

Border Environment Cooperation Commission Bard Water District Water Conservation District

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General Criteria

1.1 Project Type

The project falls into the BECC's priority area of water conservation. The project consists of canal lining in the Bard Water District service area.

1.2 Project Location

Bard Water District (BWD) operates and maintains the Reservation Division of the U.S. Bureau of Reclamation's Yuma Project, located in the Bard Valley of southeastern California. The Yuma Project is one of the USBR's oldest projects, being constructed in the first decade of the 20th century. The 14,676 acres of irrigated farm land in Bard Valley include 7556 acres of land on the Quechan Indian Reservation and 7120 acres of private land.

The Reservation Main Canal Improvement Project consists of concrete or pipe lining and rehabilitation of approximately 19.8 miles of existing unlined canals as well as replacement of deteriorated structures. The lining of the canal laterals will significantly conserve water by reducing water loss by seepage. An additional 11.1 miles of unlined canals are to be lined as a separate project financed by the US Bureau of Reclamation.

The Project is located in Imperial County, California (about 4 miles from Winterhaven, California) and is within 10 miles of the Mexican Border.

The need for the project is based on conserving water through the replacement of unlined canals with concrete lined canals, which will reduce seepage losses, and by replacement of irrigation structures which will increase water efficiencies and service to water users. The canals to be improved have been selected based on evaluations of a combination of their existing conditions, maintenance needs, and operational constraints.

Project beneficiaries are Bard Water District members (lands within the Reservation Division of the U.S. Bureau of Reclamation's (USBR) Yuma Project) and the Fort Yuma Quechan Indian Tribe

1.3 Project Description and Work Tasks

The Reservation Main Canal Improvement Project will be designed and constructed within 36 months of certification by BECC. Design is already under way, with 60% complete plans for 2004 projects and 30% plans for 2005 and 2006 projects to be submitted prior to certification. Final design and contract documents for each phase will be completed prior to construction of each year's projects.

The construction of the Project will be completed by fall of 2006 within 36 months from certification. The project is divided into three one year segments (2004, 2005, and 2006). Year 3 construction will be funded entirely by the USBR. However, for certification purposes, only the projects identified in Years 1 and 2 will be considered with a total value of \$8 million dollars. The canal improvements for each of these years are as follows.

Year 1 (2004) consists of the improvement of:

Reservation Main Canal (RC-4)

Supai Canal (SU-2)

Supai Pipeline (SU-1)
Reservation Main Canal (RC-5)
Pima Canal (PI-1)
Pueblo Canal (PU-1)
Reservation Main Canal (RC-6)
Navajo Canal (NA-1)
Molley Canal (ML-1)
Hoopa Canal (HP-1)
Reservation Main Canal (RC-7)
Klamath Canal (KL-1)
Maricopa Canal (MA-1)

Year 1 totals 10.6 miles of newly lined canal and the replacement of 52 turnouts and 14 checks.

Year 2 (2005) consists of the improvement of:

Reservation Main Canal (RC-2)
Reservation Main Canal (RC-3)
Papago Canal (PA-1)
Bannock (BN-1)
Bannock (BN-2)
Supai Pipeline (SU-3)
Pueblo Pipeline (PU-2)
Waco Canal (WA-2)
Moqui Canal (MO-1)
Moqui Canal (MO-2)
Moqui Canal (MO-3)
Moqui Canal (MO-4)
Moqui Canal (MO-5)
Vomicil Canal (VO-1)
Cocopah Canal (CO-2)
Cocopah Canal (CO-3)
Cocopah Canal (CO-4)

Year 2 totals 9.2 miles of newly lined canal and the replacement of 47 turnouts and 14 checks.

The following information for the Year 3 (2006) canal improvements is for information only and will be funded separately by the USBR.

