

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

**Department of the Interior, Bureau of Reclamation, Yuma Area Office**

## **Unit B Irrigation & Drainage District (Unit B)**

**15875 South Ave. A**

**Somerton, Arizona 85350**

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**Project:** Pipeline Replacement  
**DUNS#** 092672278

### **WaterSMARTS Grant: Small-Scale Water Efficiency Projects for Fiscal Year 2017**

**BOR-DO-17-F011**

**CFDA 15.507**

**Application Due Date: January 13, 2017**

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## 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 \$142,954.00 with a cost distribution of \$71,477.00 for Unit B and \$71,477.00 for the Bureau of Reclamation.

## Program Narrative Project Description:

### **E.1.1. Evaluation Criterion A—Planning Efforts Supporting the Project (35 points)** **Location & Other Information**

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 also 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. As a result of budget constraints, upgrades or infrastructure improvements to Unit B's outdated delivery systems have been extremely difficult. However, Unit B now has the ability to 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

#### 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- To replace Unit B's outdated water supply pipelines with PVC, also larger lines to increase the cubic feet per second to insure the farmer with more effective irrigation and save water at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. As outlined in Unit B's capital improvement plan.

Unit B is under the Reclamation Reform Act (RRA) requirements. The existing Unit B 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.

### **E.1.2. Evaluation Criterion B—Project Benefits (35 points)**

#### Information regarding Project 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 more timely 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 deliver because the line has to 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.

At this time 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. In the year of 2017 the estimated cost of water to Unit B before received any water in Unit B main was 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.

At this time, 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 at this time. 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.

