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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:** May 15-16, 2019 Board Meeting

**AGENDA ITEM:** 14b. Water Project Loans
Upper Platte and Beaver Canal Company – Diversion Structure Replacement

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**Introduction**

The Upper Platte and Beaver Canal Company (Company) is applying for a loan for the Diversion Structure Replacement (Project). The existing diversion structure is approximately 1,400 feet long and spans the South Platte River. The structure is deteriorating, has substantial structural deficiencies, and is believed to be close to failure. The purpose of the Project is to ensure continued diversions by replacing the diversion structure. Improvements to the structure will include features to mitigate flood impacts, improve sediment transport, and review opportunities to restore river continuity for fish and aqueous habitat. The total Project cost is estimated to be $4,392,000. The Company submitted a Water Plan Grant application for $1,098,095 for the Project under the Agricultural category, which is described under Agenda Item 29j. Staff is not recommending Water Plan Grant funding at this time. The Company is requesting a loan to cover 100% of Project cost. See attached Project Data Sheet for a location map and Project summary.

**Staff Recommendation**

Staff recommends the Board approve a loan not to exceed $4,435,920 ($4,392,000 for Project costs and $43,920 for the 1% service fee) to the Upper Platte and Beaver Canal Company for costs related to the Diversion Structure Replacement Project, from the Construction Fund. The loan terms shall be 40 years at a blended interest rate of 2.25% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

**Background**
The Company is located in Morgan County and operates the Upper Platte and Beaver Canal for the benefit of stockholders by providing direct flow irrigation water. Its diversion structure is located on the South Platte River northwest of Fort Morgan at Log Lane Village. The service area is comprised of approximately 10,000 acres primarily around the town of Brush. Water diverted from the river typically is used to irrigate corn, alfalfa, beans, and sugar beets. A small number of shares are owned by the Town of Brush for municipal use.

The Company shares its diversion structure with the Deuel and Snyder Ditch Company (DSIC) with the Company diverting from its headgates on the south bank, and DSIC diverting from a separate headgate on the north bank. The river was historically braided at this location and a large center island connected the two diversions. The flood of 1965 washed away the center island which led to the construction of a long diagonal wall to connect the two original diversion and headgate structures in order allow the two companies to make water diversions into its respective delivery systems.

The current diversion structure is approximately 9 feet tall and 1,400 feet long. An engineering investigation in 2015, and follow up feasibility study in 2016 (funded through a $93,750 WSRF grant), by TZA Water Engineers identified several significant deficiencies in the existing structure. The chief concern is the erosion of the underlying shale bedrock due to seepage underneath and scour from overtopping flows. Fatigue cracking, spalling, surface deterioration, and exposure of reinforcement is common throughout each section of the structure. These problems, if left unaddressed, will likely result in the failure of the diversion structure preventing water diversions and deliveries.

**Loan Feasibility Study**
Matt Harris, P.E., with Harris Engineering Consultants, prepared the Loan Feasibility Study titled, “Feasibility Report – Upper Platte and Beaver Canal Company Diversion Structure Replacement Project,” dated March 19, 2019. The feasibility study was prepared in accordance with CWCB guidelines and includes an analysis of alternatives, preliminary engineering design, and construction cost estimates. Audited financial statements were prepared by Deborah Jorisch Watson, CPA.

**Borrower – Upper Platte and Beaver Canal Company**
The Company was incorporated in 1888 as a Mutual Ditch Company and was formed out of the Platte and Beaver Improvement Company. It operates as a nonprofit corporation and is in good standing with the Colorado Secretary of State. A 5-member Board of Directors have full control of the management of the Company. The Company is made up of 100 stockholders owning 1,187 shares of stock. The Company provides an average annual diversion of 32,300 AF.

Revenues are almost entirely derived from assessments charged on shares of stock owned by the stockholders which are voted on and approved by stockholders at the annual stockholder meeting held in February. The Board of Directors have the power to make and levy assessments in case the stockholders fail to make such assessments. To enforce assessments, the Board of Directors maintain a perpetual lien upon all shares, have authority to assess interest on delinquent assessments, and require that assessments are paid in full before delivering any water to stockholders.

**Water Rights**
Water rights dependent on the diversion structure are shown in Table 1 and described herein. The Company owns four senior irrigation rights, totaling 234.17 cfs, and two junior recharge rights, each totaling 234.17 cfs. The Company also owns shares in the Jackson Lake Reservoir and Irrigation Company, the Riverside Reservoir and Land Company, and the Morgan-Prewitt Reservoir Company, and

diverts this water either directly or by exchange through the diversion structure. DSIC owns four irrigation rights, totaling 84 cfs and a junior recharge water right for 68 cfs.