Year 3 (2006) consists of the improvement of:

Head of the Reservation Main Canal (RC-1)
Osage Canal (OS-1)
Acoma (AC-1)
Acoma (AC-2)
Waco Pipeline (WA-1)
Reservation Main Canal (RC-8)
Titsink Canal (TI-1)
Yaqui Canal (YA-1)
Pontiac Canal (PO-1)
Pequod Canal (PQ-1)
Kawia Canal (KW-1)
Mohave Canal (MJ-1)
Mohave Canal (MJ-2)
Mohave Canal (MJ-3)
Mohave Canal (MJ-4)

Year 3 has a total of 11.1 of miles newly lined canal and the replacement of 33 turnouts and 25 checks.

Description of the Sponsor

The Bard Water District is a California water district, incorporated under the laws of the State of California. It has been contracted with the USBR for the repayment, operation and maintenance of the Reservation Division of the USBR Yuma Project. BWD has an elected board of governors consisting of 5 members. BWD employs approximately 15 employees.

1.4 Conformance with International Treaties and Agreements

A signed statement from Bard Water District will be submitted stating that the project conforms to International Treaties. The most pertinent treaty is the 1944 Mexican Treaty and the subsequent Minutes dealing with the Colorado River. This project has the potential to eliminate groundwater drainage problems (caused by the existing unlined canal system) and thus improve the quality of flows in the Colorado River, which will assist in compliance with the water quality requirements of the Treaty.

Human Health and Environment

2.1 Human Health and Environmental Need

The Reservation Main Canal Improvement Project will have significant water savings. An estimate of the water savings, based on the findings in the study "Irrigation District Efficiencies and Potential Water Savings in the Lower Rio Grande Valley of Texas".

In general, irrigation water savings are achieved in two ways - (1) elimination of transmission losses (which will be achieved on this project through concrete lining of existing dirt canals) and (2) providing water flows at the right quantity and at the right time.

The estimate for water savings from seepage is 5,911 Acre-Feet per year. Significant additional water savings will also occur due to the overall greater delivery efficiencies of the concrete lined canals, the ability to completely drain the canals, and improved speed of irrigation, but are not easily quantified.

2.2 Environmental Assessment.

A Notice of Exemption has been filed with Imperial County. No environmental assessment is needed as the project qualifies for a categorical exemption under the California Environmental Quality Act (CEQA) Class 2- Replacement or Reconstruction. The project will be constructed entirely within existing canal rights-of-way and will not include the acquisition of any new lands for rights-of-way.

The primary impact of this project will be a reduction of seepage of irrigation from the canals to groundwater. While this reduction is significant in water conserved, the overall impact on the groundwater levels in the Bard Water District will be negligible. The area has an excess of groundwater, caused by proximity to the Colorado River and from farming activities. Any effect, of the Reservation Main Canal Improvement Project on the reduction in seepage losses from canals would be limited to a reduction in this groundwater pumping by an amount equal to the amount of reduction in seepage.

2.3 Compliance with Applicable Environmental and Cultural Resource Laws and Regulations

To date, BWD has advised the USBR and has presented the plan at a regularly scheduled Board of Governors meeting. The USDA Natural Resources Conservation Service (NRCS) and private landowners will also be involved in the planning process. Formal presentations will be made to local agencies, potentially including the NRCS, the USBR, and the Quechan Tribal Council during October 2003.

Technical Feasibility

3.1 Appropriate Technology

The Reservation Main Canal Improvement Project consists of canals selected based on evaluations of a combination of their existing conditions, maintenance needs, and operational constraints.

The two basic alternatives for improving the water use efficiency of earth-lined canals are to either concrete line or pipeline the canals. Other alternatives such as lining with HDPE or other synthetic liners may work well for rehabilitating existing concrete lined canals but have not yet been proven for long term duration for use directly in earth lined canals. Based on a cost comparison of pipelining versus concrete lining, concrete lining is much more effective, with the complete costs of concrete lining typically about the same for only the purchase (and not installation of) equivalent sized pipe. Therefore, the great majority of the improvements for Bard Water District have been identified as concrete lining projects with the exception of the completion of the pipelining of the Supai (SU-3) and Pueblo Canals and the pipelining of the high public use area of the Supai (SU-1) and Waco Canals. The continuation of the Supai (SU-3) and Pueblo pipeline will reduce the demand of the Reservation Main Canal and allow for greater flow downstream. The pipelining of the Supai (SU-1) and Waco Canals will increase the system safety.

