



US Army Corps
of Engineers®
Little Rock District

Project Update

March 2014



***Team completes Table Rock Master Plan revision
Rehab project fixes Clearwater Dam seepage problem
District names 2014 Engineer of the Year***

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In This Issue:



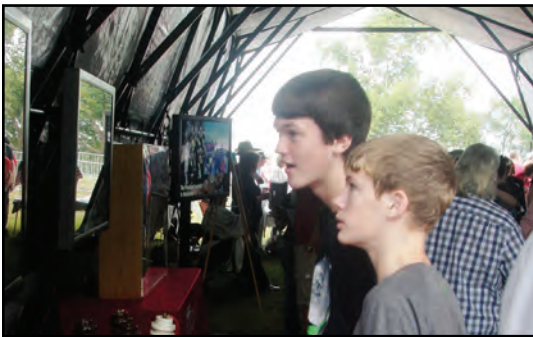
Master plan revision complete for Table Rock Lake

Little Rock District team completes the first revision of the Table Rock Master Plan since 1976Page 3



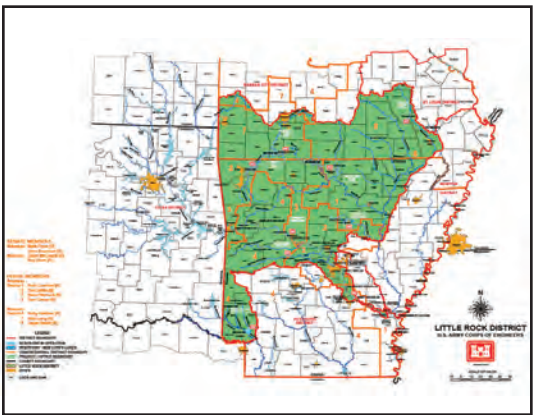
Clearwater Dam major rehab fixes leaks

Completion of the Clearwater Dam rehab project fixes long term seepage problems and improves Dam Safety Action Classification ratingPage 4



On the cover

The Little Rock District held the 50th anniversary of the dedication of Greers Ferry Dam Oct. 3, 2013 at the John F. Kennedy Overlook. About 6,000 people attended the event. Out of 6,000, some 2,900 students in attendance that day were from 17 north central Arkansas school districts. In conjunction with the dedication ceremony, teachers developed lesson plans for grades 3-12 which included modules on science, technology, engineering, math, english, art and history. STEM education plays a major role in enabling the U.S. to remain the economic and technological leader of the global marketplace.



Little Rock District map

Little Rock Key Projects

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Project Update

Project Update highlights top Little Rock District issues in Missouri and Arkansas. If you have questions, contact Randy Hathaway, Little Rock District Deputy District Engineer for Project Management, at (501) 324-5053. For more information, visit our web site at www.swl.usace.army.mil.

District revises Table Rock Master Plan



Visitors watched a short video highlighting the Table Rock Master Plan revisions.

The Army Corps of Engineers, Little Rock District has completed the Table Rock Lake Master Plan Revision. The Table Rock Master Plan had not been updated since 1976. The district's product delivery team began the revision process in 2012 by first holding public workshops.

"Our goal was to educate the public on the process," said Project Manager Dana Coburn. "We presented the background of the master plan revision process and explained the difference between a master plan and a shoreline management plan."

Attendance at the first three public workshops was overwhelming.

"We had more than 2,000 attend our first round of public workshops," said Coburn. "The interest by the public was awesome. We received about 615 public comments with that round of workshops"

The district also implemented a one year moratorium for any shoreline permits during the master plan revision.

"We had to establish a baseline of what was currently on the lake and we could not have done it if conditions were constantly changing," said Coburn. "Many residents were skeptical if we would lift the moratorium after one year. But we kept our promise."

Once the baseline conditions were established and documented, the team began looking at alternatives for the revision.

"The team initially developed four alternatives to the master plan," said Coburn. "We then held a series of focus group meetings to see if the draft master plan captured the comments and opinions of the public, partners and stakeholders in conjunction

with the missions, guidelines and regulations of the Corps."

The focus groups were formed based on the public concerns we heard during the scoping phase. The top three concerns from the public for Table Rock Lake were water quality, water safety, and recreation.

"People who we felt were closely tied to those concerns were then invited to participate in the focus groups," Coburn said. "Members of the focus groups were asked to share what they learned during our meetings with other community members and then to provide feedback to the team on what was voiced by the community."

Development of the revised master plan included consideration of:

- Regional and ecosystem needs;
- Project resource capabilities and suitability for various purposes;
- Public interests and desires.

The Table Rock Lake Master Plan's update main objectives were:

- Make maximum use of the resources of the lake within the current policies and guidelines of the Corps of Engineers;
- Accommodate current and projected use patterns with maximum efficiency;
- Identify and protect cultural and natural resources;
- Attract maximum participation by the general public and local government in project development.

"Throughout the process we worked to determine if there were enough public recreation opportunities around the lake," Coburn said. "Were the parks in the right location? Did we have enough public ac-

cess points around the lake? What would future need be?"

The team also looked at land designation around the lake.

"All the Corps land surrounding Table Rock Lake is in several land use categories," Coburn added. "We wanted to ensure that the mix of these categories were right. Were there enough places for commercial activities? Were sensitive natural areas protected appropriately?"

In the end, the final master plan and environmental assessment compared nine different alternatives.

"From four to nine distinct alternatives, from the preliminary draft stage to the final product—that's how the process should work," Coburn said. "The team took what we learned from various information outlets, including the public, and applied it to this plan. I feel this has been a success story on public interaction with the Corps."

The master plan does not address the details of how and where shoreline use permits may be issued, however, it does set the stage for implementation of the shoreline management program. By setting the land classifications around the lake in the master plan, appropriate shoreline zoning can take place with an update to the shoreline management plan.

"The shoreline management plan will be revised when funding becomes available to be consistent with the goals identified in the revised master plan," Coburn said.

The final revised Table Rock Master Plan and the final Environmental Assessment are available on the following website: <http://go.usa.gov/BV2C>.



Branson residents look over the plan.

Clearwater Dam seepage resolved

The Army Corps of Engineers announced that Clearwater Dam has officially been moved to a more favorable Dam Safety Action Classification rating



Clearwater Dam

as a result of the recent completion of the concrete cut-off wall.

This rating change means that the dam is no longer under any type of restriction or increased inspection requirements.

“We have seen continued improvement in the dam’s performance,” said Clearwater Lake’s Project Manager Randy Devenport. “In 2011, we were an eighth of an inch from our historic high level and the historic seep areas were dry when we checked monitoring equipment readings.”

The dam renovation project began after

a large sinkhole was discovered in the side of the dam in January 2003. This caused Clearwater Dam to have a DSAC 1 rating. This rating reflected a need to take urgent action to repair the dam.

The sinkhole discovery led to the detection of a serious seepage problem that could have led to dam failure if not addressed. A two-phase \$200 million rehab project was engineered to reduce seepage and improve the strength of the dam. A drilling project started and grout was pumped into the core of the dam. Then a cutoff wall was built through the center of the dam; the wall is 200 feet in depth in many places and extends 40 feet into competent bedrock.

