove, and John Redmond Reservoirs will be determined by 2025. Based on that determination, a reallocation study may be implemented.

NEOSHO PRIORITY GOAL #3

REDUCE FREQUENCY OF ALGAL BLOOMS IN MARION RESERVOIR TO NO MORE THAN EVERY 3 YEARS THROUGH 2035. EVALUATE THE ROLE OF WATER LEVEL FLUCTUATIONS IN REMEDIATING AND REDUCING ALGAL BLOOM FREQUENCY.

ACTION STEPS

- A working group will be created that provides input on the evaluation of the algal blooms at Marion. This group will include the KWO, KDWP&T, KDHE, NRCS, USACE, and USFW.
- The working group will look at costs associated with algal blooms at Marion and determine the methods that would lead to a reduction in blooms.
- Based on the input from the working group and the cost-benefit ratio analysis, the feasibility of algal bloom reduction will be determined.

NEOSHO PRIORITY GOAL #4

INCREASE STORAGE IN BASIN BELOW JOHN REDMOND THROUGH DEVELOPMENT OF ADDITIONAL STORAGE SITES. BY 2020, COMPLETE AN ASSESSMENT OF POTENTIAL RESERVOIR SITES IN LOWER PORTION OF THE NEOSHO PLANNING REGION; INCLUDING POTENTIAL OFF-STREAM STORAGE SITES.

ACTION STEPS

- The Kansas Water Office is directed to create a report by 2020 to determine the feasibility of developing additional water storage in the Cottonwood-Neosho Region below John Redmond Reservoir. The report will include possible locations of off-stream storage sites, and other possible sources of supply, including groundwater sources and water from other Regions. The report will also include a cost-benefit analysis of creating additional storage. As part of the report the Grand River Dam Authority will be encompassed into the conversation to discuss supply and funding options.

NEOSHO PRIORITY GOAL #5

EVERY FIVE YEARS, ASSESS THE EFFECTIVENESS OF BEST MANAGEMENT PRACTICES FOR EFFECTS ON HYDROLOGY, REDUCTION OF SEDIMENT AND NUTRIENT, AND PROVIDE THAT INFORMATION AND EDUCATION TO THOSE IMPLEMENTING PRACTICES. ASSESSMENTS MAY INCLUDE OFF-STREAM STORAGE FOR SEDIMENT AND NUTRIENT TRAPPING, OVERLAND EROSION AND NUTRIENT SEQUESTRATION, IN RESERVOIR SEDIMENT AND NUTRIENT MOVEMENT AND RE-SUSPENSION, AND LANDSCAPE SCALE WATERSHED MODELING PROJECT.

ACTION STEPS

- This goal is met as the other goals' plans are implemented.

RED HILLS REGIONAL ADVISORY COMMITTEE ACTION PLANS

RED HILLS PRIORITY GOAL #1

REDUCE THE RATE OF WATER USE BY 10% THROUGHOUT THE REGION COLLECTIVELY BY 2025. CONSERVATION SHOULD BE VOLUNTARY AND ENCOURAGED TO USE INCENTIVE BASED POLICIES AND PROGRAMS.

ACTION STEPS

- Use average water use for the 10-year period ending 2015 as baseline for water use.
- Identify research needs to determine if and where water (streamflow or groundwater levels) downtrends are occurring for focusing water conservation efforts.
- Add streamflow measurements to assess changes to in streamflow and baseflow contributions on Elm Creek and other priority locations, preferably continuous monitoring gages.

- Utilize education/information dissemination as developed for the Vision and region. Should include information on water resources, stresses, conservation tools and water use.
- Identify barriers to conservation in this region.
- Work with local, state and federal programs to offer water conservation programs, including cost-share opportunities.
- Address water use by water use category
 - Irrigation water use
 - Use education and informational meetings to inform operators and landowners on techniques to reduce water use such as water saving technologies, lower water use crops and develop Water Conservation Areas (WCA).
 - Identify barriers hindering operators and landowners from reducing water use.
 - Promote additional tools and programs for reducing water use including a water technology farm in the region.
 - Industrial water use
 - Use Red Hills Goals 3 and 4 to reduce fresh water use in the region.
 - Goal 3: Reduce the amount of freshwater used in oil and gas completion operations by 4% annually.
 - Goal 4: Work with oil and gas industry, beginning in 2040, to have 10,000 barrels a day of fresh water to be recycled from oil production for regional use in the Red Hills.
 - Municipal water use
 - Gather data municipal water use data such as system sources and levels (status), per capita per day usage, rate structures and conservation plans to identify systems using more than the regional average per capital per day per person.
 - Educate communities on benefits of water conservation.
 - Educate decision makers on effective programs to reduce water use or identify water losses and resources available to address losses and upgrade systems.
 - Encourage development and use of water conservation plans.
 - Natural/unaccounted for use by eastern red cedar trees and other invasive species

- Support and assist efforts to evaluate red cedar effect on water resources in the region through NRCS programs such as EQIP and the Kansas RCPP Native Grazing Lands Protection in the Plains project and other efforts to control invasive species on rangeland and drainages. Include efforts to evaluate red cedar water use after the 2016 Barber County fires.
- Gather data on eastern red cedar tree water use in region to establish baseline and need. Such as number of acres affected, number of trees and water consumption data to quantify issue (references needed)
- Use information to educate landowners why and how to eliminate red cedars from rangeland.
- Identify available programs for landowners to address eastern red cedar tree encroachment in the regional planning area.
- Educate landowners to encourage cedar tree control.

