

*Application to the U.S. Bureau of Reclamation  
Under Funding Opportunity Announcement No. BOR-DO-19-F005*

*WaterSMART Drought Response Program:  
Small-Scale Water Efficiency Projects for Fiscal Year 2019*

# Wichita County Water Improvement District #2 Water Distribution Efficiency and Infrastructure Modernization Project



April 24, 2019  
Wichita County Water Improvement District #2  
Wichita Falls, Texas

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# Technical Proposal

## Executive Summary

This application for FY-2019 Small-Scale Water Efficiency Project funds, under Reclamation's WaterSMART Program, is submitted April 24, 2019 on behalf of the Wichita County Water Improvement District #2 (WCWID2 or District) located west of Wichita Falls, Texas (Wichita County). This is the first application ever submitted by WCWID2 for Reclamation WaterSMART program funds.

The proposed project—titled the Wichita County Water Improvement District #2 Water Distribution Efficiency and Infrastructure Modernization Project—represents the essential first phase of a multi-year distribution infrastructure modernization plan to replace selected open canals and laterals by closed, underground pipelines. This will result in significant water savings through reduced evaporation and seepage/leakage as well as enhanced water reliability for District members—irrigators as well as the City of Wichita Falls, which has recently increased its dependence on District water to strengthen its resilience to drought, such as that suffered in 2011-15. The project will also reduce the District's annual maintenance costs.

The WCWID2 Water Distribution Efficiency and Infrastructure Modernization Project is derived from a priority recommendation included in the Region B, Texas State Water Plan, to address the Plan's projected 29,000 acre-feet per year (AFY) irrigation water supply deficit by 2060. Furthermore, the project includes a priority lateral identified for replacement in the WCWID2 Water Conservation Implementation Plan. This project will be funded through the requested Reclamation funds of \$75,000 in combination with District in-kind services and materials amounting to \$76,066 for an estimated project cost of \$151,066. The estimated construction start date is October 15, 2019. The project, utilizing District labor and equipment, will require approximately seven months to complete.

## Background

### Supplies, Uses and Infrastructure

WCWID2 and the City of Wichita Falls jointly own Lake Kemp, a project of the U.S. Army Corps of Engineers (USACE) located on the Wichita River immediately upstream of State Highway 183 in Baylor County (see Figure 1). Lake Kemp and Lake Diversion were completed in 1923 as a comprehensive water supply system for the region. WCWID2, a political subdivision of the State of Texas administered by a five-member Board of Directors, manages the lake and distribution system. Both WCWID2 and the City of Wichita Falls possess adjudicated water rights with the District supplying raw water to the City through the primary distribution canal. The District currently maintains a staff of 12: 11 full-time and one part-time employees.

The District maintains all irrigation canals and drainage ditches in its jurisdiction. This includes more than 40 laterals supplied by three main canals—the South Side, North Side and Call Field Canals. Irrigation taxes are imposed on property within District boundaries that has been classified as irrigable. Taxes are used to fund maintenance and operations of the District. The tax rate is set annually by the Board of Directors at its August Meeting. The current tax rate, set in 2018, is \$5.60 per acre.

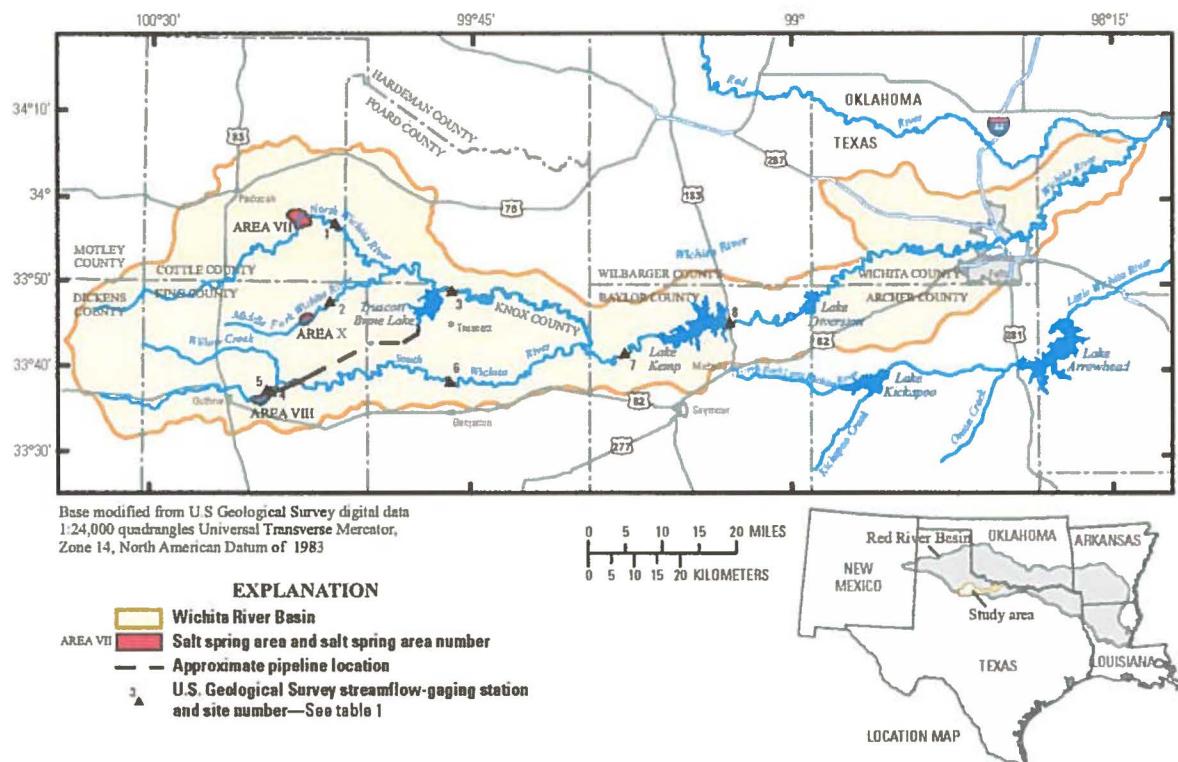


Figure 1: The Wichita River Basin, including both Lake Kemp and Lake Diversion upstream of the City of Wichita Falls. The Wichita River flows in a generally east/northeastward direction to its confluence with the Red River at Lake Texoma.

WCWID2 was created in 1920 for the sole purpose of providing irrigation water to area farmers. The District was later combined with adjacent Wichita County WID#1 (WCWID1), which was created one year earlier to effectuate construction of Lake Kemp and Lake Diversion—including hundreds of miles of mainland canals, laterals and drainage ditches. The primary function of WCWID1 was to provide municipal water to the City of Wichita Falls.

In 1961, the City annexed all WCWID1 lands and assumed its functions and services. In 1973, WCWID2 and Wichita Falls entered into a contract for the maintenance and operation of their mutually owned property consisting of Lake Kemp, the Diversion Reservoir and distribution facilities. This contract officially split ownership and interests approximately two-thirds to the City and one-third to the District. It further afforded the City prior use of the system's water for its uses, not to exceed reserve supply storage of 50,000 acre-feet. The contract gave the District full and complete control of the water system's operations and its upkeep, with annual compensation provided by Wichita Falls. At Lake Kemp, the District manages the conservation storage while the USACE manages the flood control.

