U.S. Army Corps of Engineers ®

Tulsa District Project Update

February 2011

District Commander's Perspective

During the last six months following the September 2010 issue of the Project Update, we have had multiple opportunities to engage with our stakeholders and the public. It is a privilege to serve as Commander of the Tulsa District, and I want to take this opportunity to say thanks to all of our stakeholders. Whether we are talking with the Kansas Water Office, the Lake Texoma Advisory Committee, or the Fort Sill Garrison Staff, the Tulsa District is blessed with fantastic stakeholders and we appreciate what they do to support us. Last fall at the Oklahoma Governor's Water Conference, I can't tell you the number of people who stopped us to say thank you. More importantly, they also stopped to discuss ways that we have worked together in the past and how we should continue to work together in the future. My response is normally, "Thanks for the partnership." We could never accomplish all of the work that we do without our great stakeholders.

Colonel Michael Teague
Commander, Tulsa District

In this issue, you will see several examples of ongoing initiatives with stakeholders. Some are huge success stories, like working with the Tulsa County Commissioners on the cost sharing agreement for the Feasibility Study for the Arkansas River Corridor project. Others are quite controversial and emotional, like the listening sessions for the Optima and Great Salt Plains Initial Appraisals and the use of self-propelled vehicles on federal lands at Lake Texoma. Our projects are complex, with many stakeholders with different and often competing interests. On projects like the Elm Fork (Area VI) of the Red River Chloride Control Project and implementation of Section 3134 (Oklahoma Lakes Demonstration Program) of the Water Resources Development Act of 2007, it takes time and resources to develop implementable alternatives that best serve the public, protect the environment, and are good federal investments. We must have input and ideas from stakeholders, including the public. To that end, we pledge to continue our "listening" communication initiatives.

Our Tulsa District projects are aging, with many nearing the end of their economic life. We began the first week of calendar year 2011 with the Regional State Water Planning Summit in Norman, Oklahoma, including the Oklahoma Water Resources Board, the Texas Water Development Board, and the Kansas Water Office. The meeting was led by Southwestern Division Commander COL Kula with participation from Tulsa, Fort Worth, Kansas City, and Little Rock Districts. Reservoir Sustainability is a major concern of the States in our area, and Federal reservoirs are an integral component of State Water Planning in the western states, including Kansas, Oklahoma and Texas. With States leading the way in water planning, the Corps will continue to be an integral team member to support State priority projects.

We sincerely appreciate the support of elected officials and their staffs as we pursue these opportunities. Like the listening session we had at Lake Texoma on January 8, we send a strong message to the public when we address their concerns as a combined governmental body including the Corps, U.S. Congressional Offices, State Legislators, and County Commissioners.

Lastly, we look forward to visiting members of Congress and their staff, as well as other stakeholders, in February to communicate the FY12 President's Budget and status of high priority projects.

Building Strong!

USACE Commander's Vision

A GREAT engineering force of highly disciplined people working with our partners through disciplined thought and action to deliver innovative and sustainable solutions to the Nation's engineering challenges.

Mission:

Provide vital public engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters.

Commander's Intent:

The U.S. Army Corps of Engineers will become a GREAT organization as evidenced by the following in all mission areas:

- **Delivers Superior Performance;**
- **Sets the standard for our profession;**
- **Makes a positive impact on the Nation and other nations;**
- **Is built to last as evidenced by our strong "bench" - educated, trained, competent, experienced, and certified.**

We will deliver superior performance through disciplined people, thought, and action. We will use the Campaign Plan as a component of our Corporate Strategic Management Process to establish our command priorities, focus our transformation initiatives, measure and guide our progress, and adapt to the needs of the future.

We will align and synchronize our work throughout the Corps and make deliberate and informed corporate decisions on the best use of our resources. If any requirements outside the Campaign Plan arise, we will make a corporate decision to either divert resources or incorporate new objectives and adjust work priorities as necessary.

My intent is for the Corps to be ONE DISCIPLINED TEAM – in thought, word, and action – and to meet our commitments, with and through our partners, by "SAYING WHAT WE WILL DO, AND DOING WHAT WE SAY."

U.S. Army Corps of Engineers ®

Regional State Water Planning Summit Starts 2011 With Collaborative Focus

Attendees at the 2011 regional state water planning summit

For the public within the Arkansas and Red River Basins in Kansas, Oklahoma and Texas that are supported by Tulsa District, nothing could be more important than water. Having a dependable quantity and quality to support the endless uses of water is critical to the continuing development of our region, providing opportunities for jobs and quality of life. Water is required for drinking, navigation, hydropower, recreation, fish and wildlife, and the environment. Too much water provides flooding risks to the public.

Leaders of the Oklahoma Water Resources Board (OWRB), Kansas Water Office (KWO) and the Texas Water Development Board (TWDB) met on January 5 and 6, 2011, with Corps of Engineers representatives to discuss water planning strategies to meet future water demands. The meeting was held in Norman, Oklahoma, at the University of Oklahoma. Dr. Berrien Moore welcomed the group and stressed the need for state and federal collaboration. Appropriately, the meeting was held in the Research and Development part of the campus, where they focus on climate, weather and water.

Southwestern Division Commander COL(P) Tom Kula led the Corps of Engineers contingency, which included Tulsa, Fort Worth and Little Rock Districts, as well as COL Tony Hoffman and the Kansas City District team. Attendees from the states included OWRB Executive Director J.D. Strong, Kyle Arthur, Julie Cunningham and Josh McClintock, Kansas Water Office Director Tracy Streeter, Earl Lewis and Susan Metzger, and TWDB Deputy Executive Administrators Carolyn Britton and Robert Mace and Director of Policy Integration and Federal Coordination, Dave Mitamura.

States are the leaders in water resource planning. Corps projects are a tremendous component of currently available flood risk management infrastructure and multi-purpose water supply storage. For instance, federal reservoirs make up two-thirds of available drinking water supply in Kansas. The Corps also has a number of authorities available to assist States' water resource priorities, including the Planning Assistance to States Program, the Continuing Authorities Program, and a number of specific authorities in various water basins.

State Water Plans clearly depict the challenge of the increasing demand and the decreasing supply of water. The decreasing supply is due to a number of factors, including the continued lowering of the groundwater table due to pumping, and the sedimentation of reservoirs. Many Corps projects have met or exceeded their original design life, but their continued

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Water Summit ... from page 3

operation is critical to Water Plan objectives. New reservoirs will be a very difficult endeavor due to costs, land availability, and environmental concerns. Thus, initiatives to sustain the life of existing reservoirs became the theme of the water summit, with all recognizing the need for collaboration between state, federal, Tribes and local governments being the key to success.

Several actions came out of the summit. Much of the discussion evolved around Dam Safety. Due to the aging infrastructure, there are a number of dams throughout the region that have been identified as moderate to high risk. With this risk assessment come the requirements for interim risk reduction measures and long term dam safety modifications. These actions will result in considerable cost, some of which will be shared by water supply cost sharing entities including states, cities, and water districts. The Corps and States will work closely to communicate potential ramifications.

COL(P) Kula, Southwestern Division Commander, and J. D. Strong, OWRB Executive Director

Other actions focused on developing a charter to formalize joint principles and priorities of the group, improving collaboration, establishing Corps liaison positions in State water offices, and developing a website to share information within this group and related stakeholders. The Kansas Water Office will develop the agenda and coordinate logistics for the next water summit.

COL Teague, who led the Tulsa District membership at the water summit, summarized it best, "I've worked in many areas of the United States and in many countries during my tenure with the Army. There are not many geographical areas in which States and the Corps can get together to meet with such respect, open dialogue, and commitment for partnership to further water resource development initiatives. I am proud to be a part of this regional effort and look forward to continuing the positive relationships and collaborative strategic planning."

COL(P) Kula presents to one of the sessions at the regional water summit.

For updated project information,
access our web site at:
http:\\www.swt.usace.army.mil
or call 918-669-7366

Webbers Falls Powerhouse Unit #3 Gate Barrel Installation

One of the most critical and impressive lifts and component installations during the major rehab of Webbers Falls Powerhouse took place on November 30, 2010. This involved the Unit #3 turbine gate barrel. This assembly/component is key in the operation of the turbine as it's comparable to the foot pedal on a car giving it gas.

The 16-wicket gates are arranged in a circular pattern and linked together to operate as one unit. As they open, the water is allowed to flow over the turbine blades in a very efficient manner and spin it like a pinwheel. This spinning motion translates to torque and eventually electrical power via the generator on the other end of the turbine. The more the wicket gates are opened, the more torque is developed, and thus more electrical power. The original removal of this component was considered an "engineered lift" during disassembly due to its vast physical size. Its overall weight exceeded 100 percent of the rated capacity of the bridge crane being used. The new assembly's weight is considerably less, which took it out of the "engineered" category but left it as a "critical lift" due to its size and use of both 75-ton main hooks on the crane. The gate barrel assembly is approximately 26 feet in diameter and is an overwhelming sight when lifted. The following message was sent that afternoon to the commander and other associated parties.

"We successfully installed the Unit #3 gate barrel assembly this morning in approximately 3 hours, awesome job! As odd as this sounds, it was so uneventful and smooth, it was almost boring to watch, nice dilemma! The lift was as dramatic and photogenic as always from a layman's perspective with this specific lift and I'm still amazed at the lack of space and room to work with here at Webbers. All involved were exceptionally proficient and enthusiastic about this lift and their pride shows through in what they do and how they do it.

Millwrights, Steelworkers, Contractors, Corps(O&M/E&C), etc., have assumed ownership of this job and it's reflected in their work ethic, I applaud each of you."

We are currently coupling the previously installed main shafts and installing the turbine to go on-line with commercial operation and commissioning of Unit #3 in June 2011. The gate barrel assembly had not been removed since initial construction in the early 1970s and was quite a sight to behold to those who thought they had seen it all! Many "lessons learned" were encountered with the gate barrel and new procedures were established to expedite work on the remaining two units.

These units are only three of eight of this configuration which exist in the world, and the opportunity to see this type of work is a once-in-a-lifetime opportunity. If you get the chance to come see it, just call ahead and we'll gladly put our best foot forward.

