CWCB Loan Feasibility Study
Shores Lakes Infrastructure Improvement Project
Well Augmentation Subdistrict of the Central Colorado Water Conservancy District

PREPARED FOR:

COLORADO WATER CONSERVATION BOARD

SEPTEMBER 2017

FEASIBILITY STUDY APPROVAL
Pursuant to Colorado Revised Statutes 37-60-121 &122, and in accordance with policies adopted by the Board, the CWCB staff has determined this Feasibility Study meets all applicable requirements for approval.

Signed

1/11/2018
Date

CWCB Loan Feasibility Study
Shores Lakes Infrastructure Improvement Project

Well Augmentation Subdistrict of the
Central Colorado Water Conservancy District

PREPARED FOR:

COLORADO WATER CONSERVATION BOARD

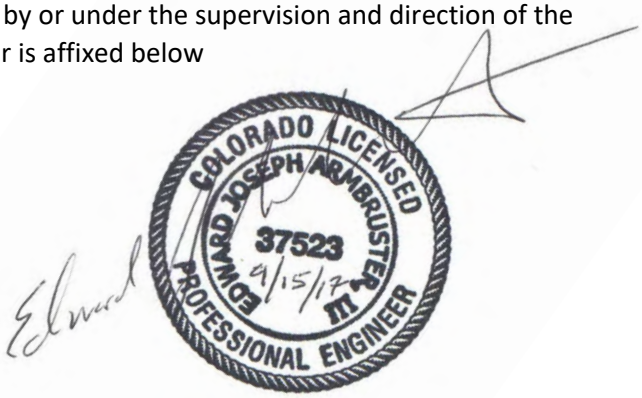
SEPTEMBER 2017

white sands water engineers, inc

CWCB Loan Feasibility Study

Well Augmentation Subdistrict
Shores Lakes Infrastructure Improvement Project

The technical material in this report was prepared by or under the supervision and direction of the undersigned, whose seal as a Professional Engineer is affixed below



_____

Ed Armbruster, P.E.
President

The following staff at Central Colorado Water Conservancy District contributed to the preparation of this report.

Randy Ray, Executive Director
Danyelle McCannon, Financial Analyst

Table of Contents

Figures

Tables

Appendices

1 Introduction

This report summarizes results of a feasibility study completed for the Central Colorado Water Conservancy District (Central or CCWCD) and Well Augmentation Subdistrict (WAS) of Central. Investigations were focused on the feasibility of Central and WAS developing additional infrastucture improvements at Shores Lakes to improve water storage and delivery operations and increase project efficiency (the infrastructure improvements comprise the "Project").

Shores Lakes is owned by Central (20 percent) and WAS (80 percent). Total cost of the proposed infrastructure improvement Project is estimated to be $3.429 million. Central's cash contribution to the Project will be $1.086 million, and WAS is seeking to borrow the remaining $2.343 million from the Colorado Water Conservation Board (CWCB) Water Project Loan Program to fund their portion of the Project. The loan from CWCB would represent 68 percent of the total Project cost. The term of the loan would be 30 years at an annual interest rate of 1.75 percent (the Loan Application is provided as **Appendix A**).

This report provides a summary description of Central, WAS, their purpose and operations, existing facilities at Shores Lakes and the need for the Project, and the assets, financial resources of WAS, and the ability of WAS to repay the loaned funds to CWCB.

White Sands Water Engineers, Inc. and staff at Central conducted this study and prepared this report at the request of the Board of Directors of CCWCD.

2 Central and WAS

Central was formed in 1965 pursuant to the 1937 Water Conservancy Act of the State of Colorado (CRS 150-5). The District includes over 750 square miles in Adams, Weld, and Morgan Counties (**Figure 1**). The geographic boundary of CCWCD generally includes lands in the South Platte River basin between Denver and Fort Morgan, Beebe Draw, and the lower portions of the Box Elder Creek and Lost Creek drainages. The boundaries of Central include portions of several cities and towns (e.g. Thornton, Brighton, Fort Lupton, Platteville, Greeley and Fort Morgan), numerous smaller rural communities (e.g., Gilcrest, LaSalle, Kersey and Hudson) and approximately 210,000 acres of irrigated agricultural lands supplied by ditches and groundwater wells.

WAS is a subdistrict of Central formed in 2004 to provide replacement water for some of the wells formerly relying on Groundwater Appropriators of the South Platte (GASP) for augmentation supplies. The decree authorizing WAS formation was entered by the Weld County District Court in Case No. 03CV1408. Numerous GASP wells were not included in the WAS Plan and either sought augmentation supplies through other organizations or ceased to operate.

WAS extends over the same broad area as the CCWCD boundaries but is geographically smaller in terms of the number of acres included. The WAS boundaries specifically include only those lands identified in individual contracts with constituents, i.e., the WAS boundaries are not contiguous. WAS covers an aggregate geographic area totaling about 78 square miles. Approximately 275 wells are currently members of the WAS plan for augmentation. The priorities of the groundwater rights of WAS wells range from 1904 to 1966 and approximately 85 percent of the WAS wells have priorities senior to 1960. Each WAS well owner has a contract with WAS for augmentation water (Class B, C and D contracts) that currently total approximately 15,250 ac-ft. WAS contracts provide supplemental ground water to some of the constituents and are the sole water supply for other contract owners. Approximately 96 percent of WAS contracts are for irrigation uses.