The Lake Kemp dam was redesigned and raised in 1969, increasing the conservation pool and storage to its currently authorized amount of 318,000 acre-feet (AF) of water. However, recent studies indicate that the lake's normal conservation storage has actually been reduced to 245,434 AF due to significant sedimentation. The lake currently occupies 15,357 acres of water surface while the dam controls a drainage area of approximately 2,086 square miles. Lake Kemp supports a variety of recreational opportunities, especially fishing. Largemouth bass, white bass, white crappie and a variety of catfish are among the most popular species.

Lake Diversion, a companion project in Archer and Baylor Counties, exists approximately 20 miles downstream of Lake Kemp and functions as secondary storage with an authorized capacity of 45,000 AF. A 2013 volumetric survey conducted by the Texas Water Development Board determined that the Lake Diversion capacity is 35,324 AF encompassing 3,397 acres of water surface.

Lake Diversion is operated in conjunction with Lake Kemp to provide water supply for municipal, industrial, irrigation, mining and recreational purposes. Irrigation water is diverted into canal systems that distribute water to customers in Archer, Clay and Wichita Counties. Water deliveries support a vibrant local agricultural economy, which includes mostly cotton. (Texas is the nation's largest producer of cotton. In 2017, the state produced almost 46 percent of domestic cotton, according to the U.S. Department of Agriculture.) District water also irrigates corn, Bermuda grass, fruits and nuts as well as a local tree farm.

Municipal water is diverted from the canal system to a pipeline for transmission to Wichita Falls, which possesses a municipal water right at Lake Kemp for 25,150 acre-feet per year (AFY). (Recent deliveries to the City are shown in Figure 2.) In addition, American Electric Power (AEP), the District's largest customer, has a contract to divert up to 20,000 acre-feet per year (17.84 MGD) to operate the Olaunion Power Plant in Wilbarger County; this water is diverted directly from Lake Diversion.

Lake Diversion also provides water to the Dundee Fish Hatchery during the spring spawning season. During the recent drought, the Fish Hatchery was temporarily closed due to low water elevations.

Historically, most of the water use from Lake Kemp has been limited to irrigation and

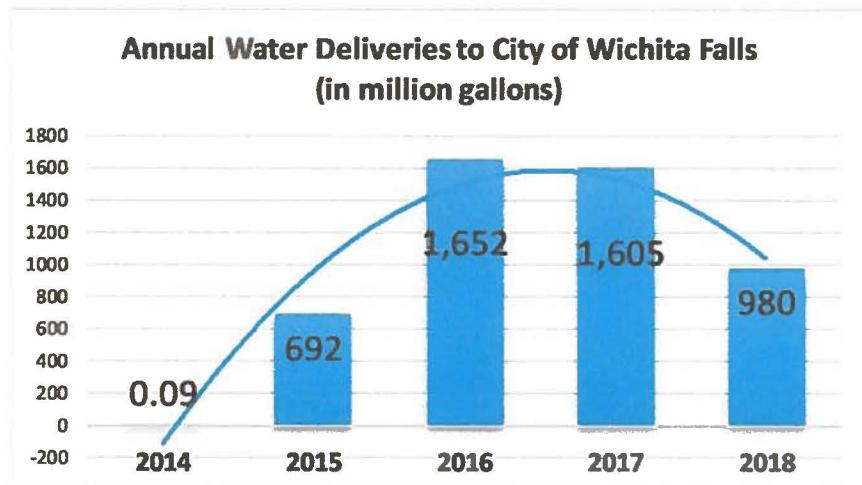


Figure 2: Water deliveries to Wichita Falls, 2014-18.

industrial purposes due to high salinity loads in tributaries. In 2008, the City of Wichita Falls completed a reverse osmosis (RO) system at the Cypress Water Treatment Plant (WTP) and infrastructure to more fully utilize the water. To improve the water quality of the Wichita River, the Red River Authority sponsors a chloride control project that diverts saline water from the South Wichita River above Lake Kemp to Truscott Brine Reservoir in Knox County. Evaluations indicate that these diversions reduce the total chloride load to Lake Kemp by approximately 25 percent. However, a significant chloride load is contributed to the reservoir system from the North and Middle Wichita Rivers. During low-flow periods, the quality of the water diminishes as salts become concentrated due to evaporation, which further limits municipal use of Lake Kemp water. The low-water content and high salinity levels have also impacted the water's use for irrigation. During the severe regional drought in 2012, irrigation deliveries were suspended.

Low volumes in 2014 and 2015, during which Lake Kemp was down to 18-percent full, forced Wichita Falls to take its RO facility offline for a period and instead utilize the City's direct potable reuse system, implemented in 2014 to establish a dependable water supply blend of 50-percent treated wastewater and 50-percent lake water. Two additional area reservoirs, Lake Arrowhead and Lake Kickapoo, were also extremely low during the 2011-2015 drought. Service to Wichita Falls was interrupted during the last two winter/spring periods when the District performed required maintenance on the South Side Canal, which supplies water to the City's RO plant.

### Water Vulnerabilities and Planning

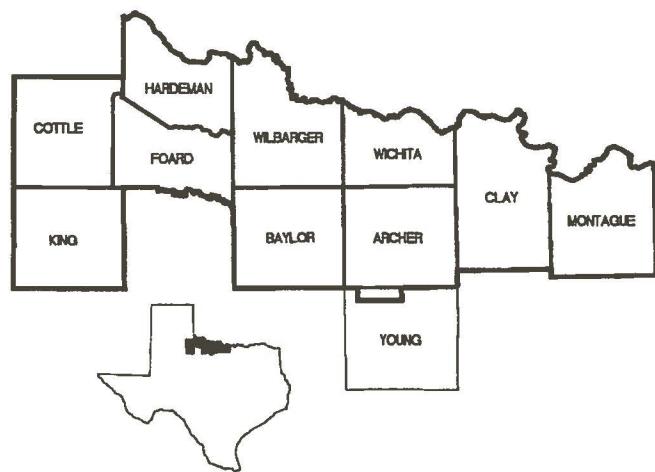
Several vulnerabilities accentuate the need for concerted action to maximize conservation and efficiency of WCWID2 water supplies for irrigation as well as municipal and other uses in the region. These include a widely variable and semi-arid climate, frequent drought, and water quality and treatment challenges.

In addition, significant water supply/demand gaps are projected for users in the region, including both Wichita Falls and District irrigators.

Wichita Falls itself has an immediate water need of almost 12,000 AFY.

According to the Region B Water Plan (originally developed in 2006 and updated in 2011 and 2016), WCWID2 is projected to experience a total water supply deficit of 21,430 AFY by 2020 (Table 1)—when the District is slated to provide continuous year-round water supply to Wichita Falls. (The location of Region B is displayed in Figure 3.) This deficit will increase to 36,285 AFY by 2070 with irrigation supply representing about 80 percent (about 29,000 AFY) of the need. WCWID2 is the region's largest provider of irrigation water.