U.S. Army -- Planting the Seed

The Army has demonstrated its commitment to environmental and wildlife conservation by allowing the outgrant of federal lands for agriculture and grazing purposes for over 50 years. In 1983, legislation was passed that established the Army's "reimbursable" agriculture and grazing outgrant program. Agricultural outgranting is when the Army leases land to private entities and individuals for agriculture and grazing purposes.

The primary goals of the Army's agriculture and grazing program include:

- Ensuring proper management and use of real property for mission purposes
- Providing economic opportunities to the local community
- Reducing maintenance and custody costs through rental offsets

Farmer harvesting alfalfa hay. Alfalfa is one of the most abundant crops cultivated on Tulsa District's agriculture and grazing leases.

How Does the Program work?

Today, the Army's agriculture and grazing outgrant program operates under an ecosystem approach to land management. The primary responsibility of the Army's agriculture and grazing programs is to preserve our installations' soil, water, wildlife, and vegetation through effective and efficient agronomic management practices. These opportunities are made available when it is determined that agriculture outgrants are compatible with the mission and long-term ecosystem management goals. The military mission is the primary objective and agriculture and grazing outgrants must support mission activities. The Tulsa office manages nearly 50,000 acres of military outgrants District-wide.

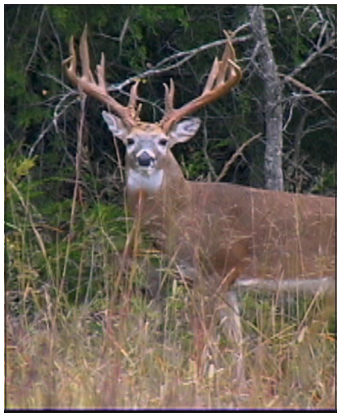
Over the past five years, two installations within the Tulsa District participated annually in the Army's agriculture and grazing outgrant program. This program has generated an average of $30,000 dollars per year in revenue. All revenues are used by the installation and the Corps of Engineers to cover natural resource management and lease administration expenses. These installations also receive compensation for outgrants in the form of rental offsets. Typical rental offsets include mowing, fence repair, soil erosion control, access road maintenance, and other land management expenses. Tulsa District installations receive over $120,000 dollars per year in rental offsets.

McAlester Army Ammunition Plant

Respecting wildlife is part of Oklahoma's heritage and the McAlester Army Ammunition Plant's (AAP) natural resource program has embraced this philosophy with an ever expanding wildlife and agriculture program.

The McAlester Natural Resources staff is nationally recognized for its successful management of Oklahoma rangeland. Their vision has been to have rangeland and wildlife attributes mimic pre-European settlement conditions. This has been accomplished through re-introducing eastern gamagrass, switchgrass, indiangrass, little bluestem, and big bluestem to many of the fields and hay meadows. These practices have improved the harvest production and quality of the installations for agriculture and grazing leases. McAlester AAP currently has five agriculture and grazing leases that cover 15,490 acres of rangeland that is utilized by local farmers to produce more than 2,000 tons of hay annually.

These agronomic management practices have had a significant impact on the installation's wildlife program. The pre-European management practices, controlled burns, and specialized hunting programs have produced one of the most fertile habitats for deer, turkey, and hog population growth. Since implemented, these management efforts have successfully increased the proportion of mature bucks in the population by reducing the buck-to-doe ratio from 1-to-5 in 1981 to a 1-to-2 ratio in 2006.



MCAAP refers to this deer as Rocky and has listed him as No. 7 on their Most Wanted list.

Planting more seeds

Fort Sill

Fort Sill has one of the largest agriculture and grazing leases managed by the U.S. Army Corps of Engineers totaling 33,000 acres. This diverse ecosystem has been a staple of the local farming community for generations. Fort Sill's abundant cropland has allowed farmers to produce a wide variety of different crops such as wheat, cotton, hay, and soy beans.

These leases also provide more than 400 acres of wildlife food plots located throughout the installation that have become essential to maintaining the deer and elk populations.

Free range elk located on Fort Sill.

Planting and harvesting has become increasingly more difficult due to the ever-expanding need for training areas. Agriculture areas are occasionally used by tracked vehicles for training purposes. The weight of a tracked vehicle can cause considerable long-term damage to cultivated fields. Garrison commanders are working with the installation's Natural Resources personnel to correct this issue by making sure that training officers are aware of the locations of these fields, as well as the ecological and economical impact their equipment causes.

In addition to the planting and harvesting of annual crops and food plots, the agriculture program provides vital services to the installation such as mowing and maintaining road shoulders, airfields, repairing fences, and maintaining access points for training vehicles. Fort Sill receives more than $90,000 dollars of annual services from the two leases.

Fort Sill's west range

Ribbon Cutting

Sheppard

On December 3, 2010, Sheppard Air Force Base held a groundbreaking ceremony for the new Operations (OPS) Group Facility for the 80th Flying Training Wing, home to the Euro-NATO Joint Jet Pilot Training Program. This contract was awarded to MCC/Catamount LLC, and construction will begin in March 2011.

The facility consists of 44,143 square feet of OPS Group Area (offices, conference rooms, auditorium, academic area, classrooms) and student squadron and support areas. Other areas will include a covered walkway to the Flight Simulator Building and parking area.

Texas Senator Kay Bailey Huchison was in attendance at the ceremony along with COL Michael Teague, COL Kevin Schneider and COL Von Wintzegevore-Knorre.

Sen. Kay Bailey Hutchison speaks at the groundbreaking ceremony for the Sheppard AFB Operations Group Facility.

COL Teague, commander, Tulsa District; COL Kevin Schneider, Commander, 80th Flying Training Wing; Sen. Hutchison; COL Von Wintzegevore-Knorre; German Commander, 80th Flying Training Wing; and Chris Yancey, Vice President, MCC/Catamount break ground for the new OPS Group Facility.

U.S. Armed Forces Recruiting Facilities

Providing quality leased space for military recruitment activities

The U.S. Army Corps of Engineers is the executive agent for the U.S. Armed Forces Recruiting Facilities Program per DoD Directive 5160.58E dated August 31, 2005. This program serves all four branches of the Armed Forces: Army, Navy, Air Force, and Marines Corps. There are more than 6,700 recruiting stations worldwide.

The Tulsa District manages 52 commercial leases that provide 109 individual recruiting stations within the boundaries of the state of Oklahoma. The majority of these leases are found in retail spaces that have good access to mass transportation, high pedestrian traffic, good visibility, and proximity to schools or other areas where military-aged men and women congregate.

The FY10 total program execution for the Tulsa District was $2.3 million, which includes annual rent and the additional costs for utilities, upgrades, janitorial services, build-out costs, and all labor costs associated with completion of these actions.

Leased Government Housing

Helping Soldiers, Sailors, and their families

SGT and Mrs. Littlejohn and their residence

Leased Government Housing (LGH) is a program designed to lighten the financial burden of military recruiters who are stationed where the cost of living exceeds their Basic Allowance for Housing. Every year, Tulsa District's LGH program has, on average, 40 to 50 Army Family Housing leases, 10 to 20 Navy Family Housing leases, and one or two Army and Navy Bachelor Housing leases.

The houses are provided to the service members based on criteria such as family size or the service member's rank. In most cases, a bachelor is given a one- or two-bedroom apartment while a family will be given a 2- or 3-bedroom house. However, some special circumstances, such as lack of adequate housing options, may lead the program to place bachelors in small houses or small families in larger homes.

Tulsa District's FY10 program totaled $1.3 million dollars for rental, utilities, and District labor.

The Leased Government Housing program provides a way for military recruiters to keep their minds off their financial burdens and concentrate more on what they do best, recruiting the future military service members that serve in our nation's interests.

Update of Current Dam Safety Activities, Pine Creek Dam, Oklahoma

Significant progress has been made to address the dam safety concerns for Pine Creek Dam. Project personnel continue to monitor the conduit area and read the piezometers on a weekly basis. Piezometers are instruments used to monitor water pressure within the dam and its foundation.

Piezometric levels have varied due to dewatering for construction of the downstream filter and changes in the pool elevation.

Investigations using conventional drilling and sampling techniques continue. Four of the six borings drilled near the chimney filter and left of the conduit have encountered rod drops of 8 inches to 15.5 feet, which indicated voids or very soft materials in the embankment. Previous potential voids have been filled with sand to the farthest extent possible.

Installation of piezometer automation for remote analysis of water levels within the embankment.

Sealing the leaking conduit joints with polyurethane grout and the application of a mortar coating of the interior conduit is complete. One set of gates (service gate and emergency gate) has been removed from the gate tower, and a bulkhead has been placed. The second set of gates remain operable.

A contract for various interim risk reduction measures was awarded on September 30, 2010, and the Notice to Proceed was issued on November 8, 2010. The contractor has 90 days to complete all the measures. That includes a downstream filter, removal of vegetation from the downstream toe in the old river channel section, removal of vegetation along the upstream toe of the embankment near the left abutment, emergency material stockpile, improve and construct access roads along the downstream toe and conduit, and repair and extend boat ramps and courtesy docks made inaccessible or otherwise impacted by the lowered pool. Removal of vegetation is nearly completed, emergency stockpiles have been delivered, and construction of downstream access roads is ongoing. Due to further definition of the potential void within the embankment, a modification to the downstream filter has been developed to raise the filter height to the elevation of the potential voids along the conduit.

City Wins Award for Sand Creek Restoration

article reprinted from The Kansan.com

By Christine Wyrick
Newton Kansan

NEWTON — The city of Newton has won the 2010 Kansas Public Improvement Award for cities in the 5,000 to 19,999 population category for its Sand Creek Bank Restoration Project.

The competition, sponsored by the American Council of Engineering Companies of Kansas for 49 years, is unique in that it recognizes engineering projects for their benefit to the citizens of a community and not for engineering design.

After more than 10 years of planning, design and 15 months of construction, the city of Newton's Sand Creek Bank Restoration project turned erosion control and drainage design into public green space and a recreational destination, a news release stated.

