



COLORADO

**Colorado Water
Conservation Board**

Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Derek Johnson, P.E., Project Manager
Kirk Russell, P.E., Finance Section Chief

DATE: September 15-17, 2015 Board Meeting

AGENDA ITEM: 23a. CWCB Loan and WSRA Grant
Fort Lyon Canal Company - Replacement of the Horse Creek Flume

Introduction

The Fort Lyon Canal Company (Company) is applying for a loan for the construction of the Replacement of the Horse Creek Flume (Project). The purpose of the Project is to ensure continued deliveries to downstream users by replacing the aging Horse Creek Flume structure. The total Project cost is estimated at \$2,188,000.

In June of 2015, the Company was recommended for a \$450,000 Statewide Grant and a \$50,000 Basin Grant by the Arkansas Basin Roundtable from the Water Supply Reserve Account (WSRA) which would cover 23% of Project costs. The Company is requesting a loan from the CWCB to cover 74% of Project costs, and remaining costs are to be covered by Company funds. See attached Project Data Sheet for a location map and a Project summary.

Staff Recommendation for WSRA Grant

Staff recommends approval of up to \$450,000 from the Statewide Account and \$50,000 from the Arkansas Basin Account to the Fort Lyon Canal Company to fund the Replacement of the Horse Creek Flume project.

Staff Recommendation for CWCB Loan

Staff recommends the Board approve a loan not to exceed \$1,629,130 (\$1,613,000 for Project costs and \$16,130 for the 1% Loan Service Fee) to the Fort Lyon Canal Company for the Replacement of the Horse Creek Flume Project from the Severance Tax Perpetual Base Fund. Loan terms shall be 30 years at a blended rate of 1.75% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.



Background

The Company serves approximately 93,000 irrigated acres along more than 113 miles of the Fort Lyon Canal in Otero, Bent, and Prowers Counties north of the Arkansas River from La Junta to Lamar.

The Horse Creek Flume has been in operation since 1938. Despite ongoing repairs over the years, the flume has reached the end of its service life and the Company seeks to replace it. The flume is a 400-foot-long, 10-foot-diameter, elevated steel pipe located on the Fort Lyon Canal where it crosses Horse Creek, approximately 10 miles northeast of La Junta and about 8 miles west of Las Animas, in Bent County, Colorado. Three different Professional Engineers have assessed the flume and all found it to be in extremely poor condition and in need of immediate replacement. Failure of the flume, designed to convey 1,800 cfs, could result in the loss of more than \$50 million in crop revenue and loss of supply to more than 14,000 acres of wildlife habitat in the downstream Queens and Thurston State Wildlife Areas.

Loan Feasibility Study

Steve Jamieson, P.E. of W.W. Wheeler & Associates, Inc. prepared the Loan Feasibility Study titled "Feasibility Study for the Replacement of the Horse Creek Flume", dated July 8, 2015. The study includes an analysis of alternatives, a preliminary engineering design, and cost estimates, in accordance with CWCB guidelines.

Borrower - Fort Lyon Canal Company

The Company is a Colorado mutual ditch company and a non-profit corporation, incorporated in 1897, in good standing with the Colorado Secretary of State. The Company's office is located in Las Animas. The Company has 275 shareholders and has issued 93,989 shares of stock. The Company's revenues are primarily derived from assessments charged on shares of stock owned by stockholders. Additional revenue comes from an agreement with the Amity Mutual Irrigation Company to transport water through the canal, and from Colorado Parks and Wildlife for easement access to several of the Company's reservoirs.

The Company has a five-member board of directors. The Company's by-laws authorize the Board of Directors to borrow money and to provide for the payment of the same by assessment of its members. The board appoints a committee to set preliminary assessments. The preliminary assessment is then voted on by the shareholders at the annual December meeting. The Board has the authority to take measures to enforce assessments, including the suspension of water deliveries and the eventual sale or forfeiture of shares for failure to pay assessments.