*Table 1: WCWID2 Water Deficits*



*Figure 3: Region B, Texas State Water Plan.*

WCWID2 Projected Water Deficit/Need (2016 Region B Water Plan)									
Customer	Water User Group	County	Use Type	Deficit/Need in Acre-Feet/Year					
				2020	2030	2040	2050	2060	2070
Irrigation	Irrigation	Archer	Irrigation	495	535	574	611	677	743
Irrigation	Irrigation	Clay	Irrigation	41	45	50	55	61	67
Irrigation	Irrigation	Wichita	Irrigation	18,069	19,778	21,485	23,196	25,694	28,189
Oklauunion	Steam Electric Power	Wilbarger	Steam Electric	1,114	1,959	2,803	3,648	4,492	5,337
TPWD Fish Hatchery	Livestock	Archer	Livestock	1,711	1,759	1,806	1,854	1,901	1,949
Total Deficit/Need				21,430	24,076	26,718	29,364	32,825	36,285

To address this projected need, which was originally identified in the 2006 Region B Water Plan, the Regional Water Planning Group adopted a recommendation to enclose WCWID2 laterals in pipe by 2040. Subsequently, the Group solicited a comprehensive evaluation of WCWID2's conveyance system. The study—conducted by three engineering firms with assistance from District personnel—evaluated the condition of both the canals and smaller laterals and estimated seepage losses experienced throughout this lengthy distribution system. Three factors were utilized to identify those priority laterals experiencing the highest losses due to seepage—soil type and permeability, lateral condition, and vegetation condition.

The resulting "WCWID2 Water Conservation Implementation Plan," completed in April 2009, determined that 13,034 AFY of water—almost half of the projected 2040 water supply shortfall—could be saved by converting all identified "high water loss segments" to underground pipe systems. Furthermore, the Plan determined that, in addition to increased water conservation and efficiency, conversion of just over 15 miles of lateral to pipeline would reduce District maintenance costs by about \$26,000 per year.

Individual laterals identified for replacement with pipeline were ranked and prioritized based upon a matrix of factors, including the unit cost for conserved water, urbanization and frequency of use. To facilitate full project implementation—estimated at \$7,658,469—laterals were divided into three priority groups (and corresponding project phases) based on ranking and cost.

The 2016 Region B Water Plan updated cost estimates for the project to \$8,538,000; the optional project phases range from about \$2 to \$3 million each. While the District fully intends to implement the entire project, it currently generates insufficient revenue to finance either the entire project or any one of the three optional project phases. According to the funding analysis included in the Water Conservation Implementation Plan, WCWID2 derives about \$250,000 per year of total operating revenue from District taxes. A three-percent increase in the tax rate, which the District has enacted in the past to fund pipeline installation (utilizing District staff and resources), increases annual revenue by only about \$6,000. Other district revenues are set by long-term contracts and are not a viable source for increasing additional revenue.

With effects of the most recent drought fresh on the minds of area water users and recognizing the inevitability of such regional water emergencies in the near future—not to mention the looming water deficit—District officials are determined to initiate as much of the project as resources and available funding opportunities allow. As a result, commensurate with the \$75,000 potentially available through Reclamation's Small-Scale Water Efficiency Program and local matching funds, the District has selected one of the priority "high water loss" lateral segments (i.e., the SK-9 sub-lateral) for replacement in 2019. This initial effort is the first phase of a more comprehensive project planned over the coming years to fully implement the Water Conservation Plan and address projected irrigation supply gaps while increasing reliability for local municipal, agricultural and power customers.

## **Project Location**

Wichita County Water Improvement District # 2 is located in and around Wichita Falls, Wichita County, Texas. Most of the District's extensive canal distribution system and 41,000 acres of

land extend south/southwest of the city along the Wichita River, as shown in Figure 4. The SK-9 lateral exists 10-12 miles northeast of Lake Diversion dam (Figure 5).

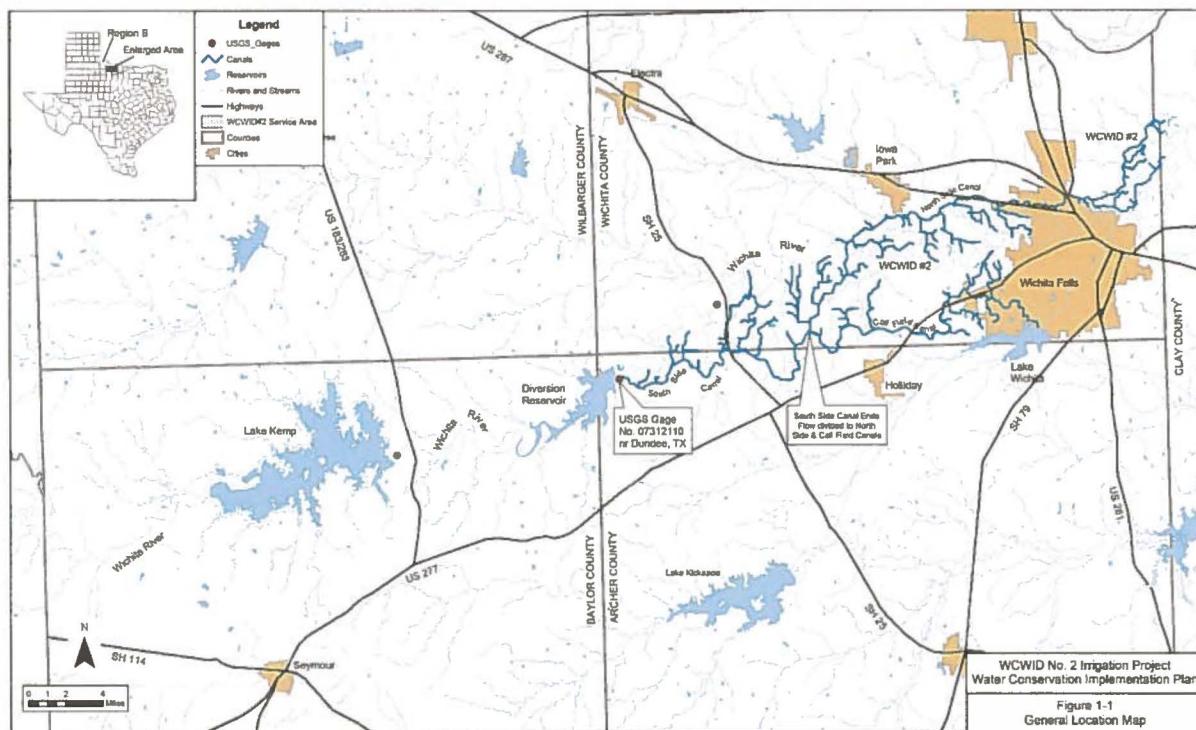
### **Technical Project Description & Milestones**

The proposed project contemplates the replacement of 3,800 feet of lateral canals, which are currently experiencing significant water losses from seepage and evaporation, with more efficient underground pipeline. This includes demolition and removal of the existing concrete structure and subsequent installation of new 24-inch pipeline. The District Manager estimates that the project will save almost 400 AF of water each year.