"The project uses environmentally sensible solutions to solve drainage problems and create a great multi-use facility with aesthetic appeal," said Suzanne Loomis, the city's Director of Public Works. "Native vegetation is used in the drainage corridor through the middle of the city. Trees were protected wherever possible, and hundreds of new trees and shrubs were added to enhance the animal habitat and provide natural amenities through the corridor. And, of course, there is the concrete split rail fence that looks like wood, the man-made wetland that holds treated wastewater and the maintenance path that doubles as a recreation corridor."

Once a source of flooding in downtown Newton, Sand Creek now has stabilized stream banks, a stream-side walking and biking path, and offers non-motorized boating. It is more than a drainage system — it is a destination for citizens and community visitors.

Bank restoration of the Sand Creek Ecosystem Restoration Projec, Newton, Kansas

Along with the bank restoration, the federally funded project includes a 35-acre wetland near the wastewater treatment plant and two hardwood tree plantings along the creek south of the dam and upstream of the Union Pacific Railroad trestle in Centennial Park.

More than 460 trees and 970 shrubs were planted throughout the project, with native grasses sown along the creek. The Sand Creek corridor will continue to change as the native plantings take root.

Residents of Newton, Kansas, enjoy the new ecosystem restoration project.

The approximate cost of this project was $12 million.

"I am glad that Newton was recognized for the investment the community made in this beautiful drainageway along with our funding partner, the Corps of Engineers," Loomis said.

The project was financed by sales tax revenue and municipal wastewater fees, federal American Recovery and Reinvestment Act environmental restoration funds.

Funding assistance from Sens. Todd Tiahrt, Pat Roberts and Sam Brownback, and the Tulsa District Corps of Engineers allowed the City to secure the federal funds for the project.

The engineering firm was Professional Engineering Consultants, P.A., and the General Contractor was UCI.

The American Council of Engineering Companies of Kansas is a professional association of private-practice consulting and engineering firms in the state of Kansas.

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Tulsa District's Focus on Listening

Optima and Great Salt Plains Public Meetings

The Tulsa District, U.S. Army Corps of Engineers conducted two public hearings at Optima and Great Salt Plains Lakes to inform residents of the outcome of nearly simultaneous Initial Appraisals. Although the studies were very similar in nature, the outcome of the studies was quite different. COL Teague, Tulsa District Commander, hosted both public meetings held one day apart.

The studiess were conducted under Section 216 of the Flood Control Act of 1970 to review operations of these two completed Corps projects to determine if there have been significant changes to physical, economic or environmental conditions that affect current project operations or the ability to fulfill their authorized purposes.

Optima Lake was completed in 1978 but the water level has never risen to the bottom of the conservation pool. The initial appraisal report recommends that a reconnaissance study be initiated for Optima Lake. COL Teague conducted the public meeting with a group of local lake supporters. Many of the attendees expressed their views of the value of the public lands for hunting and other outdoor recreation activities.

COL Teague and John Roberts talk one-on-one with residents living near Optima Lake regarding findings of the recently completed Section 216 Initial Appraisal. His appearance gained him increased respect from those attending.

The next day, COL Teague hosted a second public meeting at Great Salt Plains Lake, the oldest reservoir in the Tulsa District. Over time, a number of issues have developed that now inhibit the ability of Great Salt Plains Lake to adequately meet all of its authorized purposes. Recreation benefits, although different from the popular fishing from earlier years, have changed and are still highly regarded by visitors from throughout the world. A very large group of lake supporters learned of the difficult and lengthy process needed to obtain the next phase of the review process, a reconnaissance study.

COL Teague address the Section 216 Initial Appraisal findings before a large gathering of interested Great Salt Plains Lake users. Attendees were appreciative of his interest and explanation of "the road ahead."

On- and Off-Road Vehicle Use on Public Lands

The U.S. Army Corps of Engineers, Tulsa District, hosted a listening session in the Lake Texoma area on Saturday, January 8, 2011. The listening session was used to gather public input on the allowable use of on-road and off-road vehicles – including golf carts – at lakes managed by the Tulsa District. "We need your help," said COL Michael Teague, Commander. "Off-road vehicle use is tearing up the shoreline and destroying public lands. We need a clear policy that protects the land, while accommodating all of our visitors."

It was standing room only at the Enos, Oklahoma, community center for the first listening session held January 8. An unplanned for, hastily called second session was held immediately following the first. Several hundred Lake Texoma users were given the opportunity to comment and offer suggestions.

FY11 Top 15

Tulsa District Maintenance Priorities

By making prudent use of FY09 supplemental and regular Operations and Maintenance appropriations combined with American Recovery and Reinvestment Act funding, Tulsa District has been able to successfully address and reduce the backlog of critical maintenance and repair of its water resource infrastructure. However, the facilities continue to age.

The following are Tulsa District's top 15 FY11 priorities for critical maintenance. Critical maintenance are items that, if not performed, could result in failure of the component, resulting in potential loss of the project and the protection of downstream property and population.

As always, public safety will continue to be the primary focus as the District allocates our available resources.

1 Keystone Lake, Oklahoma

Bridge Replacement

The Keystone Lake Spillway Bridge is located at Keystone Lake in Tulsa County, Oklahoma, about 15 miles west of Tulsa, Oklahoma. The bridge carries State Highway 151 on 18 simple spans over the spillway. The existing bridge was built in 1964 and consists of two welded plate girders supporting floor beams and stringers for each 42-foot span. The existing deck is deteriorated and requires replacement.

In 2004/2005 the Oklahoma Department of Transportation performed extensive work on the deck. What was supposed to be minor deck repairs turned into a major full-depth repair. The material used to patch the deck is not concrete, so the strength or capacity of the deck can no longer be determined. The patch is also failing with cracks that allow moisture into the deck and accelerates corrosion. Due to the magnitude of the patching, the entire deck or the bridge must be replaced. Until such time, a crane will not be allowed on the bridge, which will seriously limit the ability to do emergency repairs and sluice gate inspections.

Initial engineering results (completed in December 2010) from an ongoing study included a fatigue analysis which indicated the fatigue life of the bridge had expired in 1994. Based on the results, assumptions used to calculate the fatigue life were further researched and have been coordinated with the American Institute of Steel Construction. Based upon their verification of the new assumptions, the analysis will be rerun. It appears the revised analysis will show the bridge is near the end of its fatigue life. The final, validated report will be available in late February 2011.

Regardless of the fatigue life study, the deck must be replaced, which also includes retrofitting the steel to bring the bridge up to current design standards. The cost estimate of repair versus replace is still valid; therefore, it is still more economical to pursue bridge replacement. Since the District uses most spillway bridges as a "platform" for operations, the design criteria used would be structurally more stringent that normal bridge design criteria. Design variances may be necessary to align the geometry of a new bridge along the existing spillway.

In the interim, the bridge will be load posted, and the frequency of inspection will be increased to every six months.

Status: Design of the bridge replacement will begin in February 2011.

Repair Cost Estimate: $8.4 million

2 Kaw Lake, Oklahoma

Install Seepage Filter Blanket on Downstream Face of Dam

The 2005 Periodic Inspection indicated that there was a possible seepage issue with the dam embankment. As a result, several pizometers were installed in 2007, which, over time, have indicated that there is, in fact, seepage in the embankment that fluctuates with the pool level. This situation requires immediate repairs to ensure the safety of the embankment.

Repair Cost Estimate: $1 million

3 Oologah Lake, Oklahoma

Repair and Replace Service Gates, Hoisting Equpment, and Low-Flow Systems

Several challenges exist at the Oologah gate tower. The bridge allowing access to the gate tower has cracked corbels that need structural analysis and repair. If the corbels fail, the bridge could collapse and no water releases can be made through the four service gates inside the gate tower structure.All four service gates have lost structural strength and the top one-third of each gate needs to be replaced. One new service gate needs to be constructed and the spare gate modified to act as a second emergency gate. (Only one emergency gate exists at the project; it will receive repairs, as well). The steel liners, air vents, and gate guides in the conduit need repair or replacement. The 48-inch low flow valve is inoperable, and needs to be replaced. If the gate and conduit system repairs are not made, a gate failure could occur. This would result in loss of service to the navigation system and potentially disrupt water supply to the city of Tulsa and other nearby cities. The 1950s gantry crane at the gate tower installs the emergency gate and removes service gates for maintenance. Currently the gantry crane is unreliable in its electrical operation and may not perform satisfactorily in a flood event. Due to the bridge corbel issues, a mobile crane cannot access the gate tower in the event of an emergency.

Status: A design to replace the worst service gate was completed in FY10 with a current working estimate of $1.6 million. After further investigation, this gate had suffered too much corrosion to be safely converted to an emergency gate. The design includes repair of the eroded concrete within the gate liner. Proposals were received January 12, 2011, and are currently under evaluation. The scheduled award date is May 10, 2011, and is currently ahead of schedule. This design can be used to replace the three remaining gates and repair the remaining liners. Under the current funding situation, we do not anticipate being able to award any options, which include replacing the low-flow valve.

Repair Cost Estimate: $5.5 million for remaining three gates.

4 Hulah Lake, Oklahoma

Rehab Tainter Gates, Sluice Gate Bulkhead and Debris Removal

Status: The 2009 Periodic Inspection indicated that the tainter gates had critical deficiencies including rusty tainter gate chains, rusty critical areas on the tainter gates, rusty tie-back beams, and shallow spalls in piers and weirs. These gates are more than 50 years old and require immediate attention to ensure the gate system does not further deteriorate. A $960,000 contract for partial repair has been awarded for replacing the tainter gate chains. A modification to that contract is currently being pursued to rehabilitate the tainter brake drums. If additional funding is not available, this will result in increased future costs and the increased probability of structural failure.

Repair Cost Estimate: $5.3 million

5 Sardis Lake, Oklahoma

Repair and Paint Service Gates

The 2009 Annual Inspection indicated the service gates and liners have several areas of bare metal that require painting, as well as areas of structural damage that should be repaired. These repairs are necessary to ensure the service life of the gates and liners can be met.

Repair Cost Estimate: $800,000

6 Big Hill Lake, Kansas

Repair Intake Tower Service Gates

The 2010 periodic inspection indicated that the gates and guides should be rehabbed and repainted within the next few years. The gates were last accessible in 2007 and at that time the gates and guides had significant rust blisters occurring. No repairs have been performed since this time with the assumption that the gates and guides are having increased deterioration. These repairs are necessary to ensure that the service gates and guides meet their intended service life.

