

STATE OF COLORADO

COLORADO WATER CONSERVATION BOARD

Department of Natural Resources

721 State Centennial Building

1313 Sherman Street

Denver, Colorado 80203

Phone: (303) 866-3441

ROY ROMER, GOVERNOR



January 26, 1987

J. William McDonald
Director
David W. Walker
Deputy Director

Senator Ted Strickland
President of the Senate
Colorado General Assembly
State Capitol
Denver, CO 80203

Representative Carl B. Bledsoe
Speaker of the House of Representatives
Colorado General Assembly
State Capitol
Denver, CO 80203

Gentlemen:

As required by section 37-60-122 (1)(a), CRS, please find enclosed the annual report from the Colorado Water Conservation Board.

Sincerely,

A handwritten signature in cursive script that reads "J. William McDonald".

J. William McDonald
Director

JWM/gl

Enclosure: as stated

cc: Secretary of the Senate
Chief Clerk of the House
Members, Senate Committee on Agriculture, Natural Resources,
and Energy
Members, House Committee on Agriculture, Livestock, and
Natural Resources
Members, Colorado Water Conservation Board
Executive Director, Colorado Water Resources and
Power Development Authority
Executive Director, Legislative Council

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1987 ANNUAL REPORT TO THE
COLORADO GENERAL ASSEMBLY
FROM THE
COLORADO WATER CONSERVATION BOARD
January, 1987

Introduction

Section 37-60-122 (1)(a), CRS, directs the Colorado Water Conservation Board to submit an annual report to the General Assembly. The purpose of this annual report is twofold.

First, section 37-60-122 (1)(a), CRS, directs the Board to report on the proposed facilities which the Board recommends be constructed with moneys appropriated or otherwise credited to the construction fund created pursuant to section 37-60-121 (1), CRS. Section 37-60-122 (1)(a) also directs that the Board's report include suggested priorities for the funding of such proposed facilities.

Second, section 37-60-121 (1)(c), CRS, directs the Board to apprise the General Assembly of the steps taken to comply with the criteria set forth in section 37-60-121 (1)(b), CRS. In consideration of making expenditures from the construction fund, the Board is to be guided by the subject criteria.

Projects Recommended for Authorization

At its January 22-23, 1987, regular meeting, the Board voted to recommend that eight projects be authorized, subject to the terms of financing set forth in Table 1. Brief summaries of each proposed project are enclosed.

Compliance with Construction Fund Criteria

Since the adoption in 1981 of the criteria set forth in section 37-60-121 (1)(b), CRS, actions taken by the Board concerning the construction fund program have been in compliance with those criteria. In particular, the Board has taken the following steps:

1. Over two-thirds of the Board's cost of the projects recommended since the adoption of the subject criteria have been for projects which will increase the beneficial consumptive use of Colorado's compact entitlements.

2. No applications for domestic water treatment and distribution systems or flood control projects have been accepted by the Board since March, 1981.
3. All feasibility studies initiated by the Board include the information required by criteria (IX).

Administrative Expenditures During FY 85-86

The following expenditures of construction fund moneys were made during FY 85-86 pursuant to section 37-60-121 (4), CRS, which moneys were appropriated by the long bill for FY 85-86.

Personal Services	\$452,987
Operating	29,914
Travel	24,109
Capital	9,568
Legal Services	<u>32,691</u>
Total	\$549,269

The Board would note that the amounts appropriated by the General Assembly substantially exceed the costs of administering the construction fund program. Thus, construction fund monies are necessarily being spent for activities not related to the administration of the construction fund program.

Status of Construction Fund

Pursuant to H.B. 1340 (1986 Session), \$20 million was "borrowed" from the construction fund. This sum, plus accrued interest, is to be repaid at the conclusion of FY 1986-87. Table 2 gives details of the cumulative status of the construction fund from its inception through December 31, 1986, with the \$20 million reflected as a debit against available funds pending its repayment.

