

Request for Proposal from the Department of Interior, Bureau of Reclamation

Department of the Interior, Bureau of Reclamation, WaterSMART Grants

Unit B Irrigation & Drainage District (Unit B)

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Project: Pipeline Replacement
DUNS# 092672278

Water Conservation Program

BOR-DO-18-F009

CFDA 15.507

Application Due Date: July 31, 2018

Table of Contents

<i>Content</i>	<i>Page Number</i>
SF 424 Cover Page	Cover and No Page Number
SF 424 Budget Page (SF 424 C – Budget with Construction)	No Page Number
Assurances (SF 424 D – Assurances for Construction)	No Page Number
Title Page	Page 1
Table of Contents	Page 2
Executive Summary	Page 3
Program Narrative: Project Description <i>(6 pages total including Executive Summary)</i>	Pages 3 - 8
Program Narrative: <i>Background Data Narrative</i>	<i>Page 3</i>
Program Narrative: <i>Water Conservation Program Benefits</i>	<i>Page 5</i>
Required Forms – Budget, Budget Narrative & Benefits	Pages 9 - 13
Budget, Funding Plan & Budget Narrative	<i>Pages 9 - 12</i>
Application Form - Benefits	<i>Page 13-14</i>
Other Attachments	Appendix A & B
Unit B Geographic Map for the Project	Appendix A
Letters of Commitment/Support	Appendix B

Executive Summary

This Application by the Unit B Irrigation Drainage District (Unit B) describes the anticipated costs and implementation for the proposed project to improve efficient water management and conservation measures within the geographic area covered by the Unit B. The proposed project will allow Unit B to expedite efforts to implement a plan for more efficient water management/conservation with an emphasis on outdoor water management practices. The Unit B plan is specific to installing an updated and efficient water delivery pipeline for the Unit B land owners.

The project represents a 50% share for the Bureau of Reclamation and 50% for Unit B Irrigation District. The total project cost is estimated at \$178,416.00 with a cost distribution of \$75,000.00 for Unit B and \$75,000.00 for the Bureau of Reclamation.

Program Narrative Project Description:

Implementation of Efficiency Measures

A: Association with Reclamation Project Water Supplies

Location & Other Information

Unit B began in 1917 and was known at that time as the Yuma Auxiliary Project. When operations began, water was received through the Yuma Valley Water Users Canal via a pumping plant operated by Unit B and located geographically just South of County 14th Street and west of Ave. "A" in Yuma County Arizona. The first water was delivered was in 1922.

In 1952, Unit B began receiving water through the Gila Gravity Main Canal via the Yuma Mesa Irrigation District. In 1955, extensive work was done in coordination with the Bureau of Reclamation to begin upgrades for Unit B. These upgrades were made possible from a loan created by Contract No. 14-06-300-44 with the Bureau of Reclamation. The loan was paid in full in August of 2011 by a Contract between the Gila Gravity Canal and the City of Yuma, the Contract No. 4-07-30-WOO55 Article 13 (a) (1) through Article (4). Unit B must full fill their water conservation program under there RRA agreement from Contract No. 14-06-300-44 until the year 2022.

Unit B would replace two 18-inch pipelines that run parallel of each other. They would be replaced with one 30-inch PS-46 (PVC) pipeline which would deliver higher cubic feet per second, and would help Unit B with a lot of maintenance by just maintaining one pipeline.

Unit B is a small water district in the Yuma area with very limited resources. Because of budget constraints, upgrades or infrastructure improvements to Unit B's outdated delivery systems

have been extremely difficult. However, Unit B now can contribute its cost share to this vital project. With the help of the Bureau of Reclamation, this project would allow Unit B to ensure continued efficient delivery of water to land owners via upgraded systems designed for maximum conservation.

Project Goal:

- To replace Unit B's outdated water supply pipelines with PVC, also larger lines to increase the cubic feet per second to insure the farmer with more effective irrigation and save water at the same time.