Repair Cost Estimate: $1 million

7 R.S. Kerr Lake, Oklahoma

Rehabilitate Tainter Gates and Operating Equipment

The 2008 Periodic Inspection, as well as the 2009 Annual Inspection Reports, indicated that floating debris that passes through the gates continues to cause damage to the gate paint and members. Gates 11 and 12 have bent strut arm braces. Just about every gate has some slightly twisted girder braces, and many of the rib and girder stiffeners are severely rusted and thin. Additionally, the remote controls for the tainter gates have proven unreliable and are no longer used. Many of the control inclinometers have been damaged by debris and are unusable. These gates and the operating equipment are over 40 years old and need immediate repair to extend their useful life.

Repair Cost Estimate: $9 million

8 Webbers Falls Lock and Dam, Oklahoma

Repair Tainter Gates

The 2008 periodic inspection indicated that the gates and guides be rehabbed and repainted within the next few years. The gates were last painted between 1998 and 2001. Floating debris swirls around in the tailwater and has already worn off paint on the strut arms. In addition, some tight or hard to access locations were not well painted and are rusting. Lastly, several bearings in the pillow bushings for the torque rods on the gates have slipped out of their housings. These repairs are necessary to ensure that the tainter gates continue to operate and meet their intended service life.

Repair Cost Estimate: $8.5 million

9 Lake Texoma (Denison Dam), Texas

Replace Service Gates/Seals and Repair Flood Gates

Both the 2002 and 2007 Periodic Inspection reports indicate the service gates leak profusely. The gates are over 50 years old and accumulative corrosion and cavitation is causing significant damage. This project provides for replacement of two service gates; cleaning, repairing and painting four flood gates; and replacing upper stationary bronze seals on all flood gate slots. Accelerated wear and corrosion will result if funding is not provided. Continued deterioration to key structural members and surrounding conduit will result. The gantry crane identified in the FY09 Project Update has been funded through the ARRA program.

Status: A contract was awarded in FY10 to repair one emergency gate and four draft tube gates. After further structural inspection of the four draft tube gates in December 2010, it was determined that the cost to repair the gates would be significantly more than the cost to replace. A modification is currently being pursued to replace all four gates in lieu of repair. A design is currently ongoing to replace the flood gates, and we anticipate being able to replace one flood gate with the funds currently budgeted. However, this design will be used to replace the remaining flood gates as prioritized in the last Periodic Inspection report.

Repair Cost Estimate: $5.7 million

10 Tenkiller Lake, Oklahoma

Repair Tainter Gates

The 2009 Tainter gate inspection indicated that the paint on the upstream and downstream sides of the tainter gates is starting to show wear and should be paint as necessary to prevent further corrosion. Repairs are required of twisting strut arms, repairs of a crack in a rib flange and repairs of lamination in strut flanges and painting of trunnion girders and weld repairs. These repairs are necessary to ensure that the tainter gates continue to operate meet their intended service life.

Repair Cost Estimate: $4.2 million

11 Broken Bow Lake, Oklahoma

Repair/Modify Floating Bulkhead

The safe operation for the use and performance of the bulkhead has become a concern. The bulkhead, composed of four different leaves, is a great mechanical design, but some changes are required before it can be utilized to its full potential. Assembling the gate into the appropriate configuration requires considerable scheduling and coordination. Different lake levels require different configurations. A mobile crane is required to maneuver the leaves during assembly. A temporary crane pad must be constructed by use of a dozer. The pad must be located immediately adjacent to the water's edge in order to provide crane access to the bulkhead leaves. A permanent pad is not feasible due to the ever-changing lake level and a corresponding change of the shoreline. As a result of the difficulties in using the bulkhead, Gate Operational Condition Inspections could not be made on all gates. Modification of the bulkhead is needed to ensure its use during all lake elevations and to reduce the manpower and equipment costs each time it is assembled and used. Severe leakage in the spillway gallery has become a Dam Safety concern. Assurance and reliability of the bulkhead to function for a long period of time is required to properly assess and correct this problem.

Repair Cost Estimate: $500,000

12 Skiatook Lake, Oklahoma

Repair and Paint Service Gates and Liners

Severe corrosion and pitting was originally reported on these gates, liners and valves in 2003. This project provides for the repair and painting of two service gates, two emergency gates and a low-flow valve; cleaning, repairing and painting two service gates, two emergency gates and the low-flow valve and associated metal gate liner plates, frames, air vents, and bonnets. Also, rehabing Babbitt gate sill on service gates and welding repair and machining the bottom sealing surface of the service gates.

Skiatook Lake makes continuous water releases through the low-flow valve to meet water quality standards for the city of Tulsa. In addition to flood waters, these water quality releases have taken their toll on all gates and the low-flow valve. Skiatook Lake provided two-billion gallons of water supply releases in 2008.

Accelerated wear and corrosion will result if funding is not provided. Continued deterioration to key structural members and surrounding conduit will result.

Repair Cost Estimate: $1.1 million

13 Red River Chloride Control

Procure 36-Inch Water Line

Since 1999, the majority of the breaks in the pipeline seem to be caused by differential settlement of the foundation materials. As a result of the pipline breaks, gravel and dirt has washed into the line during the breaks resulting in the surge tanks filling with material. The amount of this debris in the line is unknown. These repairs are necessary to ensure that the tainter gates continue to operate and meet their intended service life.

Repair Cost Estimate: $500,000

14 Hugo Lake, Oklahoma

Refurbish Gear Boxes and Replace Control Cabinets

The shaft seals have failed due to age, requiring immediate repair to ensure the gears do not rust and become defective. The control cabinets are original to the project and are required to be replaced. These repairs are necessary to ensure that the tainter gates continue to operate and meet their intended service life.

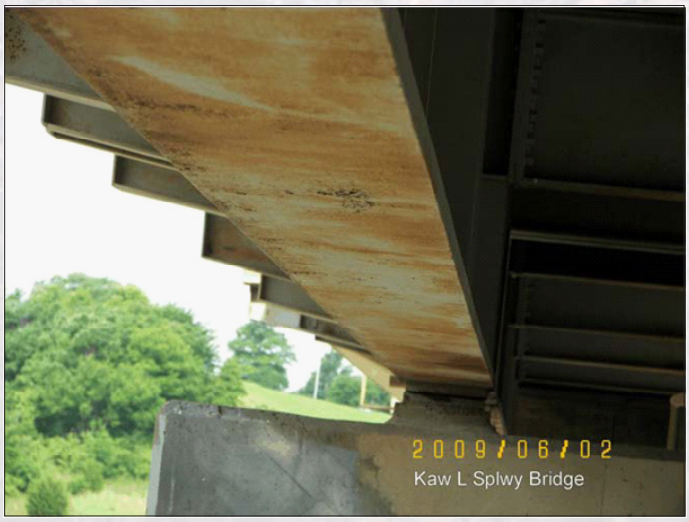
Repair Cost Estimate: $500,000

15 Kaw Lake, Oklahoma

Paint Bridge and Hoist Machinery

Information is from the 2010 Bridge and Periodic Inspections. The superstructure steel is rusting in critical stress areas, but section loss is presently insignificant. At girder welds, other discontinuities are noted including rust, and a hole. Floor beams and stringers show coating failures and corrosion along flanges and at webs. Welds are missing at connections for floor beams. Cantilever brackets at floor beams lack welds, or the welds are noted as poor quality. The steel, for the bearings, has corrosion with pits. With regard the hoist equipment, it is in poor to fair condition. Most of the gear boxes have peeling paint and rust. Rusty gears were found and require repair. These repairs are necessary to ensure that the tainter gates continue to operate and meet their intended service life.

Repair Cost Estimate: $1 million



Arkansas River Basin

Arkansas River Arkansas City Aquatic Ecosystem Restoration

Section 206, Water Resources Development Act of 1996, as amended

Feasibility Study, Inactive

The city of Arkansas City is located at the confluence of the Arkansas and Walnut Rivers in southeast Kansas, Cowley County, approximately 122 miles northwest of Tulsa, Oklahoma.

The proposed restoration site is located within the historic floodplain of the Walnut River. The recommended plan would improve various types of wildlife habitat over a total of 122 acres. Borrow pits would be modified to be productive fish habitats. Constructed wetlands would provide habitat to numerous types of wildlife, as well as improve water quality. Species diversity and carrying capacity would be restored to bottomland hardwood stands and prairie grasslands in the project area.

By letter dated August 7, 2008, the city of Arkansas City indicated that they would not be able to pursue implementation efforts due to current fiscal constraints and would like the option to reconsider this project in 2011. At this time project implementation efforts were suspended.

In January 2011, City officials contacted the Corps of Engineers expressing a renewed interest with project implementation efforts and asked that the Corps consider a slight variation to the recommended plan. The Corps is currently working with City staff to determine the remaining schedule and cost requirements to complete project implementation efforts.

Arkansas River Corridor

Section 905(b) Water Resources Development Act (WRDA) Analysis as an initial response to Section 3132, WRDA 2007

Study, Planning

The Arkansas River is a valuable water resource that provides opportunities for redevelopment for ecosystem restoration due to extreme variations of river flows, flood risk management, recreation improvements and environmental and water quality focus. With this effort there would likely be economic development and other initiatives that would improve the quality of life for many citizens living in the Tulsa metropolitan area, as well as visitors to the region.

The Water Resource Development Act of 2007 Section 3132 provided authorization for the Secretary to construct features of the Arkansas River Corridor Master Plan and included authorization of $50 million in federal funds. The project must now go through economic and environmental justification in a feasibility study.

In 2009, we completed Phase III of the Arkansas River Corridor Study that focused on engineering and environmental studies. Primary products from this phase included an ecosystem restoration plan, geotechnical studies, recommendation for holistic approach to weir operation, design recommendations, and baseline environmental data.

In 2010, Tulsa District received $90,000 for a new start feasibility study. It was the first new start the district had received since 2003 and indicative of the support this project enjoys both locally and on Capitol Hill.