AGENCIES/ORGANIZATIONS

- Kansas Department of Agriculture, Kansas Water Office, Kansas-State University, county conservation districts, Natural Resource Conservation Service, local stakeholder groups, and the Nature Conservancy

RESOURCES NEEDED

- Funds needed to complete data gathering and evaluation such as funds to support additional streamflow measurements as determined needed to access changes in stream reaches contributions to major stream baseflow and effect of red cedar tree eradication on these flows.
- Ensure funding for water management and water conservation programs is available in the region.

RED HILLS PRIORITY GOAL #2

INCREASE SOURCES OF SUPPLY THROUGH THE USE OF A MULTIPURPOSE SMALL LAKE TO MEET INCREASED DEMAND IN SPECIFIC GROWTH OR NEED AREAS BY 2035.

ACTION STEPS

- Local efforts will be led by Sunflower H2o Coalition and the Sunflower RC&D who will work to:
 - Determine level of support for a reservoir for recreation and future water supply.
 - Gather public input on possible reservoir for recreation and future water supply.
 - Define project and scope of work for detailed engineering study to move ahead, if local support is sufficient.
 - Obtain funding for Engineering Study

- Initiate Engineering Study.
- Review Engineering Study and formulate future steps.

AGENCIES/ORGANIZATIONS

- Sunflower H2O Coalition, Sunflower RC&D, local government, local stakeholder groups, Kansas Water Office

RESOURCES NEEDED

- Engineering study funding estimated around \$225,000 in 2008. Updated need will depend on defining interested area.

RED HILLS PRIORITY GOAL #3

REDUCE THE AMOUNT OF FRESHWATER USED IN OIL AND GAS COMPLETION OPERATIONS BY 4% ANNUALLY.

ACTION STEPS

- Develop background/baseline data on the quantity of produced water, water usage and reuse in the region for use in education and development of appropriate actions.
- Work with industry to use the lowest quality waters possible.
- Work with industry to recycle/reuse flow back and production waters.
 - Contact all oil and gas operators in region to request voluntary use of treated production water for fracking when economically sensible.
 - Provide oil and gas operators with information on use of recycled produced water.
- Share results of Kansas pilot treatment project and other treatment projects.

AGENCIES/ORGANIZATIONS

- Kansas Water Office, Kansas Department of Health and Environment, Kansas Corporation Commission, Kansas Department of Agriculture, stakeholders and industry groups

RED HILLS PRIORITY GOAL #4

WORK WITH OIL AND GAS INDUSTRY, BEGINNING IN 2040, TO HAVE 10,000 BARRELS A DAY OF FRESH WATER TO BE RECYCLED FROM OIL PRODUCTION FOR REGIONAL USE IN THE RED HILLS.

ACTION STEPS

- Work with industry to reduce produced water underground injection quantities.
- Initiate a pilot produced water treatment project in the region.

- Share results of pilot project with industry and citizenry.
- Identify barriers to reuse, such as limiting factors and water quality parameters.
- Identify reuse potential in the region.
- Identify sites for treated (freshwater) water storage for oil and gas industry access for fracking.
- Develop appropriate policy, programs, data or education to address barriers to reuse.

AGENCIES/ORGANIZATIONS

- Kansas Water Office, Kansas Corporation Commission, Kansas Department of Health and Environment, stakeholder organizations

RESOURCES NEEDED

- Pilot Project funding for operation and evaluation estimated \$300,000 - \$800,000.

SOLOMON-REPUBLICAN REGIONAL ADVISORY COMMITTEE ACTION PLANS

SOLOMON-REPUBLICAN PRIORITY GOAL #1

WITHIN THE NEXT TWO YEARS, DEVELOP A CLEARINGHOUSE OF TECHNICAL TOOLS, AGREEMENTS AND AGENCY PERSONNEL FOR USE ALTERNATIVES FOR SOLOMON-REPUBLICAN REGION WATERS. AN EXAMPLE COULD BE THE MARKETING CONTRACT FOR KEITH SEBELIUS RESERVOIR/ALMENA IRRIGATION DISTRICT THAT REACHED AGREEMENT TO CONVERT IRRIGATION TO RECREATION USE.

ACTION STEPS

- Support KDWPT in their effort to renegotiate the Keith Sebelius Reservoir Minimum Pool Agreement with the Almena Irrigation District.
- Use the Keith Sebelius contract as a model for negotiations on other BOR Reservoirs (Kirwin, Webster)
- Use KBID's knowledge on capturing BOR grants to help improve Webster and Kirwin irrigation efficiency.
- Exhaust all possible funding sources necessary to improve water efficiency.
- Work with KDWPT on an economic study to determine the value of keeping as much water in the Western Reservoirs as possible.
- Initiate a meeting with USF&WS on Kirwin Reservoir facilities and KDWPT's involvement.
- Investigate the benefits of raising the Conservation Pool at both Kirwin and Webster.

SOLOMON-REPUBLICAN PRIORITY GOAL #2

REDUCE INBOUND SEDIMENT LOADS, THROUGH CONSERVATION MEASURES, WITH A FOCUS ON WHITE ROCK CREEK TO LOVEWELL RESERVOIR, BY 25% EVERY 10 YEARS.