Unit B is under the Reclamation Reform Act (RRA) requirements until 2022. The Unit B 2017-2022 Water Conservation Plan has been drafted and was approved by the Unit B Board of Directors and a copy was delivered to Bureau of Reclamation at the Yuma Office. Unit B is actively encouraging land owners to upgrade to their current farm delivery systems in order to utilize open ditches—allowing for more efficient and effective means of irrigation. Unit B's original pipelines (constructed in the 1920s-1930s) were designed for 6 to 7 cubic feet per second, however, open ditches will allow landowners to receive 12 to 15 cubic feet per second—requiring less time and less water to irrigate the same acreage. Additionally, Unit B has been installing flumes through a coordinated effort with the Soil Conservation District and the Bureau of Reclamation for accurate measurement of water usage. Unit B has also raised its Irrigation Stands to the level of their Main ditch, using the elevation to increase water flow to the users.

C: Reasonableness of Cost

The costs necessary for the project have been determined through identification of a project that has reasonable scope and price given Unit B's workforce, as well as the resources available for the cost share and implementation. After careful consideration of Unit B's resources, and the timelines available to implement these improvements, Unit B feels that this project would be the most cost-effective and offer the greatest practical impact on water conservation within the District. Without the assistance of this grant award, Unit B's own measures to achieve these outcomes would be delayed significantly. Costs reflected are the most basic of costs necessary to achieve replacement of pipes.

Information regarding Water Conservation Program Benefits

Plastic PVC pipe has a lower friction loss than concrete pipe because of the smoother surface inside the pipe. The current concrete pipe in use by Unit B was installed in the late 1920s to early 1930s. The infrastructure of the existing concrete pipe does not include the use of gaskets to join two pipes together, thus requiring grout in between the joints. This use of grout has caused significant cracking and leaking within the water delivery system for Unit B. Changes in weather conditions also cause contracting and expanding of the concrete pipe, causing additional damage to the existing system.

The use of PVC will allow for improved gaskets, will decrease flow friction, and will eliminate the existing water efficiency losses and leak issues resulting from cracked concrete structures.

Examples of the benefits of the project include:

- It is estimated that Unit B will save approximately 400-acre feet of water per year, by increasing the cubic feet per second from 7 cubic feet per second up to 12 cubic feet per second.
- The cost savings to land owners would be improved dramatically. Currently temperatures reach well over 100 degrees in the summer and often 115 degrees or higher. The efficiency improvements will allow for a timelier delivery of water to land owners and reduced water supply interruption caused by system repairs due to leaks. This will allow more consistent water delivery and improve the ability for land owners to schedule water with more confidence. (Leaks cause delays in water delivery because the line must be drained and refilled. It is estimated that Unit B loses approximately 2-acre feet of water each time a line needs to be drained to fix a leak).
- Unit B's operational costs would drop by reducing the number of leaks that continually need to be fixed (reducing the ability to address other on-going operations and maintenance efforts). Fixing leaks often results in the District having to utilize overtime pay for employees to ensure the pipeline is fixed in a timely manner.

Unit B Irrigation District would not be able to complete this project without the assistance offered through this grant opportunity. Unit B Irrigation District is a very small district consisting of only 3401 acres, including 100 acres of Warren Act Lands. The District currently has some of the highest water rates to landowners in the Yuma area because Unit B is the farthest away from Imperial Dam. The current estimated cost of water to Unit B before receiving any water in Unit B main is approximately between \$5.50 to \$5.75 per acre foot. By Reclamation law, Unit B is unable to expand its boundaries to include new lands, because landowners within Unit B District hold Water Right Certificates. To increase District's revenue through reassignment of those Certificates is next to impossible.

Increasing water rates to pay for this complete infrastructure overhaul would not be possible as the burden for land owners would be prohibitive. Unit B does not have the resources necessary for the entire project; however, the cost share represented in this project does make this important project possible for the District.

Undertaking a project of this nature without the federal resources would delay a project of this nature for many years and an implementation goal date would be difficult to set. With the federal resources, this project becomes possible and has significant immediate impact.

Unit B Irrigation District agrees to participate in a 50% cost for Unit B and a 50% for the Bureau of Reclamation. In analyzing the overall costs of the project and the higher cost of materials over labor, the decision would be to provide matching funds throughout the project rather than a labor in-kind project.

The Unit B Irrigation District would utilize the existing operating budget for necessary materials and staffing time to ensure completion of the project and obligation of the required cost share for the project.

