



TO: Colorado Water Conservation Board Members

FROM: Kirk Russell, P.E., Finance Section Chief

DATE: March 21-22, 2018 Board Meeting

AGENDA ITEM: 7a. Water Project Loans/Grants
San Luis Valley Irrigation District - Rio Grande Reservoir Rehabilitation

Introduction

The San Luis Valley Irrigation District (District) is applying for a loan and grant for the Rio Grande Reservoir Rehabilitation - Phase 2 (Project). The purpose of the Project is to provide operational efficiencies and improve stream health and utilization of Rio Grande water by rehabilitating the outlet works of the on-channel Rio Grande Reservoir Dam. The Reservoir has a storage right of 51,113 acre-feet and delivers water to nearly 62,000 acres of agricultural land in the San Luis Valley. The Reservoir's outlet has long been a limiting factor in the administration of the Rio Grande. The total Project cost estimate for Phase 2 is \$25 million. The District, is requesting a loan from the CWCB for 60% of the Project costs and a grant for 40% of the Project costs. See attached Project Data Sheet for a location map and Project summary.

Legislative Authority

The Rio Grande Reservoir Rehabilitation Project is a component of the Rio Grande Cooperative Project (Cooperative Project) which received a funding authorization from the General Assembly in the 2012 Projects Bill (SB12S-002). Due to increased construction cost estimates during the final design of the Project, the authorization was increased in the 2017 Projects Bill (HB17-1248). The legislation provided a \$5 million grant for Phase 1 of the Rio Grande Reservoir Rehabilitation Project. Phase 1 funding was used to address dam seepage, a land exchange with the U.S. Forest Service, and final design. The remaining authorization of \$25 million is available for Phase 2.

Staff Recommendation for a CWCB Loan

Staff recommends the Board approve a loan not to exceed \$15,000,000 for Project costs to the San Luis Valley Irrigation District for costs related to the Rio Grande Reservoir Rehabilitation - Phase 2 Project, from the Construction Fund. The loan terms shall be 30 years at the agricultural interest rate of 1.65% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Staff additionally recommends a contract condition requiring the borrower to establish a reserve fund equal to 1% of the approved loan amount (\$150,000) for use as the loan service fee at the project completion.

Staff Recommendation for a Non-Reimbursable Investment Grant

Staff recommends the Board approve a grant not to exceed \$10,000,000 to the San Luis Valley Irrigation District for the costs related to the Rio Grande Reservoir Rehabilitation - Phase 2 Project from the Construction Fund.



Background

Rio Grande Cooperative Project

The Cooperative Project's objective is to develop a partnership between the State and the District to achieve multiple benefits through coordination of the Reservoir's releases to enhance the environment, provide recreational flows, increase supplies and utilize the State's share of Rio Grande water while assuring Compact compliance deliveries to New Mexico. The District is committed to working with the CWCBC to develop a 10,000 acre-feet storage pool that can be used by the CWCBC to facilitate the Cooperative Project's objectives.

The Rio Grande Reservoir Rehabilitation Project is a component of the State's funding of the Cooperative Project which includes financial support for Colorado Parks and Wildlife's repairs to the Beaver Park Reservoir, located on a tributary of the Rio Grande. The Cooperative Project received a funding authorization of \$30 million from the General Assembly in the 2012 Projects Bill (SB12S-002). Due to increased construction cost estimates during final design of the Rio Grande Reservoir Rehabilitation Project, the authorization was increased by \$10 million in the 2017 Projects Bill (HB17-1248).

The components of the Rio Grande Cooperative Project and funding sources are shown in the following table.