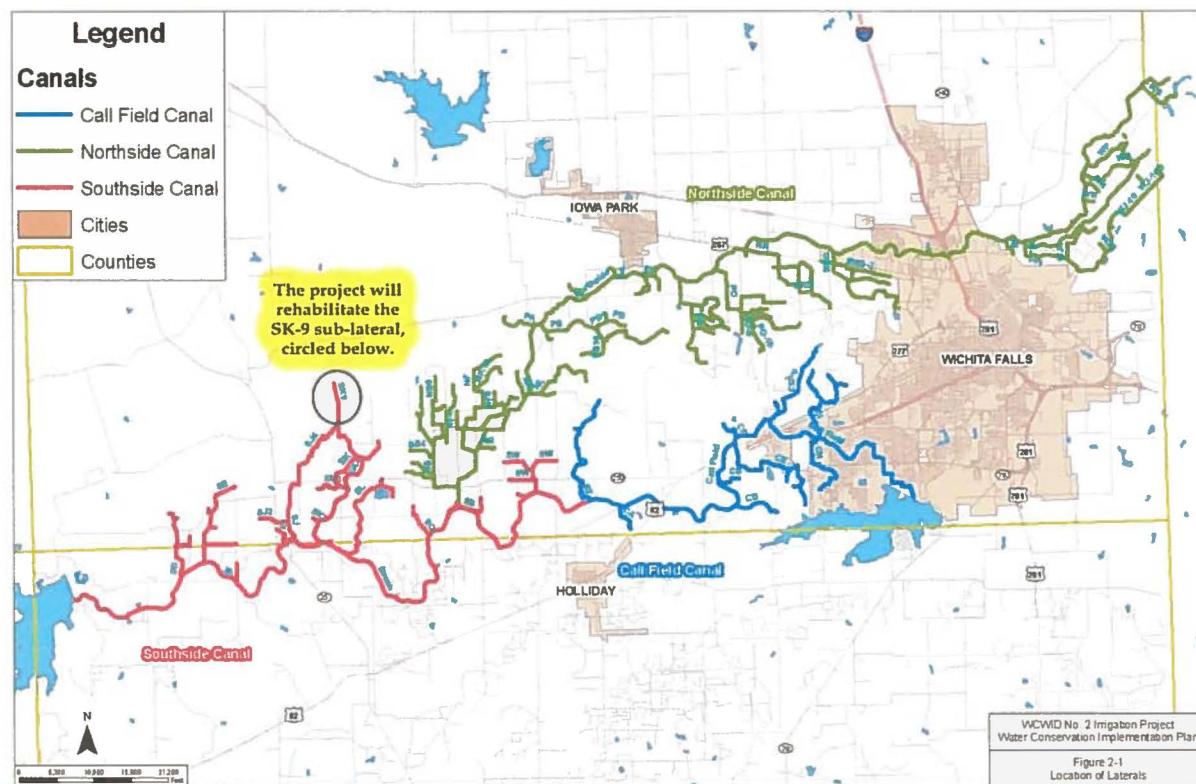
This project's sole focus is the SK-9, which is a component of the SK lateral. The existing open concrete ditches and canals are 50- to 60-years-old. Excessive vegetation is growing in and around the SK-9 sub-lateral canal and cracks and voids are now evident in the concrete. District staff have noted significant seepage and evaporative losses.

Due to the inefficiency of the concrete canals in delivering water to users, including the frequent maintenance they require, replacement with pipe is now imperative to conserve the water system's often limited supplies and increase water reliability, especially to District irrigation users. About two years ago, the District replaced an upstream portion of the SK-9 with 24-inch pipeline. The proposed project would complete the rehabilitation of this section. The SK-9 irrigates District cotton fields that currently produce, on average, 4 bales/acre each growing season.

The requested WaterSMART Small-Scale Water Efficiency Program funds would be expended for 3,200 feet of mostly 24-inch plastic irrigation pipe, including fittings, gates, concrete and related materials. As part of its cost-match, the District will contribute the remaining 600 feet of required pipe from existing inventory and utilize its experienced staff to remove the old concrete canal and install new pipe.



**Figure 4: Service area of Wichita County Water Improvement District #2, including both supply reservoirs and canal distribution system. (From the WCWID2 Water Conservation Implementation Plan.)**



**Figure 5: The location of the SK-9 sub-lateral. (Modified from WCWID2 Water Conservation Implementation Plan.)**

## E.1. Evaluation Criteria

### E.1.1. Evaluation Criterion A—Project Benefits (35 points)

*Up to 35 points may be awarded based upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including the significance of the anticipated water management benefits and the public benefits of the project. This criterion prioritizes projects that modernize existing infrastructure in order to address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflict in the region.*

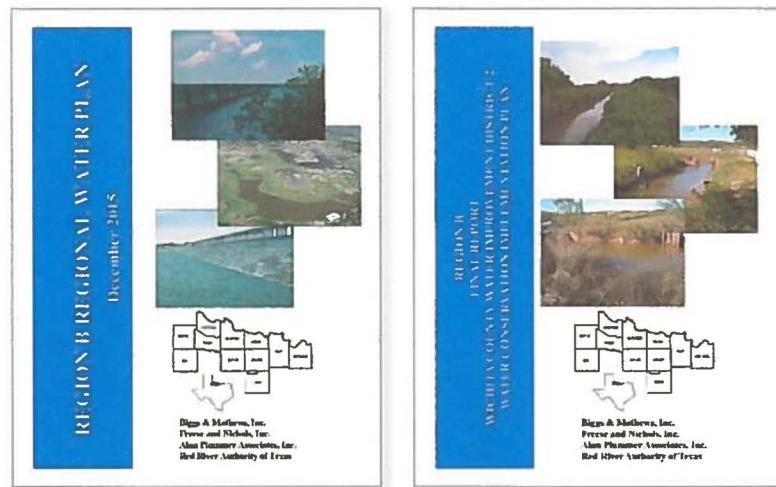
Benefits of the proposed project, in addition to infrastructure modernization, include augmented supply and increased reliability for District customers, especially irrigation users and related agricultural interests.

Municipal (i.e., the City of Wichita Falls), industrial, power (i.e., the Oklaunion facility) and fish/wildlife (i.e., the fish hatchery) users will also benefit as water savings will directly mitigate a portion of Region B's anticipated irrigation water supply deficit of approximately 29,000 AFY. "Creating" additional supply through conservation also enhances fishing and other popular tourism/recreational activities at both Lake Kemp and Lake Diversion, extending this project's economic benefits.

This project constitutes the first phase of a planned multi-year, comprehensive District distribution infrastructure modernization plan targeting numerous canals within the District's 40,000-acre service area. Modernization and upgrades are essential as many of the main canals and laterals are more than half-a-century-old. In addition, replacement of the concrete canal with pipeline results in reduced District maintenance costs.

In the wake of the 2011-15 drought, the District and its water user groups have revitalized relationships through collaborative efforts to strengthen the water system's drought resiliency and enhance general water reliability. This project and its subsequent phases over the coming years will further broaden the collaboration required to address the challenges posed by all-too-frequent drought the region's projected water supply/demand gaps.