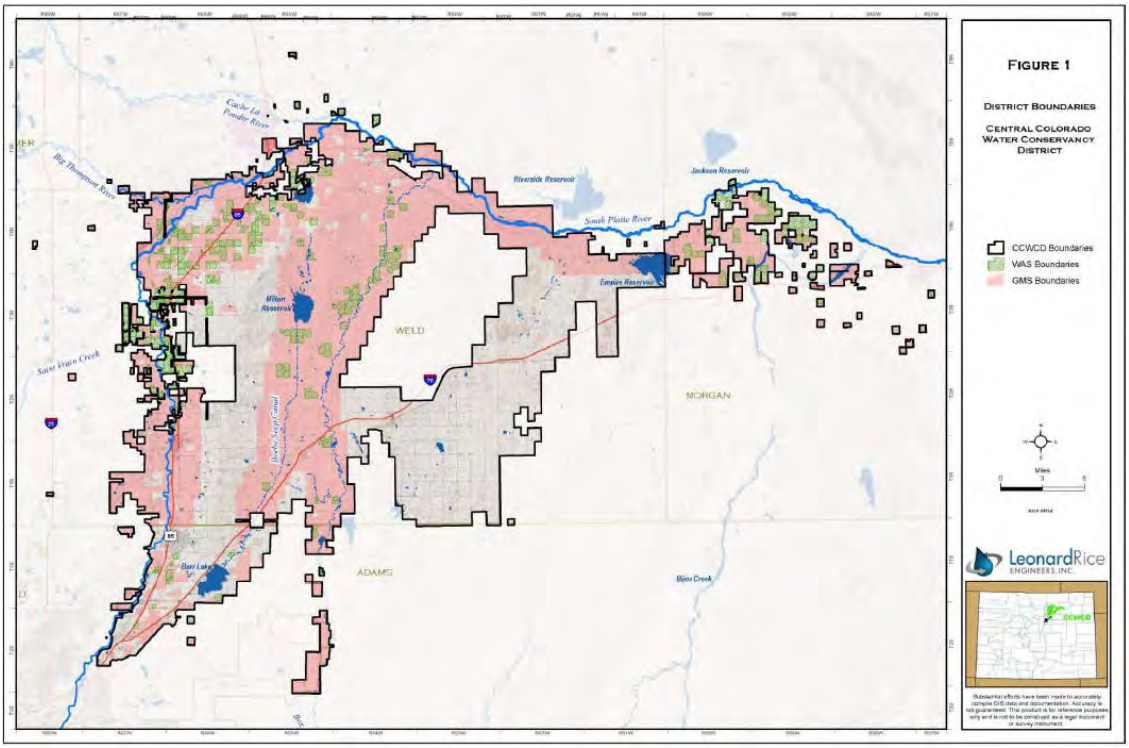


Figure 1. Boundaries of Central, WAS and GMS

WAS operates the plan for augmentation decreed by the Water Court for Division 1 in Case No. 03CW099 (the "WAS Decree" or the "WAS Plan for Augmentation"). The WAS Plan operates over ten administrative reaches along the South Platte River from Denver to Fort Morgan (**Figure 2**). The approximately 15,250 ac-ft of WAS contracts is distributed across reaches as shown in **Figure 3.**

On an annual basis WAS issues a "quota" to its constituent wells. The quota is a percentage of each member's contracted augmentation supply amount, and is an allocation of overall WAS augmentation supplies. The annual quota is determined by comparing available supplies to well pumping depletions

over a multi-year scenario. Recent annual quotas have ranged from 35% to 60%. The annual quota depends heavily on amounts of water WAS holds in storage reservoirs at the beginning of each irrigation season (larger storage volumes result in higher annual quotas).