Detailed plans and specifications are being developed for the projects to be constructed under the Reservation Main Canal Improvement Project. Enclosed herewith for projects are canal summary plan sheets for each of the canals to be improved. These sheets provide details of the canal alignments provide typical canal cross sections and provide information on structure replacements and modifications.

By October 24, 2003, Bard Water District will submit to BECC 60 percent complete design documents for the following canals scheduled for construction in 2004:

2004 Improvements

*Reservation Main Canal (RC-4)
Supai Canal (SU-2)
Supai Pipeline (SU-1)
Reservation Main Canal (RC-5)
Pima Canal (PI-1)
Pueblo Canal (PU-1)
Reservation Main Canal (RC-6)
Navajo Canal (NA-1)
Molley Canal (ML-1)
Hoopa Canal (HP-1)
Reservation Main Canal (RC-7)
Klamath Canal (KL-1)
Maricopa Canal (MA-1)*

By October 24, 2003, Bard Water District will also submit to BECC 30 percent complete design documents for the following canals scheduled for construction in 2005 and 2006:

2005 Improvements

*Reservation Main Canal (RC-2)
Reservation Main Canal (RC-3)
Papago Canal (PA-1)
Bannock (BN-1)
Bannock (BN-2)
Supai Pipeline (SU-3)
Pueblo Pipeline (PU-2)
Waco Canal (WA-2)
Moqui Canal (MO-1)
Moqui Canal (MO-2)
Moqui Canal (MO-3)
Moqui Canal (MO-4)
Moqui Canal (MO-5)
Vomicil Canal (VO-1)
Cocopah Canal (CO-2)
Cocopah Canal (CO-3)
Cocopah Canal (CO-4)*

The 30 percent complete design documents for the 2006 Improvements are for information only. This project will be funded separately by the USBR.

2006 Improvements

Head of the Reservation Main Canal (RC-1)

Osage Canal (OS-1)

Acoma (AC-1)

Acoma (AC-2)

Waco Pipeline (WA-1)

Reservation Main Canal (RC-8)

Titsink Canal (TI-1)

Yaqui Canal (YA-1)

Pontiac Canal (PO-1)

Pequod Canal (PQ-1)

Kawia Canal (KW-1)

Mohave Canal (MJ-1)

Mohave Canal (MJ-2)

Mohave Canal (MJ-3)

Mohave Canal (MJ-4)

3.2 Operation and Maintenance Plan

Operation and maintenance is an ongoing task performed by Bard Water District's personnel. Operations are supervised by a water master and manned by ditch riders. No increase in personnel is anticipated due to the improvements, and similarly, no decrease in personnel is expected, though individual workloads may decrease due to the operation of lined versus unlined canals.

Maintenance of the system is presently supervised by a maintenance and construction superintendent and by field supervisors, who supervise field maintenance and construction crews. The canal improvements will result in less maintenance performed on the 30.9 miles of canals to be improved (as lined canals require much less maintenance than earthen canals, especially with regards to aquatic weed control.) No increase or decreases are predicted in maintenance personnel.

O&M will continue to be funded by annual assessments to landowners, as is presently in place for the existing canal system. The canal improvements will result in now increase in future O&M expenses (and should result in long term savings of O&M expenses.)

3.3 Compliance with Applicable Design Regulations and Standards

The design for the improvements is underway by a registered professional engineer in the State of California. The design for the project is consistent with the U.S. Bureau of Reclamation guidelines for water conservation.