These funds were used to complete the reconnaissance report, as well as negotiate a feasibility cost share agreement. Tulsa County will be the cost share sponsor for the feasibility study that should begin in 2011, depending on federal appropriations. Feasibility studies typically last three years.

Two low-water dams have been identified as major components of the comprehensive ecosystem restora-

tion plan. Hydropower production at Keystone Dam has negatively impacted this riverine ecosystem and a series of low water dams will be studied to determine if they are a justified and sustaninable ecosystem restoration plan. Tulsa County was the cost-share sponsor in Phase III.

If funded in FY11, Tulsa District would further develop and screen alternatives, conduct sediment transport analysis, gather more geotechnical data, and begin the National Environmental Policy Act process.

Augusta Levee Local Flood Protection Project

Section 205 of the Flood Control Act of 1948, as amended (Continuing Authority - Flood Control)

Pre-Construction Engineering & Design

Augusta is about 19 miles east of Wichita, Kansas. The Whitewater River runs through Augusta to its confluence with the Walnut River.

The original levee was constructed in the 1920s and '30s through private and public sponsorship and was incorporated into the Federal Levee Inspection Program in the 1940s.

The November 1998 flood damages were caused primarily by the Whitewater River breaching the city's levee system at several locations along the west side of Augusta. The recommended plan is to raise and extend the existing levee to provide a 500-year level of flood protection. On March 3, 2008, the Project Cooperation Agreement for construction of this important project was executed.

FY11 efforts are focused on completion of construction plans and specifications and assisting the city of Augusta in obtaining the necessary rights-of-way for the construction effort. We anticipate award of the construction effort in late summer 2011.

Blackwell Lake Clearing and Snagging

Section 208 of the 1954 Flood Control Act, as amended by the 1974 Water Resources Development Act

Project Design Analysis Underway

Blackwell Lake is located in Kay County, Oklahoma, near Braman, and is a primary recreational feature in that part of Oklahoma.

Due to the ice storm of 2001, a heavy load of logs and other debris have accumulated upstream of the Lake Blackwell Dam and spillway. The logjam is blocking access to the gate controls of the dam structure and has completely overwhelmed the normal maintenance capacity of the Lake Blackwell Trust Authority. The logjam has also significantly increased the flooding risks of the residential community immediately upstream (approximately 200 homes).

The recommended plan of improvement is to remove the logjam and properly dispose of the accumulated material.

In March 2010, the Lake Blackwell Trust Authority withdrew local support for project implementation efforts and in September 2010, the city of Blackwell also withdrew support for the project. The Corps of Engineers has suspended all activities towards project implementation and is recommending all excess federal funds be returned to Corps higher authority.

Augusta Levee

Canton Lake, Oklahoma (Dam Safety)

Flood Control Act approved June 28, 1938 (Public Law 761); Flood Control Act approved July 24, 1946 (Public Law 526) (irrigation storage); Flood Control Act approved June 30, 1948 (Public Law 858); and the Water Resources Development Act of 1990 (Public Law 101-640) (water supply storage)

Under Construction

This $149 million, multi-phase dam safety project is to correct deficiencies related to stability (movement of the existing spillway), seepage under the existing embankment, a hydraulic deficiency of not being able to pass the probable maximum flood event, and new seismic requirements.

Construction started in 2006 with a $4.5 million contract to stabilize the existing spillway with 64 anchors drilled into the downstream spillway weir. In 2007, work commenced to resolve the remaining deficiencies with the construction of a new auxiliary spillway channel with the excavated material being used for a seepage berm on the downstream face of the existing embankment. Construction of the auxiliary spillway channel required two preliminary contracts to facilitate the excavation. These included relocating Highway 58A for $3.1 million and reconfiguring the current project office for $900,000. In 2008, a $41.1 million contract for the first phase of the auxiliary channel excavation was awarded. This contract included 1.3 million cubic yards of excavated

material being used to construct a seepage berm on the downstream toe of the existing earth embankment. In addition to the excavation, concrete diaphragm walls and aprons, channel rip rap, a channel cut-off wall, new piezometers, and extension of the current relief wells were included in the contract. This contract was substantially completed in December 2010.

The project's most recent contract award occurred in August 2010 with the award of the new Highway 58A bridge. This is a 540-foot long, six-span concrete bridge that spans the new auxiliary channel. The bridge contract was awarded for $4.1 million and is currently scheduled for completion in August 2011.

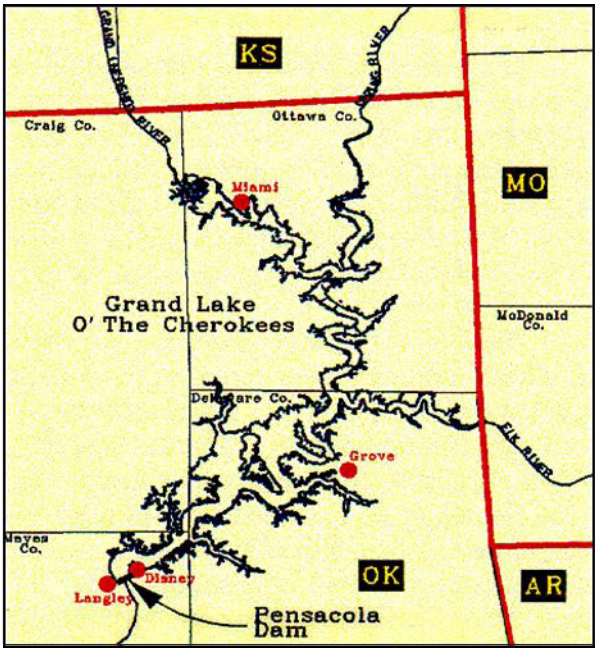
In addition to the construction activities, engineering and design is continuing on the new auxiliary spillway weir, fuse gates, and the Phase 2 excavation. All design is currently scheduled to be completed in early 2012. The entire project is scheduled for completion in December 2015.

Grand Lake Comprehensive Study

Section 449 of the Water Resources Development Act of 2000

Study

Grand Lake became operational in 1941, and its purposes include hydroelectric power (operated by the Grand River Dam Authority, an agency of the State of Oklahoma) and flood risk management (directed by the Corps). Grand Lake is located in the Grand (Neosho) River Basin (a sub-basin of the Arkansas River Basin) and is an integral component of a system flood risk management operation consisting of 11 principal reservoir projects in the Arkansas River Basin. The system operation of the 11 reservoirs also benefits the McClellan-Kerr Arkansas River Navigation System.



Grand Lake was designed and constructed by the Grand River Dam Authority and initially had the single purpose of hydropower production. In order to include Grand Lake as part of a comprehensive multipurpose plan for the Arkansas River, the Flood Control Act of 1941 authorized the Corps to manage the flood risk management features. The flood risk management pool limits were established from elevation 745.0 to 755.0 (Pensacola datum). Flowage easements were acquired up to elevation 750.0 by the state of Oklahoma.

Other federal agencies acquired flowage easements from elevation 750.0 ranging up to 760.0. The administrative jurisdiction of the flood risk management flowage easements was transferred to the Corps in October 1959.

In response to public concerns, Congress established Section 560 of the Water Resources Development Act of 1996 that authorized the Corps to conduct a study that considered the combined operating purposes of flood risk management and hydropower. The September 1998 Grand Lake, Oklahoma, Real Estate Adequacy Study report documents that areas were found around the lake where, using current criteria and based on current lake operations, additional flowage easements would be recommended if Grand Lake were a "new" Corps project.

A letter report was prepared by the Tulsa District to document an initial technical evaluation of historical and theoretical flood events. Based on review of the letter report, the Assistant Secretary of the Army for Civil Works concurred on September 14, 2007, that further detailed study is warranted. With that decision and in accordance with the provisions of Section 449 of the Water Resources Development Act of 2000, the feasibility study could be conducted at full federal cost.

FY08-10 activities included the preparation of a Hydrology and Hydraulics Geographical Information System (GIS) Needs Assessment Report, meetings with city of Miami officials, development of a Project Management Plan (PMP), and a draft scope of work for mapping and Geographical Information Systems support. Contingent upon funding, FY11 activities include the development of mapping products and beginning the formulation of alternative solutions. To the extent possible, data collection in 2011 will be prioritized to help Ottawa County and the city of Miami, Oklahoma, in making short-term floodplain management decisions.

Potential future feasibility phase activities would be dependent upon annual congressional funding. The purpose of the feasibility study would be to identify cost-effective solutions to reduce the risk of flooding and consistent with current federal policies. Categories of alternatives to consider include structural measures (such as levees and bridge modifications), nonstructural measures (such as flood proofing and buyouts of flood prone structures), changes in the system operation, and combinations of measures.

In the short-term, a strategic activity conducted by the Corps is the management of flood risk management pool releases, consistent with the current system operating plan, to potentially reduce impacts of minor flood events. While there is only limited and preliminary data at this time to confirm the effectiveness, it is likely that this approach reduces flooding related to the more frequent (minor/moderate) flood events. It is important to note, however, that large

flood events overwhelm available flood storages, significantly limit the ability to transfer flood waters to downstream lakes quickly, and cause significant flooding with or without operational modifications.

John Redmond Watershed Study

Section 208, Flood Control Act of 1956 and Resolution of the 110th Congress 1st Session, United States Senate, Committee on Environment and Public Works, adopted July 31, 2007

Watershed Study

The study area consists of the 12,500-square-mile Grand/Neosho River Basin in northeastern Oklahoma and southeastern Kansas. Flooding around Grand Lake, sedimentation problems in John Redmond Reservoir, and the 1,800 square miles of uncontrolled drainage areas have increased the need for a basin-wide study to address flooding and floodplain management problems and opportunities and ecosystem improvements associated with aquatic habitats, wetlands, and watershed corridors

A feasibility cost-share agreement was executed with the Kansas Water Office (KWO) in September 2006 for the John Redmond Reservoir Study and updated in 2008 to increase study scope and cost. KWO requested a more detailed analysis of all alternatives rather than the preliminary screening process more typical of a feasibility study. This interim study focuses on the ecosystem degradation that has occurred in John Redmond Reservoir. This degradation is largely a result of sedimentation and nutrient loading. Other local issues, such as the logjam and an assessment of dredging as an alternative, are included in the multi-year study.

