



COLORADO

**Colorado Water
Conservation Board**

Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Jonathan Hernandez, P.E., Project Manager
Kirk Russell, P.E., Finance Section Chief

DATE: September 20-21, 2017 Board Meeting

AGENDA ITEM: 14a. Water Project Loans and Water Supply Reserve Fund (WSRF) Grants
Fruitland Irrigation Company – Tunnel and Canal Renovation

Introduction

The Fruitland Irrigation Company (Company) is applying for a loan and grant for the Tunnel and Canal Renovation (Project). The purpose of the Project is to assure the continued ability to deliver irrigation water by stabilizing and renovating the Company's tunnels and canals, while minimizing seepage losses and salinity contributions to the Colorado River drainage. The total Project cost is estimated to be \$10,509,000. The Company is requesting a loan from the CWCB for approximately 16% of the Project cost and a WSRF grant for approximately 9% of the Project cost. The balance is to be funded with a Bureau of Reclamation and Colorado River District grants. See attached Project Data Sheet for a location map and Project summary.

Staff Recommendation for CWCB Loan

Staff recommends the Board approve a loan not to exceed \$1,746,290 (\$1,729,000 for Project costs and \$17,290 for the 1% service fee) to the Fruitland Irrigation Company for costs related to the Tunnel and Canal Renovation Project, from the Severance Tax Perpetual Base Fund. The loan terms shall be 40 years at the agricultural interest rate of 2.0% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Additionally staff recommends the following loan approval condition prior to executing a contract:

- 1) The Company shall provide evidence of grant funding approval from the Bureau of Reclamation's Colorado River Basinwide Salinity Program.

Staff Recommendation for WSRF Grant

Staff recommends approval of up to \$750,000 from the Statewide Fund and \$150,000 from the Gunnison Basin Fund to the Fruitland Irrigation Company for costs related to the Tunnel and Canal Renovation Project.

Additionally staff recommends the following grant approval condition prior to executing a contract:

- 1) The Company shall provide evidence of grant funding approval from the Bureau of Reclamation's Colorado River Basinwide Salinity Program.



Background

The Company owns and operates the 17.7 mile-long earthen Fruitland Highline Canal, the 22 mile-long earthen Gould Canal (including 0.8 miles through two rock tunnels), and the 10,168 AF Gould (aka Fruitland, aka Onion Valley) Reservoir. The Fruitland Highline Canal diverts from Crystal Creek, approximately 13 miles south of the Town of Crawford and provides irrigation water to approximately 5,900 acres in Delta and Montrose Counties. Irrigated acreage is primarily used for cattle ranching and production, with some grain production as well. Approximately 50% of the irrigated acres are irrigated by sprinklers with an estimated 77% system-wide efficiency.

The two tunnels in the Gould Canal are over 100 years old and have eroded to the point that its structural integrity is threatened. All water released from the Gould reservoir pass through these two tunnels. A collapse would eliminate the ability to deliver irrigation after the junior direct flow rights are out of priority, typically in mid-June.

Renovation of the Company's irrigation system began with reconstructing the Gould Reservoir outlet in 1988 which was funded through CWCB Loan C153542. Feasibility studies for further improvements continued with a Water Management Plan prepared in collaboration with the Delta Conservation District in 2002, a video inspection of the two tunnels in 2009, and an evaluation of potential combination with the Cattleman's Ditch in 2015. This was followed by a 2016 Feasibility Study prepared by Applegate Group which serves as the basis for this loan request.

The Fruitland Highline and Gould Canals are located within the Colorado River salinity control area. The Water Management Plan completed for the Fruitland Irrigation System in 2002 estimated canal seepage losses to be 12.5 cfs, or 1,856 AF annually. This seepage loss equates to approximately 6,053 tons of salt and 484 pounds of selenium to the Colorado River system and results in losing approximately 15 irrigation days each year. Eliminating seepage from these earthen canals will reduce salinity and selenium contributions to the Lower Gunnison and Colorado River Systems, providing benefits to both downstream users and improving critical aquatic habitat for four endangered fish species.

Loan Feasibility Study

Danny Todd, Board President, Fruitland Irrigation Company, prepared the Loan Feasibility Study titled, "Feasibility of the Fruitland Irrigation Company Tunnel and Canal Renovation Project," dated May 2017. The feasibility study relied on 2016 Feasibility Study prepared by Craig Ullmann, P.E., with Applegate Group, Inc. The feasibility study was prepared in accordance with CWCB guidelines and includes an analysis of alternatives, preliminary engineering design, and construction cost estimates. Financial statements were prepared by North Fork Accounting. The 2016 Feasibility Study was funded through an authorization in the 2014 Projects Bill (SB14-1333) as a Gunnison Basin Irrigation System Planning and Organization grant managed by the Delta Conservation District.

