YUMA COUNTY WATER USERS' ASSOCIATION
3800 W County 15th St, Somerton, AZ 85350

DUNS NO. 045810561

WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECT

GRANT PROGRAM FOR FY 2020
Funding Opportunity Announcement No. BOR-DO-18-F009

LARKIN LATERAL WATER CONSERVATION PIPING PROJECT

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EXECUTIVE SUMMARY:

Date: October 22, 2019

Applicant: Yuma County Water Users Association
3800 W County 15th St, Somerton, AZ 85350

Project Summary:

The project outlined in this application for Yuma County Water Users' Association plans to convert 1500 feet of Larkin open ditch lateral into a buried concrete pipeline system. The Association has currently pipe-lined half of the Larkin lateral due to food safety concerns. The project will provide water conservation benefits with water savings from the elimination of evaporation and seepage losses. The project will also eliminate any residing food safety concerns while providing the farmers a more efficient delivery system.

Construction timeline: Begin July 1, 2020. Completion July 31, 2020

Federal Project Location:

The Larkin pipeline project is located on County 21st ½ between Highway 95 and the West Main Canal. This lateral is located on a Bureau of Reclamation federally owned right of way.

BACKGROUND DATA:

Location (state, county, and direction from nearest town).

The Yuma County Water Users' Association, a private non-profit corporation, is located in Yuma County, Arizona. Association headquarters is located approximately 4 miles south of the Southern city limit of the City of Yuma, AZ. The Association, formed in 1903, has since 1951 operated and maintained the Valley Division of the U.S. Bureau of Reclamation's Yuma Project.

Source of water supply:

The Yuma County Water Users' Association was organized in 1903, about a year after the passage of the Reclamation Act in the United States Congress. The Association was organized as a private non-profit corporation the purpose of dealing with the United States Bureau of Reclamation in the development of the Yuma Project. In 1904, Congress authorized the Yuma Project. In 1905, the Bureau of Reclamation recorded water filings in the name of the United States, and shortly thereafter purchased three existing water filings and irrigation companies that had been serving water to the Valley Division since 1890.

Actual construction of the Laguna Dam and the distribution system started about 1905; and the first gravity diversion to the Valley Division of the Yuma Project was made through the siphon under the Colorado River in 1912, the same year Arizona became a state. This system replaced the existing pump diversion system of the old private irrigation companies. Water diversion from Laguna Dam was discontinued in 1941 when Imperial Dam became our diversion point from the Colorado River. The Association assumed through contract the care, operation, and maintenance of the works of the Valley Division, Yuma Project in 1951; such works to include irrigation and certain power transmission facilities in Arizona. The Siphon Drop Power Plant takeover, which included high voltage transmission lines and California irrigation works, was accomplished by a supplemental contract in 1962. Water now comes directly out of the All-American Canal in California through the Siphon Drop Power Plant into the Yuma Main Canal, then through the siphon under the Colorado River at Yuma and into our irrigation system in Arizona.

Quantity of water supply managed, water supplied, water rights, uses and water users served:

Located on the Colorado River near Yuma, Arizona, the members of the Association possess unquantified beneficial use water rights. Colorado River water is delivered to Valley Division entitlement holders through project facilities owned by the United States and operated by Yuma County Water Users' Association. On August 24, 1996, the Supplementary Contract To Provide for the Delivery of Converted Water To the lands in the Valley Division of the Yuma Project, designated as Supplementary Contract No. I76r-671 and Contract No. 14-06-300-621, was entered into between the United States and YCWUA. This contract allows for the voluntary irrevocable conversion of individual water entitlements within the YCWUA service area in the Valley Division from irrigation use to domestic use, with the consent of YCWUA and the entitlement holder. Some 53,450 irrigable acres, 45,000 of those being in current agriculture production. Currently, the Association's 2019 approved diversions are for 360,400 acre feet. In addition to irrigation water described above, the Association delivers some 18,000 acre-feet of water to the City of Yuma and some 6,000 acre feet to the Cocopah Indian Tribe.