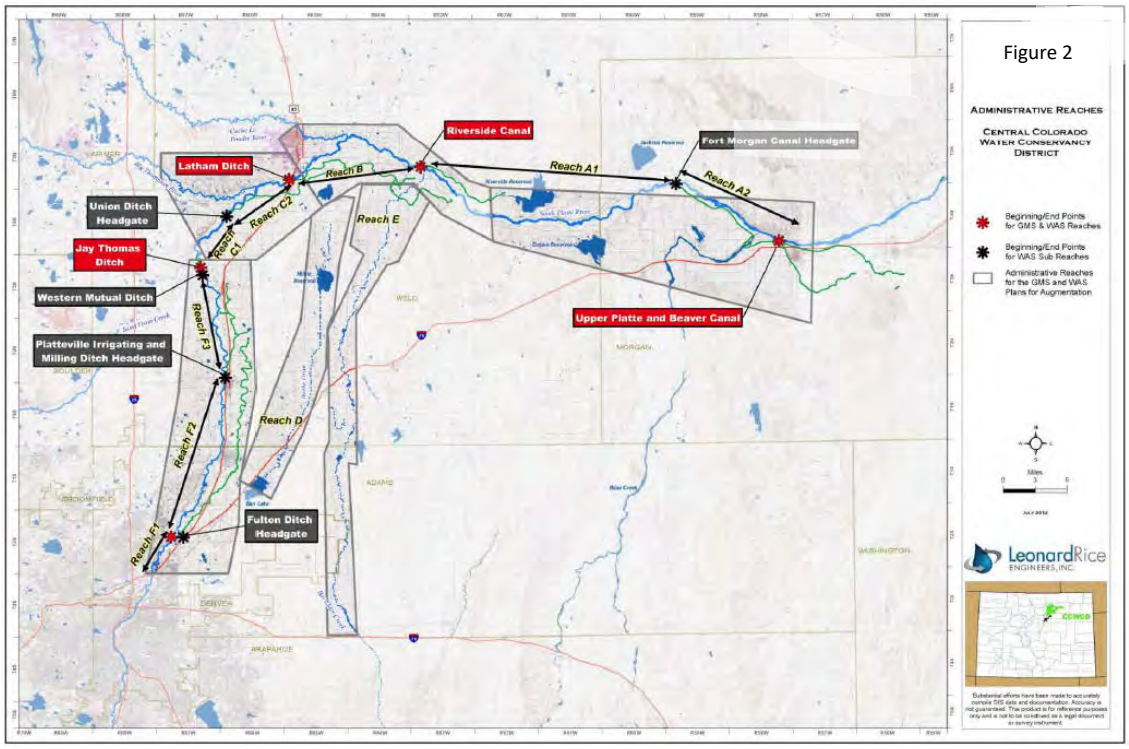


Figure 2. Augmentation Plan Administrative Reaches

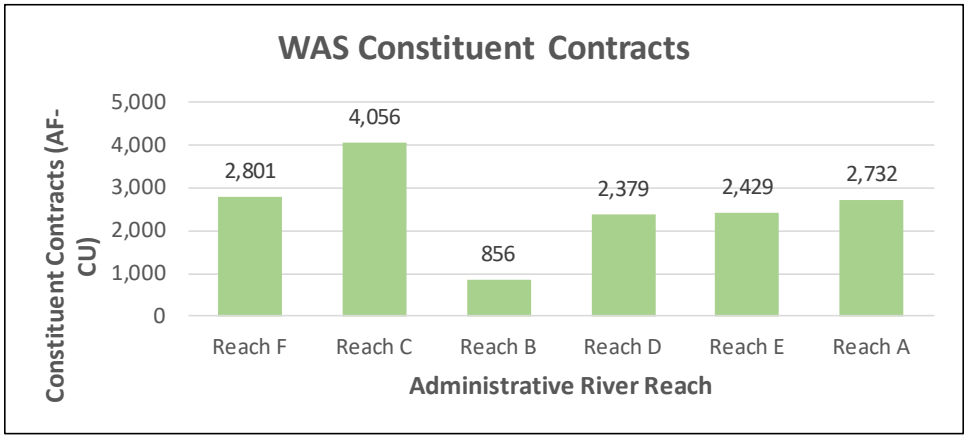


Figure 3. Distribution of WAS Allotment Contracts

WAS's current portfolio of water rights consists of changed senior direct flow rights and junior storage, recharge and exchange rights that have been decreed or are pending adjudication. Senior water rights changed by WAS for augmentation use provide a reliable supply of approximately 1,000 acre-feet per year. WAS owns the decree for Shores Lake which can store water under junior priorities (4,500 acre-feet).

Throughout the year WAS continuously operates its water rights to supply augmentation supplies for its constituent wells. During the irrigation season, the augmentation supplies come from changed direct flow water rights, storage releases, and recharge accretions. During the non-irrigation season the augmentation supplies are primarily storage releases and recharge accretions. WAS may also rely on short-term leases of fully consumable water if those supplies are available.

3 Shores Lakes

Shores Lakes is located along the North side of Firestone Blvd (Hwy 119) approximately one-mile East of Interstate 25 in Weld County, Colorado (**Figure 4**). The project includes areas in the SE¼ of the NE¼ and the E½ of the SE¼ of Section 2, W½ of the SW¼ and S½ of the NW¼ and SW¼ of the NE¼ of Section 1, all in Township 2 North, Range 68 West of the 6th P.M.

Shores Lakes is a key component of the WAS augmentation plan and was jointly developed by Central and WAS. The project consists of four lined gravel pits (Ponds A, B, C and D). Mining at two of the pits (B and C) has been completed and WAS has actively operated these reservoirs since 2007. Mining at Ponds A and D is anticipated to be complete within two years. All the ponds are interconnected and Shores Lakes will eventually have capacity to store 4,500 af. In addition to original storage easement costs ($10.8 million), Central has expended approximately $2.1 million on existing inlet, outlet and interconnect infrastructure, carriage agreements, and measurement systems. **Figure 5** is a diagram showing existing facilities and proposed future improvements at Shores Lakes.

The decree adjudicating storage rights in Shores Lakes identifies several inlet locations on different tributaries and several outlet locations. Inlet locations include:

- Rural Ditch: Rural Ditch diverts water from Boulder Creek. There is an existing delivery structure from Rural Ditch into Pond B. The Project includes construction of an inlet from the Rural Ditch to Pond C.
- Godding Ditch: Godding Ditch diverts water from Boulder Creek and delivers the water into Godding Hollow. There is an existing delivery structure from Godding Hollow into Ponds A.
- Tri-Town Drainage: The Tri-Town Drainage collects water from Cole Seep Ditch and Biederman Draw (aka Mayfield Hollow or McCormick Seep Ditch). Initial construction of an inlet from the Tri-Town Drainage into Pond C has been completed. The Project includes completion of this inlet.
- As noted previously water can be moved between Ponds A, B, C and D through interconnect pipelines.