Financial Feasibility

4.1 Financial Feasibility

Bard Water District, a water district formed under the laws of the state of California, was formed in to operate and maintain the Reservation Division (Bard Unit and Indian Units) of the U.S. Bureau of Reclamation's Yuma Project. Located on the Colorado River near Yuma, Arizona, the members of Bard Water District farm about over 15,000 irrigable acres, with principal crops grown being lettuce and other produce crops in the fall and winter months and dates, wheat, cotton, hay and melons in the spring and summer months. Being constructed in the first decade of the 20th century, The Yuma Project is one of the USBR's oldest projects and is greatly in need of repair. The BWD Reservation Main Canal Improvement Project consists of the rehabilitation of existing unlined canals (replacing the unlined and badly deteriorated canals with concrete lined ones) as well as replacement of deteriorated structures. The lining of the canal laterals will significantly conserve water by reducing water loss by seepage.

Financial Statements - Historical.

Attached are Bard Water District's Annual Financial Statements for the last 5 years (1998 through 2002). Bard Water District receives annual revenue from its members (landowners of in the Bard Unit), reimbursement for operation and maintenance of the Indian Unit from the USBR, and funds from the sales of electrical power from its share (11.65%) of the Siphon Drop Hydroelectric Power Plant, and from occasional reimbursable work performed for members and others.

Financial Statements - Pro Forma.

Bard Water District has received approval from its Board of Directors to provide matching funds for the North American Development Bank's Water Conservation Investment Fund grant from a combination of use of its cash contributions (to be raised through the sales of municipal bonds) and through the use of its employees and equipment for in-kind services.

The sales of bonds require an election to be held and the holding of the election has been authorized by a resolution of its Board of Directors dated October 22, 2003. The bond election will be held in late February, 2004. For the bond election to pass, 2/3 of the votes must be in favor of the sale, with votes determined based on assessed valuation of properties in the Bard Unit. Based on the public meetings held to date, there is strong support among the major property owners of the Bard Unit for passage of the bond election.

Pro forma financial statements have prepared by BECC's financial consultant based on Bard Water District's financial statements. It is understood that the pro forma results confirm Bard Water District's ability to fund the project through a combination of reserves and in kind services.

Financial Structure of the Project.

Below is tabulated the financial schedule and contributions by BECC and Bard Water District for the Project. Bard Water District has substantial in-house labor and equipment resources to contribute to the construction of the project and intends to provide these throughout the course of the project.

	Final Design Development	Contract Work	Materials Provided	Labor Provided	Equipment Used	Totals
Year 1						
WCIF Funding	\$0	\$1,885,015	\$0	\$0	\$0	\$1,885,015
Quechan Funding	\$143,729	\$109,078	\$192,500	\$211,700	\$285,500	\$942,507
Bard Funding	\$143,729	\$109,078	\$192,500	\$211,700	\$285,500	\$942,507
Total	\$287,458	\$2,103,171	\$385,000	\$423,400	\$571,000	\$3,770,029
Year 2						
WCIF Funding	\$0	\$2,114,986	\$0	\$0	\$0	\$2,114,986
Bard Funding	\$105,032	\$32,290	\$277,500	\$297,900	\$374,000	\$1,086,722
Quechan Funding	\$105,032	\$32,290	\$277,500	\$297,900	\$374,000	\$1,086,722
Total	\$210,063	\$2,179,566	\$555,000	\$595,800	\$748,000	\$4,288,430
Grand Totals						
WCIF Funding	\$0	\$4,000,000	\$0	\$0	\$0	\$4,000,000
Bard Funding	\$248,761	\$141,369	\$470,000	\$509,600	\$659,500	\$2,029,230
Quechan Funding	\$248,761	\$141,369	\$470,000	\$509,600	\$659,500	\$2,029,230
Total	\$497,521	\$4,282,737	\$940,000	\$1,019,200	\$1,319,000	\$8,058,469
Bard Funding						
Funded from Bonds/Loans	\$248,761	\$141,369	\$412,000	\$301,600	\$211,500	\$1,315,230
Funded by In-Kind Services	\$0	\$0	\$58,000	\$208,000	\$448,000	\$714,000
Total	\$248,761	\$141,369	\$470,000	\$509,600	\$659,500	\$2,029,230

Capital Improvement Plan/Budget.

The project requires no land or equipment purchases to construct the project (though Bard Water District may purchase some equipment during the duration of the project, such would not be purchased exclusively for use on the Project.)