ACTION STEPS

- Use KDHE to evaluate sources of sediment entering Lovewell Reservoir.
- Use Kansas and Nebraska data to evaluate suspended solids and nutrients.
- Use data to evaluate the effects of the Courtland Canal on Reservoir loading.

SOLOMON-REPUBLICAN PRIORITY GOAL #3

COMPLETE A BATHYMETRIC ASSESSMENT EVERY 10 YEARS ON ALL RESERVOIRS IN THE SOLOMON-REPUBLICAN REGION. THIS GOAL WILL BE A TOOL TO PERIODICALLY MONITOR SEDIMENT ACCUMULATION AND RATES. IF SEDIMENT LOADS EXCEED 10%, ACTIONS SHOULD BE INITIATED TO DETERMINE THE SOURCE WATERSHEDS AND REMEDIES WITHIN A TWELVE MONTH PERIOD FROM ASSESSMENT REPORT.

ACTION STEPS

- Work with KBS to complete bathymetric survey of Waconda Reservoir.

SOLOMON-REPUBLICAN PRIORITY GOAL #4

CONTINUE INITIATIVE THAT WILL MAINTAIN, AND ANNUALLY FUND A KANSAS ADMINISTRATIVE TEAM TO FACILITATE REPUBLICAN RIVER COMPACT (RRC) COMPLIANCE BY 2015. AN ANNUAL REPORT OF PROGRESS AND ACTIVITIES SHOULD BE PREPARED AND PRESENTED TO THE REPUBLICAN-SOLOMON REGIONAL ADVISORY COMMITTEE.

ACTION STEPS

- Quarterly presentation by KWO staff on RRC outcomes.

SMOKY HILL-SALINE PRIORITY GOAL #1

INCREASE AVAILABLE WATER SUPPLY, WATER SUPPLY STORAGE, AND INTERCONNECTIVITY AMONG PUBLIC WATER SUPPLIES WITHIN THE SMOKY HILL – SALINE PLANNING REGION. METHODS OF ATTAINING GOAL CAN INCLUDE: TEMPORARY OR PERMANENT CONSERVATION POOL RISE AT CEDAR BLUFF RESERVOIR; UTILIZE WILSON RESERVOIR AS A WATER SUPPLY SOURCE FOR THE REGION; PERMANENT CONSERVATION POOL RISE AT KANOPOLIS RESERVOIR; EVALUATE KANOPOLIS RESERVOIR TO DETERMINE THE FEASIBILITY OF DREDGING AND INITIATE PROJECT IF DEEMED VIABLE; CONSTRUCTION OF NEW WATER SUPPLY RESERVOIRS WITHIN REGION; AND PHREATOPHYTE CONTROL WITHIN RIPARIAN AREAS. TIMEFRAME OF IMPLEMENTATION: COMPLETE BY 2060. RESULT OF EFFORTS: ENSURE WATER SUPPLY AVAILABLE FROM RESERVOIR STORAGE EXCEEDS DEMAND BY AT LEAST 10% THROUGH THE YEAR 2060.

ACTION STEPS

- Evaluate recommendations included within the Smoky Hill-Saline section of the KWO Reservoir Roadmap when completed.
- Continue to pursue conservation pool rise efforts at Kanopolis Reservoir.
- Pursue alternative options to V-notch at Kanopolis Reservoir to allow for better control of operations and releases.
- Develop a lake level management plan at Cedar Bluff Reservoir to facilitate temporary pool rises on as needed basis when inflow conditions warrant.
- Evaluate the feasibility of and develop where determined to be most effective low-head dams along the Smoky Hill River above Kanopolis Reservoir to help increase recharge of alluvial aquifer.
- Evaluate the potential to dredge pools within river channel to create pools or basins which help promote recharge of alluvial aquifer.
- Evaluate the potential for utilization of the NRCS PL-566 watershed structure program for structure rehab for water supply purposes.
- Utilize watershed districts within the Smoky Hill-Saline Regional Planning Area and the Kansas Watershed District Act for new construction, operation and maintenance of watershed structures needed to improve for watershed management and water supply purposes.
- Determine the viability of treatment of produced and lower quality water for water supply purposes.
- Utilize additional aquifers (i.e. Dakota, Arbuckle, Cedar Hills) for water supply purposes
- Finish reallocation study of Wilson Reservoir before proceeding forward with any exploration of Wilson as a water supply reservoir.

- Conduct a needs assessment and/or feasibility study for water suppliers within the Smoky Hill-Saline Regional Planning Area to evaluate potential for interconnectivity among systems. This could include an evaluation of systems which have already conducted studies on their own evaluating their individual system’s needs and potential for interconnectivity.
- Utilize the Kansas Electronic Watershed Library (KEWL) or a similar program as a data clearinghouse for water supply-related studies completed within the Smoky Hill-Saline Regional Planning Area. This data clearinghouse could be developed for statewide purposes as well.
- Identify GIS, remote sensing, and/or on the ground assessments areas of phreatophyte growth in riparian corridors. Once identified, develop strategy for removal of phreatophytes in riparian areas to help maintain or restore streamflow in targeted regions.