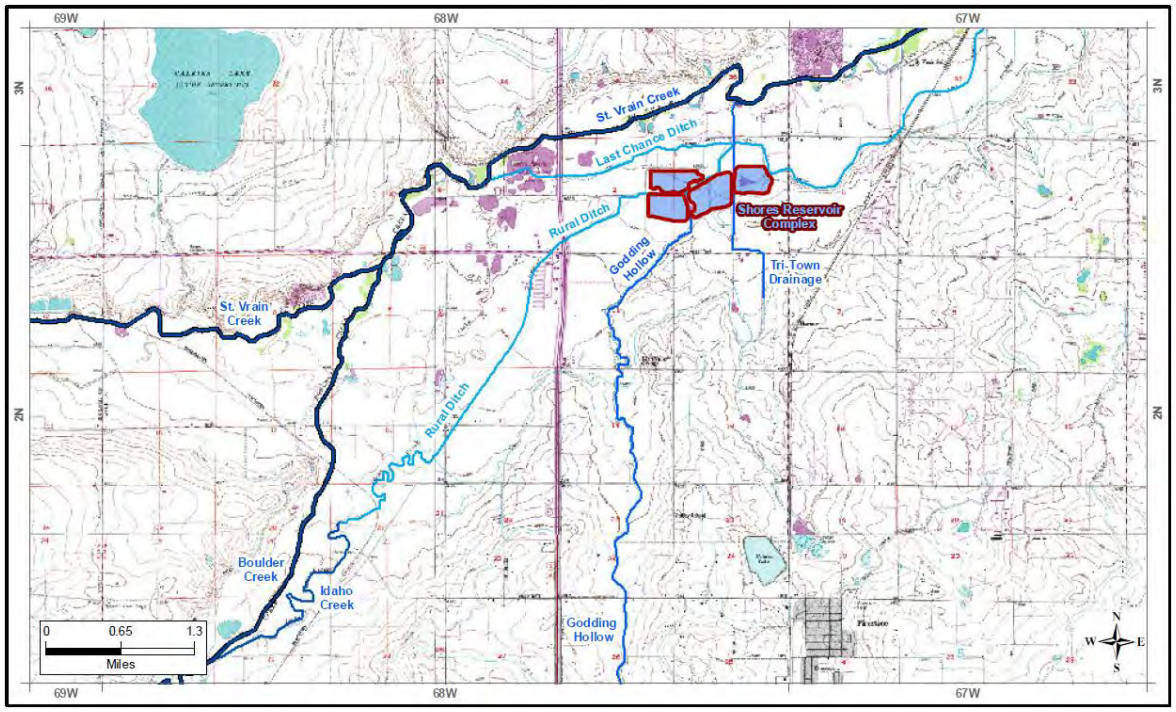


Figure 4. Location Map of Shores Lakes

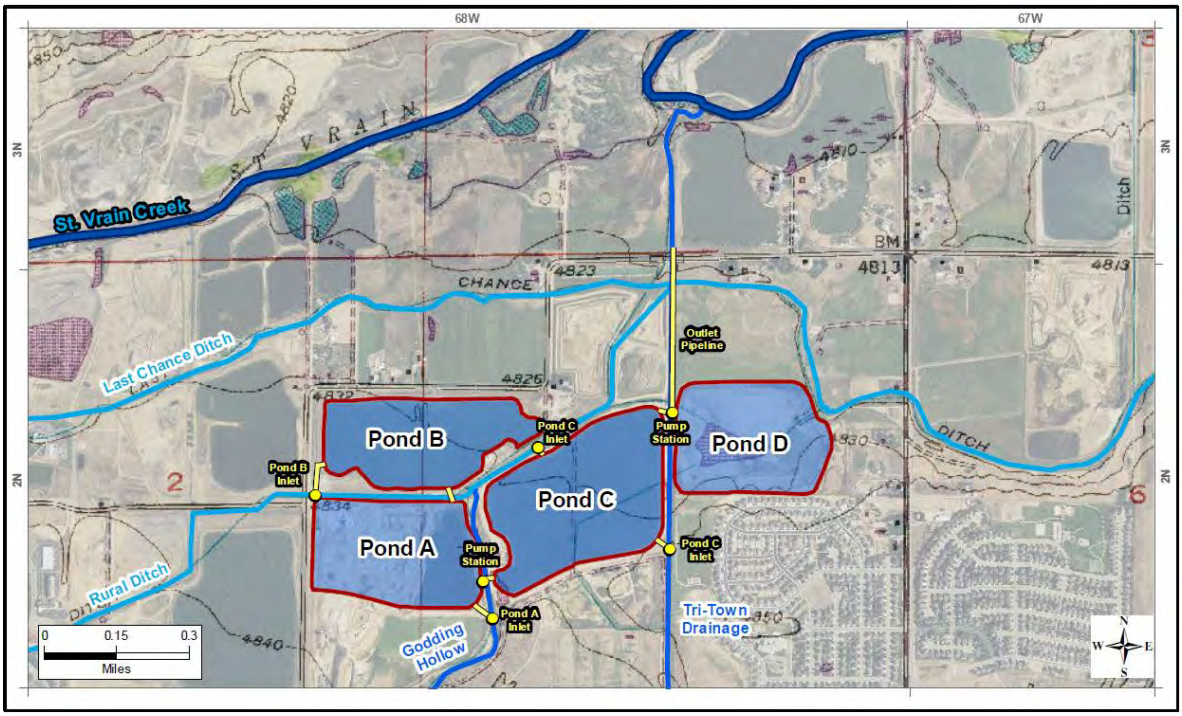


Figure 5. Existing and Proposed Infrastructure at Shores Lakes

Outlet locations from Shores Lakes include:

- Rural Ditch: There is an existing pump station outlet from Pond A to deliver water into Godding Hollow. Water is carried in Godding Hollow approximately 1,000 feet to the Rural Ditch, then carried to the St. Vrain River via an earthen channel (there are no headgates on the Rural Ditch below Shores Lakes).
- Tri-Town Drainage: The Project includes construction of a combination gravity and pump station outlet from Pond C. This outlet will release water into a pipeline that extends approximately 1,750 feet beneath the Tri-Town Drainage, then carried to the St. Vrain River via an earthen channel.