The cutoff wall that was built through the core of the dam is 4,300 feet long and spans the entire length of the dam and consists of 277 concrete panels. It was completed in 2012. Since then, contractors have completed the final earth work for the project.

While the wall was under construction the Corps implemented various interim risk reduction measures to ensure public safety. This included increased inspection activity tied to pool elevations, increased public

communication and risk awareness, and more frequent monitoring of instruments to measure dam performance, among other things. The re-classification to a DSAC 4 now allows the dam to be inspected and operated in a more “normal” fashion.

Even though the rehabilitation project is complete, Corps officials caution against becoming complacent about the risks of living, working or recreating downstream of any dam. Complacency can cause people to fail to take action or even cause them to take inappropriate action in the event of an emergency and increase the risk to their property or lives.

“Even though the dam is functioning properly, there will still be inherent risk to those downstream in the flood plain of the Black River,” Devenport said. “Clearwater Dam reduces downstream flood losses in most circumstances. But it has limitations, and flooding, even severe flooding, will still occur in the flood plain from time to time.”

Clearwater Lake’s primary purpose is flood risk reduction. Since the lake was completed in 1948, it has prevented about \$306 million in flood damages downstream.

District, university team up to promote STEM



Little Rock District Commander Col. Courtney W. Paul and University of Pine Bluff Chancellor Laurence B. Alexander sign a Memorandum of Understanding for the advancement of Science, Technology, Engineering, Mathematics enrichment programs to increase the number of well-prepared underrepresented minority STEM graduates for careers in STEM professions.

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“This partnership is good for the Corps and good for University of Arkansas at Pine Bluff,” said Col. Courtney W. Paul, Little Rock District commander. “The Corps needs engineers and people with

science and mathematics backgrounds to help us carry on our mission of maintaining the nation’s infrastructure into the future. This agreement is a way for us to pool our resources in a time when resources are limited.”

One of UAPB’s goals is to use science and technology to help solve economic, physical, social, political, racial and cultural problems. UAPB already collaborates with other colleges and universities in Arkansas through the National Science Foundation funded STEM Academy, but the head of the university is enthusiastic about the chance to work with a federal entity.

“It is an exciting opportunity for UAPB to be able to partner with a key agency of the government ... the U.S. Army Corps of Engineers,” said UAPB Chancellor Laurence B. Alexander. “It gives our students and faculty opportunities. We have been a partner with the Corps in many ways in the past, but this helps to solidify the partner-

The Army Corps of Engineers Little Rock District recently signed a partnership agreement with the oldest historically black institution of higher education in Arkansas.

The University of Arkansas at Pine Bluff, established in 1873, and the district signed

ship. It is the next phase of development.”

The MOU includes numerous ways for the university and the Corps to work together.

As part of the partnership, the Corps will participate in its STEM Guest Lecture Series, Science Fair Expo, paid internship program, STEM Summer Academy and faculty development opportunities.

The MOU also states that UAPB will share concepts for grant proposals; visit Corps facilities to increase familiarity with their operation, scientists and common STEM interests for collaborative research and educational program advancement.

“It gives the student a new ‘laboratory’ to work in, a new experience, scholarships, the potential for shared research, said Mary E. Benjamin, UAPB’s vice chancellor for Academic Affairs. “It gives us technical assistance, such as the Corps reviewing our posters and oral presentations before we take them out to national conferences.”

As part of the STEM MOU, the Little Rock District will also provide detailed information on the Pathway intern program and provide STEM and other students annual training on applying for and preparing resumes for Federal jobs.

The Corps will also include UAPB in market research for contract opportunities that are compatible with the university’s programs and faculty expertise or the Historically Black College and University Socioeconomic Program.

“I am happy to form this union,” said Benjamin. “It will bring about lots of good things



Little Rock District commander Col. Courtney W. Paul, University of Pine Bluff Chancellor Laurence B. Alexander, UAPB’s vice chancellor for Academic Affairs Mary E. Benjamin, and Little Rock District Contracting Chief Sandra Easter, who is also a UAPB alumna, discuss the new Science, Technology, Engineering, Mathematics Memorandum of Understanding between the district and university.

for our students and faculty. It will help the students become more integrated into work areas that will help them find jobs.”

The leader behind the scenes that brought the university and Corps together is a district employee and UAPB alumna.

“I am honored to be a part of this partnership,” said Sandra Easter, Little Rock District contracting chief. “It allows me to reflect on my cooperative experience at UAPB. It is important to me. I have had a long career with the federal government and these are times that are rewarding for me because I can come back to the university and

share with students my career and the opportunities that may be available to them.”

There was already a connection between the Corps and UAPB before the official signing of the memorandum.

“We currently have a number of UAPB graduates working at the Little Rock District in resource management, regulatory, and contracting,” said Easter. “UAPB has a rich history with the Corps of Engineers.”

This new collaborative partnership, made possible by an MOU, will ensure the university’s rich history with the district continues to flourish in the future.

McKinnie named 2014 Engineer of the Year



James McKinnie

James McKinnie earned the Little Rock District’s 2014 Engineer of the Year honors for his exceptional work as chief of Navigation and Maintenance Section.

His leadership resulted in the first-ever regional McClellan-Kerr Arkansas River Navigation System strategic maintenance plan.

During the year, McKinnie also served as the mechanical and electrical section chief for the Engineering and Construction Division and as the district’s Science, Technology, Engineering and Mathematics coordinator.

Throughout 2014, McKinnie’s reputation flourished as a technical expert and leader in the local community, district and the region because of his civic involvement, wide-ranging knowledge and skills.

McKinnie and his team provide traditional maintenance engineering support to the district’s project offices, as well as asset management and budget development for the navigation and flood risk management business lines.

Before joining to the Corps, McKinnie worked at NASA’s Johnson Space Center where he was involved in the design and operation of life support systems for the International Space Station. He also served with the 314th Civil Engineer Squadron at Little Rock Air Force Base as a mechanical engineer, chief of contracts, and chief of the engineering flight.

McKinnie earned a bachelor’s degree in mechanical engineering at Texas A&M University in 1990. He is a registered professional engineer in the state of Arkansas.

Little Rock District projects, issues

Arkansas River Basin

Fourche Bayou Basin

During fiscal year 2009, Congress appropriated \$1.1 million for the Corps to work with our non-federal sponsor, the city of Little Rock, to acquire 1,750 acres of Fourche bottomlands and construct nature appreciation facilities. The project's estimated cost is \$7.49 million. Using the appropriated funds, the local cooperation agreement was amended in July 2012 to provide the sponsor Section 104 credit for \$160,000 of channel work they performed as approved by the Assistant Secretary of the Army for Civil Works in 1988.

In November 2012, the ASA(CW) agreed that the remaining appropriated funds could be used to acquire bottomlands. However, the Army did not intend to budget for additional land acquisition and no funds would be reprogrammed to the project.