Cooperative Project Components	Original Authorization (SB12S-002)	Amending Authoriation (HB17-1248)	Status
CPW's Beaver Park Reservoir Rehab.	\$10 million loan to CPW		Completed 2015
Rio Grande Reservoir Rehab.			
Phase 1	\$5 million Grant		Completed 2016
Phase 2	\$15 million Loan/Grant funding package	\$25 million Loan/Grant funding package	PreConstruction

Rio Grande Reservoir

The original dam was constructed to 100 foot high in 1914 to store 46,000 acre-feet. The earthen-rockfill dam almost immediately sustained damage due to vibration and erosion from the outlet works. The dam has been modified on several occasions since the initial construction. The dam crest was raised in 1979 by 5 feet due to overtopping concerns. In 1982, the dam crest was again raised to its current height of 111 feet, which increased the Reservoir's capacity to store its decreed storage right. The outlet gate structure was repaired in 1983 and then again in 1987 to correct problems associated with the 1983 work. Modifications and repairs to the outlet tunnel and gate chamber have continued ever since. The primary cause of the recurring repairs are due to an early 20th century gate design that does not work well with pressures and release rates as required by this Reservoir.

NonReimbursable Investment Consideration (Grant Portion of Funding)

The Project aligns with Colorado's Water Plan by providing basin-wide and regional benefits that promote water management and administration practices that are adaptive, flexible, and responsive to optimize multiple benefits. The reoperation and retiming of water stored and released from Rio Grande Reservoir will provide regional benefits including: enhancing the ability of CPW to manage its water resources by timing releases and exchanges to address stream health issues, including periods of low flow and high water temperatures for aquatic habitat and regulate water rights to better meet water

demands of the San Luis Valley and upper Rio Grand basin. Benefits also include: instream flow enhancement, channel maintenance, recreation, terrestrial and aquatic wildlife habitat, irrigation, augmentation, and Compact compliance.

Loan Feasibility Study

DiNatale Water Consultants prepared the Loan Feasibility Study titled, "Feasibility of Rehabilitation of Rio Grande Reservoir Hinsdale County, CO" dated February 2018. The feasibility study was prepared in accordance with CWCB guidelines and includes engineering design, and construction cost estimates prepared by Deere & Ault Consultants, Inc. Financial statements were prepared by Wall, Smith, Bateman, Inc. Alamosa.

Borrower - San Luis Valley Irrigation District

The District is an irrigation district formed and operating pursuant to Colorado Revised Statutes, Title 37, Article 1, Irrigation District Law of 1905. The District's offices are in Center, Colorado and it is governed by a five member Board of Directors. In addition to the Reservoir, the District owns and operates 135 miles of irrigation ditches, including its primary ditch, the Farmers Union Canal, which diverts water from the Rio Grande. The District Board may set assessments as necessary; however, undertaking this loan obligation and debt requires the District to call a special landowner election to approve this loan.

Water Rights

The District has direct flow rights decreed to the Farmers Union Canal. It also has storage rights for the Rio Grande Reservoir. The District's water rights are shown in Table 1.

TABLE 1: SUBJECT WATER RIGHTS

Name	Amount	Appropriation Date	Priority Number
Rio Grande Reservoir	5,280 AF	June 1, 1903	1934-2
Rio Grande Reservoir	45,833 AF	June 3, 1903	1916-63A

The average total water delivered over the last five years is 41,700 acre-feet. Of this amount, 27,000 acre-feet (65%) has been direct flow and 14,700 acre-feet (35%) were reservoir releases.

Project Description

The Rio Grande Reservoir Rehabilitation Project was divided into two phases.

Phase 1 included efforts to address dam seepage, a land exchange with the U.S. Forest Service, and final design. The seepage mitigation work was completed in 2013. It included: a clay slope liner over the left abutment; a grout curtain in the bedrock on the right abutment; riprap work on the upstream dam face; and construction of a new service road to access the dam outlet. The land exchange and final design were completed in 2017.

Phase 2 efforts will include the rehabilitation of the Reservoir outlet which is subject of this funding request. The following alternatives were considered.

Alternative 1 - No Action: This alternative was not selected because if no action is taken there is a high risk of loss of reservoir control due to sticking gates or damage from high releases.

Alternative 2 - New Downstream Tunnel: This alternative involved constructing a new downstream tunnel from spillway to upstream of the gate structure. It is the highest cost alternative but could be constructed without impeding Reservoir operations. It is similar to the selected alternative (pressurized tunnel with pipe and cone valves) but requires has 700 feet of new tunnel. This would be the preferred alternative except for the high cost.

