



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: 23c. CWCB Loan and WSRA Grant
Parkville Water District – Evans Reservoir Bypass Flume Replacement

Introduction

The Parkville Water District (District) is applying for a loan for the construction of the Evans Reservoir Bypass Flume Replacement (Project). The purpose of the Project is to protect the District's water supply reservoir by rehabilitating the Evans Reservoir Bypass Flume, which has reached the end of its useful life. Total Project cost is estimated at \$533,430.

In June of 2015, the District was recommended for a \$250,000 Statewide Grant and a \$50,000 Basin Grant by the Arkansas Basin Roundtable from the Water Supply Reserve Account (WSRA) which would cover 56% of Project costs. The District is requesting a loan from the CWCB to cover 34% of Project costs, and the remaining 10% to be covered by District 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 \$250,000 from the Statewide Account and \$50,000 from the Arkansas Basin Account to the Parkville Water District to fund the Evans Reservoir Bypass Flume Replacement project.

Staff Recommendation for CWCB Loan

Staff recommends the Board approve a loan not to exceed \$181,800 (\$180,000 for Project costs and \$1,800 for the 1% Loan Service Fee) to the Parkville Water District for the Evans Reservoir Bypass Flume Replacement project from the Severance Tax Perpetual Base Fund. The loan terms shall be 10 years at the reduced low-income municipal rate of 1.95% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.



Background

The District is located at the headwaters of Arkansas River in Lake County and provides water service to 5,000 people in the City of Leadville and surrounding area. The District's service area is approximately four square miles and serves 1,964 residential and 372 commercial taps.

The Evans Reservoir Bypass Flume, constructed around 1904, is a wooden trough measuring 6' x 5' x 450', including inlet and outlet structures. The flume carries Evans Creek contaminated water around Evans Reservoir. The primary problem with the water carried by the flume is high turbidity levels that cannot be processed by the District's water treatment plant below; although heavy metal contamination from upstream mines is also a concern at times. The flume passes over the abutment of the dam.

Heavy runoff events in the last several years have caused the condition of the flume to become an urgent concern, along with increasing maintenance and repair costs on the order of \$10,000 annually. 8,000 acres of deep snow must be channeled through the flume during spring runoff each year. In the spring of 2014, sudden runoff combined with spring rains, resulting in an unusually high snow melt. The flume was nearly overwhelmed and the portion that passes over the abutment of the dam failed. Serious erosion of the dam resulted, but emergency repairs prevented further damage and contamination of the water supply. Runoff in 2015 was unusually high as well, due to the amount of snowfall in April and unusually warm temperatures in June, necessitating emergency action again.

The two primary objectives of the project are to protect water quality for the City of Leadville, and to prevent failure of the Evans Reservoir dam.

Loan Feasibility Study

Elise Bergsten of Balanced Management Services Co. prepared the Loan Feasibility Study, titled "Feasibility Study - Evans Reservoir Bypass Flume Replacement" dated August 2015. Technical support was provided by Steven Maly, P.E., of W.W. Wheeler & Associates, Inc. The study includes an analysis of alternatives and a construction cost estimate. The feasibility study was prepared in accordance with the CWCB guidelines.

Borrower - Parkville Water District

In 1879 the City of Leadville granted a franchise to the Leadville Water Company, which acquired direct flow and storage water rights, constructed raw water storage facilities, and constructed a distribution system that served Leadville for approximately 85 years. The District, a Title 32 Colorado Special District formed in 1964, subsequently took over the operations of the Leadville Water Company. The District has a board of five Directors that have the power to set rates, incur debt and enforce water service assessments. The District's revenues come from monthly metered service charges and connection charges. The District held an election in 2010 to allow collection of revenue without being limited by the TABOR amendment, and the authority to take on debt.