As part of the day-to-day management of Unit B, a conscientious effort is placed on approaching work and maintenance for the District with a cautious and careful approach to ensure the least amount of disruption to the existing environment as possible. With specific attention to the following elements, Unit B will execute implementation of the proposed project with attention to any potential unforeseen issues.

Surrounding Environment

- Through this project, the old pipeline would be excavated and replaced with new pipeline that is stronger, safer, and less prone to damage. Currently the Bureau of Reclamation has a 40-foot easement where this pipeline will be replaced.

Endangered or Threatened Species

- Within the Unit B Irrigation District there are no restricted areas and no identified threatened or endangered species. As such, the project will provide no risk or danger to any protected species.

Wetlands

- No wetlands are located in the Unit B boundaries.

Buildings or Structures on the National Registry or Historic Places

- No buildings or structures that are eligible or currently part of the National Registry or Historical Places will be impacted through the proposed project.

- The Unit B area does not have any live or current archeological sites and the proposed project will not interfere with any archeological past or present projects.

Unit B Irrigation District has a two week water outage every year to do maintenance on its structures and this upgrade work would be executed at the same time of the regularly scheduled outage. Unit B believes this planning and implementation of the project would provide the least amount of inconvenience possible to the land owners that receive the water through the irrigation pipeline. Due to the age and condition of the existing pipeline it is often necessary to fix leaks or other problems by draining water from the pipeline to ensure that no water ends up on roadways or otherwise causes traffic hazards and additional hardships to land owners in the Unit B District.

Proposed Project Implementation Plan

Project Tasks	Person Responsible	Date to be Completed	Support Documentation (to assist with documentation of completion of project tasks)
<ul style="list-style-type: none"> • Schedule Water Outage for the Unit B District 	<ul style="list-style-type: none"> • Manager, Bryan Knight 	<ul style="list-style-type: none"> • August 1, 2018 	<ul style="list-style-type: none"> • Approval of the Unit B Board for the scheduled water outage dates • Notification to land owners of water outage • Notification to staff of the water outage dates and plan for the project
<ul style="list-style-type: none"> • Identify equipment needed to be ordered and scheduled 	<ul style="list-style-type: none"> • Manager, Bryan Knight • Staff Executive Lorenia Foster 	<ul style="list-style-type: none"> • August 1 - 30, 2018 	<ul style="list-style-type: none"> • All equipment will be listed and the necessary supplies will be compiled in a basic project spreadsheet. • The spreadsheet will list the date the order is needed, the cost and the essential information to complete the order. • Information will be presented to the Unit B Board to finalize the approach determined for purchase.
<ul style="list-style-type: none"> • Execution of orders of materials and equipment 	<ul style="list-style-type: none"> • Manager, Bryan Knight • Staff Executive Lorenia Foster 	<ul style="list-style-type: none"> • September 30, 2018 	<ul style="list-style-type: none"> • Approval for purchases according to Unit B policies (Board Approval as needed based on cost) • Standard Unit B purchasing and accounts payable processes and procedures as well as paperwork
<ul style="list-style-type: none"> • Delivery & Receipt of all needed Project Equipment and Materials 	<ul style="list-style-type: none"> • Manage, Bryan Knight • Unit B Staff 	<ul style="list-style-type: none"> • November 17, 2018 	<ul style="list-style-type: none"> • Receipt of Equipment and Materials on site • Standard purchasing and accounts payables paperwork
<ul style="list-style-type: none"> • Removal of Old Pipeline 	<ul style="list-style-type: none"> • Manager, Bryan Knight • Unit B Staff 	<ul style="list-style-type: none"> • November 30th – December 30th 2018 	<ul style="list-style-type: none"> • The complete removal of old pipeline according to the Unit B Map included at the end of the application
<ul style="list-style-type: none"> • Installation of New 		<ul style="list-style-type: none"> • January 1st – January 	<ul style="list-style-type: none"> • The complete installation of the new

