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Colorado Water Conservation Board
Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Rachel Pittinger, P.E., Project Manager
Kirk Russell, P.E., Finance Section Chief

DATE: May 23-24, 2018 Board Meeting

AGENDA ITEM: 9b. Water Project Loans
Julesburg Irrigation District – Diversion Structure Rehabilitation

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Introduction

The Julesburg Irrigation District (District) is applying for a loan for the Diversion Structure Rehabilitation (Project). The purpose of the Project is to rehabilitate an existing diversion structure on the South Platte River so the structure may divert and deliver water to its shareholders and may be operated safely. The Project cost is estimated is $3,308,000. The District is seeking a loan from CWCB for 100% of Project costs. See attached Project Data Sheet for a location map and Project summary.

Staff Recommendation

Staff recommends the Board approve a loan not to exceed $3,341,080 ($3,308,000 for Project costs and $33,080 for the 1% service fee) to the Julesburg Irrigation District for costs related to the Diversion Structure Rehabilitation Project, from the Severance Tax Perpetual Base Fund. The loan terms shall be 30 years at the blended interest rate of 1.70% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Background

The District, located in Logan County and Sedgwick County, operates the river diversion structure at the Petersen Ditch as well as other ditches and reservoirs for the benefit of the shareholders by providing direct flow irrigation water. The Petersen Ditch diverts water from the South Platte River, approximately 1.38 miles west of the Town of Sedgwick. Shareholders' water deliveries are made through the Petersen Ditch to an 8,925-acre service area.

The existing river diversion structure was built out of wood and concrete in 1956 and has a river span width of 320-feet. The existing concrete is eroded and needs replacement. The structure is nearing the end of its useful life and the existing design of the diversion dam allows accumulation of sand on the upstream side of the structure. Improvements to the diversion will provide the opportunity to alleviate sand accumulation.

The river diversion structure and ditch headgate are difficult to operate. They require personnel to enter during winter flow conditions to adjust flows thus creating a dangerous condition for operations personnel. The diversion structure was built to operate during the normal irrigation season, but in the last several years winter season operation has become necessary to satisfy winter augmentation flow requirements.

Loan Feasibility Study

John G. Gauthiere, P.E., with Gauthiere Engineering, Inc., prepared the Loan Feasibility Study titled, "Feasibility Study for the Julesburg Irrigation District Petersen Ditch Diversion Structure Replacement Project," dated March 30, 2018. The feasibility study was prepared in accordance with CWCB guidelines and included an analysis of alternatives, preliminary engineering, and engineering costs estimated. Audited financial statements were provided by Lauer, Szabo and Associates, PC, Certified Public Accountants.

Borrower – Julesburg Irrigation District

The Julesburg Irrigation District was formed in 1904, and serves 19,129 bonded acres within the District, owned by 110 landowners. The District's total average diversion is 54,421 acre-feet per year and the Petersen Ditch's total average diversion is 10,647 acre-feet per year.

The District uses the terms shares and acres interchangeably, as one share is equivalent to one bonded acre of land ownership. The District has a three-member board of directors elected by the shareholders at large. The majority of revenues are from annual shareholder assessments. The District operates under the Colorado Revised Statutes Title 37 Article 41, the Irrigation District Law of 1905. The Board of Directors duties involve obtaining the legal electors approval, in writing, in order for the District to bind contracts in excess of $400,000. The District is prepared to call a special election for this Project.

Water Rights

The District holds water rights in the Petersen Ditch (Structure ID Number 504), Settlers Ditch, Harmony Ditch and Julesburg Reservoir. These water rights are shown in Table 1.

TABLE 1: WATER RIGHTS

Name	Amount	Appropriation Date	Adjudication Date	Water Court Case No.
Petersen Ditch	164 cfs	3/1/1895	10/26/1907	CA0944
Settlers Ditch	89 cfs	12/13/1897	10/26/1907	CA0944
Harmony Ditch 1 (100 shares)	252 cfs	4/28/1895	7/20/1896	CA0304
Harmony Ditch 1	450 cfs	2/12/1904	12/8/1908	CA0944
Julesburg Reservoir	28,178 AF	12/12/1904	12/8/1908	CA0944
Julesburg Reservoir (refill)	8079 AF	9/30/1985	12/31/1996	96CW1033
Julesburg Irrigation District (Aquifer Recharge)	12,500 AF	12/30/1995	12/28/1995	95CW283 03CW450

Project Description

The objective of the Project is to provide means for the District to safely continue providing irrigation water to shareholders while minimizing the occurrence of future diversion failures.