**TABLE 1: PROJECT DEPENDENT WATER RIGHTS**

| Name | Amount (cfs) | Appropriation Date | Adjudication Date | Water Court Case No. |
|---|---|---|---|---|
| Upper Platte Beaver Canal | 15.00 | 4/20/1868 | 11/21/1895 | CA11195 |
| Upper Platte Beaver Canal | 5.17 | 5/15/1869 | 4/28/1883 | CA11195 |
| Upper Platte Beaver Canal | 50.00 | 6/20/1882 | 11/21/1895 | CA0433 |
| Upper Platte Beaver Canal | 164.00 | 4/15/1888 | 11/21/1895 | CA0433 |
| Upper Platte Beaver Canal | 234.17 | 6/12/1972 | 6/12/1972 | W-2968 |
| Upper Platte Beaver Canal | 234.17 | 12/14/2010 | 12/14/2010 | 10CW298 |
| Deuel Snyder Canal | 13.00 | 4/2/1871 | 11/21/1895 | CA0433 |
| Deuel Snyder Canal | 8.00 | 7/1/1874 | 11/21/1895 | CA7747 |
| Deuel Snyder Canal | 32.00 | 4/7/1884 | 11/21/1895 | CA0433 |
| Deuel Snyder Canal | 31.00 | 11/1/1888 | 11/21/1895 | CA7747 |
| Deuel Snyder Canal | 68.00 | 4/23/2003 | 4/23/2003 | 03CW222 |

**Project Description**

The objective of the Project is to provide the stockholders of the Company and DSIC with a reliable means of diverting their water right. The following alternatives were analyzed:

***Alternative 1 – No Action***: This alternative was considered unacceptable because the substantial structural deficiencies are more than normal maintenance can address and they will lead to a failure of the diversion. Between the two ditch companies, an average of 37,656 AF per year is diverted to irrigate approximately 11,500 acres. Therefore, the risk of a substantial crop loss due to inability to divert water is too high.

***Alternative 2 – Repair the structure:*** This alternative was found to be unacceptable because the integrity of much of the concrete slab base, walls, and buttresses was found to be questionable. Regardless of condition of the existing structure, many new elements would have to be added including an upstream and downstream cut-off wall and a downstream scour pad to reduce bed scour. Additionally, this alternative would be unable to address concerns with mitigating flood impacts, improving sediment transport, or restoring river continuity for fish and aqueous habitat.

***Selected Alternative 3 – New Diversion:*** This alternative will consist of the removal and replacement of the existing structure, with the exception of DSIC headgate structure on the north bank which was recently reconstructed. The Company's headgate structure will be moved approximately 700 ft upstream of the existing headgate to be in line with DSIC's diversion, negating the need for a diagonal section. The new diversion will be constructed of reinforced concrete arranged in a traditional slab and buttress configuration.

Improvements from the original structure will include two inflatable crest gate spillways (Obermeyer) that will mitigate flood impacts, improve sediment transport, and improve overall channel stability. During intermediate to high flows, the gates will operate in a partially deflated mode, allowing the passage of aquatic habitat. The Company is in discussions with CPW to incorporate a fish passage that would allow the passage of fish under low river flows. The passage would be designed to target the

Brassy Minnow, a Tier 1 Species of Concern. Incorporation of a low flow fish passage is likely dependent on securing grant funding.

The cost estimate of this alternative is $4,392,000 as shown in Table 2.

**TABLE 2: ESTIMATED PROJECT COST**

| Task | Total |
|---|---|
| Construction | |
| Diversion Structure | $3,577,000 |
| Headgate Specific Components | $423,000 |
| Misc (Dewatering, Materials Testing etc) | $242,000 |
| Subtotal | 4,242,000 |
| Design and Construction Engineering | $150,000 |
| **TOTAL** | **$4,392,000** |

***Permitting:*** The Project is located on Company property and no new easements or rights-of-way will be required. The Company expects construction to be exempt from 404 permitting by statutory exemption for the repair of an existing diversion structure. Therefore, it believes an Environmental Assessment or an Environmental Impact Statement will not be required.

The Company plans to file an application to change the Upper Platte and Beaver Canal's point of diversion with the Division 1 Water Court. Because there is no intervening surface diversion point or inflow, the Company will file an Application for Simple Change in Surface Point of Diversion.

***Schedule:*** Final design will be completed this summer. Construction is expected to begin in October 2019 and be completed by April 2020.

**Financial Analysis**

Table 3 provides a summary of the Project's financial aspects. The Company qualifies for a blended interest rate of 2.00% for a 30-year term (Ownership: 85% Agricultural, 12% Low Municipal, 3% Commercial). The Company is applying for a 40-year term; therefore, the interest rate is increased by 0.25% for a final blended interest rate of 2.25% per CWCB Financial Policy #7 (Lending Rate Determination).

The Company has applied for a Water Plan Grant to be heard at this same CWCB Board Meeting. Any grant funds received from CWCB will be used to reduce the amount of loan funds disbursed, at a pro-rata percentage based on grant award to Project cost. Additionally, DSIC has agreed to reimburse the Company for 15% of the Project costs associated with the diversion structure. This is based on a historical arrangement where DSIC pays 15% of all maintenance cost for the diversion. This agreement will be a private party contract between the Company and DSIC and will obligate DSIC to assess its stockholders each year to pay a portion of each annual payment. Notwithstanding, the Company understands that it will be 100% responsible for all the debt under this loan.