Water Rights

The District's primary source of water is Evans Gulch. The District has incorporated an additional source of supply from three wells along the East Fork of the Arkansas River. Other sources include the Iowa Gulch, Empire Gulch, and the Canterbury Tunnel. The District's current annual delivery is approximately 1,500 AF. The following table shows a summary of the District's water rights and approximate yields available from each water right:

The District has the following decreed water rights:

TABLE 1: WATER RIGHTS

Name	Amount	Appropriation Date	Adjudication Date	Water Court Case No.
Starr Ditch	2.15 CFS	5/1/1860	9/10/1904	CA1856
Iron Silver Mining Co. Ditch	4.3 CFS	5/1/1862	9/10/1904	CA1856
Evans Gulch Branch Iron Silver Mining Co. Ditch	2.2 CFS	6/1/1863	9/10/1904	95CW0006
Evans Gulch Reservoir No 2	189 AF	10/6/1887	9/10/1904	CA1856
Evans Gulch Reservoir	23 AF	1879/1903	9/10/1904	CA1856
Mountain Lake Reservoir	122 AF	1889/1902	9/10/1904	CA1856
Iowa Gulch	11.7370 CFS	7/10/1860	9/10/1904	95CW0006
Stevens & Leiter Ditch	3 CFS	9/1/1873	9/10/1904	CA4918
Blow Ditch - Empire Creek	2 CFS	12/1/1890	9/10/1904	CA1856

Project Description

The goal of this Project is to restore the District's flume to provide safe diversion of flows around the District's water supply reservoir and to protect the integrity of the reservoir's dam embankment. The following alternatives were considered:

Alternative 1 - Do Nothing: This alternative was considered undesirable due to risk of failure of the flume or the dam, and the high cost (approximately \$10,000 annually) of maintenance of the existing flume. Breaching of the flume into the storage reservoir could damage the water treatment plant, leaving the District's water users without water supply for several days. The State Dam Safety Engineer has also recommended the flume be replaced.

Selected Alternative 2 - Construct new flume with same alignment: This alternative provides for replacement of the existing flume with twin solid-wall HDPE pipes for durability and resistance to high-turbidity flows, as well as construction of new inlet and outlet structures. Open structures were cost prohibitive and safety concerns would remain, thus the consideration of a closed pipe design. The proposed twin 48" HDPE pipes will also have significantly more capacity than the existing flume. Project savings could result from eliminating the new inlet and outlet structures, but the dam would then have less protection from erosion, as a discharge structure is needed to dissipate the energy of high velocity flows. This option is the lowest cost option deemed acceptable by the State Dam Safety Engineer.

Alternative 3 - Divert Stream into Lake: This alternative consists of routing the stream flow into the reservoir, which would cause the water going into the treatment plant to contain high levels of sediment, turbidity and runoff from abandoned mines, making water treatment difficult or impossible at times. Also, diverting the stream into the reservoir would result in a large amount of sediment collecting in the reservoir, necessitating frequent and expensive cleaning.

Alternative 4 - Divert Stream into Lake Overflow: This alternative consists of diverting the stream away from the reservoir directly to the lake overflow. Preliminary review of this option showed that a large of amount of wetlands would be impacted, resulting in a complicated and difficult permitting process, requiring Federal approval. The impacted wetlands would likely need to be replaced by building new wetlands at a different location. The minor benefit of utilizing the existing reservoir spillway structure did not appear to justify the time and expense associated with the permitting process.

Each alternative was evaluated with respect to cost, resistance to erosion, reliability, constructability, and vulnerability to exposure to sunlight, fire, and flooding. The District and its engineers decided Alternative 2 provides the best combination of cost, constructability, and long-term reliability.