4 Need for Project

The WAS plan for augmentation is operated and administered by the State on a real-time basis. This means that WAS continuously communicates with State water administration officials concerning the locations and amount of augmentation water that must be delivered to the river, and about the amount of water WAS can divert or store under their junior water right appropriations. To a large degree these operations depend on river call conditions, i.e., the seniority of any downstream water right demanding more water. Daily operations require quick response time to release water and protect other water rights. Similarly, Central must act quickly to capture and store water when it is available in priority under its junior water rights.

Although envisioned at the time the water rights for Shores Lakes were appropriated in 2000, several key components of system have not yet been completed because of financial constraints. Those components include:

- Completion of Tri-Town Drainage inlet into Pond C
- Construction of Pond C inlet from Rural Ditch
- Construction of combination gravity outlet and pump station from Pond C to pipeline beneath Tri-Town Drainage pipeline.

Preliminary designs for infrastructure components have been completed and estimated costs are shown in **Table 1**.

Operations using existing facilities at Shores Lakes has proven difficult and somewhat inefficient. This is due to lack of both inlet and outlet structures at Pond C (storage in, and releases from, Pond C must rely on flows though the reservoir interconnecting pipelines). Existing facilities require excessive “staging” of water between the four different ponds. For example, if water is legally and physically available to store from diversions through the Rural Ditch, but Pond B is full, then no additional storage can occur until water in Pond B is evacuated to Pond A. Similarly, to store additional water in Pond A, Pond A would need to be evacuated to Ponds C or D, through the interconnects. Releases from Shores Lakes using the existing

system also relies on excessive staging, i.e., water must be in Pond A for augmentation releases from Shores Lakes to occur.

Table 1.
Cost Estimates – Shores Lakes Infrastructure Improvements

Complete Tri-Town Inlet to Pond C	$276,000
Pond C Inlet from Rural Ditch	$172,500
Pond C Outlet Pump Station (10 cfs)	$1,306,170
Pond C Gravity Outlet Structure (10 cfs)	$488,750
Pond C Gravity Outlet to St. Vrain (pipeline & meter)	$1,185,995
Total	**$3,429,415**
CCWCD Contribution	**$1,085,883**
Loan Request	**$2,343,532**

Completion of the Tri-Town Inlet to Pond C will allow Central to capture and store water conveyed down the Tri-Town Drainage to the Saint Vrain River. At times, and often during intense but short duration storm events, flows can be substantial; at these times, there is often not an administrative call on the river so the water is legally available to WAS.

Completion of the Pond C Inlet from the Rural Ditch will greatly reduce the "staging" difficulties associated with the existing system. In addition, it will approximately double the storage inflow capacity from the Rural Ditch.

Completion of the Pond C gravity and pump station outlet, and the pipeline extending beneath the Tri-Town Drainage will both alleviate the staging difficulties associated with releases from Ponds C and D, and convey water to the St. Vrain River more effectively.

The Project components of the Shores Lakes system are necessary to efficiently capture and release water from Shores Lakes. The Project addresses operational requirements of daily administration of the WAS plan for augmentation, and constraints associated with legal availability of water under the junior water rights at Shores Lakes that often occurs for only brief periods of time.

5 Alternatives Analysis

5.1 No Action

Under this alternative Central would continue to operate Shores Lakes using existing facilities. Streamflow and administrative call conditions would be expected to allow brief periods of time when Shores Lakes could store additional water supplies, but Central and WAS would be unable to efficiently capture this

water because of the limitations of existing infrastructure discussed above. Since supplies of water available for use by WAS in their plan for augmentation are significantly less than their augmentation needs, this alterative is unacceptable. WAS must maximize the amount of available water through efficient operations at Shores Lakes.

5.2 Temporary Facilities

Central and WAS have previously operated several temporary facilities at Shores Lakes in efforts to maximize capture of storage water. This has included use of temporary portable pumps and pipelines (if available) that must be frequently moved to different locations. If equipment and Central staff have been available when storage opportunities arise, a portion of the legally and physically available water has been captured. However, since the window of opportunity to operate junior water rights is brief, water loss has been significant.

5.3 Preferred Alternative - Proposed Infrastructure Improvements

The alternative preferred by Central and WAS to address the operational challenges associated with existing infrastructure at Shores Lakes is to construct the facilities described above. The proposed improvements include the specific items related to inlet and outlet works to Pond C.