If water is primarily used for irrigation, describe major crops, total acres served:

Yuma County Water Users' Association provides service to the Valley Division year round. The principal crops grown in the fall and winter months consist of lettuce, spinach, cabbage and other produce crops. While wheat, cotton, hay and melons are the dominant crops during the spring and summer months. As previously stated , our members possess rights for 53,450 irrigable acres, 45,000 of those being in current agriculture production.

Water distribution system:

YCWUA's distribution system starts at Siphon Drop Power Plant into the Yuma Main Canal where the Wasteway diversion for Mexico resides, then through the siphon under the Colorado River at Yuma and into our irrigation system in Arizona. The system ends at the U.S. border of San Luis Arizona.

March 2018				
Main Canal System				
	Miles Total	Miles of Earthen	Miles of Lined	Miles of Pipeline
East Main Canal	24.92	23.84	0.39	0.68
West Main Canal	23.79	21.16	2.63	0
Central Main Canal	12.35	6.13	6.16	0.05
Laterals (Total)	123.89	52.49	52.93	18.47
Yarwood Lateral	3.02	0	2.71	0.31
Somerton Lateral	7.25	3.19	4.06	0
Cooper Lateral	5.63	0.49	5.11	0.03
Thacker Lateral	3.84	2	0.9	0.94
Miller Lateral	3.04	2.99	0	0.05
Potter Lateral	3.7	0.51	3.12	0.07
Lott Lateral	3.83	0	3.54	0.29
Cuming	4.69	4.48	0	0.21

Lateral Canals, By Main Canal System				
	Miles Total	Miles of Earthen	Miles of Lined	Miles of Pipeline
East Main Canal	30.34	10.4	14.46	5.48
West Main Canal	80.08	37.76	30.47	11.85
Central Canal	13.47	4.33	8	1.14

System Totals				
	Miles Total	Miles of Earthen	Miles of Lined	Miles of Pipeline
Delivery System	184.95	103.62	62.11	19.2
Drain System	55.9	54.65	N/A	1.25
Main Drain	18.43	18.43	N/A	0
Main Drain Extension	1.75	1.75	N/A	0
Northwest Drain	1.39	1.39	N/A	0
Central Drain	4.18	4.18	N/A	0
Central Drain Stub 2	1.25	1.25	N/A	0
North Drain	3.38	3.38	N/A	0
East Drain	5.5	5.5	N/A	0
East Central Drain	1.48	1.48	N/A	0
East Drain Extension	2.59	2.59	N/A	0
Gardenhire Drain	1.4	1.4	N/A	0
Corey Drain	0.48	0.48	N/A	0
Southeast Drain	4.49	4.49	N/A	0
Southeast Stub 2	1.5	1.5	N/A	0

Past Working Relationships with Reclamation:

Water 2025 Cooperative Grants:

In 2004, the Yuma County Water Users' Association (Association) was awarded a cooperative grant under the Water 2025 program offered by Reclamation. Our grant allowed the Association to effectively enter the modern age of irrigation delivery. This grant provided for the total rehabilitation of 7 structures along our main canals. This rehabilitation consisted on structural redesign that allowed for overflow weirs, advanced gate designs, and the full inclusion of Supervisory Control And Data Acquisition (SCADA). Furthermore, we were able to build up our information technology system to include a GIS system, servers, communications equipment, and workstations to enter into the new era of water delivery technology.

In 2005, the Association was awarded a second Water 2025 cooperative grant that allowed the continuation of some previous canal lining projects undertaken by the Association. This project was funded by Reclamation, the Association, and the North American Development Bank, and was a canal lining project that was performed on several reaches of larger earthen canals.

Water Conservation Program:

In 2009, the Association was awarded a cooperative grant through Reclamation that allowed us to install 12 fixed-location flow meters within our delivery system, and also provided for the purchase of 2 portable flow meters for spot-checking flow rates within our canals.

Special Projects:

Construction of a trifurcation structure on the tail end of the Yuma Mesa Conduit at the Colorado River levee. This project was completed in 2005 and was fully funded by Reclamation. This structure allows Reclamation to divert Yuma Mesa Conduit (YMC) flows into the Colorado River, the Main Outlet Drain Extension (MODE), or to a dedicated pipeline providing water to the Water Quality Improvement Center (WQIC), collocated at Reclamation's Yuma Area Office. This project not only provided a physical means for YMC flows, but also provides for technologically advanced methods to control those diversions by use of electric actuators and instrumentation.