A December 2013 agreement between the Little Rock District and the City of Little Rock approved the acquisition of Fourche Bottomlands using the available federal funds of \$790,000 and \$194,200 of sponsor funds. The city has already acquired about 1,000 acres of the 1,750 acres that is included in this effort. All acquisitions should be complete by the end of the year.

The Fourche bottomlands will be retained in public ownership for uses compatible with the project's authorized purposes of environmental preservation, flood risk management, and recreation.



Ongoing turbine replacement at Ozark Powerhouse.

Ozark Powerhouse Major Rehabilitation

The contract for the replacement of the five hydroelectric turbines is ongoing. The contractor has assembled the first and second units they should be back in operation this summer. The contractor plans to have the third unit re-assembled by the end of 2014 and is preparing to disassemble the fourth unit. The contractor will complete the fabrication of major components for all five units soon. Federal power customers and federal appropriations are funding the project. The \$125 million major rehabilitation project will improve the continual maintenance problems at Ozark Powerhouse. Maintenance issues caused more than \$9.3 million in lost power during FY13. It is anticipated that all work should be complete by 2017.

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

The district does not have any construction funds for this project and all work has ceased. The Corps cannot resume work until the project receives a "new start" designation, construction funds, and cost-shared

funding (50/50) with the Inland Waterways Trust Fund. This project is not included in the FY15 President's budget. The current estimated total project cost is \$190 million, with the most efficient funding in \$20 million increments. The existing 445-mile long McClellan-Kerr Arkansas River Navigation System consists of 18 locks and dams, providing nine-foot depth inland navigation from the Mississippi River to Catoosa, Okla. This project would deepen the navigation channel to a minimum depth of 12-feet throughout the system.

Three Rivers Study, Southeast Arkansas

The district needs a "new start" and funding of \$100,000 to complete a 905(b) reconnaissance study of the water resource problems in southeast Arkansas where the Arkansas, Mississippi, and White Rivers converge. The study will determine potential solutions, scope, further federal participation, and identify non-federal sponsors to provide a comprehensive watershed analysis of basin conditions and alternatives. Section 216 of the Rivers and Harbors Act of 1970 is the study authority.

The study will investigate serious hydrologic and hydraulic problems that threaten navigation, aquatic ecosystem habitat, Ark/White Cutoff Structure, recreation, flood damage reduction and watershed protection. A previous study to address the navigation reliability problem determined we must continue maintaining existing structures with a "band aid" approach because proposed solutions were deemed incompatible with U.S. Fish and Wildlife purpose.

However, the Ark/White Cutoff Study confirmed that the problems and solutions are interconnected and interdependent throughout the entire region. The study location is at the confluence of the Mississippi, White, and Arkansas Rivers in Desha and Arkansas counties, Ark.

The study area is in three Corps districts (Little Rock, Memphis, and Vicksburg) and two Corps divisions (Southwestern and Mississippi Valley). The area is the starting point or "door way" for the McClellan-Kerr Arkansas River Navigation System, which begins at the mouth of the White River and runs 445 navigable miles to Catoosa, Okla.

The watershed of these three rivers is home to the White River National Wildlife Refuge and more than 100,000 acres of critical bottomland hardwoods. This is the largest stand of bottomland hardwoods on any tributary to the Mississippi River. Significant erosion is causing the loss of large areas of bottomland hardwoods. The refuge and the surrounding area are habitat for numerous threatened and endangered species, including the Bald Eagle, Interior Least Tern, Pallid Sturgeon, and Ivory-billed Woodpecker.

The erosion in the watershed between navigation miles 3 and 8 on the White River is a serious threat to navigation, recreation, and flood risk management.

A full breach would stop navigation on the MKARNS for more than 100 days, at an impact of nearly \$300 million and the loss of thousands of acres of wetlands and pristine hardwoods. Permanent solutions include increased detention upstream, raising the existing containment structure (levees), construction of a passive weir, or an active weir in order to restore a more natural hydrology between the Arkansas and White rivers. The state of Arkansas understands the cost-sharing requirements and the Arkansas Waterways Commission would be the local cost share sponsor. Interested co-sponsors include the U.S. Fish and Wildlife Service, the Nature Conservancy, the Arkansas Game & Fish Commission, and the Arkansas Natural Resource Commission.

Mississippi River Commission 2014 Low Water Inspection on the McClellan-Kerr Arkansas River Navigation System

The Mississippi River Commission's first inspection of the McClellan-Kerr Arkansas River Navigation System took place in August 2010. During this inspection, the MRC learned from Arkansas River Basin partners and others about the methods, procedures, systems and other

resources to improve the development and delivery of policy, planning, construction, recreation services and operation and maintenance for the comprehensive water resource system and basin. The next inspection is scheduled for August 2014.

The Mississippi River Commission was established by Congress on June 28, 1879. Congress charged the MRC with the mission to develop plans to improve the condition of the Mississippi River, foster navigation, promote commerce, and prevent destructive floods—perhaps the most difficult and complex engineering problem ever undertaken by the federal government.

Today the MRC, which is headquartered in Vicksburg, Miss., provides water resources engineering direction and policy advice to the administration, Congress and the Army in a drainage basin that covers 41 percent of the United States and parts of two Canadian provinces by overseeing the planning and reporting on the improvements on the Mississippi River. The intent behind the mission of the MRC today is the same as the mission placed on the commission upon its creation—to lead sustainable management and development of water related resources for the nation's benefit and the people's well-being.



Local media interviews Mississippi River commissioner during the 2010 Low Water Inspection.

McClellan-Kerr Arkansas River Navigation System Board of Governance

Within Southwestern Division a board of governance for the McClellan-Kerr Arkansas River Navigation System has been established to corporately manage the system. Historically, the two districts responsible for operation and maintenance of the system, Little Rock and Tulsa, have done very well in teaming to establish priorities and execute work that is critical to maintaining a reliable system.

In times of flat or decreasing budgets and increasing needs for maintenance and repair, the Corps must ensure that the system is managed to be as effective and efficient as possible, that strategic plans are in place, and that stakeholders are active participants in the planning and communication of system activities. To that end, the objective of the board is to move the great, informal relationships into a structured, disciplined approach to make the MKARNS reliable, resilient, and relevant to promote growth for future generations. It is important to note that each district will maintain responsibility for execution of the program and mission within its area of responsibility.

The board consists of the commander, deputy district engineer for project management, and chief of Operations Division from each of the two districts; the chief of Operations and Regulatory Division from Southwestern Division; and the MKARNS program manager. The board will be co-chaired by the district commanders with the Little Rock commander assigned as the executive director.

White River Basin

Post Flood Tool Box for Local Communities, Arkansas Silver Jackets

The Arkansas Silver Jackets team is developing a toolkit and quick reference guide for local floodplain administrators. The “quick guide,” should be available by the end of the year and will help guide local floodplain administrators during and immediately after a flood event. The team will model the guide after the Arkansas floodplain quick guide and will include forms for recording high water marks, substantial damage software and guidance, sample flagging and tape for recording high water marks, and other items. The toolkit will also outline the responsibilities of the sponsor, community and the Corps of Engineer before, during, and after a flood event. It will describe, in detail, actions of the sponsor in checking known areas of concern, raising low areas, monitoring and inspecting the levee during and after the flood event. The kit will also describe the Corps’ responsibility in assisting the sponsor in flood fighting activities and the rehabilitation of the levee if damages occur.