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Encls: Table 1
Table 2
Project Summaries

Table 1

COLORADO WATER CONSERVATION BOARD

RECOMMENDED PROJECTS
for 1987

Priority	Project Name	Location (County)	Total Cost	Board Cost	Repayment Period (yrs)	Annual Interest Rate	Annual Payment	Total Repayment
1	Comanche Reservoir	Larimer	\$ 1,725,000	\$ 862,500	25	5%	\$ 61,194	\$1,529,850
2	Peterson Reservoir	Larimer	760,000	380,000	25	5%	26,961	674,025
3	Twin Lakes Reservoir	Larimer	825,000	412,500	25	5%	29,267	731,675
4	Sheriff Reservoir	Rio Blanco	600,000	300,000	40	5%	17,484	699,360
5	Beaver Park	Fremont	250,000	125,000	40	5%	7,285	291,400
6	Morrison Consolidated Ditch	La Plata	200,000	80,000	40	5%	4,662	186,480
7	Town of Frederick	Weld	2,630,000	1,315,000	40	5%	76,638	3,065,520
8	Rock Creek Dam	Routt & Grand	<u>18,000,000</u>	<u>9,000,000</u>	<u>25</u>	<u>5%</u>	<u>638,550</u>	<u>15,963,750</u>
Totals			\$24,990,000	\$12,475,000			\$862,041	\$23,142,060

Table 2

STATUS OF CWCB CONSTRUCTION FUND
(from inception thru 12/31/84)

<u>Total Appropriations and Revenues</u>		\$141,500,481 (a)
<u>Transfers</u>		
Water Resources & Power Development Authority	\$30,099,000	
Reserved Rights Fund	5,000,000	
Colorado Water Resources Research Institute	130,000	
HB 1340 (1986 Session)	<u>20,000,000</u> (b)	
		-\$ 55,229,000
NET FUNDS AVAILABLE		\$ 86,271,481
<u>Expenditures and Obligations</u>		
Authorized Projects and Feasibility Studies	\$91,807,502 (c)	
Emergency disaster projects	915,000 (d)	
Administrative expenses	<u>1,873,564</u> (e)	
		-\$ 94,596,066
BALANCE		-\$ 8,324,585
Proposed Projects	\$12,475,000	-\$ 12,475,000
FINAL BALANCE (deficit)		-\$ 20,799,585

[Footnotes attached]

Notes to Table 2

a/	Revenue Sharing	\$ 300,000
	General Fund	600,000
	Oil Shale Trust Fund	3,300,000
	Sales & Use Tax (SB 537, 1980)	28,000,000
	Tax Relief (SB 149, 1981)	40,000,000
	Tax Relief (HB 1617, 1982)	10,000,000
	Mineral Lease Payments	31,183,456 ✓
	Interest	20,071,639 ✓
	Repayments	8,045,386 ✓
		<u>\$141,500,481</u>

b/ This \$20 million was borrowed in FY 85-86 and is to be repaid, with interest, in FY 86-87 per the terms of H.B. 1340 (1986 Session).

c/ This sum includes expenditures for feasibility studies and already completed projects, contract encumbrances for projects currently under construction and the sums authorized for projects on which construction has yet to be initiated.

d/ This sum is the amount which has been expended on project construction pursuant to disaster emergency proclamations by the Governor. The projects involved met the criteria governing the construction fund, although they had not been authorized by the General Assembly.

e/ Personal services, travel, operating expenses and legal services for the program have been appropriated from the construction fund in recent years.

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Comanche Reservoir
(City of Greeley)

Introduction

Comanche Reservoir is one of the larger high elevation, raw water storage units owned by the City of Greeley. It is located on Beaver Creek approximately 9 miles south of Rustic in Larimer County. The dam for this reservoir is an earth embankment with a maximum height of 40 feet and a crest length of 1,500 feet. It impounds a reservoir, when full, of 2,600 acre-feet.

Problem

In January, 1986, the State Engineer restricted storage in Comanche Reservoir to 1,660 acre-feet due to excessive embankment seepage and the potential for piping of foundation materials. Being able to maintain storage in this reservoir to its maximum capacity is vital to the city's winter water system operations, as well as for assuring an adequate water supply during a drought. For these reasons, the city had a feasibility study performed to determine the best solution to this problem. The study was done by Morrison-Knudsen Engineers, Inc., of Denver, and is the basis for the recommendation on this project.