Alternative 1 – No Action: This alternative was not selected because the existing diversion dam is at the end of its useful life and is no longer dependable or reliably repairable. The District will be unable to fully divert water into the Petersen Ditch if the diversion dam is not replaced. A loss of 10,647 acre-feet per year could occur, resulting in a major loss of crops under the District's system. The per acre value of the farm ground in the District's system could drop significantly if the no action alternative was selected.

Alternative 2 – Rehabilitation using concrete weir and wood boards: This alternative involves the rehabilitation of the river diversion dam using 320 feet of concrete weir with board slots. The ditch head gate would be reconstructed with a new concrete structure and 30 feet of 3-foot high bladder gate. The estimated cost of this alternative is $2,700,000. This alternative was not selected because not provide the ease, efficiency and safety of operation that Selected Alternative 3 provides. This alternative does nothing to address the large accumulation of sand upstream of the dam and associated maintenance issues and the operational difficulties experienced satisfying the winter augmentation demand.

Selected Alternative 3 – Rehabilitation using concrete weir and bladder gates: This alternative is considered to be the most reliable approach the efficient and safe diversion of water. This alternative involves the rehabilitation of the river diversion dam using 100 feet of a 5-foot high pneumatically actuated stainless-steel bladder gate and 220-foot concrete weir. The pneumatically actuated gate would be installed on a monolithic reinforced concrete slab. Stability will be provided by a pile foundation and steel sheet piling will provide seepage cutoff and protection from erosion. This combination weir structure will be installed on a monolithic steel reinforced concrete slab in the riverbed and have wing walls of steel reinforced concrete.

The ditch head gate will be rehabilitated with a new concrete structure and a 30-foot wide by 3-foot high pneumatically actuated stainless-steel bladder gate. The new ditch head gate structure will have a gated bypass that can be used during winter ice conditions. A preliminary design showing critical elevations was developed by the engineer and required flows were determined. An additional feature of this alternative is improved fish passage.

The total cost associated with the Project is $3,308,000 as shown in Table 2.

TABLE 2: ESTIMATED PROJECT COST

Tasks	Cost
Design and Permitting	$355,000
Construction	$2,678,000
SUBTOTAL	**$3,033,000**
Contingency (9%)	$275,000
TOTAL	**$3,308,000**

Permitting: An easement from the electric service provider is required. All other easements and rights of way have been arranged. The District expects to be exempt from 404 permitting by Statutory Exemption, 33 CFR Section 323.4(a)3, addressing construction and maintenance projects not requiring permits.

The Project is located upstream of the Tamarack State Wildlife Area, which helps Colorado meet its water obligations for the Platte River Recovery Implementation Program (PRRIP) through groundwater recharge operations. The Tamarack Plan retimes water during times of excess to make water available in the South Platte River for the PRRIP's target endangered species downstream in Nebraska when the species need it most. The Project will not affect Tamarack Plan operations.

Schedule: The District anticipates final design by summer of 2018. They plan to rehabilitate the diversion dam and ditch head gate during the 2018-2019 winter months prior to the 2019 irrigation season.

Financial Analysis

Table 3 provides a summary of the Project's financial aspects. The District qualifies for a blended interest rate of 1.70% for a 30-year term (Ownership: 1% Low-Income Municipal, 1% Commercial, 98% Agricultural).