RESPONSIBLE AND OTHER ASSISTING AGENCIES/ORGANIZATIONS

- Kansas Water Office, Kansas Department of Agriculture – Division of Water Resources, Kansas Department of Health and Environment, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, NRCS, SAKW, local watershed districts, regional public water suppliers (including municipal and rural water districts), Kansas Forest Service, county noxious weed programs.

RESOURCES NEEDED

- Funding for needs assessments, feasibility studies, or other assessments associated with action steps noted above. Total funding needed TBD.

TIMEFRAME OF COMPLETION

- During 2017, the Smoky Hill-Saline RAC will evaluate the action steps and develop a prioritized timeline to meet the end goal of ensuring water supply available from reservoir storage exceeds demand by at least 10% through the year 2060.

GEOGRAPHIC SCOPE

- The entire Smoky Hill-Saline Planning Region.

REGULATION/POLICY CHANGES

- TBD

SMOKY HILL-SALINE PRIORITY GOAL #2

DEVELOP A STATEWIDE CONSERVATION EDUCATION PROGRAM/MODEL WHICH IS APPLICABLE TO ALL PUBLIC WATER SUPPLIES WHICH QUANTIFIES WATER CONSERVATION EFFORTS ON CUSTOMER USAGE. DEVELOP A YOUTH-BASED WATER CONSERVATION EDUCATION PROGRAM WHICH IS TIED TO SCHOOL CURRICULUM. PROVIDE PRODUCERS WITH TOOLS AND RESOURCES NEEDED TO MAKE INFORMED MANAGEMENT DECISIONS WHICH IMPROVE WATER USE EFFICIENCY. EDUCATE ALL PLANNING REGION STAKEHOLDERS ON THE BENEFITS OF WATER CONSERVATION, THUS WORKING TOWARDS SUSTAINABLE USE OF THE REGION’S WATER SURFACE AND GROUNDWATER RESOURCES.

ACTION STEPS

- Work with the Statewide Vision Education and Public Outreach Working Group to ensure Smoky Hill-Saline Planning Region stakeholders are educated on the benefits of water conservation, thus working towards sustainable use of the region's water surface and groundwater resources.

RESPONSIBLE AND OTHER ASSISTING AGENCIES/ORGANIZATIONS

- Statewide Vision Education and Public Outreach Working Group implementing agencies and organizations.

RESOURCES NEEDED

- Identified by the Education and Public Outreach Working Group to the Blue Ribbon Funding Task Force.

TIMEFRAME OF COMPLETION

- Throughout Vision implementation period.

GEOGRAPHIC SCOPE

- Statewide with RAC efforts focused within the Smoky Hill-Saline Planning Region.

REGULATION/POLICY CHANGES

- None

SMOKY HILL-SALINE PRIORITY GOAL #3

REDUCE SEDIMENT AND TOTAL SUSPENDED SOLIDS (TSS) CONCENTRATIONS WITHIN THE LAKES AND STREAMS WITHIN THE SMOKY HILL – SALINE PLANNING REGION. METHOD OF ATTAINING GOAL CAN INCLUDE THE CONTINUED SUPPORT OF BEST MANAGEMENT PRACTICE (BMP) IMPLEMENTATION FOR PRACTICES WHICH REDUCE SEDIMENT RUNOFF. FOCUS BMP IMPLEMENTATION WITHIN PRIORITY AREAS IDENTIFIED IN BIG CREEK MIDDLE SMOKY HILL RIVER WATERSHEDS 9 ELEMENT WATERSHED PROTECTION PLAN. TIMEFRAME OF IMPLEMENTATION: COMPLETE BY 2040 - FINAL YEAR OF 9 ELEMENT WATERSHED PROTECTION PLAN IS 2034. RESULT OF EFFORTS: 26% REDUCTION OF TSS CONCENTRATIONS ON THE SMOKY HILL RIVER AT ELLSWORTH AS NOTED WITHIN THE 9 ELEMENT WATERSHED PROTECTION PLAN. REMOVE SEDIMENT-IMPAIRED WATERS FROM THE KDHE TMDL LIST.

ACTION STEPS

- Continued support of locally led and driven efforts, such as the WRAPS program and projects within the region, within watersheds and the BMPs noted for implementation within the 9 Element Watershed Plans.
- Continue to support NRCS programs/initiatives such as RCPP, EQIP, easement programs, WRP, CSTP, etc., which can be utilized to implement sediment-reducing BMPs as well as improve soil health. Identify sources of sediment contributing to TSS/sediment in water bodies (i.e. streambank assessments, etc.).

- Continue to support KDA-DOC programs/initiatives such as the nonpoint source program, watershed program, water resource conservation program and the funding provided to DOC through the State Water Plan Fund.
- BMP implementation above water supply waters to help facilitate settling out of solids before entry into water supply water (i.e. forebays, settling basins).
 - BMP implementation should continue to reduce sedimentation rate of Kanopolis Reservoir as well as other water supply sources.
- Enhance and continue to support information/educational (I&E) efforts focused towards landowners to help reduce sediment runoff on their respective property.
- Include consideration of Wilson Reservoir and the upstream watershed of sediment sources which could impact capacity including bathymetric survey analysis to help quantify current capacity of lake.
- Evaluate sediment and nutrient loading originating from watershed above Herington Reservoir which could impact its viability as a public water supply source. Utilize the June 2008 bathymetric surveys on Herington Reservoir and Herington City Lake as baseline characterization of current capacity lost in lakes due to sedimentation.