The core of the toolkit is the “quick guide.” Its comprehensive design, using easy to understand language and illustrations, will make it easy to understand and employ. Most floodplain administrators wear many hats and need quick helpful information to enforce their community’s floodplain management regulations and to help reduce future flood damages.

The toolkit and quick guide is a first step in collaborating with our state partners to create a statewide comprehensive flood risk education program. This program will include all levels of flood risk comprehension, from grade school students to seasoned professionals.

White River Comprehensive Study

The efforts in FY14 for the study will focus on the Cache River Basin Watershed Management Plan (a sub-basin to the White River), and this plan will be a platform to further initiate other sub-basin studies. The Cache River plan should be complete by September 2015. The next potential sub-basin is the James River in southwestern Missouri.

The Little Rock and Memphis districts are conducting the comprehensive study of the White River basin in Arkansas and Missouri. The FY14 President’s Budget includes \$650,000 in funds for this project.

The Corps approved the reconnaissance phase study report, known as the 905(b) report, in January 2002 and involved parties signed a feasibility cost sharing agreement in May 2002. The Water Resources Development Act of 2007 changed the cost sharing requirements of the study cost from 50 percent to 25 percent. Project sponsors include the Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Arkansas Natural Resources Commission, Arkansas Waterways Commission, Missouri Department of Conservation, Missouri Department of Natural Resources, and the Nature Conservancy of Arkansas. The study will identify the critical resources, water-related problems and needs, and potential solutions.

White River Water Control Plan

The district has received requests from stakeholders to initiate a study of the water control plan for the White River System of reservoirs. The Little Rock District last implemented minor changes to the water control plan for the White River Lakes in December 1998. Initiating a review of the plan would require detailed engineering, environmental and economic analyses, extensive public coordination, and \$9 million in funding over three years. Since there are many competing and conflicting goals for water management in the White River Basin, any change to benefit one group or interest will impact other groups or interests.

Stakeholders have frequently engaged their elected officials to seek short-term changes to the White River Water Control Plan that benefit their specific interests. An extremely wet weather pattern in 2008 through summer 2011 resulted in high lake levels, as well as extended periods of high river stages, and renewed interest in a revision to the water control

plan. Extreme drought conditions and sustained above average high temperatures in 2012 resulted in low lake levels and extremely low river levels generating additional interest in system operation. Atypical rainfall in the late summer 2013 generated even more interest in revising the water control plan.

Since the inception of the original plan in the 1950's, the water control plan has been a discussion topic for revision for specific interests. In response to requests for change in the 1980's and 1990's, the district formed a working group consisting of private concerns, state agencies and federal agencies that developed alternative plans and variations of plans. The group unanimously endorsed a recommended plan realizing that there was no single plan that would satisfy all needs at all times. This 1998 plan "fine tuned" the existing 1963 plan by calling for seasonal adjustments to the regulating stage at Newport and Georgetown, Ark., when evacuating flood storage from the lakes. The 1998 plan's regulating stages were slightly lower than the 1963 plan during the agricultural season and slightly higher during the non-agricultural season. This group did not propose or consider changes to the authorized lake levels because a 1985 study had found reallocation of storage was not economically justified.

The district continues to add budget requests to update this plan but none have been approved.

Water Supply

With performance-based budgeting, the district receives very little money to work on water supply studies and reports. The small amount of funding provided is primarily used for monitoring existing contracts and continuing incremental progress on existing reports.

State Water Plans, Arkansas and Missouri

Arkansas - The Arkansas Natural Resources Commission is updating the Arkansas State Water Plan, which includes ongoing project scoping and refinements, resource assessments of surface and groundwater supplies, water demand assessments, identification of data needs, projection of future water needs and challenges, and identification of new or alternative water sources. The study also includes integration of input from the public, interested groups, and state and federal agencies in recommending management strategies and policy considerations. The plan will be completed in November 2014.

Under the Planning Assistance to States, Section 22 authority, the commission requested assistance from the Little Rock District to conduct a thorough analysis of the temporal trends in stream flow and reservoirs in Arkansas through 2012. The district is using \$140,000 to complete this analysis. The project applied a wide range of sophisticated statistical methods to evaluate temporal and spatial variability on trends for various flow characteristics of streams in Arkansas. These flow characteristics include, but are not limited to: annual minimum flow; annual maximum flow; annual daily maximum flow; annual median flow; monthly mean flow; and, the 30-day moving average of daily flows for both active and inactive stream flow gauging stations that are or were operated by the U.S. Geological Survey and/or the Corps of Engineers in Arkansas. We also identified statistical trends for reservoir pool elevation and water supply storage availability in Arkansas from the early- to mid- 1900's through the 2012 water year. This phase of the study was completed in January 2014.



Water supply is available on a regional scale.

Missouri – Missouri's primary tool for water resource planning is the Our Missouri Waters Program. The purpose of this initiative is to create a coordinated, holistic approach to managing water resources at the watershed level. The Little Rock District is currently working collaboratively with four other Corps districts in Missouri through our Planning Assistance to States Program to provide support to the state of Missouri for its Our Missouri Waters Program. The group met in February and will continue on-going efforts results in the production of timely, relevant, and technically sound water resource planning products that the state of Missouri needs to meet the goals of Our Missouri Waters.

Table Rock Lake Water Supply Reallocation

Tri-State Water Resource Coalition requested 50,000 acre-feet from Table Rock Lake in July 2007. The Little Rock District needs \$600,000 for a reallocation report and environmental assessment. If public interest warrants, an environmental impact study will require an additional \$1 million. No funds are anticipated in FY14 to complete the reallocation report and environmental assessment. Using new guidance from amendments to Section 111 of the FY12 Energy and Water Development Appropriations Act, Tri-State Water Resource Coalition has indicated it will provide contributed funds to complete the reallocation report and environmental assessment.

The district completed a phase I regional water demand study for southwest Missouri in September 2012 under the Planning Assistance to State Program partnering with the Missouri Natural Resources Commission. The district has \$175,000 in funding to conclude a phase II PAS study evaluating the water supply of the 16 county study area, comparing it with results of the phase I water demand analysis, and then performing a basic formulation of alternatives to address deficiencies through 2060. The PAS agreement was executed in FY2012 and phase II has an anticipated completion in June. This information will be used in a future reallocation report to expedite and reduce overall cost.

Unfunded reports

Beaver Lake: In July 2000, Benton-Washington Regional Public Water Authority (formerly Benton/Washington County Water Association) requested 8 million gallons per day. In July 2001, Carroll-Boone Water District requested 6 mgd from Beaver Lake and Madison County Regional Water District requested 8 mgd. The district has evaluated the water supply needs but requires \$250,000 to complete the study.