In the year 2010, the Association began design work to reconstruct an electrical power distribution substation, which was experiencing a series of critical faults and failures due to its age. Both distribution substations that the Association operates and maintain are part of a 50/50% cost sharing contract between the Association and Reclamation, due to the fact that a significant amount of electrical load is served to Reclamation groundwater pumping facilities. Substation reconstruction was complete in the year 2011. While that substation was being built, the other cost shared substation experienced a lightning strike, which rendered it unusable. Association personnel scrambled to reconstruct that substation and had it online within 3 weeks. This substation, too, was completed in the year 2011.

The year 2016 saw the beginning of a major power system hardening and rehabilitation project that was solely on power facilities owned by Reclamation, and in support of groundwater pumping by Reclamation in the Yuma area. Over the span of two years, Association personnel reconstructed some 125 power poles at the sole expense of Reclamation.

At the Southerly International Boundary (SIB), the Association operates a pumping facility to lift groundwater (collected from the Yuma Valley via a series of open drains) into the Sanchez-Mejorada Canal in Mexico. The water delivered to Mexico at this point in the system serve as water provided toward the 1944 Treaty requirements. As Reclamation contributes a significant amount of pumped water to the drain system under a change in operational procedures by Reclamation, funding was provided in 2016 to the Association by Reclamation to perform several technological and physical improvements to the facility. Projects included a new trash cleaning system for the intake of the pumps, increased security of the facility, and some remote monitoring of the system. These Reclamation-funded projects contribute to the increase reliability of delivery of that diverted groundwater to Mexico.

As part of a push by Reclamation to significantly reduce water ordered but not delivered (WOND) to Mexico via the Yuma Main Canal at the California Wasteway, several projects were identified at that facility as being of the type that would reduce WOND flows. In 2016, Reclamation contracted with the Association to perform many facility improvements, including modernizing the gate actuators, providing emergency back-up power facilities, and site automation improvements.

Beginning in 2018, and continuing to this day, the Association has provided work on a reimbursable basis to Reclamation for power system changes required as part of their 242 Wellfield project. Work involves temporary removal and reinstallation of various power lines and associated equipment to make way for Reclamation to install dual pipelines. This work is expected to continue into Reclamations fiscal year 2021.

Ongoing Contractual Relationships:

The Association and Reclamation have ongoing contractual relationships in the form of power system cost-sharing, as well as some smaller maintenance projects, such as the transferred works at the SIB.

Project Location:

The Larkin pipeline project is located in south Yuma County in the state of Arizona, the Larkin purposed pipeline is on the border of the City of San Luis, Arizona, and County 21st ½ Street. The project latitude is 32.515940 N, and longitude is -114.798080 W.

Technical Project Description:

Scope of Work:

The existing canal is 0.66 miles in length, or 3484 feet long. This canal consists of 1500 feet of earthen canal and 1984 feet of pipe-lined canal.

The Association will install 900 linear feet of new 36" PVC pipe from the head of the Larking Lateral to the head of existing 30" PVC pipe. This portion of new pipe will require a new stand-box with two new gates and 1 concrete collar. (continued page 5).

The Association will also install an additional 600 linear portion of new 30" PVC pipe from the tail of the existing 30" PVC pipe to the head of an existing culvert across Highway 95. This segment of new pipe will require 2 concrete collars.

Once completed, the entire Larkin canal length of 0.66 miles or 3484 feet will be pipe-lined.

Compliance Matters:

The project area is an active canal with operational and maintenance (O&M) access roads. As this site is highly disturbed, the Association is of the opinion that completion of the project will be federally funded, we lean on the experience of Reclamation staff as to what compliance studies may be required.

Final design and construction:

Upon receipt of notice of award, the Association will finalize the design of the project. Currently, we have plans that comprise of an 80% level of completion. Work remaining consists of final plan drafting, adding elevation data, and establishing a staking plan. At this point, the bill of materials would be complete, and pipe will be placed on order to our supplier.