Proposed Project

After studying several alternatives for the rehabilitation of Comanche Dam, the consultants selected the alternative that would raise the dam crest by 6 feet to route the probable maximum storm, construct a split level overflow spillway with roller compacted concrete, repair and extend the existing outlet works, replace the existing outlet works hourglass structure, repair and/or reinforce the existing riprap, and control and collect the embankment and foundation seepage. The estimated cost of this project is \$1,725,000.

City of Greeley (Comanche Res.)
Page two

Proposed Financing

The proposed financing for this project is as follows:

City of Greeley (Bond Issue)	\$ 862,500
CWCB loan (to be repaid by water users)	<u>862,500</u>
Total	\$1,725,000

Under this financing arrangement the city would have to repay the CWCB \$61,194 per year for 25 years, for a total repayment of \$1,529,850.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$862,500, subject to the terms of the proposed financing specified above.

FMA/bj

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Peterson Reservoir Project
(City of Greeley)

Introduction

Peterson Reservoir is a high elevation raw water storage unit owned by the City of Greeley. It is located on a small unnamed tributary of the Cache la Poudre River approximately 6 miles northeast of Cameron Pass in Larimer County. Peterson Dam is an earth fill dam with a maximum height of 57 feet and a crest length of 175 feet. At normal maximum water surface elevation, the reservoir impounds 1,252 acre-feet of water.

Problem

In August, 1982, the State Engineer restricted storage in Peterson Reservoir to 536 acre-feet due to excessive seepage and the high phreatic surface within the dam. In 1985, the city imposed a zero storage restriction on the reservoir due to the reduced discharge capacity of the outlet works caused by modifications ordered by the city.

Since the decreed storage in this reservoir is vital to the city's winter water distribution operations, the city had a feasibility study performed to determine how best to rehabilitate the dam so that the reservoir could once again be filled to it's decreed capacity. This study was performed by Morrison-Knudson Engineers, Inc., of Denver, and is the basis for the recommendation on this project.

Proposed Project

After studying several alternative methods of rehabilitating Peterson Dam, the consultants selected the one that would flatten the upstream slope of the dam, replace the operating gate, replace the inlet and outlet structures, place a steel liner insert in the existing outlet works, armor plate the existing spillway with roller compacted concrete, armor plate the upstream slope of the dam with soil cement, and make provisions to reduce, control and collect the embankment seepage. The estimated cost of this project is \$760,000.

Proposed Financing

The proposed financing for this project is as follows:

City of Greeley (Bond Issue)	\$380,000
CWCB loan	<u>380,000</u>
Total	\$760,000

Under this financing arrangement the city would have to repay the CWCB \$26,961 per year for 25 years, for a total repayment of \$674,025.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$380,000, subject to the terms of the proposed financing set forth above.

FMA/bj

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Twin Lakes Reservoir Project
(City of Greeley)

Introduction

Twin Lakes Reservoir is one of several high elevation storage units owned by the City of Greeley. It is located in Larimer County about nine miles south of Rustic. The dam for this reservoir is 35 feet in height and has a crest length of 220 feet. It was constructed in the early 1900s by an unknown group of investors. The reservoir has a decreed storage capacity of 460 acre-feet, but at the normal maximum water surface elevation it can currently store only 268 acre-feet.

Problem

On January 22, 1986, the State Engineer restricted the storage in this reservoir to zero capacity due to the deteriorated condition of the outlet works and excessive embankment seepage. As this restriction will remain until steps are taken to correct these problems, the city had a feasibility study prepared to address these matters. This study was performed by Morrisison-Knudsen Engineers, Inc., of Denver, and is the basis for the recommendation on this project.

Proposed Project

The alternative selected by the engineering consultant from among four was to replace the existing dam spillway and outlet works with a new roller-compacted concrete (RCC) dam and outlet works to provide a 460 acre-foot reservoir. A new spillway would be constructed within the RCC dam to pass the 100-year flood. Higher intensity flooding events would overtop the dam, but no eroding of the RCC would be expected. The estimated cost of the proposed project is \$825,000.