Operations & Maintenance Budget - Historical.

The attached annual financial statements include the operations and maintenance budgets for Bard Water District for the last 5 years. These budgets, except for reimbursable works performed for other agencies and for adjustments for inflation, remain essentially constant from year to year.

Operations & Maintenance Budget - Pro Forma

The operations and maintenance budget for future years is expected to remain reasonably in line with past budgets. If any changes occur due to the project, it is anticipated that O&M costs may decrease due to the lower maintenance costs of lined versus unlined canals. A pro-forma O&M budget, if required, will be developed by BECC's financial consultant.

Sensitivity Analysis

The Project is not generally sensitive to financial developments. O&M assessments have remained relatively constant for considerable periods and are anticipated to do so in the future.

Financial Break-Even Analysis

This Project will bond sales and in-kind services. The BECC's financial consultant has completed the break-even analysis.

Demographic and Economic Information of the Proposed Service Area.

The Bard Valley has stable demographics, with such dominated by an agricultural economy dependent on winter produce and summer field crops. The agricultural economy has existing for most of the last century and has expended recently due to value-added processing of the produce crops. There is very little urbanization occurring.

Fee/Rate Schedules - Historical.

Historical user fees (O&M assessments) are included in the attached annual financial statements. For the last 5 years these have remained constant at a rate of \$45.00 per acre of assessed land, which entitles the land owner to 5 acre-feet of water per year.

4.2 Fee/Rate Model

It is anticipated that the O&M assessments will increase to a rate of \$63.50 per acre of assessed land in order to provide for payback of the bonds. While the present \$45/acre rate is among the lowest of water rates in the area, increasing the rate to \$63.50/acre will result in a rate similar to several of the other local District and is not considered excessive (as confirmed by comments at the public meetings.) It is the general consensus that the increase in water rates will be well worth it in terms of value provided by lined canals.

4.3 Project Management

The project will be managed by the personnel listed in the attached organizational chart. In addition, Bard Water District employs James Davey, PE (James Davey and Associates) for engineering services. Mr. Davey, assisted by Mr. Ron Derma, Manager of Bard Water District, will oversee the design and construction administration of the Project, including documentation of all BECC requirements.

Community Participation

5.1 Comprehensive Community Participation Plan

Required for certification by the Border Environmental Cooperative Commission (BECC) is the fulfillment of a public participation process to promote community understanding of and support for the proposed project. In order to fulfill this requirement, the Project Steering Committee proposes to carry out the following public participation plan.

The Public Participation Plan has been developed per BECC certification requirements and is designed to provide a framework for the sponsor and steering committees to conduct public participation for the Bard Community Center, located at 1250 Bard Road Winterhaven, CA 92283, and intends to include all sectors of the community in carrying out project public participation to comply with the BECC Step II application for certification.

The Plan elements include the formation of a steering committee, contacting local organizations, public access to project information and holding two public meetings. Additionally, The BWD will submit a Final Public Participation Report with all of the supporting documentation that demonstrates the scope and success of the Plan as well as community support for the project.

5.2 Local Steering Committee

The following is a list of names of organizations and/ or individuals that were invited to serve on the committee:

<u>NAME</u>	<u>REPRESENTS</u>
Jake Colvin	Bard Water District Board Member
Gus Nunez	Bard Water District Board Member
Evelyn Berryman	Bard Water District Board Member
Keeny Escalante	Vice Chairman of Fort Yuma Quechan Indian Tribe
Mitchell Driskill	Attorney, Bard Water District
Sam Cobb	Southern Low Desert RC&D Council
Cindy Hoeft	US Bureau of Reclamation
Joyce Lobeck	Yuma Daily Sun

Other local residents will be added as needed. The steering committee formation meeting was held on September 16, 2003.

5.3 Meetings with Local Organizations

Per BECC requirements, local organizations will be presented with the project proposal and other pertinent project information. The Local Steering Committee will identify local organizations that will be impacted by the project and request their support, assist in developing community understanding for the project by disseminating project information and solicit public support.