The included project schedule shows 2-4 weeks of pre-construction work, and 4 weeks of actual field construction, including as-built drawings. The canal outage required of this project will be closely coordinated with the water users impacted by the work.

Evaluation Criterion A:

Project Benefits:

Pipe-lining of canals offers many benefits to the Association, namely delivery management and system losses. By installing the pipeline, we eliminate evaporative and seepage losses. Further benefits are realized by significantly reduced maintenance costs, compared to maintaining an open channel canal.

Anticipated Water Management Benefits:

By having the entirety of the canal in a pipeline, our system Dispatchers and Ditchriders will realize the benefit of near instant delivery, flow rate changes, and shut-offs. Additionally, a great deal of maintenance will be eliminated, versus the current requirement of aquatic weed removal, road grading, and canal profile maintenance.

Public Benefits:

While this project location is legally only accessible by Reclamation, the Association, or the adjacent water users, benefits could be realized by elimination of an above-grade feature. This would allow for easier maneuvering of farm equipment working in the adjacent fields. Further, canal breaches caused by rodents will be a thing of the past at the project location.

Modernizing Existing Infrastructure to Address Water Reliability Concerns:

As many irrigation projects have evolved, pipelines have become the defacto standard in the delivery of water to the field. While it may be impractical for much higher flow canals, laterals such as the Larkin are prime candidates for improvements of this type. Pipelines increase delivery efficiency, reduce maintenance, and offer a very high degree of reliability.

Resolving Water Related Conflict in the Region:

As water delivery systems become increasingly pipelined, losses decrease and water delivery efficiency increases. Every acre-foot of water conserved between the source and the delivery point becomes water that may become available to other users or held upstream in the reservoirs.

Evaluation Criterion B:

Describe how your project is supported by an existing planning effort:

Yuma County Water Users' Association has a five year Water Conservation Plan in accordance with the Reclamation Act of 1982 (P.L.97_293); the United States Department of Interior (DI), Bureau of Reclamation, Lower Colorado Regional (LCR). Yuma County Water Users' Association contracts with Reclamation. The principal water conservation objective of the Association is to provide efficient and well managed delivery of irrigation water to the individual farm unit (or subdivision) turn-out. Such efficient delivery is accomplished by maintaining acceptable delivery losses.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

Water savings by means of reduction of losses, both via evaporation and seepage. Increased efficiency and lower losses within the system is the priority of the Water Conservation Plan. Pipelines increase delivery efficiency, reduce maintenance, and offer a very high degree of reliability.

How has this project been determined as a priority in the existing planning effort as opposed to other potential projects/measures?

The Association as well as a local farmer have already funded and installed a pipe-lined section of this canal. With the help of this grant we will be able to complete the pipe-lining project to help reduce the amount of system losses as well as safe guard the water from contaminants. Food safety has certainly increased it's presence in the Yuma Valley. We foresee many more projects just like this one in the future.

Evaluation Criterion C:

Project Implementation Plan and Schedule:

The Association will implement and execute the project entirely with its own forces, from engineering staff to construction crews. The project will be executed in accordance with the attached project schedule. Barring any unforeseen circumstances, the project should take approximately 8 weeks. Note: this does not account for delivery of the pipe from our supplier. Volatile markets could result in a longer lead time than expected. It is anticipated that the longest additional lead time to receive the pipe would be an additional 4 weeks.

Permitting:

Other than environmental, historic, or cultural studies (as may be required by Reclamation), no permitting is required for this project.

Engineering and Design Work in Support of the Project:

The Association currently has 80% level plans completed, as well as our bill of materials, labor and equipment estimates, and initial construction schedule completed.

Policy Changes or Administrative Actions Required to Implement the Project:

With the completion of our project, all Association files and standard operational procedures (SOPs) will be updated to reflect that the canal is now fully pipe-lined, as opposed to mixed construction. Our Dispatchers and Ditchriders will be notified of the change so that they may manage the water deliveries appropriately.

Environmental Compliance Costs:

The Association will defer to Reclamation's Yuma area office as guidance to the appropriately level of compliance studies, if any, and will update our budget and project schedule accordingly. The project will likely only require a categorical exclusion checklist and will be coordinated with the Reclamation's Yuma area office.