Norfolk Lake: In September 2000, the city of Mountain Home requested 5 mgd from Norfolk Lake. In September 2004, Baxter Counter Water Association requested 5.8 mgd from Norfolk Lake. Work will not be initiated until funding is provided. The district does not anticipate funding in FY14.

Greers Ferry Lake: In January 2007, Community Water System requested 2.5 mgd. In December 2004, Searcy County Regional Water District requested 5,000 acre-feet. In June 2006, the city of Clinton requested 2.5 mgd. In May 2013, the Mid-Arkansas Water Alliance requested 15.25 mgd. Work will not be initiated until funding is provided. The district does not anticipate the funding in FY14.

Bull Shoals Lake: North Baxter County Water Distribution District requested 6 mgd for municipal and industrial water supply purposes. The district does not have any funds available to complete the study. The district does not anticipate the funding in FY14.

Completed but unexecuted Agreements:

Greers Ferry Lake, city of Heber Springs, Ark.: Officials approved this reallocation report in 2007, but the water supply agreement was not executed because of a dispute over costs for water storage. The city disputed the water supply agreement determination made by the Assistant Secretary of the Army for Civil Works, which included annual operation and maintenance costs. The city has recently expressed interest in executing this agreement and agreeing to pay annual operation and maintenance costs. The Little Rock District is currently reviewing the agreement to ensure compliance with Corps policy.

Issues and Other Topics

Continuing Authorities Program Overview

A continuing trend of flat-line budgets over the past several years in the Civil Works Operations and Maintenance Program is requiring prioritization and a reduction in services the Corps provides. Costs are continuing to rise for supplies, utilities, fuel, contracts and other resources needed to execute the program. The rise in costs is limiting the quantity and diversity of services the district can provide.

The district is focusing its recreational resources on strategically located facilities to offer the most efficient return on investment. The district is deferring applications for private exclusive use, such as private boat docks and mowing during the recreation season, so resources can be focused on providing service that benefits the general public.

The district is continuing to reduce overall maintenance of its aging infrastructure where the risk is determined acceptable. The district is decreasing the frequency of dewaterings, inspections, and general maintenance while increasing its response time to breakdowns. While budgets for day-to-day operations continue to remain flat-lined in comparison to recent years, the district received some additional funding in FY14 and should be able to complete more significant maintenance in FY14.

Operations and maintenance funding in FY12 was \$89 million, \$86.2 million in FY13 (after sequestration) and is currently projected at \$101.2 million in FY14. As the backlog of high priority maintenance items continues to grow as the infrastructure ages, the district is working to reallocate operations dollars to maintenance in an effort to preserve and repair the Nation's critical infrastructure. The district's annual work plan strategy includes an aggressive approach to use in-house resources to perform major maintenance.

Real Estate Encroachments

An encroachment is an unauthorized use of government property. Examples are homes, buildings, roads and other structures built on government property without approval or authorization via a real estate instrument. Encroachments result in a loss of income to the treasury and control of government land. With thousands of miles of boundary in the Little Rock District, much of which is in remote areas, encroachments can easily go undetected for long periods of time because of funding.

The longer an encroachment is in place the harder it is to resolve as time erodes facts and circumstances associated with the encroachment. Ownership of the structure can change hands, in some cases multiple times, which makes investigation and contact with the proper people very difficult and time consuming. The district has more than 280 backlogged encroachments but insufficient personnel and funding to adequately address the issues. Also, with people migrating to the lakes and the district identifies more and more encroachments while dealing with the present issues the numbers of encroachments continue to increase significantly.

2014 Recreational Adjustment Plan

The Little Rock District is finalizing plans to adjust operations in a few of its parks in 2014. The district held public workshops in February at Blue Mountain and Table Rock lakes in the district. Officials reviewed comments received during these workshops but still had to close Lick Creek and Viney Creek parks. No other parks are intended to be closed in FY14.

Today's federal budget realities require the district to change the way it delivers recreation opportunities to the recreating public, but not its role as a federal recreation provider. Among tough choices being considered are adjusting operations at four of the district's 146 public parks and access areas, to include closing one campground, one partial campground, and the leasing of two campgrounds in the 2014 recreation season. In addition, the district will be forced to take on the operation and maintenance responsibility for eight additional recreation areas in 2014.

Other likely park adjustments include reducing the total number of days areas are open, the frequency of trash pick-up, cleaning and mowing. And

the district expects to hire fewer temporary park rangers and contract park attendants and seeking to increase the amount of volunteers it uses to do various tasks.

These adjustments will enable Little Rock District to provide the best levels of service within the available budget. This is consistent with the Corps' national recreation strategy to have a program that is sustainable and adaptable to fiscal challenges and responsive to user needs. Following the same logic that the district took in 2012, it continues to focus on its highest priority of work while shifting resources to more efficient projects.

Regional Hydropower Governance Board

The Little Rock District in conjunction with Tulsa District, Fort Worth District, and Southwestern Division established a Regional Hydropower Governor Board. The objective of the RHGB is to ensure that SWD hydropower is managed in the most effective and efficient manner to ensure adequate energy and capacity delivery to Southwestern Power Administration, sustain the infrastructure, manage the plants, sustain hydropower technical competencies, and support the Southwestern Customer Funding Initiative Plan for plant modernization. The RHGB will assure that appropriate resources are allocated to address the many challenges and opportunities in providing a reliable, resilient, and sustainable power delivery system. Its organization is similar to the MKARNS Board of Governance with the Tulsa District commander as executive director.



Private boat docks on Greers Ferry Lake.

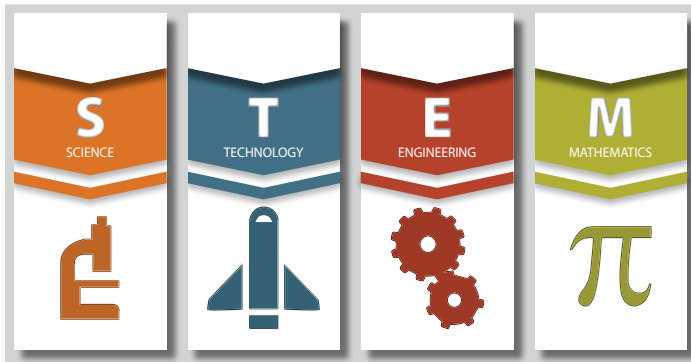
Shoreline Management

It is the Corps' policy to protect and manage shorelines of all civil works water resource development projects under Corps jurisdiction in a manner to promote the safe and healthful use by the public while maintaining environmental safeguards to ensure a quality resource for use by the entire public. The district manages seven lakes with shoreline management programs. These programs encompass more than 3,000 miles of shoreline and include the management responsibilities for more than 5,100 private and community boat docks.