Pipeline	<ul style="list-style-type: none"> • Brain Knight • Unit B Staff 	30 th 2019	pipeline replacing the old pipeline
<ul style="list-style-type: none"> • Testing of the New Pipeline 	<ul style="list-style-type: none"> • Bryan Knight • Unit B Staff 	<ul style="list-style-type: none"> • February 1st – February 30th 2019 	<ul style="list-style-type: none"> • Final days of water outage to test the pipeline to make sure no leaks in the new pipeline are identified.
<ul style="list-style-type: none"> • Repair and cleanup of project construction and maintenance of the project 	<ul style="list-style-type: none"> • Bryan Knight • Unit B Staff 	<ul style="list-style-type: none"> • March 1st – June 30 2019 	<ul style="list-style-type: none"> • Final clean up and maintenance of construction and maintenance of the project • Review of the project replacement areas to make sure the high standards and expectations of appearance and quality workmanship are met
<ul style="list-style-type: none"> • Project Completed 	<ul style="list-style-type: none"> • Bryan Knight • Unit B Staff • Unit B Board 	<ul style="list-style-type: none"> • July 1st – Oct 30 2019 	<ul style="list-style-type: none"> • All paper completed and project closed.
<ul style="list-style-type: none"> • Compliance with Federal Required Reporting 	<ul style="list-style-type: none"> • Bryan Knight • Staff Executive Lorenia Foster 	<ul style="list-style-type: none"> • On-going 	<ul style="list-style-type: none"> • Timely submission of reports following required format & template for programmatic and financial information

Unit B will monitor the project through the final construction completion, however, the on-going monitoring of the efficiency and improvements resulting from the project will be a priority to the District long after initial completion of the project.

The Project Implementation Plan will provide a general outline that will help monitor the execution of required project tasks and ensure completion in a timely manner. Additionally, the long-term effects of a more efficient pipeline infrastructure will be monitored to ensure continued efficient water delivery to Unit B land owners.

Budget

Item Description	Computation		Reclamation Funding	Other Funding	Recipient (Unit B) Funding	Total
	S/Unit and Unit	Quantity				
Salaries & Wages	Rate	Hours				
Unit B Crew members (1)	\$27.50	120	\$1,650.00	\$0	\$1,650.00	\$3,300.00
Equipment Operator	\$37.50	120	\$2,250.00	\$0	\$2,250.00	\$4,500.00
Crew Supervisor	\$30.90	200	\$3,090.00	\$0	\$3,090.00	\$6,180.00
Total			\$6,990.00	\$0	\$6,990.00	\$13,980.00
Fringe Benefits						
Social Security, Med., Retirement, Workmen's comp., Health and Dental insurance.			\$2,097.00	\$0	\$2,097.00	\$4,194.00
Travel						
None						
Equipment	Rate	Hours				
580 Backhoe	\$35.00	80	\$1,400.00	\$0	\$1,400.00	\$2,800.00
580 Backhoe with breaker (rental)	\$55.70	80	\$2,228.00	\$0	\$2,228.00	\$4,456.00
Fork Lift (rental)	\$35.00	80	\$1,400.00	\$0	\$1,400.00	\$2,800.00
320 Excavator (rental)	\$115.00	80	\$4,600.00	\$0	\$4,600.00	\$9,200.00
Dump Truck and loader for old concrete removal (rental)	\$60.00	80	\$2,400.00	\$0	\$2,400.00	\$4,800.00
225 gallons Diesel Fuel (off-road rate)	\$3.20		\$360.00		\$360.00	\$720.00
Total			\$14,485.00	\$0	\$14,485.00	\$28,970.00

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Supplies/Materials	Rate	Unit				
(2) couplers	\$1,000.00	Each	\$2,000.00	\$0	\$2,000.00	\$4,000.00
30" PVC Pipe	\$59.17	1200 feet	\$35,502.00	\$0	\$35,502.00	\$71,004.00
(2) irrigation stand with Waterman C10 gates	\$25,000.00		\$16,023.00	\$0	\$16,023.00	\$32,046.00
Total			\$53,525.00	\$0	\$53,525.00	\$107,050.00
Contractor/Construction						
None						
Other Operating						
None						
Total Direct						
Total Direct			\$75,000.00	\$0	\$75,000	\$150,000.00
Indirect						
At this time Unit B does not have a federally approved Indirect Cost Rate to apply to this project.			\$0	\$0	\$0	\$0
Total Project Activity Costs			\$75,000.00	\$0	\$75,000.00	\$150,000.00

Budget Narrative

Unit B Procurement

The Unit B Irrigation & Drainage District is a small district without a large general operating budget. Its relatively limited reserve funds allow only for determining the most cost efficient and affordable methods to purchase equipment and infrastructure related items.