Borrower - Fruitland Irrigation Company

The Company is a Mutual Ditch Company established in 1901, originally as the Fruitland Land, Water, and Livestock Company. It operates as a nonprofit corporation and is in good standing with the Colorado Secretary of State. The Company is governed by a seven-member board of directors responsible for managing the business and affairs of the Company.

The Company is made up of 200,000 shares held by 130 shareholders. The by-laws (2016) of the Company state that annual assessments are set by the shareholders at the annual shareholders meeting, and without approval, assessments are limited to that necessary for operation and maintenance of the Company. A majority vote of the shareholders is required to approve debt against the company. The

Board of Directors have the authority to shut off water for non-payment of assessments and force the sale of stock for delinquent shareholders.

Water Rights

The Company owns and the following water rights:

TABLE 1: WATER RIGHTS

Name	Amount	Appropriation Date	Adjudication Date	Water Court Case No.
Fruitland Canal	67.4375 CFS	5/17/1901	6/23/1914	CA0617
Fruitland Canal	300 CFS	5/17/1901	2/10/1930	CA2030
Fruitland Canal	74.7 CFS	7/1/1914	2/10/1930	CA2030
Fruitland Canal	40 CFS	5/17/1901	3/20/1954	CA3503
Fruitland Canal	5 CFS	5/17/1901	3/20/1954	CA3503
Fruitland Canal	40 CFS	5/17/1901	3/20/1954	CA3503
Fruitland Canal	10 CFS	5/17/1901	3/20/1954	CA3503
Fruitland Reservoir	2800 AF	5/17/1901	6/23/1914	CA0617
Fruitland Reservoir	3884.95 AF	5/17/1901	2/10/1930	CA2030
Fruitland Reservoir	2483 AF	5/17/1901	2/10/1930	CA2030
Fruitland Reservoir	6417 AF	5/17/1901	2/10/1930	CA2030

Average annual diversions are 10,103 AF.

Project Description

The objective of the Project is to stabilize and renovate the tunnels, and improve the Gould Canal to assure the continued ability to deliver irrigation water to shareholders while minimizing seepage losses and salinity contributions to the Colorado River drainage. Alternatives to minimizing seepage losses included either piping or lining sections of earthen ditch.

Alternative 1 - No Action: This alternative was not selected because the tunnels will collapse without significant rehabilitation and prevent the Company from delivering Gould Reservoir water to its shareholders. Additionally, no action will continue annual contributions of 6053 tons of salt to the Colorado River system while losing an estimated 22% of diversions to seepage.

Alternative 2 - Pipeline: This alternative would reduce seepage by converting the open earthen ditch into a buried pipeline. A benefit to putting the ditch into a pipeline is the reduced maintenance cost especially in areas prone to rock fall. An evaluation of the ditch system revealed that the 2.1 mile-long ditch section from the dam outlet, along the canyon, and through the two tunnels would most benefit from having a buried pipeline to reduce delivery interruptions that occur with rock fall events. Two types of pipeline were analyzed.

Alternative 2A - Pressure Pipeline: Benefits to a pressure pipeline is it can allow farmers to more efficiently irrigate their lands by converting to sprinklers. However, most of the lands irrigated by the ditch are already using sprinklers as pressure is currently available from on-farm pipelines. Therefore this alternative was not selected.

Selected Alternative 2B - Gravity Pipeline: This alternative was the preferred pipeline alternative because of the material cost savings in using a pipeline not rated for pressure applications. This pipe is also suitable for rehabilitation of the tunnels.

Alternative 3 - Ditch Liner: This alternative would reduce seepage by converting the open earthen ditch into an open lined ditch. Lining the ditch is generally more cost effective and so this was the chosen alternative where rock-falls is not a maintenance concern, namely the 10.3 mile-long ditch section downstream of the two tunnels. Two types of ditch liner were analyzed.

Alternative 3A - Rock-Filled Geocell Liner: This alternative uses geocells that are backfilled with rock. The rock is necessary to protect the liner from damage resulting from animal traffic and would produce a stable channel section. This alternative was not selected because it is approximately 19% more expensive than the shotcrete liner alternative, and concerns of long-term maintenance issues related to sedimentation within the rock that may allow for vegetation to take root. Additionally, as this would be the first salinity control program project to use this type of liner, its likely a pilot study would first be required.