Alternative 3 - Demolish and Build New Slide Gates: This alternative involves the demolition and construction of new slide (sluice) gates. This is similar to the existing installation except it includes removal of the guard gates next to the operating gates, which may be a main cause of excess vibration. This would be the least cost action alternative but the current concerns with the hydraulics of pressurized to gravity flow would remain which makes this an undesirable alternative.

Selected Alternative 4 - Modernize Outlet: The selected alternative provides a modern pressurized system at lower cost than the new downstream tunnel alternative (Alternative 2) but a higher cost than demolition and construction of new slide gates. In the selected alternative, tunneling is reduced from 700 feet to 70 feet of bypass tunnel. The tradeoff for the reduced cost over the new downstream tunnel is that the Reservoir will be out of operation for a longer time to put pipe in the existing downstream tunnel and the additional construction risk of working during the winter months.

Phase 2 is divided into two phases due to scheduling of construction.

Phase 2A consists of constructing a new concrete intake structure with new guard gates and the lining of the intake tunnel. This phase is expected to be constructed in the fall of 2018 to facilitate the work proposed in Phase 2B.

Phase 2B consists primarily of constructing a new outlet works and includes: a reinforced lined bypass tunnel; steel lining of the existing outlet tunnel; a ten-foot diameter steel pipe to extend the outlet 150 feet; twin 84-inch fixed cone valves and a 36-inch low flow valve to provide for flows of 30 to 1,600 cfs and emergency release flows up to 2,500 cfs.

The engineer's estimated construction cost is \$25,000,000 as shown in Table 2.

TABLE 2: ESTIMATED PROJECT COST

Task	Total
Phase 2A - Intake Structure Rehabilitation	
Construction	\$3,700,000
Preorder Special Materials (Pipe, valves, etc)	\$5,000,000
Engineering	\$435,000
SUB-TOTAL	\$9,135,000
Phase 2B - Outlet Works Rehabilitation	
Construction	\$13,790,000
Engineering	\$1,390,000
SUB-TOTAL	\$15,180,000
PROJECT SUB-TOTAL	\$24,315,000
CONTINGENCY	\$685,000
TOTAL	\$25,000,000

Permitting: The District was issued a Nationwide 404 Permit for the rehabilitation in June 2017. The Floodplain Development Permit was issued by Hinsdale County in August 2017. No additional permits are anticipated.

Schedule: The District received approval of final design from the State Dam Safety Branch for the outlet repairs in 2016. The District has scheduled a special landowner election for April 3rd, 2018, to take on a loan for this Project. Phase 2A construction is scheduled August 2018 through February 2019. Phase 2B construction is scheduled July 2019 through May 2020.

Financial Analysis

Table 3 provides a summary of the Project's financial components. The District qualifies for an agricultural interest rate of 1.65% for a 30-year term. Staff recommends a variance from Policy #16 - Loan Service Charges, allowing a cash payment of the service fee in lieu of including it in the loan. Staff will require \$150,000 to be held in a segregated bank account for use as a 1% Service Fee at the time of Substantial Completion of the Project.

TABLE 3: FINANCIAL SUMMARY

Total Project Cost		\$25,000,000
CWCB Non-Reimbursable Investment Grant		\$10,000,000
CWCB Loan Amount (Borrower will cash fund 1% Service Fee)		\$15,000,000
Annual CWCB Loan Payment		\$637,950
CWCB Annual Loan Obligation (1 st Ten Years)		\$701,750
Annual Loan Obligation per acre (61,920 acres) first ten years		\$11.33
	Per Acre	Per ¼ Section
Current Assessment	\$9.38	\$1,500
Future Assessment needed *	\$15.75	\$2,520
Future Assessment needed if additional lease revenues are avail. **	\$14.14	\$2,260

* District has excess revenue from current assessments and storage leases that absorb a portion of the debt service increase.

** The District anticipates additional lease revenue will be available that will help cover the debt service related to this loan.

Loan/Grant Disbursement: Payments from the CWCB funds will be processed at the following percentages: 60% loan and 40% grant.

Creditworthiness: The District has \$532,053 in existing debt made up of three CWCB loans. All three of these loans were for improvements to the Reservoir and are in good standing with the CWCB.