5.4 Public Access to Project Information

The Preliminary Engineering Report and draft Project Certification Document for the project have been available at the public viewing locations designated below beginning thirty days prior to the first BECC public meeting. The documents have been available for viewing both during and after regular business hours (24-hours per day) at the Bard Water District Offices, 1473 Ross Road, Winterhaven, CA, 92283

<i>Viewing Locations</i>	<i>Contact Name / Phone</i>	<i>Physical Address</i>
James Davey & Associates	Jim Davey, PE (928) 782-7926	204 S. 1 st Ave Yuma AZ 85364
Bard Water District	Ron Derma, Manager (760) 572-0704	1473 Ross Road Winterhaven, CA, 92283

In addition, notices of availability of project information will be included in public meeting notices that will be published in the Yuma Daily Sun, and posted at the locations identified below. The first BECC public meeting notice will be published in the Yuma Daily Sun a minimum of thirty-days prior to the meeting. All notices will be provided in English and in Spanish if necessary.

5.5 Public Meetings

Public meetings were held on October 13th and 15th, 2003 to discuss the project per BECC requirements. The first meeting was a general information meeting to provide the general public with an update of proposed the project and what the BECC Step II application is designed to accomplish. The second meeting focused on the financial aspects of the project, such as the NADB financial analysis. The project sponsor and steering committee recognize that the possibility exists that more than two public meetings may be necessary for this project.

An exit survey was prepared for distribution and collection at the end of each BECC public meeting. The exit survey inquired whether the project, its purpose, its necessity, the costs involved, and the funding sources had all been adequately explained. Additionally, it asked whether the public supports the project and possible rate increases, and provided extra space for any comment that participants wished to express. The completed surveys will be included in the Final Comprehensive Public Participation Report.

First BECC Public Meeting.

The first BECC public meeting was a general information meeting to provide the public with an update of the proposed project, to explain what the BECC Certification Document is designed to accomplish, and presentation of the environmental documentation.

The meeting notice was advertised in the Yuma Daily Sun, September 12th, 2003. The date for this meeting was October 13th, 2003 at the Bard Community Center 1250 Bard Road Winterhaven, CA 92283. Copies of the notice were mailed to interested parties and posted in the locations identified in the previous section. The notice indicated that copies of the Preliminary Engineering Report and draft Project Certification Document were available for review at the locations identified in Section 5 of this Public Participation Plan. The project fact sheets described in the previous section were distributed at the public meetings.

At the opening of the meeting a sign-in sheet was distributed to all attendees. Meeting minutes were taken for later transcription into typewritten minutes, and photographs used to further document the public meetings. At the conclusion of the meeting the exit surveys were distributed and completed surveys collected.

The meeting notice, proof of publication, list of individual notice recipients, sign-in sheets, project fact sheets, meeting minutes and copies of photographs were provided in the First BECC Public Meeting section of the Final Comprehensive Public Participation Report. The completed exit surveys were provided in the Supporting Documentation section.

Second Public Meeting

The second BECC public meeting focused on the financial aspects of the project, such as the NADB financial analysis and financial impact to the customers. The date of the second meeting was October 15th, 2003 at the Bard Community Center 1250 Bard Road, Winterhaven, CA 92283.

The meeting notice was advertised in the Yuma Daily Sun, September 12th 2003. Copies of the notice were mailed to interested parties and posted in the locations identified in the previous section. The notice indicated that copies of the Preliminary Engineering Report and draft Project Certification Document were available for review at the locations identified in this Public Participation Plan.

The project fact sheets for the second meeting, described in the previous section, were distributed at the public meeting.

At the opening of the meeting a sign-in sheet was distributed to all attendees. Meeting minutes were taken for later transcription into typewritten minutes, and photographs used to further document the public meetings. At the conclusion of the meeting the exit surveys were distributed and completed surveys collected.

The meeting notice, proof of publication, list of individual notice recipients, sign-in sheets, project fact sheets, meeting minutes, copies of photographs, and completed exit surveys were provided in the Second BECC Public Meeting section of the Final Comprehensive Public Participation Report.