The proposed project is also consistent with local Natural Resource Conservation Service (NRCS) conservation initiatives. While no such formal partnerships are currently active, in the recent past WCWID2 has worked with NRCS in assisting District farmers with the installation of more efficient pipeline irrigation systems on their personal properties. These systems have helped to stretch the District's water supplies.



*Figure 6: The proposed project is expressly supported by the Region B Regional Water Plan and WCWID2 Water Conservation Implementation Plan.*

### E.1.2. Evaluation Criterion B—Planning Efforts Supporting the Project (35 points)

*Up to 35 points may be awarded based on the extent to which the proposed on-the-ground project is supported by an applicant's existing water management plan, water conservation plan, System Optimization Review (SOR), or identified as part of another planning effort led by the applicant. This criterion prioritizes projects that are identified through local planning efforts and meet local needs.*

This proposed project is a component of a larger, multi-phase project originally recommended in the Region B [Texas] Regional Water Plan (January 2006; updated in December 2015) and later evaluated in detail in the Region B WCWID2 Water Conservation Implementation Plan (April 2009); see Figure 6. WCWID2 is a member of the Texas Water Plan Region B Water Planning Group. Both plans are available upon request.

In an effort to address a projected irrigation water shortage, the Region B Water Plan (and Planning Group) recommended development of 8,577 AFY through the conservation of water by enclosing WCWID2 laterals in pipe by 2040. The subsequent Water Conservation Plan evaluation identified three priority groups of canals/laterals for replacement; this exercise also divided the larger project into three phases to better facilitate the significant cost associated with full implementation. Specifically, the Water Conservation Plan recommends conversion of the SK-9 sub-lateral, which is the focus of the WCWID2 Water Distribution Efficiency and Infrastructure Modernization Project; priority canals/groups are shown in Figure 7.

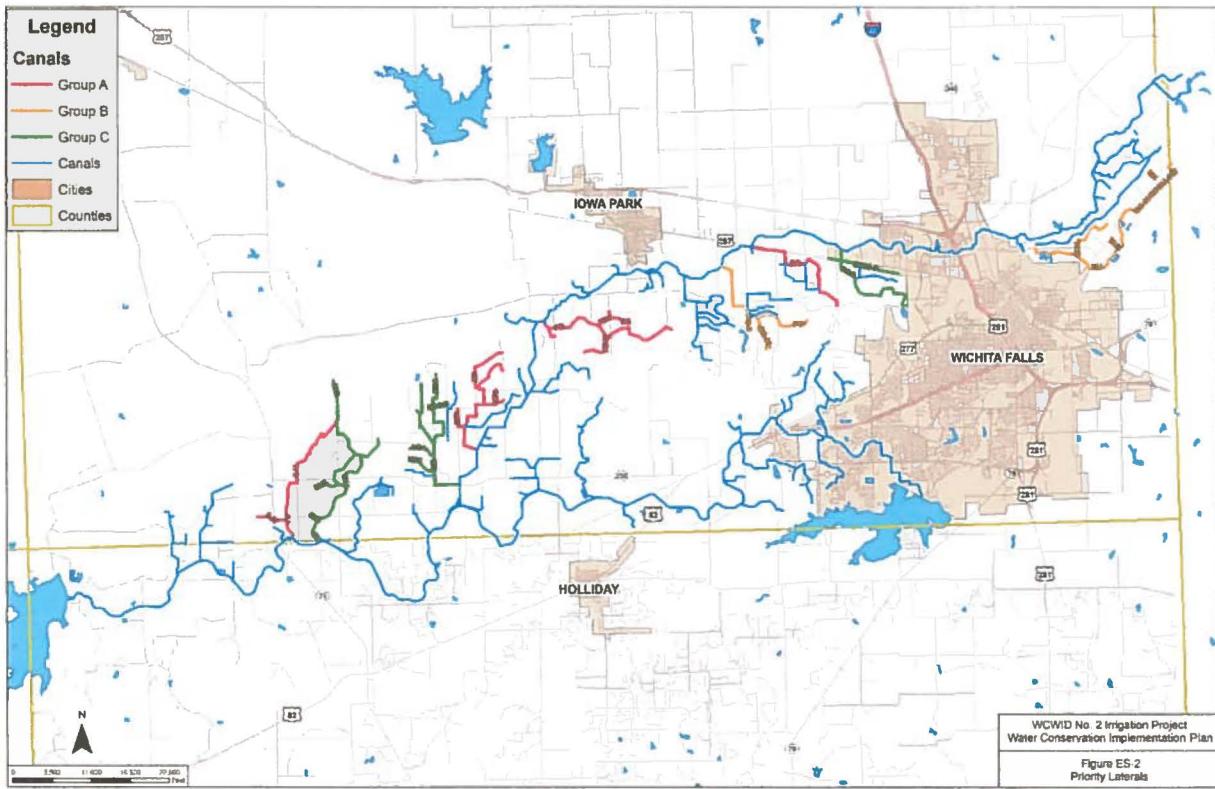


Figure 7: District laterals identified in the conservation study. This includes the priority lateral (i.e., the SK-9) that is the focus of this proposed Small-Scale Water Efficiency Project. (From WCWID2 Water Conservation Implementation Plan.)

More indirectly, the proposed project also complements the WCWID2 drought contingency plan, originally developed in August 1999 and last updated in 2011. The Plan includes rules governing the equitable and efficient allocation of limited District water supplies during times

of shortage. A copy of the Plan ("Water Conservation Policy, Drought Contingency and Water Allocation Policy, Rules and Regulations for Water Deliveries") is available upon request.

#### **E.1.3. Evaluation Criterion C—Project Implementation (10 points)**

*Up to 10 points may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement. Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion. Please also see Section C.3.3. Length of Projects.*

WCWID2 possesses the necessary staff, expertise and matching funding to implement the Water Distribution Efficiency and Infrastructure Modernization Project upon award of the WaterSMART grant. Minimal planning will be required in advance of the demolition/removal and construction/installation phases of the project. The project, which will commence at the conclusion of the 2019 irrigation season in October, will require approximately seven months to complete (depending upon unforeseen weather issues).

The pipeline will be installed in the exact location of the existing SK-9 lateral canal, which was constructed in the 1950s and 1960s, utilizing existing District easements. As a result, no new easements, permits or approvals are required. Similarly, no environmental, cultural or historical compliance is necessary. An estimated project schedule/timeline is presented in Table 2.

*Table 2: Estimated project schedule*

Estimated Schedule							
Wichita County Water Improvement District #2							
Water Distribution Efficiency & Infrastructure Modernization Project							
		2019		2020			
		O	N	D	J	F	M
Planning							
Demolition/Removal							
Construction/Installation							

#### **E.1.4. Evaluation Criterion D— Nexus to Reclamation (10 points)**

*Up to 10 points may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity.*

While neither WCWID2 nor Lake Kemp or Lake Diversion is a project of the Bureau of Reclamation, the water system's function mirrors that of Reclamation priorities in that it serves to provide essential irrigation water supply and related economic benefits in the western U.S.