6 Financial Analysis of WAS

In 2016 WAS' total annual revenues were $4,443,943, and are projected to be $3,363,618 in 2017. Funds in 2016 were obtained from both tax revenues and annual Class D member assessments for plan augmentation. WAS revenues are used to purchase, lease and develop water rights, as well as to operate the annual augmentation plan. Comparative financial information over the period 2010 – 2016 is shown in **Table 2**. Detailed financial statements for the years 2014 - 2016 are provided as **Appendix B.** By statute WAS is required to conduct an independent review of its finances (audit) each year, and the audit reports for each of these same years are also shown in **Appendix B**. WAS's financial budget for 2017 is provided as **Appendix C**.

Revenues of WAS are generated in several ways. WAS collects annual assessments from each of its well owner members. Assessments are currently $65 per acre-foot of contracted consumptive use water for irrigated land, $72 per acre-foot for non-irrigated land, $130 per acre-foot for non-tax governments, and $341 per acre-foot for gravel pits. Recent-year assessments for contracts have averaged approximately $1.1 million. WAS also receives tax revenues for lands within WAS in Weld, Morgan and Adams counties. Currently WAS lands are taxed at a rate of 9.019 mils, and revenues in 2016 were approximately $3.2 million. Property tax revenues in 2017 are projected to be approximately $1.4 million, with total available revenues projected to be approximately $3.3 million.

Table 2
Comparative Historical Financial Information

	2010	2011	2012	2013	2014	2015	2016
Assessed Valuation	$211,012,600	$135,155,520	$194,227,410	$168,884,269	$168,884,269	$256,163,100	$348,235,200
Mill Levy	9.000	9.000	9.000	9.000	9.000	9.003	9.335
Operations - All Funds							
Property & Specific taxes	2,017,739	1,282,386	1,746,744	1,787,076	1,655,099	2,363,313	3,456,126
Water Assessments	455,328	549,177	472,283	862,596	1,027,708	1,308,560	977,817
Total Revenues	2,506,298	1,865,257	2,218,689	2,871,139	3,386,969	3,896,295	4,433,943
Total Expenditures	2,553,059	2,336,617	1,740,104	1,847,157	2,220,831	2,272,129	2,980,566
Excess (deficiency) of Revenues	(46,761)	(471,360)	478,585	1,023,982	1,166,138	1,624,166	1,453,377
Financial Position							
Cash & Investments	3,402,169	2,052,944	2,282,901	3,288,606	3,654,947	5,051,299	6,672,881
Water, Property & Equipment	14,654,696	15,175,524	15,055,797	15,754,409	16,223,213	16,064,896	16,564,080
Total Liabilities	16,673,589	16,708,276	16,486,622	16,928,577	17,383,862	18,287,638	14,378,432
Total Net Assets	2,747,847	2,276,487	2,615,535	3,639,518	4,805,655	6,196,321	8,858,529

WAS maintains two separate funds for purposes of their financial operations: 1) the General Fund is used to fund daily operations at WAS including salaries and benefits of staff, and to acquire water rights and develop water storage and recharge projects, and 2) the Debt Service Fund is used to repay loans and other debt that may be carried by WAS.

WAS water supply projects are funded through their General Fund and through loans and grants. For example, several recharge projects have been developed through grants obtained from the U.S. Bureau of Reclamation and the U.S. Department of Agriculture's Agricultural Water Enhancement Project (AWEP). In 2004 voters approved issuance of debt up to $37 million to fund water acquisition and infrastructure projects (voters also approved "de-Brucing" of WAS in 2004 allowing the WAS to keep and use revenues that otherwise would have been returned to taxpayers under the Taxpayers Bill of Rights Amendment (TABOR) to the Colorado Constitution). A subsequent bond issue in 2008 generated approximately $2 million (these bonds have since been retired). Over the course of 2005 - 2016 WAS borrowed approximately $14.9 million from the CWCB through the Water Project Loan Program and the funds were used to acquire several senior water rights and develop gravel pit storage.

7 Loan Request, Credit Worthiness, and Collateral

WAS is currently requesting a 30-year loan from CWCB for $2.343 million. This amount relects an estimated $3.429 million cost of the Project less contributions by Central totaling 32%. WAS is requesting CWCB waive the requirement for a 10 percent match because of the contributions from Central.

Central sought input concerning their ability to repay debt from George K. Baum & Company and requested a credit worthiness rating from Standard & Poor's Ratings Services concerning financial feasibility (**Appendix D**). This information was provided when evaluating Central's ability to repay long-

term debt that was planned to be issued in the bond market in response to voter approval in 2011. The opinions expressed and the S&P rating remain valid.

Collateral for this loan will be in the form of the water supply project, i.e., Shores Lakes improvements, developed with the loan funds.

Proceeds from this CWCB loan will provide substitute funding for water supply projects that would otherwise be funded by a long-term bond issuance funded though Central debt service fund. This means that repayment of the loan is guaranteed because it has already been approved by District voters (taxes to service the debt will be collected).

8 Conclusions

The Central and WAS Boards of Directors have determined that a near-term expenditure of $2.743 million is vital to efficient operation of Shores Lakes and for the long-term economic security of Central and WAS. This report provides a description of how funds from a CWCB loan in this amount would be used, the probable benefit to Central and WAS, and the financial capacity of WAS to repay the loan from CWCB.