Water Rights

The Company owns a diversion dam, headgate, and over 100 miles of irrigation canal and appurtenant structures. The Company also owns Adobe Creek Dam, Horse Creek Dam, Thurston Dam and the Fort Lyon Control Basin.

The Company has the following decreed water rights:

TABLE 1: WATER RIGHTS

Name	Amount	Appropriation Date	Adjudication Date
Fort Lyon Canal	164.64 cfs	4/15/1884	4/8/1905
Fort Lyon Canal	597.16 cfs	3/1/1887	4/8/1905
Fort Lyon Canal	171.20 cfs	8/31/1893	4/8/1905
Adobe Creek Reservoir	5,483 AF	8/1/1896	2/3/1927
Adobe Creek Reservoir	6,1575 AF	1/25/1906	11/8/1928

Adobe Creek Reservoir	25,425 AF	12/29/1908	11/8/1928
Horse Creek Reservoir	11,400 AF	8/15/1900	11/8/1928
Horse Creek Reservoir	15,487 AF	1/25/1906	11/8/1928
Horse Creek Reservoir	1,113 AF	6/12/1908	11/8/1928
Thurston Reservoir	1,515 AF	8/12/1889	4/8/1905

Annual diversions have ranged from about 57,000 to nearly 500,000 acre-feet, averaging out to 221,000 acre-feet for planning purposes. All direct flow water is routed through the Horse Creek Flume; Storage water is diverted down the Storage Canal and into the Company's reservoirs.

Project Description

The goal of this Project is to restore the Company's flume to provide reliable future deliveries to downstream users. The following alternatives were considered:

Alternative 1 - Do Nothing: This alternative was considered undesirable due to the critical nature of the flume and the near total loss of service to all users downstream of the flume.

Alternative 2 - Slip Line Existing Flume In-place: This alternative would leave the existing flume in place, slip lining the entire 392 foot length of the flume with either HOBAS (centrifugally cast, glass-fiber-reinforced, polymer mortar) pipe, or ½-inch-thick steel pipe. Also included in this alternative is repair work to the intake and outlet concrete structures.

Advantages to this alternate include lower construction costs, and less demolition work due to reuse of the existing flume. Disadvantages include a reduced pipe capacity due to a resulting smaller interior diameter in the resulting pipe flume, and the addition of additional support structures to support the pipe (5 for steel, 17 for HOBAS) would reduce the flood flow capacity of Horse Creek below the flume, making the flume more susceptible to damage during flooding events. Working within the existing steel flume could also be a significant construction challenge due to the poor condition of the existing flume. Costs for this alternative range from \$1,936,000 for HOBAS Pipe to \$2,169,000 for Steel Pipe.

Selected Alternative 3 - Replace Flume with New Steel Pipe Flume: This alternative consists of removing the entire existing steel flume and its supports, and replacing it with a new 123-inch diameter, ½-inch-thick steel flume and new support structures.

The existing flume and its supports would be completely removed, and new concrete foundations installed or existing concrete foundations rehabilitated. Also included in this alternative is repair work to the intake and outlet concrete structures to address cracking and other structural issues, as well as the installation of a new expansion joint.

The key advantages to this alternative are no reduction in flow capacity. Additionally steel will not be affected by UV light and be less susceptible to wildland fire, and has a proven track record of use in this application. Some disadvantages to this alternative include higher demolition costs since the existing flume would be removed. The new steel flume is also expected to have higher lining and coating maintenance costs in the future. The cost for this alternative is estimated at \$2,188,000.

Alternative 4 - Replace Flume with a New Concrete Flume: This alternative consists of removing the entire existing steel flume and its supports, and replacing it with a 15-foot-wide by 9-foot-high enclosed concrete flume. The new concrete flume would be supported by seven new pier frames, mounted on new foundations.