In 2009, the district spent \$1.6 million to execute the shoreline management program. The appropriation in 2009 was \$940,000; the remaining balance of \$610,000 was funded from other business lines which cannot continue. In FY12 and FY13, those costs were reduced to \$1.3 and \$1.4 million, respectively, after the district initiated a deferment period during the recreation season. During the deferment period, applications for docks and mowing permits were not accepted or processed. This was in response to the district's Recreation Adjustment Plan and is a part of an effort to focus limited resources on public use areas versus private property ownership, and will continue again this year at most project offices.

Shoreline management is one of the few programs that continue to

grow, increasing the Corps footprint and operating expenses. However, this program is not sustainable long term because of budget. The district is evaluating and trying to identify and assess best management practices that will provide a balance between limited resources and private and public uses of government lands and waters.



Science, Technology, Engineering, Mathematics

For years, personnel throughout the Little Rock District have assisted local schools and organizations with education in the fields of science, technology, engineering and mathematics, commonly referred to as STEM. Recently, the Corps of Engineers has placed greater emphasis on this support, and district employees have responded by providing numerous volunteer hours.

In 2013, employees participated in more than 40 different events, ranging from science fairs and career discussions to nature days, scouting merit badges and robotics competitions.

As part of the 50th anniversary of the dedication of Greers Ferry Dam, the project office staff created lesson plans for area elementary, middle and high schools that focus on the history and operations of the project, as well as its impact on their communities. More than 2,900 students from 17 north central Arkansas school districts attending the 50th anniversary celebration in October 2013, during which they heard from Corps officials, the Governor of Arkansas and former President Bill Clinton.

The district has also signed a memorandum of understanding to partner with the University of Arkansas at Pine Bluff to promote the need of well prepared underrepresented minority STEM graduates for careers in STEM professions.

International and Interagency Support

Department of Veterans Affairs

The Little Rock District provides planning, design, and construction management for renovation and new construction of Veteran Affairs medical facilities in the Veterans Integrated System Network 17 located in central and south central Texas. The total VA program executed during the past three years consists of 60 projects at seven medical facilities with a combined value of about \$127 million. This includes four ongoing projects at the Dallas Medical Center with a total Architectural Engineering Services value of about \$2 million. The district awarded the most recent of these four architectural and engineering design service contracts in September 2013. This project includes the renovation of Building 1's administrative space located on the third and sixth floors. It also includes programming and conceptual planning for the remaining four floors. The district anticipates accomplishing more master planning and design services to support the VA's VISN 17 program and is working with VA VISN 16 to provide the same services for projects located in parts of Florida, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma, and east Texas.

Customer Funding for Hydropower Projects

The Little Rock District is executing 23 projects totaling \$57 million funded through a memorandum of agreement between the Corps,

Southwestern Power Administration, and the city of Jonesboro, Ark. and Southwest Preference Customer Trust. This agreement allows for funding of capital improvements to the seven hydroelectric generating plants in the Little Rock District. The federal power customers have committed to a multi-year program to rehabilitate the Corps-owned facilities in the Southwestern Power Administration system and to preserve the resource for future generations. This type of funding arrangement effectively supplements the limited federal spending and allows the customer more input into the capital investment priorities. It also has been an effective tool in completing backlog maintenance at the district's hydropower facilities. This maintenance is extremely critical as each of these plants approach the later stages of their economic life.

Military Program

Air Force Medical Mission

The Little Rock District provides a 'one door to the Corps' support to the entire Air Force Medical Service's Medical Sustainment, Restoration, and Modernization Program at worldwide Air Force medical clinics and hospitals. In FY13, the district awarded 33 contracts totaling \$226 million and is currently working the FY14 program, which should be similar to the FY13 program. The FY15 program is under development.

Other DOD Medical Missions

"Initial Outfitting" provides for planning, purchasing, and installation of new and reused furnishings and equipment required prior to occupancy of new and renovated/restored facilities. The initial outfitting program grows stronger each year and is a worldwide program. Current customers include the Navy, Army and Defense Contract Audit Agency.

Current ongoing projects locations are Okinawa, Japan; Guam; Vilseck, Germany; Gulfport, Miss.; Camp Pendleton, Calif.; and multiple locations for DCAA. Projects in FY14 include a Drug Testing Lab, Naval Station Great Lakes, Chicago, Ill., Naval Academy Clinic, Annapolis, Md. and the Marine Corps Air Ground Combat Center in 29 Palms, Calif. Other FY14 awards include a one year \$9 million dollar indefinite quantity contract for the Defense Contract Audit Agency.

Little Rock Air Force Base

Little Rock District manages the design and construction program at Little Rock Air Force Base. LRAFB is the premiere C-130 operational and training facility for the United States. Our program at the LRAFB currently exceeds \$35 million in design and new construction and includes two projects added as a result of storm damage caused by an F2 tornado in April 2011. These projects are a \$2.4 million emergency permanent repair of C-130J aircraft hangar 245, and a \$1.4 million Pest Management Facility.

The C-130J aircraft hangar 245 repair project was awarded for construction in July 2012 and projected to be complete in June. The Pest Management Facility was awarded for construction in August 2012 and is projected to be complete this month. Also in construction is the new \$26 million C-130J fuels maintenance hangar which is projected to be completed in August 2015.

FY14 construction projects in the design phase include a new \$4 million C-130J weapon system trainer flight simulator facility addition and a new refueling vehicle repair shop. Construction contracts for these projects are currently planned for award this summer.

63rd Regional Support Command

The Little Rock District has a relationship with the 63rd Regional Support Command dating back to the early 2000's when it was formerly designated the 90th Readiness Reserve Center located at Camp Pike in North Little Rock, Ark. Projects are funded with Army Reserve operation and maintenance funds.

The FY13 program exceeds \$4 million and all projects are in construction. The FY14 program is still under development and is expected to be similar to the FY13 program.

Military Personnel Opportunities at Little Rock District

During the past year, the Little Rock District increased the number of assigned soldiers as it has sought efficiency and chosen to invest in developing junior engineer officers. The district has authorizations for three military officers. This year a lieutenant was assigned to the Engineering and Construction Division under the Army's Technical Engineer Competency Development Program. The program gives junior engineer officers the opportunity to serve two years with the Corps and use their engineering degrees in ways not normally available in troop units. The lieutenant is working on dam safety projects and is gaining design experience prior to becoming a professional engineer.

Little Rock District continues to support the Army Wounded Warrior Program while providing on the job training for injured soldiers

undergoing medical treatment. This experience gives injured soldiers the opportunities to be more competitive for future employment after leaving the military. One enlisted soldier worked for the Table Rock Project Office and one officer is currently working in the Emergency Management Office developing anti-terrorism and dam safety exercises.

Recently the district has started using the Department of Defense's Personnel Force Innovation Program. This program allows the district to efficiently obtain qualified military reservists for positions that are hard to fill or those that may not be permanently required. Five soldiers are currently assigned throughout the district.

Together these programs provide the district greater flexibility and efficiency in executing our missions while providing valuable work experience to these soldiers.