TABLE 2: ESTIMATED PROJECT COST

Task	Cost
Preliminary Design and Engineering (funded by District)	\$43,265
Final Design and Engineering	\$31,130
Construction	\$445,975
Construction Management	\$13,060
Total	\$533,430

TABLE 3: PROJECT FUNDING SUMMARY

	Percent of total project costs	Funding
CWCB Loan	34%	\$180,000
CWCB Water Supply Reserve Grant - Basin Account	9%	\$50,000
CWCB Water Supply Reserve Grant - Statewide Account	47%	\$250,000
District Cash Match	10%	\$53,430
Total	100%	\$533,430

CWCB Grant funds will be disbursed at a cumulative maximum 56% of the total of all invoices submitted for reimbursement.

Permitting: A wetlands survey was conducted for the selected alternative, and no permitting issues are anticipated.

Schedule: The Preliminary Design for the project is nearing completion, which includes design, engineering, and environmental and cultural assessments. Final Design and Engineering will see design drawings finalized, and construction is anticipated to be completed by January of 2017.

Water Supply Reserve Account Grant

Applicant & Fiscal Agent: Parkville Water District
Water Activity Name: Evans Reservoir Bypass Flume Replacement
Water Activity Purpose: Municipal/Industrial
County: Lake
Drainage Basin: Arkansas
Water Source: Evans Gulch

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

Amount Requested/Source of Funds:	\$50,000	Arkansas Basin Account
	<u>\$250,000</u>	<u>Statewide Account</u>
	\$300,000	Total Grant Request

Matching Funds: Basin Account Match: \$50,000 = 17% of total grant request (meets 5% min);
Basin Account & Applicant Match: \$283,430 = 95% of total grant request (meets 25% min);
Applicant Match: \$233,430 = 44% of total project costs (\$533,430)
(refer to *Funding Summary/Matching Funds* section)

Objectives:

- The purpose of the Project is protecting the District's water supply reservoir by rehabilitating the Evans Reservoir Bypass Flume, which has reached the end of its useful life.
- Protect integrity of the City's Evans Reservoir water supply dam from excessive erosion during high runoff events

Discussion: This project aligns with the Goals and Measurable Outcomes as described in the Arkansas Basin Implementation Plan (Section 1; Table 1.6.2: Municipal Goals; 1. Meet the Municipal Supply Gap in each county within each Basin; page 15), and is specified as a Proposed IPP (Arkansas River Basin Project Database, Appendix 5.2-B Master Needs List Report, Arkansas Basin ID: ARK-2015-0527, page 22 of 35).

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>
Parkville Water District	\$53,430	\$0	\$53,430
CWCB Loan	\$180,000	n/a	\$180,000
Sub-total matching funds	\$233,430	\$0	\$233,430
Arkansas Basin Account	\$50,000	n/a	\$50,000
WSRA Statewide Account	\$250,000	n/a	\$250,000
Total	\$533,430	\$0	\$533,430

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

The District qualifies for the current low-income municipal rate of 2.45% for a 30-year term, reduced to 1.95% for a 10-year term per Financial Policy #7.

TABLE 4: FINANCIAL SUMMARY

Total Project Cost	\$533,430
Borrowers Contribution (10% of Project Cost)	\$53,430
WSRA Statewide Grant (9% of Project Cost)	\$250,000
WSRA Arkansas Basin Grant (47% of Project Cost)	\$50,000
CWCB Loan Amount (34% of Project Cost)	\$180,000
CWCB Loan Amount (Including 1% Service Fee)	\$181,800
CWCB Annual Loan Payment	\$20,186
CWCB Annual Loan Obligation (including reserve account)	\$22,205
Monthly loan obligation per tap (2,336 taps)	\$0.79

Creditworthiness:

The District has increased water rates eight times in the past ten years. In anticipation of this project, the District has raised base water rates by an additional 4% that is expected to bring in an additional \$58,000 in annual revenue.