Sustainable Development

6.1 Definition and Principles

The project complies with BECC's definition of Sustainable Development: "Conservation oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs, and present and future impacts of human actions." The project will positively impact the area and sustainable life of the area's residents through the conservation of water which is becoming a scarce resource and critical for sustainability of life and economic growth. Through elimination of water loss through seepage and in some cases evaporation, the project provides a positive impact on the overall environment by conserving and effectively using a limited water supply resource. Local residents will benefit from better agricultural yields within a sustainable development framework and from a better quality of life within a mature conservation scheme, being careful not to compromise water and soil resources for the future, considering that modernization and technical improvements within the District's operational system provide a net positive effect. The required public review process ensures that residents in the influence areas of the project participate in the development process fully aware that the decisions they make will focus on the sustainable management of environmental resources to achieve a better environmental and socio-economic improvement in their community.

6.2 Institutional and Human Capacity Building

The Water Security, Clean Drinking Water, Coastal and Beach Protection Act (Water Code Section 79500 et seq.) authorizes the California Department of Water Resources (DWR) to provide grants for canal lining

and related projects necessary to reduce Colorado River water use pursuant to the California Colorado River Water Use Plan adopted by the Colorado River Board of California. The objective of the grants is to invest in projects that further the ability of all Californians to live within California's basic apportionment of 4.4 million acre-feet per year of Colorado River water pursuant to the Colorado River Water Use Plan.

The Agricultural Water Conservation Program of the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act (Water Code Section 79157 et seq.) authorizes the California Department of Water Resources (DWR) to make loans to local public agencies and incorporated mutual water companies to finance feasible, cost effective agricultural water conservation projects or programs to improve water use efficiency.

Eligible projects may include, but are not limited to:

- Lining or piping of ditches*
- Automating canal structures*
- Improvements to water distribution system controls*
- Tailwater or spill recovery systems*
- Major improvements or replacement of leaking distribution systems*
- Purchasing and installing water measurement devices*
- Capital improvements for on-farm irrigation*

The Department of Water Resources, with other State and federal agencies, local water and irrigation districts, resource conservation districts, educational and research institutions, growers, consultants, and others, is finding cost-effective ways to manage irrigation drainage water efficiently without harming agricultural production. As a result, more growers and local agencies are improving their irrigation and drainage management practices to control the drainage problem.

The NADB Water Conservation Investment Fund (WCIF) will complement, with grant funds, the capital investments required by the District for the rehabilitation of canals or replacement with pipelining of 19.8 miles of canals. The use of WCIF grant funds allows the District to fully finance and improve its infrastructure in order to reduce water conveyance losses. An additional 11.1 miles of unlined canals are to be lined as a separate project financed by the US Bureau of Reclamation.

Bard Water District has received approval from its Board of Directors to provide matching funds for the North American Development Bank's Water Conservation Improvement Fund grant from a combination of use of its cash contributions (to be raised through the sales of municipal bonds) and through the use of its employees and equipment for in-kind services.

The operations and maintenance budget for future years, is expected to remain reasonably in line with past budgets. If any changes occur due to the project, it is anticipated that O&M costs may decrease due to the lower maintenance costs of lined versus unlined canals.

For the last 5 years, user fees have remained constant at a rate of \$45.00 per acre of assessed land, which entitles the land owners to 5 acre-feet of water per year.

It is anticipated that the O&M assessments will increase to a rate of \$63.50 per acre of assessed land in order to provide for payback of the bonds. While the present \$45/acre rate is among the lowest of water rates in the area, increasing the rate to \$63.50/acre will result in a rate similar to several of the other local District and is not considered excessive (as confirmed by comments at the public meetings.) It is the general consensus that the increase in water rates will be well worth it in terms of value provided by lined canals.

The projects will be managed by the District and will be constructed and operated in conformance with Federal, State and NADB requirements. The process for the development of the projects has followed a planning and public participation process that developed alternatives and associated costs, solicited public input, established priorities based on input of the stakeholders and proceeded according to the priorities established in the planning process.