RESPONSIBLE AGENCIES/ORGANIZATIONS

- Kansas Water Office, Kansas Department of Health and Environment (including WRAPS Program), Kansas Department of Agriculture – Division of Conservation, Kansas Department of Wildlife, Parks & Tourism, Kansas Corporation Commission, Kansas Biological Survey (KBS), Kansas State University.

OTHER ASSISTING AGENCIES/ORGANIZATIONS

- Local conservation districts, county governments, municipalities, U.S. Army Corps of Engineers, K-State Research & Extension, Kansas Forest Service, Kansas Association for Conservation & Environmental Education (KACEE), Federal Emergency Management Agency (FEMA), Natural Resource Conservation Service (NRCS), Environmental Protection Agency (EPA), Kansas Rural Center (KRC), U.S. Fish & Wildlife Service (USFWS), U.S. Bureau of Reclamation, local industry/commerce, Kansas Rural Water Association (KRWA), local watershed districts, colleges/universities, Quail Forever, Pheasants Forever, Kansas Alliance for Wetlands & Streams (KAWS), other local groups.

RESOURCES NEEDED

- WRAPS program to provide coordination of efforts among other agency/organizations needed.
- Planners/designers and implementers for BMPs to be implemented for specific projects (i.e. streambank stabilization projects.).
- Cost estimates to fully implement WRAPS 9 Element watershed plans within Smoky Hill-Saline Planning Region is approximately **\$1.56 million annually**.
 - Additional costs outside of this annual cost would be expected as well.

TIMEFRAME OF COMPLETION

- Actions to be completed by 2040

GEOGRAPHIC SCOPE

- WRAPS project areas within Smoky Hill-Saline Planning Region
- Saline drainage above Wilson Reservoir
 - More assessment information needed in this area to characterize BMP needs.

REGULATION/POLICY CHANGES

- Continue to oppose current Waters of the United States (WOTUS) efforts.
- Streamline process and provide latitude to acquire necessary permits for streambank stabilization or other BMPs to reduce/remove additional requirements and costs.

SMOKY HILL-SALINE PRIORITY GOAL #4

INCREASE PUBLIC WATER SUPPLY WATER USE EFFICIENCY FOR SUPPLIERS WITHIN THE REGION. METHOD OF ATTAINING GOAL CAN INCLUDE THE PROMOTION OF DEVELOPMENT OF NEW OR UPDATED WATER CONSERVATION PROGRAM PLANS FOR PUBLIC WATER SUPPLIES WITHIN THE SMOKY HILL – SALINE PLANNING REGION. IMPLEMENTATION OF CONSERVATION MEASURES WHICH LEAD TO ALL PUBLIC WATER SUPPLIES IN THE SMOKY HILL – SALINE PLANNING REGION OPERATING IN THE BOTTOM 1/3RD OF GALLONS PER CAPITA PER DAY (GPCD) WHEN COMPARED TO OTHER PUBLIC WATER SUPPLIES WITHIN RESPECTIVE REGIONS USED FOR GPCD COMPARISON. TIMEFRAME OF IMPLEMENTATION: COMPLETE BY 2040. THE RESULTS OF THE EFFORTS WILL BE OBTAINING THE SAME OR INCREASED OUTPUTS WITHIN PARTICIPATING MUNICIPALITIES WHILE UTILIZING THE SAME OR LESS AMOUNTS OF WATER.

ACTION STEPS

- All public water supplies follow the 2007 Kansas Municipal Water Guidelines and have a recently updated conservation plan.
- Public water supplies evaluate the feasibility of water conservation rates.
- Public water supplies develop and promote rebate programs geared towards water conservation efforts.
- Develop a “tool box” of educational information PWSs could utilize to pass information along to customers.
- Work through the framework of existing statewide education efforts to:
 - Develop region-wide outreach campaign promoting water conservation efforts.
- Report GPCD values on an annual basis at RAC meetings

- Develop an independent technical task force to help large water users within public water supply systems to improve water use efficiency.
- Hold annual public water supply “field days” to share current water conservation efforts.
 - Make sure media is involved with promotion of these events.

RESPONSIBLE AND OTHER ASSISTING AGENCIES/ORGANIZATIONS

- Public water suppliers within Region, Kansas Water Office, Kansas Department of Agriculture – Division of Water Resources, Kansas Rural Water Association, Kansas Municipal Utilities

RESOURCES NEEDED

- Technical and financial resources for region-wide outreach campaign and independent technical task force.

TIMEFRAME OF COMPLETION

- Completed by 2040

GEOGRAPHIC SCOPE

- Entire Smoky Hill-Saline Planning Region

REGULATION/POLICY CHANGES

- None noted.

UPPER ARKANSAS REGIONAL ADVISORY COMMITTEE ACTION PLANS

UPPER ARKANSAS PRIORITY GOAL #1

EXTEND THE USABLE LIFETIME OF THE OGALLALA AQUIFER FOR AT LEAST 25 YEARS IN THE PLANNING REGION THROUGH THE PROMOTION OF MULTIPLE LOCAL ENHANCED MANAGEMENT AREAS (LEMAS), WATER CONSERVATION AREAS (WCAS) AND OTHER INCENTIVE-BASED PROGRAMS. SLOW THE DEPLETION OF THE OGALLALA AQUIFER BY 25% IN 10 YEARS IN THE PLANNING REGION MAXIMIZING THE OPPORTUNITY TO MAKE USE OF EMERGING TECHNOLOGIES. ENCOURAGE CONSERVATION THROUGH ADDED FLEXIBILITY. FIND ADDITIONAL SOURCES OF WATER AND A PLACE TO STORE WATER FOR IRRIGATION AND RECHARGE. INCREASE THE OPPORTUNITY TO USE WASTEWATER FOR OTHER BENEFICIAL USES. INCREASE EDUCATION OF AQUIFER CONDITIONS.