The District's current assessments are \$9.38/acre (or \$1,500 per 160 acre quarter section). This generates about \$580,000 annually. In 2017 the District received approximately \$500,000 in an annual payment from three leases for the use of storage space in the Reservoir. As a result of this Project, the District anticipates additional reservoir storage space can be leased to water providers in the San Luis Valley including municipalities, groundwater subdistricts, and well owners. Revenues from additional storage is estimated to be between \$500,000 and \$600,000 annually.

In addition to the District assessments, the landowners pay a variable fee to the recently formed Subdistrict No. 1 to cover approximately 0.83AF/acre of irrigated cropland. This equates to approximately \$67/acre in addition to the land owner's District assessment.

TABLE 4: EXISTING DEBT

Lender	Original Balance	Current Balance	Annual Payment	Maturity Date	Collateral
CWCB (C153318)	\$90,000	\$14,472	\$3,894	2021	10% interest in Rio Grande Res.
CWCB (153386)	\$514,457	\$207,230	\$32,063	2025	Rio Grande Reservoir and Property
CWCB (153478)	\$526,087	\$310,351	\$34,716	2029	Rio Grande Reservoir water
Total		\$532,053	\$70,673		

TABLE 5: FINANCIAL RATIOS

Financial Ratio	Past Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	136% (strong) \$1.16M/\$850K	100% (average) \$1.55M/\$1.55M
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	539% (strong) <u>(\$1.16M-\$779K)</u> \$70.7K	100% (average) <u>(\$1.55M-\$779K)</u> \$773K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	180% (strong) \$1.53M/\$850K	145% (strong) \$2.23K/\$1.55K
Annual Operating Cost per Acre-Foot (41,700AF) weak: >\$20 - average: \$10 - \$20 - strong: <\$10	\$20.38 (weak) \$850K/41,700AF	\$37.19 (weak) \$1.55M/41,700AF

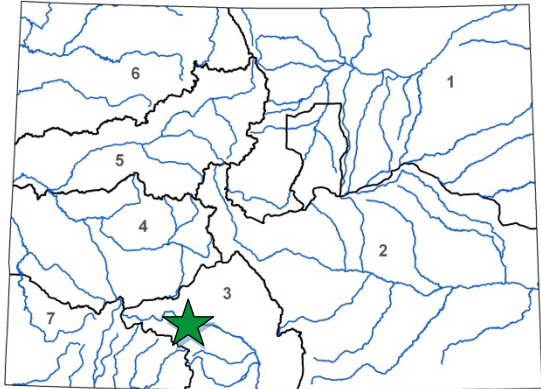
Collateral: Security for this loan will be a pledge of assessment revenues. This security is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Rob Phillips, Superintendent, San Luis Valley Irrigation District
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:	\$25M
Funding Package:	\$10M Grant & \$15M Loan
Loan Term and Interest Rate:	30 years @1.65%
Funding Source:	Const Fund & NonReimbursable
B O R R O W E R T Y P E	
Agriculture	Municipal Commercial
100%	0% Low - 0% Mid - 0% High 0%
P R O J E C T D E T A I L S	
Project Type:	Reservoir Rehabilitation
Preserved Storage:	51,113 AF



L O C A T I O N	
County:	Hinsdale, Rio Grande
Water Source:	Beaver Creek & Rio Grande
Drainage Basin:	Rio Grande
Division:	3 District: 20

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This Project is vital to the basin and region as it will provide operational efficiencies by better managing the timing of water stored and released from the Reservoir. This will result in improved stream health and utilization of Rio Grande water by the District, the State of Colorado, and the many other water users in the basin.

The total Project cost estimate (Phase 1 & 2) is \$30,000,000. The District received a \$5,000,000 grant in Projects Bill SB12S-002 for Phase 1, which included seepage control improvements, a U.S. Forest service land exchange, and final design of the outlet works. SB12S-002 also included an appropriation for a loan and grant funding package of \$15,000,000. A subsequent Projects Bill in 2017 (HB17-1248) increased this loan/grant funding package to \$25,000,000.

The District, is requesting a loan from the CWCB for 60% of the Phase 2 Project costs and a grant for 40% of the Phase 2 Project costs.