To be conservative, CWCB staff prepared the financial analysis under the assumption that the Company receives no grants or financial contributions by DSIC.

**TABLE 3: FINANCIAL SUMMARY**

| | |
|---|---|
| Total Project Cost | $4,392,000 |
| CWCB Loan Amount | $4,392,000 |
| CWCB Loan Amount (Including 1% Service Fee) | $4,435,920 |
| CWCB Annual Loan Payment | $169,352 |
| CWCB Annual Loan Obligation (1st Ten Years) | $186,287 |
| Number of Borrower Shares | 1187 |
| Annual Loan Obligation per Share | $157 |
| Current Assessment per Share | $230 |
| Estimated Future Assessment per Share | $340 |

***Creditworthiness:*** The Company has no existing debt. In December 2018, the Company paid in-full CWCB Loan Contract CT2015-101 early (original maturity date 2023). The Company had two other CWCB loans in the past (contracts: C150096 and C150144) which were paid in-full in 2012 and 2013.

**TABLE 4: FINANCIAL RATIOS**

| Financial Ratio | Prior Years | Future w/ Project |
|---|---|---|
| Operating Ratio (revenues/expenses)<br>Weak: <100% - average: 100% - 120% - strong: >120% | 121%<br>(strong)<br>$288K/$238K | 100%<br>(average)<br>$404K/$403K |
| Debt Service Coverage Ratio<br>(revenues-expenses)/debt service<br>Weak: <100% - average: 100% - 120% - strong: >120% | 338%<br>(strong)<br>($288K-$217K)<br>$21K | 101%<br>(average)<br>($404K-$217K)<br>$186K |
| Cash Reserves to Current Expenses<br>Weak: <50% - average: 50% - 100% - strong: >100% | 134%<br>(strong)<br>$320K/$238K | 79%<br>(average)<br>$320K/$403K |
| Annual Operating Cost per Acre-Foot (32,300 AF)<br>Weak: >$20 - average: $10 - $20 - strong: <$10 | $7.37<br>(strong)<br>$238K/32,300AF | $12.48<br>(average)<br>$403K/32,300AF |

***Collateral:*** Security for this loan will be a pledge of assessment revenues backed by an assessment covenant and the Project itself (diversion and headgate structure). This security is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Steve Griffith, President, Upper Platte and Beaver Canal Company
Jennifer Mele, Colorado Attorney General's Office

Attachment: Water Project Loan Program – Project Data Sheet

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# Diversion Structure Replacement

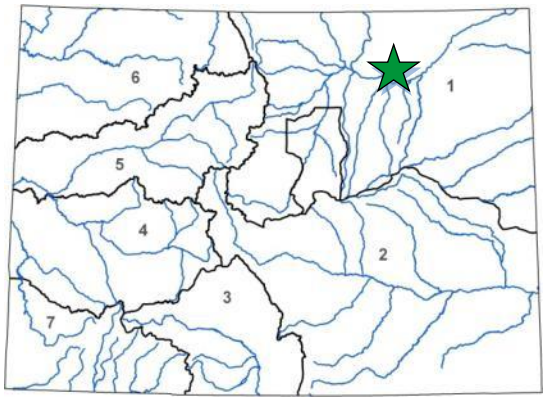
**Upper Platte and Beaver Canal Company**

May 2019 Board Meeting

| LOAN DETAILS | |
|---|---|
| *Project Cost:* | $4,392,000 |
| *CWCB Loan (with Service Fee):* | $4,435,920 |
| *Loan Term and Interest Rate:* | 40 years @ 2.25% |
| *Funding Source:* | Construction Fund |

| BORROWER TYPE | | |
|---|---|---|
| *Agriculture* | *Municipal* | *Commercial* |
| 85% | 12 % Low - 0% Mid -0% High | 3% |

| PROJECT DETAILS | |
|---|---|
| *Project Type:* | Diversion Structure Rehabilitation |
| *Average Annual Diversions:* | 32,300 AF |




| LOCATION | | | |
|---|---|---|---|
| *County:* | | | Morgan |
| *Water Source:* | | | South Platte River |
| *Drainage Basin:* | | | South Platte |
| *Division:* | 1 | *District:* | 1 |

The Upper Platte and Beaver Canal Company was incorporated in 1888 and shares a diversion off the South Platte River with the Duel & Snyder Improvement Company (DSIC). Together the two ditch companies provide irrigation water to 11,500 acres.

The existing diversion structure is a reinforced concrete slab and buttress structure with a height of 9 feet and a length of 1,416 feet. The diversion structure was originally built in 1936 and had improvements done in 1965. This existing structure has several deficiencies including seepage and erosion under the structure and concrete deterioration throughout the structure. This project will consist of the removal and replacement of the existing structure. The new structure will incorporate inflatable crest gate spillways (Obermeyer gate) and restore channel continuity, improve sediment transport, and provide additional flow conveyance during floods. Construction is anticipated to occur from October 2019 through April 2020.