TABLE 3: FINANCIAL SUMMARY

Project Cost	$3,308,000
CWCB Loan Amount	$3,308,000
CWCB Loan Amount (Including 1% Service Fee)	$3,341,080
CWCB Annual Loan Payment	$143,096
CWCB Annual Loan Obligation (1st Ten Years)	$157,406
Number of Irrigated Acres	19,129
Annual Loan Obligation per Acre	$8.23
Current Assessment per Acre	$23.50
Future Assessment per Acre (Estimated)	$32.50

Creditworthiness: The District has $735,506 in existing debt as shown in Table 4. The District has four existing loans with the CWCB that are all in good standing. Assessments were raised to $18/acre in 1997, $20/acre in 1998, $22/acre in 2004, and $23.50/acre in 2006. The assessment has remained unchanged for 12 years. The District anticipates raising assessments to $32.50/acre as a result of this Project.

TABLE 4: EXISTING DEBT

Lender	Original Balance	Current Balance	Annual Payment	Maturity Date	Collateral
CWCB C153827	$510,469	$272,644	$28,631	2030	Assessment /Property
CWCB C153604	$386,750	$205,129	$20,278	2030	Assessment Covenant/
CWCB C150060A	$100,000	$59,376	$5,437	2031	Assessment Covenant/
CWCB CT2017-904	$203,616	$198,357	$8,721	2047	Assessment Covenant/
	Total	$735,506	$63,067		

TABLE 5: FINANCIAL RATIOS

Financial Ratio	Prior Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	98% (weak) $629K/$643K	100% (average) $802K/$801K
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	74% (weak) ($629K-$589K) $54K	100% (average) ($802K-$589K) $212K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	78% (average) $500K/$643K	62% (average) $500K/$801K
Annual Operating Cost per Acre-Foot (54,421AF) weak: >$20 - average: $10 - $20 - strong: <$10	$11.82 (average) $643K/54,421AF	$14.71 (average) $801K/54,421AF

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

cc: Mr. Larry Frame, Superintendent, Julesburg Irrigation District
Jennifer Mele, Colorado Attorney General's Office

Attachment: Water Project Loan Program – Project Data Sheet

COLORADO
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Diversion Structure Rehabilitation

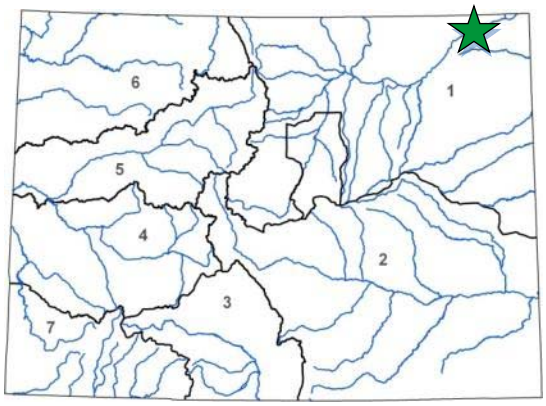
Julesburg Irrigation District

May 2018 Board Meeting

LOAN DETAILS	
Project Cost:	$3,308,000
CWCB Loan (with Service Fee):	$3,341,080
Loan Term and Interest Rate:	30 Years @ 1.70%
Funding Source:	Severance Tax PBF

BORROWER TYPE		
Agriculture	*Municipal*	*Commercial*
98%	1% Low - 0% Mid -0% High	1%

PROJECT DETAILS	
Project Type:	Diversion Structure Rehabilitation
Average Annual Diversions:	54,421 AF



LOCATION			
County:			Sedgwick
Water Source:			South Platte
Drainage Basin:			South Platte
Division:	1	*District:*	*64*

The Julesburg Irrigation District (District) operates a South Platte River diversion structure and the Petersen Ditch headgate as well as other ditches and reservoirs for the benefit of the shareholders by providing direct flow irrigation water. The District service area is comprised of approximately 19,129 acres. The District's diversions from the South Platte River through the Petersen Ditch are normally 164 cubic feet per second from the South Platte River providing water to 8,925 acres. The diversion of water is accomplished with a concrete diversion dam across the South Platte and a ditch regulating head gate structure. The 1956 river diversion dam is approximately 320 feet wide and the ditch head gate structure is approximately 30 feet wide. The District wants to rebuild the diversion dam and ditch head gate in order to continue water deliveries to the shareholders and provide and improve the structures' operational safety. Construction is anticipated during the 2018-2019 winter months prior to the 2019 irrigation season.