ACTION STEPS

- The depletion rate of the Ogallala Aquifer is based on the previous 15 years of data, 2000-2015. Usable life of the Aquifer is defined as 400 gpm well.
- Gather data to quantify the reduction in water use needed to reduce the depletion rate by at least 25% in 10 years and extend the life of the Ogallala in the region for at least 25 years. Use data to determine problem areas for focusing efforts.

- Gather data and disseminate information to water users in declining areas on soil/ water quality compatibility, water saving farming practices and Mobile Drip Irrigation (MDI) efficiencies.
- Focus on irrigation conservation (as largest user)
 - Encourage adoption of water conservation tools, Local Enhanced Management Areas (LEMAs), Water Conservation Areas (WCAs), technologies, crops and programs to reduce water use (new and improved programs).
 - Provide tools and assistance for WCA development and adoption.
 - Reduce inefficiencies in water use through proven technologies and best management practices, i.e., re-nozzle, technology advances and conservation programs.
 - Provide incentives to reduce pumping rates, reduce usage.
 - Support water technology farms as research and education tools for water use efficiency.
 - Define appropriate water needed to raise crop economically based on soil type and irrigation water compatibility.
 - Evaluate data on MDI for EQIP eligibility
 - Provide producers with information on water saving farming practices that add value to that farm.
 - Improve conservation programs such as CREP, and develop others to allow conversions to alternate crops or irrigation systems and remove county acreage caps.
- Maximize available water and promote conservation of municipal use through incentives, reduced water loss, and increased data availability to reduce gallons per capita per day usage. (Goal #3)
- Maximize available water and promote conservation of industrial use through incentives, benchmarking efforts, and increased data availability to reduce gallons per production unit usage. (Goal #4)
- Target conservation efforts along Arkansas River in Finney, Gray and Ford counties to aid in re-establishment of stream flow (Goal #2)
- Utilize 50-Year Water Vision Education Plan and other means to educate water users to adopt water saving technologies and management techniques, develop LEMAs, WCAs, understand water appropriation laws, and aquifer conditions. Provide decision makers with appropriate information.
- Develop alternative water supplies (capture runoff and high flows, reuse and recharge).
- Support research on water conservation and innovative, value-added concepts to offset economic loss.
- Support funding to provide water conservation actions and education.

- Support the exploration and investigation of surface water transportation for Kansas.
- Educate water users recognizing there are costs to individuals beyond program funds to reduce water use.

UPPER ARKANSAS PRIORITY GOAL #2

BY 2020, CONTINUE TO RE-ESTABLISH AND MAINTAIN FLOWS ALONG THE UPPER ARKANSAS RIVER IN THE AMOUNT OF ONE CUBIC FEET PER SECOND AT THE USGS GAGE LOCATED AT DODGE CITY FOR 100% OF KANSAS' SHARE OF COMPACT WATER AND A QUANTIFIED SHARE OF HIGH FLOWS THAT IS CURRENTLY STORED IN COLORADO THAT IS OVER AND ABOVE THE COMPACT AMOUNT THROUGH MANAGEMENT OF RIVER FLOWS AND MAINTENANCE OF OPEN CHANNEL CONVEYANCE THROUGH 100% OF TAMARISK CONTROL. ENSURE WE MAINTAIN COMPACT COMPLIANCE AND ENFORCE THE COMPACT WHEN NECESSARY.

ACTION STEPS

- Target water conservation efforts along Arkansas River in Finney, Gray and Ford counties to aid in re-establishment of stream flow.
- Support efforts to eradicate tamarisk along the river channel. (May include future RCPP, KFS grant or other efforts.)
- Support off-river storage of high river flows (may need water management rule changes and/or development of additional storage).
- Ensure state resources are maintained to monitor and enforce compact compliance.

UPPER ARKANSAS PRIORITY GOAL #3

MAXIMIZE AVAILABLE WATER AND PROMOTE CONSERVATION OF MUNICIPAL USE THROUGH INCENTIVES, EDUCATION AND OUTREACH, REDUCED WATER LOSS, AND INCREASED DATA AVAILABILITY TO REDUCE GALLONS PER CAPITA PER DAY USAGE.

ACTION STEPS

- Utilize 50-Year Water Vision Education Plan and other means to educate water users to adopt water saving technologies and management techniques.
- Encourage all public water suppliers to have an approved water conservation plan and use it.
- Encourage and support public water suppliers to investigate reuse and conservation projects.
- KWO and its partner agencies and organizations will develop BMPs for municipal projects which promote reuse and conservation of water. These projects should be shared through events such as the annual Governor's Water Conference.

UPPER ARKANSAS PRIORITY GOAL #4

MAXIMIZE AVAILABLE WATER AND PROMOTE CONSERVATION OF INDUSTRIAL USE THROUGH INCENTIVES, EDUCATION AND OUTREACH, BENCHMARKING EFFORTS, AND INCREASED DATA AVAILABILITY TO REDUCE GALLONS PER PRODUCTION UNIT USAGE.

