



**Before the
House Committee on Water and Environment
Earl Lewis, Assistant Director, Kansas Water Office
January 11, 2018**

Chairman Sloan and members of the committee, thank you for the opportunity to appear before you and discuss funding which was added to the Kansas Water Office Budget for FY 2018.

At the end of the 2017 Session, the Kansas House added \$2 million from the State General Fund to the State Water Plan Fund and dedicated it to five specific topics. Three of those funding lines were agreed to by the budget conference committee and ultimately included in the final appropriation bill. Those were:

	House Floor Amendment	Final Appropriation
Streambank Stabilization	\$ 1,000,000	\$ 1,000,000
Reservoir Bathymetric Surveys and Biological Research	\$ 100,000	\$ 100,000
Kansas River Alluvial Aquifer Observation Well Network	\$ 100,000	\$ 100,000
Irrigation Technology	\$ 400,000	
TMDL Initiatives	\$ 400,000	

Each of the three funding lines that were approved for addition were included within the Kansas Water Office FY 2018 budget.

Streambank Stabilization

Streambank stabilization continues to be a key component in the reduction of sediment entering our water supply reservoirs. The Kansas Department of Health and Environment (KDHE), the Kansas Department of Agriculture (KDA), and the Kansas Water Office (KWO) coordinate efforts and resources in order to accomplish streambank protection work to reduce erosion and sedimentation in the watersheds above our highest priority reservoirs. In order to complete projects in the most efficient and cost effective manner, the group operates from pooled funding. Funds available through agency programs for streambank protection projects are targeted to priority areas and administered by this collaborative team. The Kansas Forest Service, Kansas Department of Wildlife, Parks, and Tourism, local conservation districts and local Watershed Restoration and Protection Strategy (WRAPS) groups are also important to the success of this process.

Streambank stabilization efforts continue to be concentrated in the three priority Kansas watersheds above Federal reservoirs: the Big Blue/Little Blue Rivers above Tuttle Creek Lake; the Delaware River above Perry Lake; and the Neosho/Cottonwood Rivers above John Redmond Reservoir. In 2017, construction was completed for stabilization of nine streambank sites achieving an estimated sediment load reduction of 30,000 tons per year.

Construction is underway for four sites above Tuttle Creek Lake and five sites above Perry Lake, and engineering design of 13 new sites has been initiated above John Redmond and Tuttle Creek Reservoirs.

The table at right shows the progress that has been made in these three watersheds, as well as the amount of work that remains.

Priority Watershed	Sites Previously Addressed	Sites Remaining	
		Number	Est. of sediment reduction— tons/yr
John Redmond	33	332	450,891
Tuttle Creek	96	215	514,871
Perry	35	46	70,025
Total	164	628	1,035,787

Completion of all of the remaining sites in these three watersheds is estimated to cost approximately \$33.3 million.

The following table shows the current streambank project status of all projects underway.

Phase	Location/Group	# of Sites	Status Notes	Total Costs	*Estimated Sediment Reduction (tons/yr)
Completed	Cottonwood	3	Final inspection conducted on 3/3/2017	\$ 231,937	4,668
Completed	Tuttle	4	Final inspection pending	\$ 472,115	20,000
Subtotal - Completed Phase				\$ 704,052	
Construction	Delaware	5	Construction start in Summer 2018	\$ 397,598	3,400
Final Design	Tuttle	1	SFY 2018 construction	\$ 226,625	1,500
Final Design	Tuttle	7	SFY 2018 construction	\$ 913,010	36,257
Final Design	Cottonwood	2	Construction start Summer 2018	\$ 240,816	
Preliminary Design	Tuttle	6	SFY 2019 construction	\$ 615,950	18,940
Subtotal - Construction & Design Phase				\$ 2,393,999	
Planning/Pre-Design	Delaware	4-5	Landowner contacts/pre-design site visits	\$ 445,000	TBD
Planning/Pre-Design	Cottonwood	8	Landowner contacts/pre-design site visits	\$ 1,246,000	34,650
Planning/Pre-Design Phase				\$ 1,691,000	
Current Total All Phases				\$ 4,798,050	

* Estimated sediment reduction in tons/yr based on assessment/pre-design information. Final estimates are provided upon completion of project.

Funding for projects comes from a combination of sources including SWPF in FY 2017 and FY 2018, State Revolving Loan Funds, John Redmond Dredge Project Bond Funds, EPA 319 Funds and Non-Point Source Funding within KDA-DOC.

Reservoir Bathymetric Surveys and Biological Research

The Kansas Water Office has for a number of years partnered with the Kansas Biological Survey to complete bathymetric surveys of water supply reservoirs. Bathymetric surveys, using current technology, create a three dimensional surface of the bottom of the reservoir. From this information, the water storage capacity of the reservoir can be determined. Comparison of current surveyed capacity with previous capacities is also a key mechanism to determine the sedimentation rate.

Funding provided in FY 2018 is being used to complete surveys on Marion and Council Grove reservoirs. These reservoirs have had the longest interval since the previous bathymetric surveys and there is strong support by the Neosho Regional Advisory Committee to gain this information.