The District carries an existing loan with CWCB, approved in 2010, for the Canterbury Tunnel Repair, which is currently in repayment and in good standing. Current District debt is shown in the following table:

TABLE 5: EXISTING DEBT

Loan	Maturity Date	Original Balance	Loan Balance	Annual Payment	Collateral
CWCB Loan No. C150308	2043	\$1,026,371	\$989,039	\$59,355	Water Revenues Pledge
1 st Mountain Bank	2020	\$145,070	\$140,250	\$32,309	Mini Excavator and Backhoe
Total			\$1,129,289	\$91,664	

TABLE 6: FINANCIAL RATIOS

Financial Ratio	Past Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	128% (strong) \$1.33M / \$1.04M	131% (strong) \$1.39M / \$1.06M
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	420% (strong) (\$1.33M -\$944K) / \$92K	389% (strong) (\$1.39M -\$944K) / \$114K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	65% (average) \$671K / \$1.04M	89% (average) \$946K / \$1.06M
Debt per Tap (2,336 taps) weak: >\$5,000 - average: \$2,500-\$5,000 - strong: <\$2,500	\$483 (strong) \$1.13M/2,336	\$561 (strong) \$1.31M /2,336
Average Monthly Water Bill weak: >\$60 - average: \$30 - \$60 - strong: <\$30	\$37.88 (average)	\$39.40 (average)

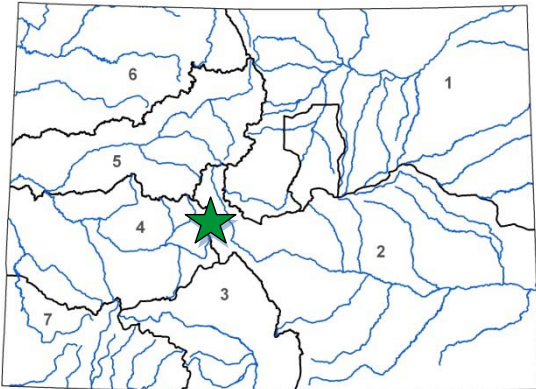
Collateral: As security for the loan, the District will pledge its water revenues backed by a rate covenant . This is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Greg Teter, District Manager
Susan Schneider/Jennifer Mele, Colorado Attorney General's Office

Attachment: Water Project Loan Program – Project Data Sheet



L O A N D E T A I L S	
Project Cost:	\$533,430
CWCB Loan (with Service Fee):	\$181,800
Loan Term and Interest Rate:	10 Years @ 1.95%
Funding Source:	WSRA & Sev. Tax Perpetual Base Fund
B O R R O W E R T Y P E	
Agriculture	Municipal
0%	100% Low - 0% Mid - 0% High
P R O J E C T D E T A I L S	
Project Type:	Municipal & Industrial
Average Annual Delivery:	1,500 AF



L O C A T I O N	
County:	Lake
Water Source:	Evans Gulch
Drainage Basin:	Arkansas River
Division:	2
District:	11

The Evans Reservoir Bypass Flume, constructed around 1904, is a wooden trough measuring 6' x 5' x 450', including inlet and outlet structures. The flume carries Evans Creek contaminated water around Evans Reservoir and through the dam.

Annual maintenance of the wooden structure has required increasingly heavy efforts and expense. Heavy runoff events in the last several years have caused the condition of the flume to become an extremely urgent situation. 8,000 acres of deep snow must be channeled through the flume during spring runoff each year. In the spring of 2014, sudden runoff combined with spring rains resulting in an unusually high snow melt. The flume was nearly overwhelmed and the portion that passes over the abutment of the dam failed. Fairly serious erosion of the dam resulted, but emergency repairs prevented further damage and contamination of the water supply. Runoff in 2015 was unusually high as well, due to the amount of snowfall in April and unusually warm temperatures in June, necessitating emergency action again. The State Engineer's Office has strongly recommended that the flume be replaced. This project proposes a buried pipeline to replace the flume. Concrete inlet and outlet structures will be constructed, and a trash rack will be installed at the inlet.

The two primary objectives of the project are to protect water quality for the City of Leadville, and to prevent failure of the Evans Reservoir dam.