This alternative could be completed during the planned November 15th to March 15th canal shutdown, but it has the longest construction schedule and the greatest chance of delays due to weather and other factors. The cost for this alternative is estimated at \$2,015,000

The Company and its engineers decided alternative 3 would provide the best combination of cost, constructability, and long-term reliability. Costs for this alternative are shown in the following table.

TABLE 2: ESTIMATED PROJECT COST

Task	Cost
Design and Permitting	\$403,000
Construction	\$1,785,000
TOTAL COST	\$2,188,000

TABLE 3: PROJECT FUNDING SUMMARY

	Percent of total project costs	Funding
CWCB Construction Fund Loan	74%	\$1,613,000
CWCB Water Supply Reserve Grant - Basin Account	2%	\$50,000
CWCB Water Supply Reserve Grant - Statewide Account	21%	\$450,000
Company Cash Match	3%	\$75,000
TOTAL	100%	\$2,188,000

CWCB Grant funds will be disbursed at a cumulative maximum 23% of the total of all invoices submitted for reimbursement.

The Company has already ordered the large diameter steel pipe, which has a long manufacturing and delivery time, in order to meet their construction schedule. Invoicing related to the steel pipe will be eligible for reimbursement from loan funds, but not until the project's selected construction contractor is under contract and formally accepts and takes control and liability for the steel pipe and any additional related items ordered prior to construction notice-to-proceed.

Permitting: The work will be completed outside of the banks of Horse Creek with no dredge or fill material within Horse Creek itself, so no 404 permitting is anticipated. The contractor will be required to secure Fugitive Particulate Air Pollution Emission Notice/Control Plan, and a required Stormwater Discharges Associated with Construction Activity Permit from the Colorado Department of Health and Environment.

Schedule: The Company plans to complete the construction during the November 15, 2015 to March 15, 2016 canal shutdown period. It is expected to take three to four months to fabricate and deliver the steel pipe. At the Company's April 23, 2015 Board of Directors meeting the engineers were authorized to begin final design work on pipe procurement and construction documents for the project.

Water Supply Reserve Account Grant

Applicant & Fiscal Agent: Fort Lyon Canal Company
Water Activity Name: Replacement of the Horse Creek Flume
Water Activity Purpose: Agricultural
County: Otero, Bent, and Prowers
Drainage Basin: Arkansas
Water Source: Arkansas River

At the June 2015 Arkansas Basin Roundtable meeting, the Roundtable recommended approval of the Replacement of the Horse Creek Flume project application request for the following Basin and Statewide Funds:

Amount Requested/Source of Funds:	\$50,000	Arkansas Basin Account
	<u>\$450,000</u>	<u>Statewide Account</u>
	\$500,000	Total Grant Request

Matching Funds: Basin Account Match: \$50,000 = 10% of total grant request (meets 5% min);
Basin Accounts & Applicant Match: \$1,738,000 = 348% of total grant request (meets 25% min);
Applicant Match: \$1,688,000 = 77% of total project costs (\$2,188,000)
(refer to *Funding Summary/Matching Funds* section)

Objectives:

- Restore safety and reliability of the Horse Creek Flume to ensure continued deliveries to downstream users.

Discussion: This project aligns well with goals and measurable outcomes as specified in the Arkansas Basin Implementation Plan as Agricultural Goal 1: Sustain an annual \$1.5B agricultural economy in the Basin (Section 1.6.2.2 Agriculture, Table 1.6.3 - Agricultural Goals, Page 16).

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

Threshold and Evaluation Criteria:
The application meets all four Threshold Criteria.

Tier 1-3 Evaluation Criteria:
Staff has reviewed and evaluated the applicant's response to the Statewide Account Supplemental Scoring Matrix and has determined that it satisfies the Evaluation Criteria. Please refer to WSRA Application for applicant's detailed response.