WCWID2 lies less than 80 miles southeast of Lugert-Altus Irrigation District (LAID), which is centered around the City of Altus in southwestern Oklahoma. Constructed by the Bureau of Reclamation in the 1940s, LAID includes Lugert-Altus Reservoir and a 221-mile lateral distribution system that irrigates some 48,000 acres of privately-owned land. Combined, LAID and WCWID2 supplies generate most of the region's cotton production, and both lie in the Red River Basin where the WCWID2 Water Distribution Efficiency and Infrastructure Modernization Project seeks to augment and enhance the efficiency of existing water supply.

Tom Steed Reservoir, another Reclamation project in Oklahoma, exists on a tributary of the North Fork of the Red River. In addition, Sanford Dam impounds Lake Meredith, which was constructed by Reclamation on a tributary of the Red River in the Texas Panhandle.

The Water Distribution Efficiency and Infrastructure Modernization Project will not provide direct benefits to any tribe.

#### **E.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)**

*Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the Priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.*

The proposed project directly supports Department of Interior priorities related to modernization of the nation's infrastructure. And this project is the essential first step—initially targeting laterals identified as having the highest water losses—in a long-range District plan to replace the most vulnerable components of its archaic, open distribution system that is subject to seepage and evaporative water losses.

Replacing aging canals and laterals with pipeline 1) maximizes efficiency in the delivery of municipal, agricultural and power water supplies; 2) creates additional supply that will contribute to the mitigation of forecasted water supply gaps in the region; 3) delays the impacts of impending drought episodes; and 4) reduces maintenance costs. More generally, it establishes a robust infrastructure that will enable the District to provide reliable water supply to its customers for decades to come.

## **Project Budget**

Required budget information is presented in the following Funding Plan, Budget Proposal and Budget Narrative. A detailed breakdown of budgeted costs is presented in Table 4 of the Budget Proposal.

### **Funding Plan**

The proposed project's non-federal cost-share will come from District in-kind services and materials—i.e., labor required to remove the existing canal and install the new pipeline as well as a portion of pipeline materials.

### **Budget Proposal**

The funding sources that will be utilized to finance the proposed project as well as total project costs are presented in Table 3.

*Table 3: Total Project Costs and Funding Sources, Water Distribution Efficiency and Infrastructure Modernization Project*

Source	Amount
Reimbursable costs (federal funding)	\$75,000.00
WCWID2 cost-share contribution (labor/materials)	\$76,066.00
<b>*Total Project Cost</b>	<b>\$151,066.00</b>

**Table 4: Budget Proposal, Water Distribution Efficiency and Infrastructure Modernization Project**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Employee 1, Operator, Backhoe/Loader	\$22.00	128	hours	\$2,816.00
Employee 2, Operator, Excavator	\$17.00	206	hours	\$3,502.00
Employee 3, Operator, Bulldozer	\$22.00	32	hours	\$ 704.00
Employee 4, Operator, Dump truck	\$22.00	42	hours	\$ 924.00
Employee 5, Operator, Dump truck	\$20.00	42	hours	\$840.00
Employee 6, Operator, Dump truck	\$17.00	42	hours	\$ 714.00
Employee 4, Installation	\$22.00	168	hours	\$3,696.00
Employee 5, Installation	\$20.00	168	hours	\$3,360.00
Employee 6, Installation	\$17.00	168	hours	\$2,856.00
Employee 7, Installation	\$18.00	168	hours	\$3024.00
Employee 8, Clerical	\$10.00	40	hours	\$ 400.00
Employee 9, Management/ Administrative	\$32.00	30	hours	\$ 960.00
<b>Subtotal</b>		1,234		<b>\$23,796.00</b>
<b>Fringe Benefits</b>				
Employee 1, Operator, Backhoe/Loader	\$9.00	128	hours	\$1,152.00
Employee 2, Operator, Excavator	\$14.00	206	hours	\$2,884.00
Employee 3, Operator, Bulldozer	\$9.00	32	hours	\$ 288.00
Employee 4, Operator, Dump truck	\$9.00	42	hours	\$ 378.00
Employee 5, Operator, Dump truck	\$11.00	42	hours	\$ 462.00
Employee 6, Operator, Dump truck	\$14.00	42	hours	\$ 588.00
Employee 4, Installation	\$9.00	168	hours	\$1,512.00
Employee 5, Installation	\$11.00	168	hours	\$1,848.00
Employee 6, Installation	\$14.00	168	hours	\$2,352.00
Employee 7, Installation	\$13.00	168	hours	\$2,184.00
Employee 8, Management/Administrative	\$13.00	30	hours	\$ 390.00
Part-Time Employees (1)	N/A	40	hours	N/A
<b>Subtotal</b>		1,234		<b>\$14,038.00</b>
<b>Supplies and Materials</b>				
24-inch plastic irrigation pipe	\$21.00	3,200	foot	\$67,200.00
24-inch plastic irrigation pipe (existing WCWID2 inventory)	\$21.00	600	foot	\$12,600.00
24-inch Fresno Model 101 C Slide gate, stainless steel frame/hardware	\$1,450.00	2	each	\$2,900.00
24-inch 45-degree elbow fitting	\$570.00	3	each	\$1,710.00
24-inch 90-degree elbow fitting	\$804.00	1	each	\$ 804.00
18-inch Fresno Clover Valves	\$270.00	3	each	\$ 810.00
1 Concrete Box Structure ( 10 cubic yards)	\$1,500.00	1	each	\$1,500.00
<b>Subtotal</b>				<b>\$87,524.00</b>
<b>Equipment</b>				
Excavator	\$79.00	206	hours	\$16,274.00
Backhoe/Loader	\$39.00	128	hours	\$4,992.00
Bulldozer	\$64.00	32	hours	\$2,048.00

Dump Trucks (3)	\$19.00	126	hours	\$2,394.00
<b>Subtotal</b>				<b>\$25,708.00</b>
<b>Contractual/Construction</b>				
N/A (provided by District staff)	--	--	--	\$ 0.00
<b>Subtotal</b>	--	--	--	<b>\$ 0.00</b>
<b>Third-Party In-Kind Contributions</b>				
N/A	--	--	--	\$ 0.00
<b>Subtotal</b>	--	--	--	<b>\$ 0.00</b>
<b>Other</b>				
Other				\$ 0.00
<b>TOTAL DIRECT COSTS</b>				<b>\$151,066.00</b>
<b>Indirect Costs</b>				
Type of rate	percentage	\$base		\$ 0.00
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$151,066.00</b>

### Budget Narrative

The estimated total cost of the WCWID2 Water Distribution Efficiency and Infrastructure Modernization Project is \$151,066. Cost estimates are derived from experienced District estimates of material and labor and costs incurred from recent similar canal replacement and maintenance projects. District staff will perform all required planning, demolition and removal of the existing concrete lateral material as well as construction and installation of the new, more efficient pipeline.

It is anticipated that eight full-time and one part-time District employees, including the District Manager (Kyle Miller), will be utilized to implement the proposed project (including compliance with Reclamation reporting requirements) for a total of 1,234 staff hours. The associated cost for salaries and wages is estimated at \$23,796. The District certifies that included staff labor rates represent actual labor rates for the identified personnel.

It is estimated that an additional cost of \$14,038 will be required for fringe benefits.