The staff of Unit B identified typical supplies of the equipment and materials that would be necessary to complete this project related to the preparation and submission of this application. Phone calls, internet and emails were utilized to identify approximate costs for items represented in this application. We believe these costs are as accurate as possible given the current standard costs; however, if cost savings are identified an analysis of any unanticipated higher costs were incurred as well as a desire to not expend more resources than necessary to complete the project in a cost efficient and timely manner. This attention to cost is beneficial to Unit B, Unit B Land Owners and the Bureau of Reclamation.

Labor

Costs of labor involve the costs estimates to complete the project for Unit B using current employee time and effort for the project.

Staffing

It is estimated that basic manual labor to complete the project will require 1 employees for 120 hours at \$27.50 per hour for a total cost of \$3,330.00 with Unit B paying 50% and the Bureau of Reclamation paying for 50% of Staffing

Estimated supervision time and labor is for 200 hours to complete the project at \$30.90 per hour for a total cost of \$6,180.00 also with 50% for Unit B and 50% for the Bureau of Reclamation.

Fringe Benefits

These rates that are shown for all fringe benefits are from category (A) and only for the percentage of time devoted to the project.

Employers Social Security	\$13,980.00 X 6.2%	\$ 866.76
Medicare Ins.	\$13,980.00 X 1.45%	\$ 202.71
Retirement fund	\$13,980.00 X 4.45%	\$ 622.11
Workmen's Comp.	\$13980.00 X 4.9%	\$ 685.02
Health Insurance	\$13,980.00 X 13%	\$ 1817.40
Total		\$ 4,194.00

Labor costs for Backhoe, Excavator, and Forklift Operation & Dump Truck Use

It is estimated that 80 hours labor will be necessary for the operation of the Excavator, 80 hours Forklift and 80 hours Backhoe with breaker to complete the project. The backhoe with the 80 hours will also be used to clean up site. The reason the operator time does not match the total time estimated for use of the equipment is that some operation will be completed through employees or supervisor time. Specialized needs that require certain experience and expertise of operation of this large equipment is estimated to be a total of 120 hours to complete the project with quality.

Funding Plan

Unit B currently has budgeted resources related to this project through project staffing, and the equipment and materials costs will be utilized through the District's annual budget approved by the Board of Directors. The current Unit B Budget has \$75,000.00 estimated in staffing and equipment/materials costs to cover the matching share needed for the project.

Attached please find Unit B Irrigation and Drainage District Official Resolution of support statement from the Board President related to the resources identified to support the Unit B portion of the project costs.

Benefits

WATER CONSERVATION

Applicant's Name Unit B Irrigation & Drainage District Date July 31, 2018

Please check the appropriate water management benefits for agricultural or urban measures that you anticipate addressing in your proposal. Where available, please provide an estimate of the benefit to units (i.e. Acre Feet, Dollars, and Percentages) and backup for calculations, if available. **It is essential to establish benefits of the Program. Please help us with your best estimate for each benefit (direct and indirect) that applies.**

- Reduces Leaks and Seepage 20 Acre Feet/Year
- Reduces System Spills _____ Acre Feet/Year
- Makes More Water Available/Saves Water 420 Acre Feet/Year
- Reduces Operation Costs _____ \$ /Year
- Reduces Energy Costs _____ \$ /Year
- Reduces Waste Treatment Costs _____ \$ /Year
- Improves Crop Yield _____ Percent/Year
- Reduces On-Farm Costs _____ \$ /Year
- Reduces Per Capita Use _____ Gallons/Capita/Day
- Provides Technical Training _____ # of People
- Provides Water Conservation Education _____ # of People
- Improves Water Supply Reliability 75 Frequency (Years)*
 * Estimate of how often the improvement will occur (i.e. 1 = each year)
- Delays Construction of New Supplies _____ Years
- Reduces Drainage/Erosion _____ Tons
- Improves Water Quality _____ % reduction of _____

___ Enhances Aquatic/Riparian Habitat

Describe: _____

___ Protects/Assists endangered species efforts

Describe: _____