Evaluation Criterion D:

Questionnaire:

1. Is the proposed project connected to a Reclamation project or activity? If so, how?
   Yes. This project directly involves a portion of the water distribution system within the Valley Division of the Yuma Project and the Bureau of Reclamation.

2. Does the applicant receive Reclamation project water (Reclamation contract)?
   Yes, the Association assumed through the Bureau of Reclamation Contract the care, operation, and maintenance of the works of the Valley Division, Yuma Project in 1951.

3. Is the project on Reclamation project lands or involve Reclamation facilities?
   Yes, the Yuma Main Canal, Siphon Drop Power Plant, Wasteway diversion for Mexico and the entire Yuma project are managed by Yuma County Water Users' Association.

4. Is the project in the same basin as a Reclamation project or activity?
   Yes.

5. Will the proposed work contribute water to a basin where a Reclamation project is located?
   This project realizes the component of water savings by means of reduction of losses, both via evaporation and seepage. While not a project that directly reduces diversions,

this project does have an effect on overall diversions by means of increased efficiency and lower losses within the system.

6. Will the project benefit any tribes?
   No.

Evaluation Criterion E:

Modernizing our infrastructure:

As many irrigation projects have evolved, pipelines have become the standard in the delivery of water to the field. While it may be impractical for much higher flow canals, laterals such as the Larkin are prime candidates for improvements of this type. Pipelines increase delivery efficiency, reduce maintenance, and offer a very high degree of reliability. Also savings by means of reduction of losses, both via evaporation and seepage. Lower losses within the system is the priority of the Water Conservation Plan.

Department Priorities:

1. YCWUA is creating a conservation stewardship legacy only to Teddy Roosevelt by reducing seepage and leaking canals by pipe lining as many canals and laterals that are in budget.

2. YCWUA utilizes our natural resources by conserving water on the drought stricken Colorado River.

3. YCWUA is restoring trust in the way we deliver water. We are delivering water more efficiently to our farmers and our rural customers. We are also thoughtful of the farmers concern with produce and water safety.

4. YCWUA is striking a regulatory balance by advancing our technology on a year to year basis. Our SCADA system is one of the most advanced in the country.

5. YCWUA is modernizing our infrastructure by concrete lining and piping to further conserve our precious water source.

Project Budget:

Yuma County Water Users' Association has estimated the cost of this project at $172,216 for pipelining the Larkin open lateral. The Association will match $75,000 of in-kind funding as specified in the funding plan.

Larkin Pipeline ~1500 Linear Feet, 3910.1450					
2/21/20, 30" & 36" updated pipe cost					
Mobilization					
Equipment	**Cost per Hour**	**No. of Hours**	**Total**	**Extended Total**	
91 & 308 Tractor & Low Boy	71.56	4	286.24		
180 Excavator	130.22	2	260.44		
214 Loader	54.53	2	109.06		
217 Loader	54.53	2	109.06		
177 Back Hoe	33.25	2	66.50		
178 Excavator	83.61	2	167.22		
			998.52		
Overhead (25%)		1.25		1,248.15	
(6) Operators @ ~2.33 hrs. ea.	25.00	14	350.00		
Personnel Additives (45.5%)		1.455	509.25		
Overhead (25%)		1.25		636.56	
			Subtotal	1,884.71	
Administrative Overhead (5%)		1.05	TOTAL	1,978.95	$1,978.95
Remove Existing Structures					
Equipment	**Cost per Hour**	**No. of Hours**	**Total**	**Extended Total**	
180 Excavator	130.22	20	2,604.40		
214 Loader	54.53	10	545.30		
217 Loader	54.53	20	1,090.60		
121 Dump	59.09	4	236.36		
122 Dump	59.09	4	236.36		
144 Tanker	48.09	20	961.80		
177 & 716 Back Hoe w/ Hammer	44.89	4	179.56		
			5,854.38		
Overhead (25%)		1.25		7,317.98	
(7) Operators @ ~11.7 hrs. ea.	25.00	82	2,050.00		
Personnel Additives (45.5%)		1.455	2,982.75		
Overhead (25%)		1.25		3,728.44	
			Subtotal	11,046.41	
Administrative Overhead (5%)		1.05	TOTAL	11,598.73	$11,598.73
Installation					
Equipment	**Cost per Hour**	**No. of Hours**	**Total**		
180 Excavator	130.22	60	7,813.20		
214 Loader	54.53	30	1,635.90		
217 Loader	54.53	60	3,271.80		
144 Tanker	48.09	30	1,442.70		
120 Dump	59.09	30	1,772.70		
121 Dump	59.09	30	1,772.70		
122 Dump	59.09	30	1,772.70		
705 Pipe Puller (PVC to be installed)	2.57	0	0.00		
709 Impact Roller	10.08	30	302.40		
711 Jumping Jack	2.69	15	40.35		
			19,824.45		
Overhead (25%)		1.25		24,780.56	
(9) Operators @ ~35 hrs. ea.	25.00	315	7,875.00		
Personnel Additives (45.5%)		1.455	11,458.13		
Overhead (25%)		1.25		14,322.66	
			Subtotal	39,103.22	
Administrative Overhead (5%)		1.05	TOTAL	41,058.38	$41,058.38
Cost per Item	**Cost per Item**	**Quantity**			
30" PVC SDR 51 80 PSI, 640 LF (includes 2 xtra 20' pcs...)	36.24	640	23,193.60		$28,006.27
36" PVC SDR 51 80 PSI, 940 LF (includes 2 xtra 20' pcs...)	51.00	940	47,940.00		$57,887.55
Standbox	9000.00	1	9,000.00		$10,867.50