#### Archeological Sites

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

### **E.1.3. Evaluation Criterion C—Project Implementation (15 points)**

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**

<b>Project Tasks</b>	<b>Person Responsible</b>	<b>Date to be Completed</b>	<b>Support Documentation</b> (to assist with documentation of completion of project tasks)
<ul style="list-style-type: none"> <li>Schedule Water Outage for the Unit B District</li> </ul>	<ul style="list-style-type: none"> <li>Manager, Bryan Knight</li> </ul>	<ul style="list-style-type: none"> <li>August 1, 2017</li> </ul>	<ul style="list-style-type: none"> <li>Approval of the Unit B Board for the scheduled water outage dates</li> <li>Notification to land owners of water outage</li> <li>Notification to staff of the water outage dates and plan for the project</li> </ul>
<ul style="list-style-type: none"> <li>Identify equipment needed to be ordered and scheduled</li> </ul>	<ul style="list-style-type: none"> <li>Manager, Bryan Knight</li> <li>Staff Executive Lorenia Foster</li> </ul>	<ul style="list-style-type: none"> <li>August 1 - 30, 2017</li> </ul>	<ul style="list-style-type: none"> <li>All equipment will be listed and the necessary supplies will be compiled in a basic project spreadsheet.</li> <li>The spreadsheet will list the date the order is needed, the cost and the essential information to complete the order.</li> <li>Information will be presented to the Unit B Board to finalize the approach determined for purchase.</li> </ul>
<ul style="list-style-type: none"> <li>Execution of orders of materials and equipment</li> </ul>	<ul style="list-style-type: none"> <li>Manager, Bryan Knight</li> <li>Staff Executive Lorenia Foster</li> </ul>	<ul style="list-style-type: none"> <li>September 30, 2017</li> </ul>	<ul style="list-style-type: none"> <li>Approval for purchases according to Unit B policies (Board Approval as needed based on cost)</li> <li>Standard Unit B purchasing and accounts payable processes and procedures as well as paperwork</li> </ul>
<ul style="list-style-type: none"> <li>Delivery &amp; Receipt of all needed Project Equipment and Materials</li> </ul>	<ul style="list-style-type: none"> <li>Manager, Bryan Knight</li> <li>Unit B Staff</li> </ul>	<ul style="list-style-type: none"> <li>November 17, 2017</li> </ul>	<ul style="list-style-type: none"> <li>Receipt of Equipment and Materials on site</li> <li>Standard purchasing and accounts payables paperwork</li> </ul>
<ul style="list-style-type: none"> <li>Removal of Old Pipeline</li> </ul>	<ul style="list-style-type: none"> <li>Manager, Bryan Knight</li> <li>Unit B Staff</li> </ul>	<ul style="list-style-type: none"> <li>November 30<sup>th</sup> – December 30<sup>th</sup> 2017</li> </ul>	<ul style="list-style-type: none"> <li>The complete removal of old pipeline according to the Unit B Map included at the end of the application</li> </ul>
<ul style="list-style-type: none"> <li>Installation of New Pipeline</li> </ul>	<ul style="list-style-type: none"> <li>Brain Knight</li> <li>Unit B Staff</li> </ul>	<ul style="list-style-type: none"> <li>January 1<sup>st</sup> – January 30<sup>th</sup> 2018</li> </ul>	<ul style="list-style-type: none"> <li>The complete installation of the new pipeline replacing the old pipeline</li> </ul>
<ul style="list-style-type: none"> <li>Testing of the New Pipeline</li> </ul>	<ul style="list-style-type: none"> <li>Bryan Knight</li> <li>Unit B Staff</li> </ul>	<ul style="list-style-type: none"> <li>February 1<sup>st</sup> – February 30<sup>th</sup> 2018</li> </ul>	<ul style="list-style-type: none"> <li>Final days of water outage to test the pipeline to make sure no leaks in the new pipeline are identified.</li> </ul>
<ul style="list-style-type: none"> <li>Repair and cleanup of project construction and maintenance of the project</li> </ul>	<ul style="list-style-type: none"> <li>Bryan Knight</li> <li>Unit B Staff</li> </ul>	<ul style="list-style-type: none"> <li>March 1<sup>st</sup> – March 30<sup>th</sup> 2018</li> </ul>	<ul style="list-style-type: none"> <li>Final clean up and maintenance of construction and maintenance of the project</li> <li>Review of the project replacement areas to make sure the high standards and expectations of appearance and quality workmanship are met</li> </ul>
<ul style="list-style-type: none"> <li>Project Completed</li> </ul>	<ul style="list-style-type: none"> <li>Bryan Knight</li> <li>Unit B Staff</li> <li>Unit B Board</li> </ul>	<ul style="list-style-type: none"> <li>April 1<sup>st</sup> – June 30 2018</li> </ul>	<ul style="list-style-type: none"> <li>All paper completed and project closed.</li> </ul>
<ul style="list-style-type: none"> <li>Compliance with Federal Required</li> </ul>	<ul style="list-style-type: none"> <li>Bryan Knight</li> <li>Staff Executive</li> </ul>	<ul style="list-style-type: none"> <li>On-going</li> </ul>	<ul style="list-style-type: none"> <li>Timely submission of reports following required format &amp; template</li> </ul>

Reporting	Lorenia Foster		for programmatic and financial information
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**E.1.3. Evaluation Criterion C—Project Implementation (15 points)**

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.



**Benefits**

**WATER CONSERVATION FIELD SERVICES PROGRAM  
ACTIVITY/PROJECT BENEFITS**

Applicant's Name Unit B Irrigation & Drainage District Date January 12, 2017

- 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: \_\_\_\_\_

#### **E.1.4. Evaluation Criterion D—Nexus to Reclamation (15 points)**

Unit B began in 1917 and was known at that time as the Yuma Auxiliary Project, a Reclamation 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 14<sup>th</sup> 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, a Reclamation Project 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 has to full fill their water conservation program under there RRA agreement from Contract No. 14-06-300-44 until the year 2016.

Unit B receives from 25 to 30 thousand acre feet from Reclamation project water each year. The water will continue to remain where the Reclamation project is located (Unit B Irrigation District). The project will improve both the Reclamations facility and Unit B Irrigation District.