WATER SAFETY SAVES LIVES



Survival Tips:

Always Wear a Life Jacket • Learn to Swim Well
Swim with a Buddy • Know Your Limits
Take a Boating Safety Course



US Army Corps
of Engineers®
Little Rock District



Continued Authorities Program Roll-Up

■ Green means the project is funded.
 ■ Yellow means the project is funded but has issues.
 ■ Red means the project has been terminated, suspended or there are no funds to start.

Project Name	District	FY 13 Funds*	FY 14 President's Budget**	Status / Issues
* Includes FY12 carryover funds ** CAP funds are not appropriated to specific projects in the President's Budget. FY14 workplan has not been released; this includes FY13 carryover funds.				
Section 14 – Emergency Streambank and Shoreline Protection of Public Works Projects – Annual Statutory Limit \$15 Million				
Highway 58, Guion, AR	AR-01	\$369,400	\$84,000	PPA signed July 9, 2012. Construction award was Jan. 24. Construction was completed Sept. 10, 2013.
White River, Augusta, AR	AR-01	\$557,000	\$96,000	PPA signed Sept. 7, 2012. Contract award was Aug. 6, 2013. Construction started Oct. 29, 2013 and is scheduled for completion May.
Section 107 Small Navigation Improvement Projects – Annual Statutory Limit \$35 Million				
Northwest AR Port, Arkansas River, AR	AR-03	\$40,000	\$32,000	Draft feasibility study completed October 2013. Initially, total project cost was \$23 million and exceeded federal limit of \$7 million. However, after further review, some items on the general navigation feature needed to be moved to the local service facilities feature. This keeps the federal cost under the \$7 million limit.
Russellville Slack Water Harbor, Russellville, AR	AR-03	\$150,000	\$27,000	Design is being updated. Lawsuit filed in February against the Federal Highways Administration for failure to comply with the National Environmental Policy Act. Future of this project unknown until lawsuit is resolved.
Section 205 – Flood Damage Reduction Projects – Annual Statutory Limit \$55 Million				
Prairie Creek, Russellville, AR	AR-02	\$100,000	\$0	Strong sponsor support. Work continuing on feasibility study. AFB held July 2013. Draft report and Draft PPA scheduled for submittal in June.
Little Black River Watershed, Naylor, MO	MO-08	\$0	\$0	Backlog/new start. Awaiting federal funds to initiate feasibility study. Site visit and analysis in October 2005 indicated no economically justified project. Additional flooding in 2008 and 2009 warrant re-evaluation. Request – Jan. 10
White River, Oil Trough, AR	AR-01	\$0	\$0	Backlog/new start. Awaiting federal funds. Request – 2005. Initial assessment \$100,000
Crooked Creek, Alexander, AR	AR-02	\$0	\$0	Backlog/new start. Awaiting federal funds. Request – 2009. Initial assessment \$100,000
Section 206 Aquatic Ecosystem Restoration Projects – Annual Statutory Limit \$50 Million				
Shirey Bay/Rainey Brake WMA	AR-1	\$0	\$0	Suspended due to funds revocation. Feasibility phase. Would be a restart. About \$32,500 is needed to update the milestone report. AGFC local sponsor and highly supportive.
Little Black Ditch, Naylor, AR	MO-08	\$0	\$0	Backlog/new start. Awaiting federal funds. Request - FY2006
Maumelle River, Maumelle Lake	AR-02	\$0	\$0	Backlog/new start. Awaiting federal funds. Request - FY2012
Section 1135 Project Modification for Improvements to the Environment – Annual Statutory Limit \$40 Million				
Rock Creek, Boyle Park, Little Rock, AR	AR-02	\$0	\$0	Suspended due to funds revocation. Feasibility phase. Federal funds of \$25,900 are needed to complete milestone report, and an additional \$100,000 is needed to complete the cost-share portion of the feasibility report.
Arkansas River Environmental Restoration	AR-02 AR-03 AR-04	\$0	\$0	Suspended due to funds revoked. Feasibility phase. Federal funds of \$87,100 are needed to complete milestone report and determine feasibility of a solution.
Rockaway Beach, Rockaway, MO	MO-07	\$0	\$0	Backlog. Re-start. City of Rockaway Beach wants to re-evaluate the completed project because implemented solution not providing desired output.

Investigations Program Roll-Up

■ Green means the project is funded.
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Project Name	Purpose	District	FY 13 Funds	FY 14 President's Budget	Status / Issues
Missouri State-wide Water Planning (Our Missouri Waters)	To develop a scope of work that evaluates integrating the sub-basin 'Our Missouri Waters' efforts in to state priorities. Using Planning Assistance to States Authority, Section 22, WRDA 1974	MO-01 MO-02 MO-03 MO-04 MO-05 MO-06 MO-07 MO-08	\$0	\$150,000	Preparing a partnership agreement under the Planning Assistance to States Authority. All 5 Army Corps of Engineers districts will work under single Agreement with Kansas City District as lead.
Tri-State Water Coalition	To study regional water demands/ supply through year 2060.	MO-07 MO-08	\$100,000	\$0	Phase 2 will be completed in June 2014 with carryover funds. This includes a water supply gap analysis and a basic formulation of alternatives that address deficiencies between demand and supply through 2060. The Tri-State Water Coalition has an interest to now investigate water reallocations at Table Rock Lake and Stockton Lake. There is no funding available for next steps.
White River Comprehensive Study	Basin-wide comprehensive watershed study. Conducted by Little Rock and Memphis districts under Section 729, WRDA 1986.	MO-07 MO-08 AR-01 AR-03	\$130,000	\$650,000	In FY14 project funds will be used to complete a Cache River Sub-basin Water Management Plan. Additional funds of \$650,000 are needed to move into the James River sub-basin the next priority.
Springfield	Flood risk reduction management	MO-07	\$0	\$0	National pilot study to modernize civil works planning process Corps-wide. Feasibility study was completed in May. The Chief's Report was signed in August and transmitted to ASA (CW). Project authorization is need to construct. Funds are needed in FY14 to start the detailed design for construction of project.
Southwest Arkansas	Develop comprehensive watershed plan to include ecosystem restoration, water supply and recreation opportunities.	AR-04	\$0	\$0	No sponsor; study was terminated.
Fourche Creek and Tributaries	Ecosystem restoration & flood reduction	AR-02	\$0	\$0	Funding of \$100,000 is required to initiate study.
May Branch	Flood risk reduction management	AR-04	\$0	\$0	Completing 90 percent design using accelerated use of sponsor's cash share under terms of amended design agreement. \$440,000 could be used in FY14 to complete plans. Sponsor desires credit to construct a portion of the project. Construction estimate is \$30.8 million.
Three Rivers	Navigation and ecosystem restoration	AR-01 AR-04	\$0	\$0	A "new start" and \$100,000 is required to complete a 905(b) reconnaissance study. Need to add ecosystem restoration as project purpose to MKARNS.
Beaver Dam Trout Production Facility	Mitigation for reduced number of warm water fish that resulted from construction of Arkansas dams	AR-03	\$0	\$0	Water Supply Storage Reallocation Report submitted to Corps headquarters expect approval in February 2014. O&M funds were used to complete the report. \$600,000 could be used for the project design and NEPA considerations.