I understand that Dr. Martinko will be providing more detail on this effort in his remarks.

Kansas River Alluvial Aquifer Observation Well Network

The Kansas River provides water supply to almost a third of the state's population. For a number of years, the Kansas Water Office has completed and updated a surface water model of the river and reservoirs to insure reliable supply and improve operations. A gap in our understanding has been how much interaction there is between the river and the associated groundwater alluvium, and how use of water in the alluvial valley affects the river, especially during low flow.

Development of a groundwater model, and ultimately connecting it to the surface water model, will allow us to better manage the system. Establishment and measurement of observation wells is the first step in this process.

Dr. Mandel will be able to provide additional information on this effort in his testimony.

Overall Funding Needs

Since 2013, there has been significant focus on insuring an adequate long term water supply. Rightfully so as the supply of water and its' management is primarily the state's role. Adequate funding continues to be an issue.

From a resource perspective, most of our issues fall into three main categories: (1) groundwater depletion in Western Kansas, (2) reservoir storage and sedimentation, and (3) water qualities issues primarily associated with nutrients.

While most of the usage in Kansas is for irrigation and is within the High Plains Aquifer, most of the actions needed to address the issue will be management changes undertaken by individuals. Certainly research on crops that use less water will be important and will need some funds, as will encouragement of use of new irrigation technology.

The majority of our water funding needs to meet our long term water supply demands will be related to reservoirs and their associated watersheds. Securing, protecting and restoring our reservoirs will take a significant financial commitment in the coming years.

Securing all storage currently available to the state in Corps of Engineers reservoirs will ultimately cost more than \$100 million. In addition, we are currently evaluating reallocation of storage in several reservoirs to increase our drought resiliency. Depending on the outcome, these costs will be significant as well. Access to the water in that storage will be invaluable during drought conditions.

Protecting storage from both sediment deposition and nutrient inflow is critical to our citizens. Watershed protection work is the most cost effective way to address these issues. The Kansas Water Office, along with more than 20 other partners, recently received word that an application for an NRCS Regional Conservation Partnership Program grant was approved. The grant will dedicate an additional \$2.8 million in NRCS Environmental Quality Incentive Program funds to the Milford Lake watershed to implement best management practices (BMPs) that control nutrients and sediment. These funds will be matched with state, local and organization dollars to bring the total program over \$6 million. There is the need for dedication of additional state funds to meet our match. The long term need is much greater however. Estimates of total need for watershed BMPs stretch into the hundreds of millions to fully address all of our issues. This will be a long term, sustained effort to be successful.

Finally, no matter how much protection work we do, we will continue to have sediment accumulate in our reservoirs. We will have to either remove that sediment or build more storage if we are to have drought protection. We already experienced this situation at John Redmond, and proved that we can successfully implement a dredging project. The costs of this option are high, and the projects are difficult. We are currently evaluating other alternatives such as sediment bypass with the Corps of Engineers. Unfortunately, the results of that work won't be ready in the short term.

Thank you again for the opportunity to appear today. I will be happy to stand for questions at the appropriate time.



Legend

- ◆ Stabilized Streambanks
- Actively Eroding Streambanks
- ☞ Priority Watersheds

0 10 20
40 Miles

Tuttle Creek

Perry

John Redmond

MEMO



DATE: October 31, 2017
TO: Chairman Tom Sloan
FROM: Earl Lewis, Assistant Director
RE: Future Use Storage in Corps of Engineers Reservoirs

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The table below indicates the Future Use Storage amounts in all state-owned reservoirs, based on 2017 conditions and capacity, and the estimated costs to call in all Future Use Storage in these reservoirs in 2017.

Lake	Big Hill	Clinton	Hillsdale	Milford	Perry	Totals
2017 Water Supply Storage (AF)	22,553	94,016	59,334	366,394	194,276	736,573 AF
2017 WS Storage In-Service (AF)	8,074	56,433	18,791	124,134	32,386	239,818 AF
2017 Water Supply-Future Use (AF)	14,479	37,583	40,543	242,260	161,890	496,755 AF
Percent Future Use	64%	40%	68.33%	66%	83%	67%
Year Contract Payment Complete	2029	2027	2030	2034	2041	--
Est. 2017 Cost of Future Use Storage	\$12,177,503	\$7,006,735	\$44,507,067	\$24,382,930	\$23,998,463	\$112,072,698
Interest Rate	4.012%	3.50%	4.01%	2.63%	3.05%	--
Annual Principal & Interest Payment	\$1,173,335	\$752,137	\$4,054,125	\$1,674,092	\$1,277,698	\$8,931,387
Additional Annual O&M Payment*	\$193,527	\$119,841	\$214,819	\$176,916	\$374,331	\$1,079,434
Total Additional Annual Payment	\$1,366,862	\$871,978	\$4,268,944	\$1,851,008	\$1,652,029	\$10,010,821

*Additional O&M payments with Future Use Storage call-ins are estimated using 5-year average O&M cost projections, as provided by the Corps.