In 2008, the study team focused on monitoring gauges, conducting watershed modeling, extrapolating data from sediment studies for flood pool estimates, and analyzing alternatives. We also submitted a feasibility scoping meeting package to Corps Headquarters. This is a major milestone to gain policy review and concurrence on alternatives and evaluation measures.

In 2009, Tulsa District completed an alternative analysis at which time it became evident that federal project implementation was not economically justified. The District recommended the study shift to complete a collaborative watershed management plan. The KWO agreed to this option.

In 2010, the Feasibility Cost Share Agreement and the Project Management Plan (PMP) were revised to reflect the redirection of the study from a feasibility study to a watershed study for that portion of the Neosho Basin upstream of John Redmond and downstream of Council Grove and Marion Lakes at the direction of the KWO. The KWO is interested in using the data gathered during the interim feasibility study to develop a comprehensive, holistic watershed study that directly corresponds to and integrates with Kansas' water planning activities, including the Kansas Reservoir Sustainability Initiative and Reservoir Roadmap.

Joe Creek Ecosystem Restoration Project, Tulsa, Oklahoma

Section 1135, Water Resources Development Act of 1986 (Continuing Authority -- Habitat Restoration)

Feasibility Study

Joe Creek is a tributary to the Arkansas River at Tulsa, Oklahoma. The Joe Creek Local Protection Project was constructed under the authority of Section 205 of the 1948 Flood Control Act. A majority of the improved channel is concrete lined.

The proposed project will focus on improvements to the riparian stream corridor habitat that was impaired when the original flood control project was constructed.

FY11 activities are focused on construction of this important project. Award of the construction effort is currently anticipated for March 2011.

John Redmond Reservoir Reallocation Study

Section 208, Flood Control Act of 1956 and Resolution of the 110th Congress 1st Session, United States Senate, Committee on Environment and Public Works, adopted July 31, 2007

Watershed Study

The study and subsequent report are being done in response to Congressional Senate Report 106-58 to study raising the conservation pool at John Redmond Dam and Reservoir to meet the terms of two existing water supply agreements with the state of Kansas. Water storage has been steadily depleted by uneven sediment deposition such that there is infringement on state of Kansas water supply agreements.

Based on the evaluation of several alternatives, the preferred alternative is to increase the top of the conservation pool elevation from 1039.0 feet National Geodetic Vertical Datum (NGVD) to 1041.0 feet NGVD to meet current water supply agreements and water quality demands.

Corps Headquarters reviewed and provided comments on a draft final report in 2008. The Corps determined that because water supply is the primary reason for the reallocation, all replacement costs will be paid by the beneficiary - the Kansas Water Office (KWO). The KWO asked Tulsa District to hold the report rather than send it for approval with the recommendation that they pay all replacement costs. The District has held the report since November 2008 and during that time encountered another obstacle. Since Hurricane Katrina, the Corps has increased focus on dam and levee safety. A national team has been inspecting structures and found risks at Hartford Levee, which is part of Redmond Reservoir. Because of the risks, the pool cannot be raised until corrections are implemented. There are two more studies, each more detailed, that must be completed to identify and construct corrective measures. Timeframe for completion of corrective measures may be as far out as 2014. The limiting

factor for completing these actions is not federal funding but the schedule of the national team completing the actions. This team is focused on structures in the highest risk category and Hartford Levee is not one.

One positive aspect of our effort on this study is that several of the replacement actions identified as KWO actions are occurring on Corps-owned property. This land is leased to the U.S. Fish and Wildlife Service (USFWS). Because of this, Tulsa District has been able to partner with KWO and USFWS to complete partial replacement of wetlands and bottomland hardwoods.

Lawton Wastewater Infrastructure

Section 219(f)(40), Water Resources Development Act of 1992 as amended

Under Construction

The project consists of constructing wastewater infrastructure for the city of Lawton, Oklahoma. Lawton is located approximately 100 miles southwest of Oklahoma City in Comanche County, Oklahoma.

The city is conducting a 20-year, three-phase, $63 million sewer rehabilitation program in response to a consent order from the Oklahoma Department of Environmental Quality. The program involves total replacement of sewer pipelines and upgrading of other components. The services provided by the city's infrastructure include off-base housing for the Army at Fort Sill. The Corps participation in the overall project will be approximately $2.5 million.

The city provided the construction plans and specifications to the Corps in May 2009. The Corps made these documents ready to advertise and then obtained funding, advertised, and awarded a construction contract in June 2010. Construction is expected to be complete within one year.

This project is funded through the use of traditional Construction General funds, as well as funds provided through the American Reinvestment and Recovery Act.

McClellan-Kerr Arkansas River Navigation System, Arkansas and Oklahoma, 12-Foot Navigation Channel

Section 136, Energy and Water Development Appropriations Act, fiscal year 2004 (Public Law 108-137)

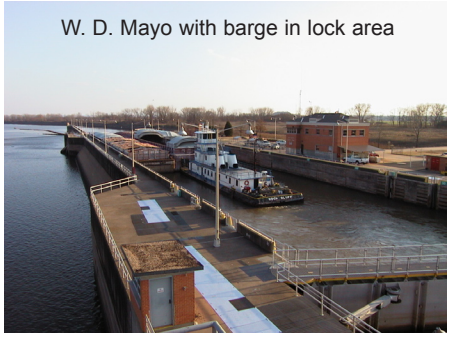
Authorized (Not Started)

The McClellan-Kerr Arkansas River Navigation System is approximately 445 miles long, consists of 18 locks and dams, and provides 9-foot-deep inland navigation from the Mississippi River to Catoosa, Oklahoma.

This project will deepen the navigation channel to a minimum depth of 12 feet, thereby increasing the efficiency of the system. Deepening of the channel will be performed by a combination of techniques including altering the flow management, constructing dikes and jetties, and dredging the channel. This project also includes a significant environmental component to include creation of bottomland hardwood forests and high quality wetlands, as well as other environmental enhancements.

This project has a projected cost estimate of $185.5 million, is cost shared with the Inland Waterway Trust Fund, and is jointly managed by both Little Rock and Tulsa Districts. To date, $7 million has been provided through a FY05 congressional add to complete the feasibility study and the Environmental Impact Statement, as well as to start dredging activities and construction of dikes and jetties

During FY06, dredging commenced and was completed at mile 348 in Pool 15 in Oklahoma, and construction of training structures in Pools 2 and 7 in Arkansas was started. Construction of a Least Tern Island with rock protection was also accomplished in conjunction with the dredging activities in Pool 15. Design of river structures was accomplished for Pools 2, 7 and 5. Mitigation activities, including aquatic and terrestrial surveys, were performed in both Oklahoma and Arkansas. A five-year project plan was also developed that includes an integrated project breakdown of activities


W. D. Mayo with barge in lock area

and associated costs that has been vetted through the navigation stakeholders.

This project was not included in the FY08, FY09, or FY10 budgets. However, FY06 carryover funds were used to place stone structures to improve self-scour in Arkansas, continue the design of upland dredge disposal sites, and continue real estate efforts in Oklahoma.

Funds have been exhausted resulting in no further work on the project.

Oklahoma Comprehensive Water Plan

Study

The Oklahoma Water Resources Board (OWRB) is working with multiple Federal, State, Tribal and other stakeholder organizations to update the Oklahoma Comprehensive Water Plan (OCWP). We are providing technical planning assistance for this effort through the Planning Assistance to States, Southeast Oklahoma General Investigation Study and the Washita River General Investigation Study authorities. The data, tools, and prioritization of needs information associated with the OCWP update are shared resources of the studies and will be used, contingent on approvals and funding, for future phase detailed investigations.

Additionally, the Water Resources Development Act of 2007 authorizes the expenditure of $6.5 million in federal funds for completion of the Oklahoma Comprehensive Water Plan. It further specifies that this effort will be completed with a 75 percent federal and 25 percent non-federal cost share. To date, no funding has been appropriated.

Implementation Guidance is at Corps Headquarters for review, at which point it will be submitted to the Assistant Secretary of Army for Civil Works for approval.

The OCWP update process has three phases. Currently, the Corps is authorized to participate only in the studies.

The first phase of the OCWP update includes the development of water demand projections by county and region throughout forecast year 2060, as well as a comprehensive inventory and analysis of the state's water supplies.

Phase two of the water plan update identifies the local and regional problems and opportunities related to the use of water for public supply, agricultural, industrial, recreational, and environmental uses. This particular segment of the planning process, involving close partnerships with both municipal and rural water system representatives, identified infrastructure needs, management options, and other measures to maximize the efficiency of Oklahoma's public water suppliers.

The third phase of the state water planning process involves the implementation of planning initiatives and tools derived from the issues, problems, and needs identified during phase two. The Oklahoma Water Resources Board is drawing upon the expertise of Oklahoma's foremost water experts from various water use sectors; local, state and federal governments; and universities to develop policy recommendations for consideration by the state legislature.

In 2008, we developed a programmatic work plan and developed and distributed a pilot Geographic Information System project and an infrastructure survey for municipalities and rural water districts. Coinciding with these integrated efforts was an extensive public participation program to create a transparent and open planning process.

In 2009, we completed assessments of water demand and of ground and surface water supplies. The results of these two assessments were compared to define gaps where supply is inadequate.

In 2010, conservation assessments, refinements to demand projections, and regional supply alternative assessments were completed.

In 2011, the following activities will be completed: Model documentation and training for the Oklahoma Gap tool, Reservoir Yield Model, and Climate Demand Model; production of Watershed Planning Regional Reports/ Basin Technical Appendices; construction of detailed plans for hot spot solutions and infrastructure; completion of a wastewater infrastructure Capital Needs Assessment and provider Planning Guide; and preparation/submission of Final Report (May 2011).