Concrete Tie-In	1000.00	4	4,000.00		$4,830.00
1-36" Gates, 7.5' tall, standard, Waterman	1750.00	1	1,750.00		$2,113.13
2-36" Gates, 12' tall, special ordered, Waterman	2100.00	2	4,200.00		$5,071.50
Standbox Grate	500.00	1	500.00		$603.75
			90,583.60		
Contingency (15%)		1.15		104,171.14	
Administrative Overhead (5%)		1.05	TOTAL	109,379.70	
Miscellaneous					
No Items					
			0.00		
Contingency (15%)		1.15		0.00	
Administrative Overhead (5%)		1.05	TOTAL	0.00	
			Subtotal	164,015.76	
Engineering Services (5%)		0.05		8,200.79	$8,200.79
			TOTAL	172,216.55	$172,216.54

RESOLUTION AUTHORIZING PARTICIPATION IN THE WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECT
GRANT PROGRAM FOR FY 2020, FOA NO. BOR-DO-18-F009

LARKIN LATERAL PIPELINE PROJECT

WHEREAS, the Yuma County Water Users' Association (Association), a non-profit corporation established under the laws of the Territory of Arizona and currently established under the laws of the State of Arizona, is organized and operated exclusively for the promotion of social welfare by providing, distributing, furnishing and improving the supply of water to the Valley Division of the Yuma project, and

WHEREAS, the Board of Governors (BOG) of the Association has an approved Water Conservation Plan and wants to implement improvements to its delivery system, and

WHEREAS, the Association wishes to actively participate in the United States Department of Interior WaterSmart Grant Program, Small-Scale Efficiency Project, FOA No. BOR-DO-18-F009 for the purpose of pipelining the Bureau of Reclamation Larkin Lateral, located in south Yuma County in the state of Arizona, is on the border of the City of San Luis, AZ and County 21st-1/2 Street, and

WHEREAS, the benefits of pipelining open canals includes eliminating evaporative and seepage losses, increased delivery efficiency and reliability, and significantly reduced operation and maintenance costs which is the priority of the Association's Water Conservation Plan, and

THEREFORE, BE IT RESOLVED that the BOG of the Association authorizes an application to the Bureau of Reclamation WaterSmart Program for the amount up to $172,216 for pipelining an open lateral and commits the Association match of $75,000 of in-kind funding as specified in the funding plan. The Association will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement and authorizes its Manager, Tom Davis, to sign such agreements on behalf of the Association.

ADOPTED BY THE BOARD OF GOVERNORS OF THE YUMA COUNTY WATER USERS ASSOCIATION THIS 2ND DAY OF MARCH, 2020.

Signed _____
James W. Cuming, President