ACTION STEPS

- Utilize 50-Year Water Vision Education Plan and other means to educate water users to adopt water saving technologies and management techniques.
- Encourage all industrial water users to have an approved water conservation plan and use it.
- Objective to lower the consumption per unit production at the facilities normal or maximum production point.
- Incentivize industrial investments in water efficiency savings, such as a percentage tax break for a fixed period based on the relative “size” of the financial investment. Incentives should be directly proportional to demonstrated water savings and reductions.
- Recognize and promote the relationship between industry and the agricultural economy and the fundamental reliance on water.

UPPER REPUBLICAN REGIONAL ADVISORY COMMITTEE ACTION PLANS

UPPER REPUBLICAN PRIORITY GOAL #1

DEVELOP AND ADOPT A WATER CONSERVATION MANAGEMENT PLAN THAT PROVIDES MAXIMUM FLEXIBILITY WHILE REDUCING OVERALL ACTUAL USE, IN CONCERT WITH GMD 4, TO EXTEND THE AQUIFER LIFE AND ECONOMIC WELL-BEING BY JANUARY 1, 2017. UTILIZE A TIME-PHASED IMPLEMENTATION APPROACH, NOT LESS THAN 2 YEARS OR GREATER THAN 5 YEARS, TO PHASE IN CONSERVATION MEASURES TO LESSEN ECONOMIC IMPACTS AND ALLOW USER TRANSITION. CONSERVATION PLAN SHALL ADDRESS ALL TYPES OF USE WHILE CONSIDERING FLEXIBILITY TOOLS AND OVERALL ACTUAL REDUCTION.

ACTION STEPS

- Support GMD No. 4 in continuation of district wide LEMA plan.
- Look outside the box for other possible funding sources necessary to improve water efficiency.

UPPER REPUBLICAN PRIORITY GOAL #2

ENHANCE CURRENT EFFORTS ON EDUCATION OF ALL WATER USERS FOR ALL AGE GROUPS ON SOURCES OF SUPPLY, QUANTITY OF SUPPLY, BEST MANAGEMENT PRACTICES, ETC. TO HELP STAKEHOLDERS CONSERVE AND EXTEND.

ACTION STEPS

- Work with KDA and GMD No. 4 in education of water technology farms, specifically in creating a water technology farm with the Northwest Kansas Technical College's Precision Agriculture program.
- Support KDA in education of WCAs.
- Work with NRCS to evaluate effectiveness of RCPP program and find efficiencies.
- Create a fall event for education of water conservation, involve water agencies and schools.

UPPER REPUBLICAN PRIORITY GOAL #3

REPUBLICAN RIVER COMPACT ADMINISTRATION SHOULD BE ENCOURAGED TO MAINTAIN COMPLIANCE IN THE SOUTH FORK REPUBLICAN RIVER.

ACTION STEPS

- Ensure KDA continually updates the RAC on the Republican River Compact, especially if any changes occur within the area.

UPPER REPUBLICAN PRIORITY GOAL #4

INCREASE UTILIZATION AND ADOPTION OF WATER CONSERVATION TECHNOLOGY AND PRACTICES BY 10% BY 2020. ACTIVELY SEEK ANNUAL FUNDING TO ENSURE SUCCESSFUL ACHIEVEMENT OF GOAL

ACTION STEPS

- Promote conservation through possible incentives and increased data availability.

UPPER REPUBLICAN PRIORITY GOAL #5

ENCOURAGE THE STATE TO COORDINATE WITH THE USDA RISK MANAGEMENT AGENCY (RMA), AS WELL AS OUR CONGRESSIONAL DELEGATION AND NEIGHBORING STATES, TO DEVELOP COMMON SENSE TOOLS FOR CROP INSURANCE THAT ENCOURAGE WATER CONSERVATION AND HAVE SUCH TOOLS AND POLICIES AVAILABLE BY 2017.

UPPER SMOKY HILL PRIORITY GOAL #1

BY 2025, REDUCE IRRIGATION USE BY 25% BASED ON RECENT AVERAGE PUMPING HISTORY PER WATER RIGHT. ALLOW WATER RIGHT TRANSFERS AND OTHER FLEXIBILITIES AS LONG AS A NET REDUCTION IS ACHIEVED. IN ADDITION, ANNUAL WATER USE FOR ALL IRRIGATION USERS WILL NOT EXCEED NET IRRIGATION REQUIREMENT FOR THAT COUNTY.

ACTION STEPS

- Support GMD No. 1 in formulating another LEMA plan.
- Work with KDA and GMD No. 1 in education of water technology farms
- Support KDA in education of WCAs

UPPER SMOKY HILL PRIORITY GOAL #2

DEVELOP A WATER REDUCTION PLAN AND BEGIN IMPLEMENTATION BY JANUARY 2017. SHORT TERM: REDUCE THE RATE OF DEPLETION OF THE AQUIFER WITHIN FIVE YEARS TO SUSTAIN THE ECONOMY, BUT BEGIN IMPLEMENTATION OF CONSERVATION IMMEDIATELY. LONG TERM: BY EVALUATING SUCCESS EVERY FIVE YEARS, DETERMINE IF CONSERVATION MEASURES ARE ACHIEVING A REDUCED RATE OF DEPLETION. (RATIONALE: WITHIN EACH FIVE YEAR EVALUATION PERIOD NEW TECHNOLOGIES AND CROP VARIETIES AS WELL AS ADDITIONAL SOURCES OF SUPPLY WILL BE MORE AND MORE AVAILABLE.)