9 Limitations

This document was prepared for Colorado Water Conservation Board in accordance with professional standards at the time the services were performed and in accordance with a contract between White Sands Water Engineers, Inc. and Central Colorado Water Conservancy District. The document is governed by the specific scope of work authorized by Central; it is not intended to be relied upon by any other party except for the Colorado Water Conservation Board. White Sands Water Engineers, Inc. makes no warranties, express or implied, with respect to this document, except for those, if any, contained in the agreement pursuant to which the document was prepared. Any party that relies on this document, except those authorized herein or under the terms of the contract between Central and White Sands Water Engineers, Inc. does so at its own risk. Further, we have relied on information or instructions provided by Central and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Appendix A

CWCB Loan Application

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Water Project Loan Program

Application Type

☐ Prequalification *(Attach 3 years of financial statements)* ☑ Loan Approval *(Attach Loan Feasibility Study)*

Agency/Company Information

Company / Borrower Name: Central Colorado Water Conservancy District

Authorized Agent &Title: Randy Ray, Executive Director

Address: 3209 W 28th Street Greeley, CO 80634

Phone: (970) 330-4540 | Email: rray@ccwcd.org

Organization Type: ☐ Ditch Co, ☑ District, ☐ Municipality ☐ other: _____ | Incorporated? ☐ YES ☑ NO

County: Adams, Morgan, and Weld | Number of Shares/Taps:

Water District: Conservancy District | Avg. Water Diverted/Yr _____ acre-feet

Number of Shareholders/Customers Served: | Current Assessment per Share $_____ (Ditch Co)

Federal ID Number: 84-6049901 | Average monthly water bill $ _____ (Municipality)

Contact Information

Project Representative: Randy Ray

Phone: (970)330-4540 | Email: rray@ccwcd.org

Engineer: Colby Hayden

Phone: (303) 651-1468 | Email:

Attorney: Kim Lawrence

Phone: (970) 622-8181 | Email: kim@ljcglaw.com

Project Information

Project Name: Shores Lakes Infrastructure Improvements

Brief Description of Project: (Attach separate sheets if needed)

The Shores Lakes are owned by CCWCD and WAS, with CCWCD's capacity being leased to WAS. The Shores Lakes are an augmentation supply to members in the WAS Augmentation Plan. This is the last remaining infrastructure project needed for the Shores Lakes location. One important component of this construction project is the gravity outlet, which will save money on future energy costs.

General Location: (Attach Map of Area)

One mile east and one mile north of the intersection of I-25 and Highway 119

Estimated Engineering Costs: | Estimated Construction Costs: $3,429,415 less cash contribution ($1,085,883)

Other Costs (Describe Above): | Estimated Total Project Costs: $3,429,415 less cash contribution ($1,085,883)

Requested Loan Amount: $2,343,532 | Requested Loan Term (10, 20, or 30 years): 30 Years

Project Start Date(s) Design: _____ Construction: 2018

Signature

10/18/17

Signature / Title Date

Return to: Finance Section Attn: Anna Mauss
1313 Sherman St #718
Denver, CO 80203
Ph. 303/866.3449
e-mail: anna.mauss@state.co.us

Appendix D

Opinion Concerning Financial Feasibility

George K. Baum & Company
INVESTMENT BANKERS SINCE 1928

July 30, 2012

Ms. Danyelle McCannon
Well Augmentation Subdistrict
% Central Colorado Water Conservancy District
3209 W. 28th Street
Greeley, CO 80637

Re: $3 million CWCB Loan By e-mail and USPS

Dear Ms. McCannon:

We have been asked to express an opinion on the ability of the Well Augmentation Subdistrict (WAS) to borrow and repay a proposed $3,000,000 loan from the Colorado Water Conservation Board (CWCB) to be taken down in 2012 or 2013.

It is our understanding that WAS has the authority to issue such a debt obligation as a result of voter approval to borrow up to $39 million. The Subdistrict currently has a CWCB loan of about $14.3 million that requires annual payments of $713,541 at an interest rate of 2.5%. The loan is amortized through June 1, 2040 by tax revenue generated from a debt service levy of up to 9 mills. The current assessed valuation for property taxes paid in 2012 is $179,628,340 which requires a levy of 3.97 mils to pay the CWCB loan. A $3 million loan amortized over 25 years at 2.75% will have annual payments of around $167,600 which will require a levy of .933 mils. A levy of 4.903 mils would be necessary for the current and proposed debt.

Based on this analysis and a review of the valuation of the Subdistrict, it is the opinion of George K. Baum & Company that a $3 million loan on the above terms can be repaid by the Subdistrict.

Your comments or questions are welcome.

Sincerely,

Donald W. Diones
Senior Vice President

white sands water engineers, inc

Table 1.

Cost Estimates - Shores Lakes Infrastructure Improvements

	Note	Cost	Contingency	Engineering	Total	
Complete Tri-Town Inlet to Pond C		$240,000		$36,000	$276,000	(engineering at 15%)
Pond C Inlet from Rural Ditch		$150,000		$22,500	$172,500	(engineering at 15%)
Pond C Outlet Pumpstation - 10 CFS	*Attach. A*	$946,500	$189,300	$170,370	$1,306,170	(contingency at 20%/engineering at 15%)
Pond C Gravity Outlet (10 CFS) Structure		$425,000		$63,750	$488,750	
Pond C Gravity Outlet to St. Vrain (pipeline & meter)	*Attach. B*	$937,300	$94,000	$154,695	$1,185,995	(contingency at 10%/engineering at 15%)
Total		$2,698,800	$283,300	$447,315	**$3,429,415**	
CCWCD Contribution					$ 1,085,883	
Loan Request					**$2,343,532**	