The primary construction material will consist of approximately 3,800 feet of 24-inch plastic irrigation pipe; this includes about 600 feet of pipeline that currently exists in the District's inventory. Additional supplies and materials required for the project include two 24-inch slide gates (with stainless steel frames and hardware), four elbow fittings of various sizes, three valves and one concrete box structure. The total estimated cost of supplies and materials is \$87,524.

No new equipment will be purchased for this project. Costs associated with the use of District equipment is estimated at \$25,708.

Final project estimates are \$151,066 in direct costs; indirect costs are not applicable.

## **Environmental & Cultural Resources Compliance**

No environmental or cultural compliance is anticipated in conjunction with implementation of this project as construction will involve the replacement of an existing lateral along existing easements. The District's water delivery infrastructure was originally constructed in the 1920s. This project seeks to replace a portion of the Southside Canal lateral system (SK-9 sub-lateral), which was constructed in the 1950s and 60s; the District recently replaced a portion of this lateral. While the project will involve the excavation of earth along with the existing lateral, no impacts to the surrounding environment are anticipated as work will be limited to the existing lateral trench.

The District is unaware of any associated impacts to Federal threatened or endangered species or designated critical habitat. No wetlands or related surface waters that currently fall under CWA jurisdiction as "Waters of the United States" will be impacted by this project.

No District buildings, structures or features are known to be listed or eligible for listing on the National Register of Historic Places. And there are no known archeological sites in the proposed project area.

The proposed project will have no disproportionately high or adverse effect on low income or minority populations. The project will not limit access to or ceremonial use of Indian sacred sites or result in other impacts on tribal lands. The project will not contribute to the introduction, continued existence or spread of noxious weeds or non-native invasive species.

## **Required Permits & Approvals**

No additional permits will be required to either remove the canal structures (primarily concrete) or install the new pipeline.

## **REFERENCES**

- Freese and Nichols, Inc., Wichita Falls Long-Range Water Supply Plan, January 2015.
- Biggs & Mathews, Inc., Freese and Nichols, Inc., Alan Plummer Associates, Inc. and Red River Authority of Texas, Region B Regional Water Plan, December 2015.
- Biggs & Mathews, Inc., Freese and Nichols, Inc., Alan Plummer Associates, Inc. and Red River Authority of Texas, Region B Regional Water Plan, December 2015, Region B Final Report, Wichita County Water Improvement District 2 Water Conservation Implementation Plan, April 2009.

## **APPENDIX**

## **Letters of Support**



PUBLIC WORKS DEPARTMENT

April 3, 2019

Mr. Matthew Reichert  
Bureau of Reclamation  
Financial Assistance Support Section  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

**RE: Support for Reclamation Small-Scale Water Efficiency (WaterSMART Program) Funding for the Wichita County Water Improvement District No. 2 Water Distribution Efficiency Project**

Dear Mr. Reichert:

The City of Wichita Falls officially supports the application of the Wichita County Water Improvement District No. 2 to the U.S. Bureau of Reclamation for funding to implement the proposed WaterSMART Small-Scale Water Efficiency Project. As an engaged stakeholder, we acknowledge that replacement of the District's open laterals by closed pipeline is essential to establishing water reliability in this drought-prone region. By doing all in its power to conserve limited resources, the District is fulfilling its role as a key water provider while ensuring continued economic opportunities for citizens residing in north central Texas.

The City of Wichita Falls appreciates this opportunity to state its unwavering support of the District in its effort to maximize local water efficiency through the proposed WCWID No. 2 Water Distribution Efficiency Project. Please contact me at 940-761-7477 / [russell.schreiber@wichitafallstx.gov](mailto:russell.schreiber@wichitafallstx.gov) should you require any additional information concerning our advocacy of this essential project.

Sincerely,

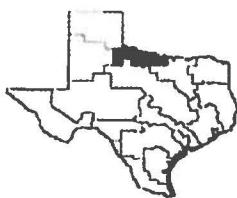
Russell Schreiber  
Director of Public Works  
City of Wichita Falls

**CITY OF WICHITA FALLS**

1300 7<sup>th</sup> Street • P.O. Box 1431 • Wichita Falls, Texas 76307 • t: (940) 761-7477 • f: (940) 761-6873  
[www.wichitafallstx.gov](http://www.wichitafallstx.gov)

# Regional Water Planning Group - Area B

in cooperation with the Texas Water Development Board



**Board Members**  
Mr. Russell Schreiber, Chair  
Mr. Mike McGuire, Vice-Chair  
Mr. Dean Myers, Secretary  
Ms. Tamela Armstrong  
Mr. Jimmy Banks  
Mr. J.K. (Rooter) Brise  
Judge Mark Christopher  
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Mr. Tommy Holub  
Judge Randall C. Jackson  
Mr. Darel Kennon  
Mr. Steve Lewis  
Mr. Tracy Mealer  
Mr. Kyle Miller  
Mr. Heath Ownbey  
Mr. Jerry Payne  
Mr. Wilson Scaling  
Mayor Gayle Simpson  
Mr. Randall W. Whiteman

April 10, 2019

Mr. Matthew Reichert  
Bureau of Reclamation  
Financial Assistance Support Section  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

**RE: Support for Reclamation Small-Scale Water Efficiency (WaterSMART Program) Funding for the Wichita County Water Improvement District No. 2 Water Distribution Efficiency Project**

Dear Mr. Reichert:

In response to the drought of the 1950's and in recognition of the need to plan for the future, the Texas Legislature created the Texas Water Development Board to develop water supplies and prepare plans to meet the state's future water needs. In 1997, Senate Bill 1 of the 75th Texas Legislature was passed to set the process of developing a comprehensive state water plan. To accomplish this task, the state was divided into 16 regional water planning groups. Region B is comprised of ten entire counties and a portion of one county in north central Texas. Specifically, those counties are Archer, Baylor, Clay, Cottle, Foard, Hardeman, King, Montague, Wichita, Wilbarger, and the City of Olney in Young County. The Wichita County Water Improvement District No. 2 (WCWID No. 2) is a major water provider to irrigation water users in Region B's planning area. A main component of this fifty year planning process is evaluating water management strategies and preparing plans to meet those needs. Enclosing of the WCWID No. 2's irrigation canals has been a major water management strategy in the *Region B Regional Water Plan* since 2006.

The Regional Water Planning Group – Area B (RWPG-B) fully supports the intent of the WCWID No. 2 to implement the conversion of canals to pipeline. As an engaged stakeholder, we acknowledge that replacement of the WCWID No. 2's open laterals by closed pipeline is essential to establishing water reliability in this drought-prone region. By doing all in its power to conserve limited resources, the WCWID No. 2 is fulfilling its role as a key water provider, while ensuring continued economic opportunities for citizens residing in north central Texas.

The RWPG-B appreciates this opportunity to state its unwavering support of the WCWID No. 2 in its effort to maximize local water efficiency through the proposed WCWID No. 2 Water Distribution Efficiency Project. Please contact me at (940) 761-7477 or email at [russell.schreiber@wichitafallstx.gov](mailto:russell.schreiber@wichitafallstx.gov) should you require any additional information concerning our advocacy of this essential project.