The majority of the improvements for Bard Water District have been identified as concrete lining projects with the exception of the completion of the pipelining of the Supai (SU-3) and Pueblo Canals and the pipelining of the high public use area of the Supai (SU-1) and Waco Canals. The continuation of the Supai (SU-3) and Pueblo pipeline

will reduce the demand of the Reservation Main Canal and allow for greater flow downstream. The pipelining of the Supai (SU-1) and Waco Canals will increase the system safety.

No increase in personnel is anticipated due to the implementation of the project, and similarly, no decrease in personnel is expected, though individual workloads may decrease due to the operation of the canal lined versus unlined canals. No increase or decreases are predicted in maintenance personnel.

O&M will continue to be funded by annual assessments to landowners, as is presently in place for the existing canal system.

6.3 Conformance with Applicable Local and Regional Conservation and Development Plans

The Water Conservation Field Services Program (WCFSP), was implemented by the Bureau of Reclamation in 1996 to actively encourage water conservation, assist districts with their responsibility to develop conservation plans, and complement and support State and other conservation programs.

The Reclamation Reform Act of 1982 (RRA), Section 210 (P.L. 9777-293) states the following:

- *Section 210 (a) of the RRA requires the Secretary of the Interior to encourage water users to adopt water conservation measures.*
- *Section 210 (b) of the RRA requires each district who has a water service contract with the Bureau of Reclamation, to develop and implement a water conservation plan containing: (1) definite goals; (2) appropriate water conservation measures; and (3) a time schedule for meeting the water conservation goals.*
- *Section 210 (c) of the RRA directs the Secretary of the Interior to coordinate with and involve others in water conservation efforts.*

The project is in conformance with the California Water Plan Update 2003, which recommends agricultural water conservation through the improvement of Irrigation District's water management practices.

The project is also in conformance with the California's "4.4 Plan", which is an ongoing effort to reduce California's use of Colorado River water to 4.4 million acre-feet per year. The plan is so named because California is only entitled to take 4.4 million acre-feet of water from the river each year, but regularly exceeds its allocation by about 20 percent.

The project is also in conformance with local conservation efforts already developed by the District. Conservation of water is stressed and penalties are assessed for the overuse of water.

The proposed project is in conformance with the planning and conservation plans considered in the State and Federal regulations mentioned above.

6.4 Natural Resource Conservation

The objective of the project is to conserve water through the replacement of unlined canals with concrete lined canals and pipeline, which will reduce seepage and, in some segments, evaporation losses; and by replacement of irrigations structures, which will increase water efficiencies and service to water users. The canals to be improved have been selected based on evaluations of a combination of their existing conditions, maintenance needs, and operational constraints.

The project has potential for significant water savings. A preliminary estimate was done, based on the findings in the study "Irrigation District Efficiencies and Potential Water Savings in the Lower Rio Grande Valley of Texas", The initial estimate for water savings from seepage is 5,911 Acre-Feet per year for the 19.8 miles of canal lining to be funded by the WCIF grant. With the additional 11.1 miles of canal lining to be funded by the USBR, a total of 9,225 Acre-Feet per year will be conserved. Additional water savings that may also occur due to the overall greater delivery efficiencies of the concrete lined canals, the ability to completely drain the canals, and improved speed of irrigation has not yet been quantified.

In general, irrigation water savings are achieved in two ways - (1) elimination of transmission losses (which will be achieved on this project through concrete lining of existing dirt canals) and (2) providing water flows at the right quantity and at the right time.

6.5 Community Development

The implementation of the project not only helps California to live within its water allocation, but also will enable farmers to maintain current agricultural production, and will contribute to extend the availability of water required to fulfill the future agricultural needs.

Project beneficiaries are Bard Water District members (lands within the Reservation Division of the U.S. Bureau of Reclamation's (USBR) Yuma Project) and the Fort Yuma Quechan Indian Tribe.

List of Available Documents

1. *Certification document*
2. *Financial Feasibility Study*
3. *Preliminary Engineering Report*