PRELIMINARY

ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS

SHORES POND C PUMP STATION

June 30, 2017

Item	Description	Quantity	Unit	Cost	Extension
1	Mobilization @ 5%	1	LS	$ 45,000	$ 45,000
	Pipes				
2	12" DIA C-900 PVC with Restrained	130	LF	$ 150	$ 19,500
3	18" DIA C-900 PVC with Restrained	40	LF	$ 300	$ 12,000
5	36" DIA C-905 PVC Pipe with Restrained	80	LF	$ 500	$ 40,000
6	24" DIA SDR 35 PVC Pipe with Restrained	200	LF	$ 350	$ 70,000
7	12" DIA C-900 PVC 45 Deg Fittings	3	EA	$ 1,000	$ 3,000
8	18" DIA C-900 PVC 45 Deg Fittings	2	EA	$ 2,000	$ 4,000
9	12"x12" DIA C-900 PVC Tee Fittings	1	EA	$ 2,000	$ 2,000
10	18"x12" DIA C-900 PVC Tee Fittings	1	EA	$ 4,000	$ 4,000
11	Dewatering	1	LS	$ 50,000	$ 50,000
	Pump				
12	5000 gpm Pump with Pump Column	1	EA	$ 375,000	$ 375,000
	Equipment				
13	Control Panel (CCWCD Will Provide)	1	LS		$ -
14	Flow Meter I&C, Pump Drives (CCWCD Will Provide)	1	LS		$ -
15	VFD (CCWCD Will Provide)	1	LS		$ -
16	Electrical (CCWCD Will Provide)	1	LS		$ -
17	18-inch Flow Meter with Transmitter, Fittings, etc	1	LS	$ 25,000	$ 25,000
18	Transducer with Conduit, data logger and Calibration	1	LS	$ 10,000	$ 10,000
	Gates				
19	36" DIA Medium Duty or Heavy Duty Sluice Gates	2	EA	$ 12,500	$ 25,000
20	Concrete Encased Gate Thimbles (2)	1	LS	$ 6,000	$ 6,000
21	Gate Actuators	2	EA	$ 8,000	$ 16,000
	Valves				
22	12" DIA Gate Valve (MJ Fitting) with Valve Box	2	EA	$ 5,500	$ 11,000
23	18" DIA Plug Valve with Valve Box	1	EA	$ 10,000	$ 10,000
	Structures				
24	90" DIA Meter Vault Manhole	1	EA	$ 10,000	$ 10,000
25	90" DIA Gravity Outlet Manholes (30' tall)	1	EA	$ 45,000	$ 45,000
26	60" DIA Gravity Outlet Manholes (20' tall)	2	EA	$ 15,000	$ 30,000
27	Pipe Connection to Manholes with LS-525-C Link seals	4	EA	$ 2,500	$ 10,000
28	Inlet Structures with Trash Racks	2	EA	$ 15,000	$ 30,000
29	Wingwalls for Pump	23	CY	$ 1,000	$ 23,000
30	Transducer Vault	1	LS	$ 12,000	$ 12,000
	Earthwork				
31	Slurry Wall Pipe Crossing	1	LS	$ 25,000	$ 25,000
32	Revegatation	1	LS	$ 3,000	$ 3,000
33	Fill	1	LS	$ 20,000	$ 20,000
	Miscellanous				
34	Hydrostatic Testing	1	LS	$ 5,000	$ 5,000
35	Surveying	1	LS	$ 6,000	$ 6,000

Construction Items Subtotal	$946,500
Contingency @ 20%	$189,300
TOTAL	$1,136,000

TABLE 1
SHORES DISCHARGE PIPELINE DESIGN
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COSTS

May 16, 2017

Construction Item		Quantity	Unit	Cost	Extension
1.	Mobilization	1	LS	$50,000	$50,000
				Subtotal	$50,000
2.	Discharge Pipeline Design / Open Cuts				
a.	24" Diameter PVC/SDR Pipe (Cut & Cover)	1740	LF	$200	$348,000
b.	Boring w/ 36" Diameter Steel Casing	285	LF	$1,000	$285,000
c.	24" Plug End Pipe	1	EA	$800	$800
d.	Discharge Structure	1	LS	$20,000	$20,000
e.	Flap Gate	1	EA	$7,500	$7,500
f.	60" Diameter Access Manhole	7	EA	$7,000	$49,000
h.	96" Diameter Access Manhole	1	EA	$25,000	$25,000
j.	Meter & Fittings	1	LS	$40,000	$40,000
k.	Fill around Pipe (Sta 25+00 - 30+68)	15,000	CY	$5	$75,000
l.	Temporary Channel Cut	0	CY	$6	$0
m.	Clean/Shape Existing Ditch	250	LF	$40	$10,000
n.	Riprap Fill	0	CY	$150	$0
o.	Bedding Fill	0	CY	$75	$0
				Subtotal	$860,300
3.	Miscellaneous				
a.	Erosion Control	1	LS	$20,000	$20,000
b.	Traffic Control	1	LS	$5,000	$5,000
c.	Replace Fence	50	LF	$10	$500
d.	Replace PVC Drain Pipe	30	LF	$50	$1,500
				Subtotal	$27,000

Subtotal Construction Items	$937,300
Contingency @ 10%	$94,000
Total Estimated Construct	*$1,031,300*
Permitting & Construction Engineering	$154,695
Subtotal	$1,185,995
Estimated Total (rounded to nearest 1,000)	$1,186,000