Sincerely,

**REGIONAL WATER PLANNING GROUP – AREA B**

Russell Schreiber  
Chair

RS:dpb

cc: Mr. Kyle Miller, Wichita County Water Improvement District No. 2  
Mr. Randy Whiteman, Red River Authority of Texas

Post Office Box 240  
Wichita Falls, Texas  
76307-0240  
3000 Hammon Road  
76310-7500  
Phone (940) 723-2236  
Fax (940) 723-8531  
[rwpg-b@rra.texas.gov](mailto:rwpg-b@rra.texas.gov)



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Fort Worth

T. Dan Friedkin  
Chairman-Emeritus  
Houston

Carter P. Smith  
Executive Director

April 12, 2019

Mr. Matthew Reichert  
Bureau of Reclamation  
Financial Assistance Support Section  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

RE: Support for Reclamation Small-Scale Water Efficiency (WaterSMART Program) Funding for the Wichita County Water Improvement District No. 2 Water Distribution Efficiency Project

Dear Mr. Reichert:

The Texas Parks and Wildlife Department (TPWD) officially supports the application of the Wichita County Water Improvement District (WCWID) No. 2 to the U.S. Bureau of Reclamation for funding to implement the proposed WaterSMART Small-Scale Water Efficiency Project. As an engaged stakeholder, we acknowledge that replacement of the District's open laterals by closed pipeline is essential to establishing water reliability in this drought-prone region. By doing all in its power to conserve limited resources, the District is fulfilling its role as a key water provider, while ensuring continued economic opportunities for citizens residing in north central Texas.

The TPWD appreciates this opportunity to state its unwavering support of the District in its effort to maximize local water efficiency through the proposed WCWID No. 2 Water Distribution Efficiency Project.

Please contact my colleague, Mr. Todd Engeling, Branch Chief of the Inland Fisheries Hatcheries - program, at (512) 389-4826 or by email at [todd.engeling@tpwd.texas.gov](mailto:todd.engeling@tpwd.texas.gov) should you require any additional information concerning our advocacy of this essential project.

Sincerely,

Craig Bonds  
Inland Fisheries Division Director

CCB:lam

cc: Mr. Kyle W. Miller  
General Manager  
WCWID No. 2  
Mr. Todd Engeling

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.



*A unit of American Electric Power*  
*Oklawanna Power Station*

4-16-2019

Mr. Matthew Reichert  
Bureau of Reclamation  
Financial Assistance Support Section  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

RE: Support for Reclamation Small-Scale Water Efficiency (WaterSMART Program) Funding for the Wichita County Water Improvement District No. 2 Water Distribution Efficiency Project

Dear Mr. Reichert:

The AEP/PSO Oklawanna PS officially supports the application of the Wichita County Water Improvement District No. 2 to the U.S. Bureau of Reclamation for funding to implement the proposed WaterSMART Small-Scale Water Efficiency Project. As an engaged stakeholder, we acknowledge that replacement of the District's open laterals by closed pipeline is essential to establishing water reliability in this drought-prone region. By doing all in its power to conserve limited resources, the District is fulfilling its role as a key water provider while ensuring continued economic opportunities for citizens residing in north central Texas.

The AEP/PSO Oklawanna PS appreciates this opportunity to state its unwavering support of the District in its effort to maximize local water efficiency through the proposed WCWID No. 2 Water Distribution Efficiency Project. Please contact me [redacted] should you require any additional information concerning our advocacy of this essential project.

Sincerely,

Steve Lewis  
Oklawanna Plant Manager  
American Electric Power  
Phone (940)886-2725  
Fax (940)886-2722

A handwritten signature in blue ink that reads "Steve Lewis".

## **Official Resolution**

## **RESOLUTION**

**A RESOLUTION DECLARING THE COMMITMENT OF WICHITA COUNTY WATER IMPROVEMENT DISTRICT #2 TO REPLACE SELECT CANALS WITH CLOSED PIPING AND AUTHORIZE THE DISTRICT'S APPLICATION FOR A BUREAU OF RECLAMATION WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECT GRANT FOR FISCAL YEAR 2019 (FUNDING OPPORTUNITY ANNOUNCEMENT NO. BOR-DO-19-F005)**

WHEREAS, the Wichita County Water Improvement District #2 facilitates water service on behalf of District irrigation, water supply, electrical power and fish/wildlife customers; and

WHEREAS, the District and City of Wichita Falls jointly own a comprehensive regional water supply system consisting of Lake Kemp, Lake Diversion and various distribution facilities, including a network of open canals and laterals; and

WHEREAS, the District serves as an essential element in this region's continued economic welfare and development; and

WHEREAS, the District and its partners experienced an extreme drought from 2011 to 2015, which reduced the water storage of Lake Kemp to 18 percent and caused severe hardships in providing reliable supply to various customers; and

WHEREAS, future water demands for the District, including the City of Wichita Falls, are projected to increase from more than 21,000 acre-feet per year in 2020 to more than 36,000 acre-feet/year in 2070; and

WHEREAS, the Region B Water Plan concluded that the District will soon experience an irrigation water supply shortage increasing to 25,460 acre-feet/year by 2060; and

WHEREAS, the Region B Water Planning Group has recommended development of an additional 8,577 acre-feet/year of water through water conservation achieved by enclosing laterals in pipe by 2040; and

WHEREAS, in its April 2009 study of District laterals, the Region B Water Planning Group determined that 13,034 acre-feet of water per year could be saved by converting high water loss segments to underground pipe systems; and

WHEREAS, the District has identified select priority laterals for replacement, which will result in significant water conservation and thereby create additional supply for irrigation and other uses of system water; and

WHEREAS, the District is committed to maximizing its resiliency to future, inevitable drought events as well as continually rising water demands; and

WHEREAS, the U.S. Bureau of Reclamation has announced WaterSMART: Small-Scale Water Efficiency Project Grants for Fiscal Year 2019 (Funding Opportunity Announcement No. BOR-DO-19-F005) which can provide 50% of project costs up to \$75,000 for projects to increase the water efficiency of both municipal and irrigation supply systems and the District desires to pursue a grant to leverage available funds; and

WHEREAS, the U.S. Bureau of Reclamation requires a formal resolution from the applicant's governing body to be submitted with the grant application.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Wichita County Water Improvement District #2:

Section 1. That the Board supports the submittal of an application for a FY-2019 WaterSMART Small-Scale Water Efficiency Project Grant to replace selected laterals with closed underground piping; and

Section 2. That the Board supports pursuit of similar funding in future years to enhance water reliability and efficiency and strengthen the District's resiliency to drought; and

Section 3. That the Board authorizes the District President to sign documents on behalf of the District to enter into any agreements required by the U.S. Bureau of Reclamation under the WaterSMART Grant Program; and

Section 4. That the Board acknowledges that the project is estimated to cost \$150,000 to be funded with \$75,000 in federal WaterSMART grant funds and \$75,000 in matching District funds. The Board commits to including the non-federal match of \$75,000 in the FY-2020 annual budget, which will be available July 1, 2019; and

Section 5. That the District will cooperate with the U.S. Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement and otherwise comply with WaterSMART Program requirements.

PASSED AND APPROVED this 9th day of April, 2019 by the Wichita County Water Improvement District #2 Board of Directors.



Ben Kirkland, President