Construction General Program Roll-Up

■ Green means the project is funded.
 ■ Yellow means the project is funded but has issues.
 ■ Red means the project has been terminated, suspended or there are no funds to start.

Project Name	Purpose	District	FY 13 Funds	FY 14 President's Budget	Status / Issues
Clearwater Dam Safety/Major Rehabilitation	Construct cutoff wall for dam safety	MO-08	\$0	\$0	The contractor completed the cutoff wall construction in December 2011. Project closeout expected by June.
White River Minimum Flows	To provide adequate trout habitat downstream of Norfolk and Bull Shoals dams	AR-01 AR-03	\$0	\$0	All work at Bull Shoals and Norfolk is complete and water storage has been captured. Remaining work includes completion of punch list items, final payment and contract closeout. The cold temperatures in early January damaged the piping, electrical circuits, and programming controls that caused the siphon to be non-operational. While Corps personnel evaluated and repaired the damaged siphon, minimum flow releases were made through the spillway gates from Jan. 10 through Feb. 10. On Feb. 18, the piping was repaired but the electronic issues remain. The siphon was been set to operate manually until repairs to the electronics can be finished. The amount of time to make final repairs cannot be determined at this time.
Ozark Powerhouse Major Rehabilitation, AR	Rehabilitation of five turbines	AR-04	\$0	\$0	The contract for the replacement of the five hydroelectric turbines is ongoing. The contractor has assembled the first and second units and is preparing them for return to service in the second quarter FY14. The SWPA customers provided \$12.8 million for rehabilitation of the third unit and \$8 million for rehabilitation of the fourth unit. Completion of the project requires \$10 million in funding.
Fourche Bayou Basin	Environmental preservation, flood control, and recreation	AR-02	\$0	\$0	The district executed the final agreement with the city of Little Rock in December 2013 to use remaining federal funding and the sponsor's credit to acquire bottomlands. All work should be complete by the end of the year.
McClellan-Kerr/Arkansas River Navigation System, 12-foot channel, AR & OK	To deepen navigation channel to 12' minimum depth	AR-01 AR-02 AR-03 AR-04	\$0	\$0	Work on this project has ceased. The project will not resume until the project receives: (1) a "new start" decision, (2) construction funds, and (3) cost-shared funding (50/50) from the Inland Waterways Trust Fund.

Operation and Maintenance Unfunded Priorities

Project	Purpose	District	Status / Issues
Dardanelle – Replace 5kV lock service feeder, dam gallery lighting and receptacles	Maintain power at lock and dam and Russellville Project Office and prevent unscheduled loss of navigation	AR-03 AR-04	\$1 million needed to replace current 30-year-old feeder system. Failure would result in loss of power to lock and dam and project office, halts navigation, flooding of dam /powerhouse, and loss of data communication. Failure could result in loss of life if insulation fails/breaches.
MKARNS – Structural rehabilitation and paint tainter gates at Mills Dam	Prevent accident or injury to employees or users of the locks and dams, loss of ability to lock boats	AR-01 AR-02 AR-03 AR-04	\$18.8 million needed for structural and skin plate repairs, including replacement of severely corroded members, side seals and cathodic protection. Expect replacement of gates will be required if rehabilitation deferred. Current leakage about 3,000 cubic feet per second.
MKARNS – Montgomery Point Lock & Dam study to remove debris from lock chamber	Prevent damage to equipment and structural components that results in loss of navigation or control of pool	AR-01 AR-02 AR-03 AR-04	\$400,000 needed to develop cost-effective methods for reducing and removing sediment/debris. Repairs to the lock's tainter gate gudgeon pins were triggered by sediment and debris levels in and around the locks. These repairs have interrupted navigation during low water conditions and will cost about \$3.7 million to repair.
MKARNS– Replacement of lock control wiring	Prevent accident or injury to employees or users of the locks and dams, loss of ability to lock boats	AR-01 AR-02 AR-03 AR-04	\$1.5 million to replace wiring that is beyond its service life. All of these systems are currently experiencing intermediate failures and will not be able to be maintained in the future.
Bull Shoals – Repair/ replace tainter gate side seal assemblies and spot paint gates	Prevent gates from binding and becoming inoperative because of failing side seals	AR-01 AR-03 MO-08	\$11.2 million needed to repair or replace side seal assemblies on remaining 14 of 17 gates, as well as spot paint gates. Seal assemblies are currently failing and could cause gates to bind and become unusable.
MKARNS, Ozark & Dardanelle – Replacement of dam control wiring	Prevent accident or injury to employees or users of the locks and dams, loss of ability to maintain pool or lock boats	AR-01 AR-02 AR-03 AR-04	\$2.7 million to replace wiring that is beyond its service life. All of these systems are currently experiencing intermediate failures and will not be able to be maintained in the future.
MKARNS – Additional downstream bulkhead closure and repair embedded sills at Toad Suck Lock & Dam	Prevent loss of ability to maintain navigation pools	AR-01 AR-02 AR-03 AR-04	\$2.5 million needed to fabricate closure structure to isolate tainter gate and embedded spillway sills to perform critical repairs. Bulkhead closure structure is reusable and can reduce significantly reduce costs for future embedded sill repairs.
Norfolk, Table Rock, Beaver, Bull Shoals, Greers Ferry, Nimrod, Millwood, Clearwater & Gillham lakes – Develop Corps water management system model	Maintain ability to maintain pool and avoiding possible property damage and loss of life	AR-01 AR-02 AR-03 AR-04 MO-07 MO-08	\$1.6 million to meet requirements in ER 1110-2-240. Failure to complete these models within two years will cause loss of ability to perform real time pool management, which could result in unnecessary property damage and claims against the Corps with potential loss of life.
MKARNS & Dardanelle – Replacement of hydraulic, air and water piping	Prevent failure of equipment and unscheduled loss of navigation	AR-01 AR-02 AR-03 AR-04	\$1.5 million needed to complete the replacement of 40-year-old piping that is corroded and failing. Piping is currently having minor failures and will not be able to be repaired with continued corrosion.
MKARNS, Ozark & Dardanelle – Replace overhead lock lighting	Maintain a safe work environment at the locks during low light situations	AR-01 AR-02 AR-03 AR-04	\$1.2 million to replace lock lighting that illuminates the lock chambers, guide/guard walls, and parking areas. Failure would result in inadequate night visibility for navigating, operating, and rescue of man overboard. Existing lighting has deteriorated, consists of obsolete equipment that is no longer maintainable and in some cases requires floating plant to access.
MKARNS, Toad Suck Lock & Dam – Bridge maintenance	Prevent downgrade of the load rating for this major highway bridge	AR-01 AR-02 AR-03 AR-04	\$400,000 needed to apply corrosion inhibitor, patch the beams, replace elastomeric pads and replace expansion joint materials. The pre-stress tendons are exposed and corroding. If the anchors continue to erode, they will eventually break. Without the pre-stress tendons, the ability of the girders to carry tension loads goes to zero.



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