Oologah Lake Watershed Feasibility Study, Oklahoma and Kansas

Section 208 of the Flood Control Act of 1965 and Resolution of the 110th Congress 1st Session, United States Senate, Committee on Environment and Public Works, adopted July 31, 2007

Watershed Study

The focus of this ongoing watershed study is the approximately 2,350-square-mile subset of the 4,300-square-mile Verdigris River watershed upstream of the dam at Oologah Lake in Oklahoma to the dams at the four federal reservoirs in the Verdigris River basin in southeastern Kansas. The purpose of this watershed study is to assess the existing conditions in the watershed and identify the problems contributing to impairment of the aquatic resources, as well as potential solutions to restore aquatic habitat and quality on a regional basis. The city of Tulsa, as the local partner and sponsor, has worked proactively with the Corps to engage representatives from over 30 federal, state, and local agencies, universities, special interest groups, and individuals throughout the watershed in both Oklahoma and Kansas. Through this collaborative planning process, the stakeholders have identified issues and potential solutions for application on a regional basis to improve the quality of water resources in the watershed. This approach provides the opportunity to achieve sustainable water resources solutions on a regional basis.

This study will present various management strategies that can be implemented throughout the watershed on a regional basis. Since the majority of the land in the Oologah Lake watershed and study area is privately owned, the potential solutions are those that can be implemented by individual landowners in the basin. Although this effort is led by the Corps and the City of Tulsa, implementation of the many strategies established in the report as a result of the collaborative planning process will occur by other Federal, State, and local agencies with authorities to assist the individual landowners in the watershed.

The study will culminate in a report documenting the process and findings, and it will include appendices with water quality data, water quality analysis, and outputs from the modeling effort that has served as the primary planning tool throughout the study.

In 2011, the first draft of the watershed study will be circulated among the many partners, and the final document is expected to be completed by the end of FY11

Spavinaw Lake Watershed Feasibility Study

Section 208, Flood Control Act of 1965 (Public Law 89-298)

Study

Spavinaw Creek and its downstream impoundments, Eucha and Spavinaw Lakes, are severely impacted by nutrient loading and excessive algae growth as a result of agricultural practices in Arkansas and Oklahoma. Degradation of water quality has led to taste and odor problems, increased treatment costs, and the lakes' decreased recreational and aesthetic value. Together, Spavinaw and Eucha Lakes provide 47 percent of the water supply for the Tulsa metropolitan area. The Tulsa Metropolitan Utility Authority entered into the feasibility cost-share agreement in June 2004.

Because of extensive ecosystem restoration work being done by the poultry industry in the watershed, this study is focused on in-lake solutions.

In FY08, the alternative analysis and selection was completed.

In 2009, we completed cost estimates that identified project implementation could be done through the Continuing Authorities Program. This means the reports do not have to go to HQ and Congress for approval.

In 2010, the CE-QUAL-W2 modeling, which models how the recommended plan would affect water quality in Spavinaw and Eucha Lakes, was completed. The modeling results show that the recommended plan would achieve the planning objectives. The model(s) and model documentation were submitted for agency technical review and were approved.

In 2011, the model documentation will be incorporated into the feasibility report and forwarded to Division for approval. The recommendations in the report will include implementing the project under Section 206 of the Continuing Authorities Program.

Tribal Support Program

10 USC 3036(d)(2)

Continuing

The U.S. Army Corps of Engineers, through its Interagency and International Services (IIS) Program, provides reimbursable technical assistance to non-DoD federal, state, and local agencies, Tribal nations, private industry, and foreign governments and organizations. Work requested by Tribal governments is authorized under the provisions of 10 USC 3036(d)(2)

Oklahoma is home to 38 Federally recognized Tribes. Tulsa District currently provides technical support to 15 of these

Quapaw Fire and Emergency Medical Services

Tribes. Tulsa's program has traditionally consisted of contract administration support and construction oversight for HUD Indian Community Development Block Grant (ICDBG) projects. Some of these projects include wellness centers, food distribution centers, medical clinics, substance abuse centers and many more. The impacts these projects have to quality of life for an often underserved demographic is tremendous.

Recently Tulsa District's t=Tribal program has experienced growth and increased interest. New and innovative projects include providing technical support for the rehabilitation and construction of a wastewater treatment system. This work is being accomplished through a USDA grant and is a first for the District.

Tulsa's Planning and Environmental Division recently provided technical support in the form of an economic feasibility study for a convenience store. The study showed that the potential project has an excellent chance of success, and that Tribe is now pursuing funding to construct that project.

The Tribal support team is also involved in a unique project involving committed Tribal collaboration. Northeast Oklahoma has one of the densest populations of American Indians in the nation. In an effort to provide high quality medical care, five Tribes received ICDBG grants and put them together to construct one large medical facility. It was envisioned to be a project encompassing another set of grants; however, when the Northeastern Tribal Health System became involved, they committed the remaining amount of this $10 million project. A design-build contract is expected to be awarded in April 2011, and the construction will last approximately 20 months.

Tulsa District's Tribal support team is constantly networking in search of opportunities to support our Native American community that it proudly serves.

Webbers Falls Powerhouse Major Rehabilitation, Oklahoma

River & Harbor Act, approved July 24, 1946; Project Document HD 758, 79th Congress, 2d Session

Under Construction

The run-of-river power plant contains three 23,000 kilowatt (kW), inclined-axis, Kaplan-type generating units with a total rated generating capacity of 69,000 kW. These turbines were the first tube turbines of this magnitude ever built and placed into operation. As a result, the design did not consider all of the factors specific to the operation of slant-axis turbines and, consequently, the project has been plagued with mechanical

reliability problems during its operation. The major rehabilitation project will replace all three turbines resulting in $1.32 million of net benefits per month to the nation. In addition to rehabbing the turbines, the generators will be rewound and upgraded, which will increase the capacity of the plant by 8.5 percent.

In February 2001, the Corps of Engineers Hydroelectric Design Center (HDC) recommended that the Ozark and Webbers Falls turbine replacements be combined into one contract for a savings of over $5 million to the government and power customers. The Webbers Falls Turbine Replacement contract was subsequently included as an option under the Ozark contract that was awarded in May 2005.

The Webbers Falls Powerhouse Rehabilitation project's current cost is $72.7 million with a scheduled completion date of June 2012. The project scope includes the turbine rehabilitation, generator rewind, rehab of the intake/tail race gantry cranes, rehab of the bridge cranes, rehab of the intake gates and bulkheads, and installation of new 13.8KV breakers.

In 2008, the three turbine runner options were awarded to Andritz Inc. for $39.1 million. This contract is currently under construction with the first unit scheduled to begin commercial testing in March 2011. In addition to the turbine runners, the turbine and generator bay bridge crane rehab contract was awarded and completed in 2008 for $2.3 million, and the intake and tail race gantry crane rehab contract was awarded in 2009 for $3.8 million using American Recovery and Reinvestment Act funds. Future contract awards expected in 2010 include the generator rewind, the intake gates and bulkheads.

All work with the exception of the gantry cranes is funded by customer funding sub-agreements through the Southwestern Power Administration.

Red River Basin

Bowie County Levee

Energy and Water Development Appropriation Act of 2001 and 2003

Pre-Construction Engineering & Design

The Bowie County Levee is located near Texarkana, Texas, in Bowie County, Texas. The existing levee is 8.8 miles long and was built in 1913. The locally preferred plan, known as Alternative B, is the plan that will be constructed. This plan consists of restoring six miles of existing levee, constructing four miles of new levee, and constructing 1.4 miles of channel to divert Barkman Creek flows to the Red River.

In February 2010, Tulsa District formulated its final offering for a mitigation plan. The sponsor has considered the plan and has indicated that it will offer an alternative rather than accept the plan as submitted by the Corps. During FY11, the sponsor will continue to develop its alternative mitigation plan. When the sponsor ultimately offers its plan, Tulsa District will evaluate it and determine its acceptability as a valid alternative. After the mitigation plan is mutually accepted, the Environmental Assessment (EA) can be revised and published, thus clearing the way for formulation and submittal of the project decision document.

Tulsa District has been directed to submit a Post Authorization Change Report (PACR) to the division commander for approval. This PACR will serve as the decision document that is the basis for the Project Partnership Agreement (PPA) for the project. The PACR will be submitted within the six months following the publication of the revised EA. Approval should follow submittal within another six months.

The PPA should be submitted within six months of approval of the PACR. Approval of the PPA, which should take an additional six months, will clear the way for the sponsor to begin real estate acquisition that should occur within 24 months of the approval of the EA. Upon completion of the real estate acquisition, which should take 12 months, a construction contract can be awarded, and construction can begin. Construction is estimated to take three years.

Denison Land Conveyance (WRDA 2007)

Water Resources Development Act of 2007 Section 3182, (j) and (k)

Conveyance of Land at Lake Texoma, Texas

The Water Resources Development Act of 2007 authorized the Secretary of the Army to convey to the city of Denison up to 900 acres of land at Lake Texoma, which were included in a 2005 lease application. The conveyance is to be at fair market value and is subject to completion of National Environmental Policy Act (NEPA) documentation and other real estate requirements such as survey and appraisal. All costs are to be funded by the city.

A Notice of Intent to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on August 6, 2008. A public information meeting was held September 11, 2008, as a part of the NEPA EIS scoping process. Public comments were accepted and summarized in a scoping report, which is posted to the Tulsa District website.

The Draft Environmental Impact Statement (EIS) is being conducted. It is anticipated that the Draft EIS will be available for public review sometime during spring 2011. Comments regarding the EIS may be directed to:

Mr. Stephen Nolen or Mr. Ken Shingleton, Environmental Analysis & Compliance Branch, U.S. Army Corps of Engineers, Tulsa District, 1645 S. 101st East Avenue, Tulsa, OK 74128-4609

Email Stephen.L.Nolen@usace.army.mil or Kenneth.L.Shingleton@usace.army.mil

Kemp Lake Reallocation Study

Water Resources Development Act of 1986

Study

Lake Kemp is located on the Wichita River at river mile 126.7 in Baylor County, Texas. Lake Kemp was originally constructed in 1924 by the Wichita County Water Improvement District (WCWID) #1. The lake was constructed for the primary purposes of irrigation, water supply, and related uses.

The reallocation study is being conducted with the Texas Water Development Board (TWDB) in conjunction with the Wichita County Water Improvement District #2 and the city of Wichita Falls.

Tulsa District awarded a contract to conduct flood plain inventory and finished hydraulics and hydrology work to include the probable maximum flood, modeling, and yield analysis. We also completed preliminary geotech studies.