Selected Lining Alternative 3B - Shotcrete Liner: This alternative uses a PVC geo-liner covered with shotcrete. The shotcrete cover material primarily serves to protect the liner from damage. This liner type is currently the only approved method allowed under the Salinity Control Program. Based on the shallow cross section of the canal, it is anticipated the liner will be a semi-parabolic cross section rather than the typical trapezoidal section. A non-woven geotextile is first placed on the prepared canal bed followed by a 30 mil PVC liner, and then another non-woven geotextile. A 3 inch thick layer of shotcrete, consisting of fibermesh, is then installed on top of the liner. A soil cover is sometimes used in place of shotcrete. Based on the geometry of the canal, this was not cost effective because of the significant increase in the width needed to provide for the minimum side slope needed for a soil cover.

The total cost associated with the Project is shown in Table 2.

TABLE 2: ESTIMATED PROJECT COST

Task	Total
Construction - Gravity Pipe (Section 1)	\$1,081,000
Construction - Upper Tunnel	\$1,044,000
Construction - Lower Tunnel	\$1,374,000
Construction - Shotcrete Lining (Sections 2,3,4, & 5)	\$5,375,000
CONSTRUCTION SUB-TOTAL	\$8,874,000
Engineering	\$520,000
Construction Observation	\$495,000
Project Management	\$40,000
NEPA/Cultural Resources	\$133,000
Habitat Mitigation	\$447,000
INDIRECT SUBTOTAL	\$1,635,000
TOTAL	\$10,509,000

Permitting: Work will occur within existing ditch easements and rights-of-way. NEPA and cultural resource surveys will be completed prior to any construction activity to satisfy federal funding requirements.

Schedule: The Company will be submitting an application for funding to the USBR Colorado River Basinwide Salinity Program in November 2017, which could be awarded in January 2018. Construction will occur during the non-irrigation season and is anticipated to begin fall 2019 and be completed over three construction seasons for completion in spring 2022.

Water Supply Reserve Fund Grant

Applicant & Grantee: Fruitland Irrigation Company
Water Activity Name: Fruitland Irrigation Renovation Project
Water Activity Purpose: Agricultural & Environmental
County: Delta & Montrose
Drainage Basin: Gunnison
Water Source: Crystal Creek

At the June 2017 Gunnison Basin Roundtable meeting, the Roundtable recommended approval of the Fruitland Irrigation Renovation Project application request for the following Basin and Statewide Funds:

Amount Requested/Source of Funds: \$150,000 Gunnison Basin Fund
\$750,000 Statewide Fund
\$900,000 Total Grant Request

Matching Funds: Basin Fund Match: \$150,000 = 17% of total grant request (meets 5% min);
Non-Statewide Fund Match: \$9,719,000 = 1080% of total grant request (meets 25% min);
Applicant & 3rd Party Match: \$9,609,000 = 1068% of total grant request (meets 5% min)

Discussion: This project meets Goals 1, 2, 3 and 8 of the Gunnison Basin Implementation Plan which are to : (1) protect existing water uses in Gunnison Basin, (2) discourage the conversion of productive agricultural land to other uses, (3) improve agricultural water supplies to reduce shortages, and, (8) restore, maintain, and modernize critical water infrastructure.

Issues/Additional Needs: No issues or additional needs have been identified.

Eligibility Requirements: The application meets requirements of all eligibility components: General Eligibility, Entity Eligibility, Water Activity Eligibility, and Eligibility Based on Match Requirements.

Evaluation Criteria: This activity has undergone review and staff has determined it satisfies the Evaluation Criteria outlined in Colorado's Water Plan, Section 9.4. Please refer to Basin Roundtable Chair's Recommendation Letter and the Application for a detailed response.

<u>Funding Source</u>	<u>Cash</u>	<u>In-Kind</u>	<u>Total</u>	<u>Status</u>
BOR Basinwide Funding	\$7,790,000	\$0	\$7,790,000	Pending
CO River District	\$50,000	\$0	\$50,000	Pending
Fruitland Irrigation District	\$0	\$40,000	\$40,000	Secured
CWCB Water Project Loan	\$1,729,000	\$0	\$1,729,000	Pending
Subtotal Matching Funds	\$9,569,000	\$40,000	\$9,609,000	
WSRF Gunnison Account	\$150,000	\$0	\$150,000	
WSRF Statewide Account	\$750,000	\$0	\$750,000	
Total Project Costs	\$10,469,000	\$40,000	\$10,509,000	