Funding Summary/Matching Funds:

	<u>Cash</u>	<u>In-kind</u>	<u>Total</u>
Fort Lyon Canal Company	\$75,000	\$0	\$75,000
CWCB Loan	\$1,613,000	n/a	\$1,613,000
Sub-total matching funds	\$1,688,000	\$0	\$1,688,000
Arkansas Basin Account	\$50,000	n/a	\$50,000
WSRA Statewide Account	\$450,000	n/a	\$450,000
Total	\$2,188,000	\$0	\$2,188,000

All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform. In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

Engineering: All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.

CWCB Loan Program

Financial Analysis

Company shares are held by 99% or more agricultural use owners and less than 1% of commercial and municipal owners. Blending this mix of users under the current interest rates, the Company qualifies for a 1.75% interest rate for a 30-year term.

TABLE 4: FINANCIAL SUMMARY

Total Project Cost	\$2,188,000
Borrowers Contribution (3% of Project Cost)	\$75,000
WSRA Statewide Grant (21% of Project Cost)	\$450,000
WSRA Arkansas Basin Grant (2% of Project Cost)	\$50,000
CWCB Loan Amount	\$1,613,000
CWCB Loan Amount (Including 1% Service Fee)	\$1,629,130
CWCB Annual Loan Payment	\$ 70,264
CWCB Annual Loan Obligation (including reserve account)	\$ 77,290
Annual Loan Obligation per share (93,989 Shares)	\$0.82
Current Assessment per share	\$22.50
Project cost per acre-foot (221,000 AF)	\$9.90/AF

Creditworthiness: The Company's current assessments are not expected to be increased significantly in the 2016 water year. The Company carries no existing debt.

TABLE 5: FINANCIAL RATIOS

Financial Ratio	Past Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	126% (strong) \$1.65M / \$1.31M	119% (average) \$1.65M / \$1.39M
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	NA	438% (strong) (\$1.65M - \$1.31M) / \$77K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	53% (average) \$695K / \$1.31M	64% (average) \$881K / \$1.39M
Annual Operating Cost per Acre-Foot Diversions (221,000 AF) weak: >\$20 - average: \$10 - \$20 - strong: <\$10	\$5.93 (strong) \$1.31M / 221K	\$6.28 (strong) \$1.39M / 221K

Collateral: As security for the loan, the Company will pledge its assessment revenues backed by an assessment covenant and the project itself (Horse Creek Flume and all appurtenances). This is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Amy Van Horn, Fort Lyon Canal Company
Susan Schneider/Jennifer Mele, Colorado's Attorney General Office

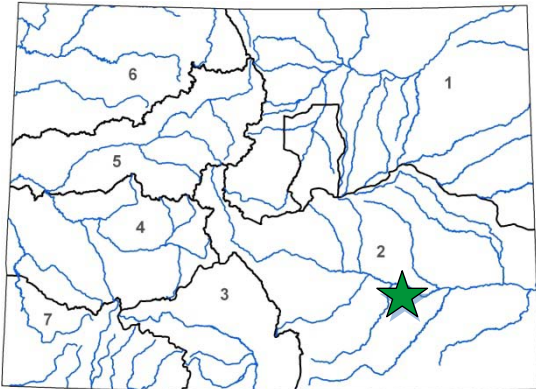
Attachment: Water Project Loan Program - Project Data Sheet



Replacement of the Horse Creek Flume

Fort Lyon Canal Company
September 2015 Board Meeting

L O A N D E T A I L S	
Project Cost:	\$2,188,000
CWCB Loan (with Service Fee):	\$1,629,130
Loan Term and Interest Rate:	30 Years @ 1.75%
Funding Source:	WSRA & Sev. Tax Perpetual Base Fund
B O R R O W E R T Y P E	
Agriculture	Municipal Commercial
99%	0% Low - 0% Mid - 0% High 1%
P R O J E C T D E T A I L S	
Project Type:	Ditch Rehabilitation
Average Annual Delivery:	221,000 AF



L O C A T I O N	
County:	Otero, Bent, Prowers
Water Source:	Horse Creek
Drainage Basin:	Arkansas River
Division:	2 District: 17

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