ACTION STEPS

- Work with NRCS to evaluate effectiveness of RCPP program and find efficiencies.
- Work with GMD No. 1 in creating a quarterly newsletter to members; include updates from within district and involving water agencies.
- Create a fall event for education of water conservation, involve water agencies and schools.
- Promote conservation through possible incentives and increased data availability.

UPPER SMOKY HILL PRIORITY GOAL #3

ALL MUNICIPAL USERS WITHIN THE PLANNING REGION WILL BE AT OR BELOW THE REGIONAL 2015 AVERAGE GALLONS PER CAPITA PER DAY (GPCD) WITHIN THE NEXT FIVE YEARS. ALL MUNICIPAL USERS AS DEFINED BY THE KANSAS WATER APPROPRIATION ACT IN PLANNING AREA WILL FOLLOW BEST MANAGEMENT PRACTICES AND IMPLEMENT A CONSERVATION PLAN.

ACTION STEPS

- Review municipal rate structures.
- Review Scott City’s education tools to see if their plan can work in nearby cities.
- Promote conservation through possible incentives and increased data availability.

UPPER SMOKY HILL PRIORITY GOAL #4

MAXIMUM WATER USE PER HEAD WILL BE MAINTAINED AS DEFINED BY THE KANSAS WATER APPROPRIATION ACT. STOCKWATER ALLOCATIONS AS DEFINED BY KANSAS WATER APPROPRIATION ACT WILL IMPLEMENT BEST MANAGEMENT PRACTICES AND BE AS EFFICIENT AS POSSIBLE. MEASURE THE IMPLEMENTATION OF THIS GOAL BY A 15% INCREASE IN THE ADOPTION OF MANAGEMENT PRACTICE PLANS (OVERFLOW REUSE, ETC.) WITHIN THE NEXT FIVE YEARS.

ACTION STEPS

- Research feasibility of reuse options for livestock watering.
- Promote and implement dairy and feedlot Best Management Practices

UPPER SMOKY HILL PRIORITY GOAL #5

INDUSTRIAL USERS AND ALL OTHER BENEFICIAL USES OF WATER WILL DEVELOP BEST MANAGEMENT PRACTICE PLANS TO BE AS EFFICIENT AS POSSIBLE. BY 2020, ALL INDUSTRIAL USERS WILL HAVE A BEST MANAGEMENT PRACTICE PLAN AND THE ADOPTION OF PRACTICES WILL INCREASE BY 15%.

ACTION STEPS

- Promote and implement Best Management Practices for industrial users.

VERDIGRIS REGIONAL ADVISORY COMMITTEE ACTION PLANS

VERDIGRIS PRIORITY GOAL #1

IN ORDER TO MANAGE THE WATER STORAGE CAPACITY IN OUR REGION, EVALUATE DIFFERENT PROCESSES OF MANAGING OUR RESERVOIRS BY 2020. THEN USING BEST MANAGEMENT PRACTICES, INCLUDING CONSIDERATION OF COST/BENEFIT OF THE PRACTICES: INCREASE WATER STORAGE CAPACITY BY 10% EVERY 10 YEARS WITH PRIORITY GIVEN TO EXISTING STRUCTURES, AND ENSURE WATER SUPPLY AVAILABLE FROM STORAGE EXCEEDS PROJECTED DEMAND BY AT LEAST 10% THROUGH THE YEAR 2050.

ACTION STEPS

- The Kansas Water Office will evaluate the feasibility of reservoir operation changes and water storage increases and estimate costs of these. A feasibility report will be drafted no later than 2020, which will

include input from all affected entities (and will focus on Fall River Reservoir as a priority for reallocation and ensuring the supply exceeds demand beyond 2036). Based on the outcome of the feasibility report, changes to operations will be implemented and the process of reallocation studies may be initiated.

VERDIGRIS PRIORITY GOAL #3

BY 2020 EVALUATE POTENTIAL SITES AND THE COSTS AND BENEFITS OF BUILDING NEW RESERVOIRS WITHIN THE VERDIGRIS REGION TO MEET FUTURE DEMANDS. PERMITTING AGENCIES SHOULD STREAMLINE PROCESSES TO SPEED APPROVAL OF SMALL PONDS AND RESERVOIRS.

ACTION STEPS

- In order to evaluate potential sites, a review the Reservoir Roadmap for the Verdigris Region will be conducted by the Kansas Water Office. After review of the Reservoir Roadmap additional work will be conducted by the Kansas Water Office to highlight areas of demand in the region and provide additional information on reservoir siting not covered in the Roadmap. A report will be created with this information, as well as cost benefit analysis of building new reservoirs. This report will be completed no later than 2020. In addition to this report the Kansas Water Office will review the PL-566 program in reference to dam rehabilitation and water supply addition. A committee will also need to be created involving those working with the permitting of reservoirs, including, but not limited, to SAKW, USACE, DOC, DWR, WRAPS, NRCS, and KWO. This committee will review mitigation guidelines and rehabilitation possibilities.