In 2010, TWDB and the Corps focused on reconciling the two models used to calculate firm yield but found no resolution to the difference.

In 2011, a third party organization analyzed the WAM and RiverWare models for Lake Kemp and found that when the differences between the models are reconciled, neither predicts a significant increase in the lake's firm yield from raising the lake's conservation pool by six feet. The study team is currently working with the TWDB and WCWID on a path forward.

The project is operated and maintained by the Wichita County Water Improvement District #2 and the city of Wichita Falls, Texas.

During the design and reconstruction of Lake Kemp, sedimentation was a key consideration. Design Memorandum No. 1 recommended raising the conservation pool after 40 years of operation to recover conservation storage lost to sedimentation. The latest sedimentation survey performed at Lake Kemp was in 1973, and it indicated an expected high level of sedimentation. In recent years during drought conditions, the upper portions of Lake Kemp appear severely impacted by sedimentation.

Red River Basin Chloride Control Project

This project was authorized for construction by the Flood Control Act of 1966, approved November 7, 1966, Public Law 89-789, SD 110; as modified by the Flood Control Act approved December 31, 1970, Public Law 91-611; and as amended by the Water Resources Development Acts of 1974 and 1976. The Water Resources Development Act of 1986, Public Law 99-662, amended the above authorization to separate the overall project into the Arkansas River Basin and the Red River Basin and authorized the Red River Basin for construction subject to a favorable report by a review panel on the performance of Area VIII. Section 3136 of the Water Resources Development Act of 2007 reaffirmed that operation and maintenance responsibilities would be at full federal expense.

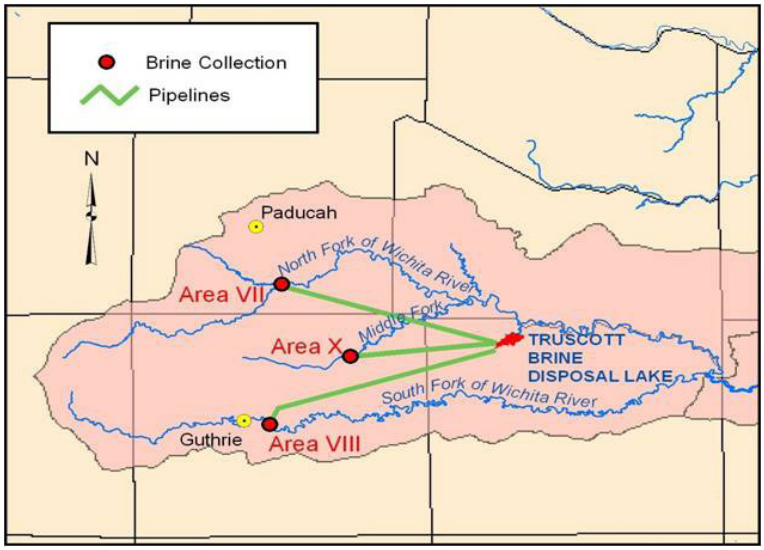
Under Construction

The Red River Chloride Control Project is authorized to identify and implement measures to reduce naturally occurring brine emissions into several sub-basins within the Red River Basin in northern Texas and southern Oklahoma. The project's primary purpose is to improve water quality for municipal, industrial, and agricultural uses along the Red River within Oklahoma, Texas, Arkansas, and Louisiana.

Improvements include construction of low-flow dams, pump stations, and diversion pipelines to impoundment facilities.

This project is a select major water strategy of the 2007 Texas Water Plan for the region. The state of Oklahoma has expressed a renewed interest in the Area VI element of the Red River project, and reevaluation efforts are underway. Area VI is located on the Elm Fork of the North Fork of the Red River in Harmon County, Oklahoma.

Portions of the Wichita River Basin Chloride Control element, located in northwest Texas, have been constructed and have been in operation since 1987.



Features completed and in operation include two low-flow collection dams, a pump station, and diversion pipeline to the Truscott Brine Disposal Reservoir.

Additional construction efforts at the Area X pump house were completed in August 2010.

With carryover funds from FY10, land acquisition efforts for the remaining right of way at Area X in Texas are underway, as well as Revaluation Study efforts for Area VI in Oklahoma. In addition, detailed baseline environmental monitoring activities are also continuing.

Southeast Oklahoma Water Resource Study

1983 Supplemental Appropriation Act (PL 98-63)

Study

This study has been reinitiated to support the Oklahoma Comprehensive Water Plan (OCWP). The Oklahoma Water Resources Board is the sponsor. This is one of three studies that will result in development of watershed management plans. These plans will be integrated into the OCWP.

In 2008, we developed a programmatic work plan and developed and distributed a pilot Geographic Information System project and an infrastructure survey for municipalities and rural water districts. Coinciding with these integrated efforts was an extensive public participation program to create a transparent and open planning process.

In 2009, we completed assessments of water demand and of ground and surface water supplies. The results of these two assessments were compared to define gaps where supply is inadequate.

In 2010, conservation assessments, refinements to demand projections, and regional supply alternative assessments were completed.

In 2011, the following activities will be completed: Model documentation and training for the Oklahoma gap tool, reservoir yield model, and climate demand model; Production of Watershed Planning Regional Reports/Basin Technical Appendices; Construction of detailed plans for hot spot solutions and infrastructure; and completion of a Wastewater infrastructure Capital Needs Assessment and provider Planning Guide.

This study is scheduled for completion in 2012.

Washita Feasibility Study

Red River and Tributaries above Denison Dam, Texas, Oklahoma, and New Mexico, House Resolution dated February 25, 1938; Senate Resolutions dated February 18, 1954 and June 19, 1962

Study

The Washita River is a tributary to the Red River in Oklahoma and flows into Lake Texoma.

The Oklahoma Water Resources Board signed the feasibility cost-share agreement in June of 2008. It was fully executed by the Commander in July 2008. This study is one of three that is being integrated into the Oklahoma Comprehensive Water Plan.

In 2008, we developed a programmatic work plan and developed and distributed a pilot Geographic Information System project and an infrastructure survey for municipalities and rural water districts. Coinciding with these integrated efforts was an extensive public participation program to create a transparent and open planning process.

In 2009, we completed assessments of water demand and of ground and surface water supplies. The results of these two assessments were compared to define gaps where supply is inadequate.

In 2010, conservation assessments, refinements to demand projections, and regional supply alternative assessments were completed.

In 2011, the following activities will be completed: Model documentation and training for the Oklahoma Gap tool, Reservoir Yield Model, and Climate Demand Model; production of Watershed Planning Regional Reports/Basin Technical Appendices; construction of detailed plans for hot spot solutions and infrastructure; and completion of a wastewater infrastructure Capital Needs Assessment and Provider Planning Guilde.

This study is scheduled for completion in 2012.

WRDA 1999 Conveyance of Lands to State of Oklahoma

The Water Resources Development Act of 1999, Section 563(e) authorized the Secretary of Army to convey to the state of Oklahoma lands in the Lake Texoma State Park. The law required conveyance to be at fair market value and all costs are to be paid by the state. Conveyance must comply with environmental laws, including the National Environmental Policy Act (NEPA). In 2006, 558 acres of land was sold to the state through the Commissioners of Land Office (CLO). The land was withdrawn from the park lease. The CLO subsequently sold the land to Pointe Vista Development, L.L.C. The state has requested conveyance of additional lands in the state park through the Oklahoma Tourism and Recreation Department.

A Notice of Intent to Prepare an Environmental Impact Statement (EIS) was filed in the Federal Register on August 21, 2009. A public information meeting was held in Kingston, Oklahoma, on September 22, 2009, as a part of the NEPA scoping process. Comments from the public meeting regarding the proposed conveyance of Texoma State Park lands were made part of the scoping report that is posted to Tulsa District's website, www.swt.usace.army.mil.

The draft phase of the EIS is expected to commence in the spring of 2010.

Although the formal comment for EIS scoping ended, comments regarding the EIS may be directed to Mr. Stephen Nolen, Environmental Analysis & Compliance Branch, U.S. Army Corps of Engineers, Tulsa District, 1645 S. 101st E. Avenue, Tulsa, OK 74128-4609.

Fax: 918-669-7546

Email: Stephen.L.Nolen@usace.army.mil

Arkansas River Corridor Feasibility Study update

Back row, from left, Michael Lee, Sen. Inhofe's staff; Doug Enevoldson, Bixby City Manager; Ray Bowen, Bixby Mayor; Dewey Bartlett, Tulsa Mayor; Vic Vreeland, Jenks Mayor; Rep. John Sullivan; Robert Walker, Sand Springs Mayor; and Michael Neal, Tulsa Metro Chamber of Commerce. Front row, from left, Fred Perry, Tulsa County Commissioner; Karen Keith, Tulsa County Commissioner; COL Michael Teague, Tulsa District Commander; and John Smaligo, Tulsa County Commissioner.

In August 2010, the Tulsa District completed a reconnaissance report that identified federal interest to continue feasibility phase studies. In October 2010, Tulsa District and Tulsa County executed a feasibility cost share agreement for the Arkansas River Corridor Feasibility Study. The study will be cost shared 50 percent federal and 50 percent non-federal and is expected to cost $4,632,000. If funded in 2011, work would include alternative formulation and screening, beginning the NEPA study effort, initiating detailed alternatives analyses, preparing a sediment transportation study, undertaking geotechnical studies, and beginning incremental cost analysis.

The 42-mile long study area focus is along the Arkansas River in Tulsa County, Oklahoma. Extreme flow variability resulting from Keystone Lake operations has negatively impacted the aesthetic, environmental, and water quality conditions of the Arkansas River. In response to multi-community support for the Arkansas River Corridor Master Plan concepts, Congress created special authorization language in Section 3132 of Water Resources Development Act 2007. This section authorizes construction of ecosystem restoration, recreation, and flood risk management components identified in the Master Plan. Implementation guidance for the project directed completion of a feasibility study. The effects of two proposed low-water dams and modification of an existing low-water dam, identified in Vision 2025 Proposition 4, will be included in the feasibility analysis of a comprehensive ecosystem restoration project to improve riverine, riparian corridor, and open water habitats; stabilize stream banks; and improve water quality.