Proposed Financing

The proposed financing for this project is as follows:

City of Greeley (Bond Issue)	\$412,500
CWCB loan	<u>412,500</u>
Total	\$825,000

Under this financing arrangement, the city would have to pay the CWCB \$29,267 per year for 25 years, for a total repayment of \$731,675.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$412,500, subject to the proposed terms of the financing set forth above.

FMA/bj

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Sheriff Reservoir Project
(Town of Oak Creek)

Introduction

Sheriff Reservoir is owned by the Town of Oak Creek. It is located on Trout Creek about 13 miles southwest of that town. Sheriff Dam, which impounds this reservoir, is 58 feet in height and has a crest length of 630 feet. The reservoir has a capacity of 987 acre-feet at the normal maximum water surface elevation. It serves solely as a raw water storage facility for Oak Creek.

Problem

In October, 1985, the State Engineer advised the town that the spillway for Sheriff Reservoir was too small and that unless it was enlarged by the end of 1986, the storage capacity would be restricted to 567 acre-feet. Such a restriction would jeopardize the adequacy of Oak Creek's water supply.

The town had a feasibility study prepared to address this problem. The study was performed by Geotechnical Engineers, Inc., of Englewood, and is the basis for the recommendation on this project.

Proposed Project

The engineering consultant investigated four alternatives for resolving the problem at Sheriff Reservoir. The selected alternative is one which would improve the access road to the dam, install an underdrain system at the toe area of the dam, construct a soil cement spillway to pass the probable maximum flood, raise the existing embankment 4 to 5 feet in order to store the full decreed capacity of 987 acre-feet, and make minor modifications to the existing outlet works. The total estimated cost of this project is \$600,000.

Proposed Financing

The proposed financing for this project is as follows:

Town of Oak Creek	
(bond issues and/or other sources)	\$300,000
CWCB loan	<u>300,000</u>
Total	\$600,000

Under this financing arrangement, the town would have to repay the CWCB \$17,484 per year for 40 years, for a total repayment of \$699,360.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$300,000 subject to the proposed terms of financing set forth above.

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Beaver Park Water Project
(Beaver Park Water, Inc.)

Introduction

Beaver Park Water, Inc., has submitted a request for matching funds to continue upgrading its irrigation water distribution system. The proposed project would upgrade and rehabilitate the lowermost part of the company's ditch and pipeline system, the upper part having already been improved through a previously authorized CWCB project.

Problem

The lowermost part of the company's irrigation system experiences serious losses in its dirt ditches and old pipelines. These problems cause water shortages during peak demand periods.

Feasibility Study

A feasibility study for the improvement of the overall Beaver Park Water, Inc., system was completed in 1979 for the CWCB. Subsequently, the U.S. Soil Conservation Service also conducted a soil and water conservation plan for the area. These studies are the basis for the recommendation on this project.

Proposed Project

This project would install concrete lining in approximately one mile of the company's lower canal system and install a total of 9,600 lineal feet of various sizes and types of pipe laterals. The project would enable some previously irrigated lands to be put back under irrigation. The estimated cost of the project is \$250,000.

Proposed Financing

The proposed funding for this project is as follows:

ASCS grant	\$125,000
CWCB loan	<u>125,000</u>
Total	\$250,000

Under this financing arrangement, the company would repay the CWCB \$7,285 per year for 40 years, for a total repayment of \$291,400.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$125,000, subject to the terms of the proposed financing specified above.

FMA/bj

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Morrison Consolidated Ditch Project
(Morrison Consolidated Ditch Company)

Introduction

The Morrison Consolidated Ditch Company's irrigation system is located in southeast La Plata County, about 10 miles southeast of Durango. The system was initially constructed in the late 1800s. About 8,800 acres are irrigated by the system. The acreage ranges in elevations from 6,300 feet to 6,800 feet above mean sea level. Thirty-nine percent is in alfalfa and hay, 42 percent in pasture, 11 percent in small grains, and 8 percent in corn.

Problem

A siphon constructed in 1946 has had a history of high maintenance from the time it was constructed. Nearly every section of the structure has been repaired, but now the bottom side of the siphon is considered by the U.S. Soil Conservation Service (SCS) to be beyond repair. In the immediate future, severe breaks are expected to occur, causing the interruption of water deliveries and resulting in reduced crop yields.

The feasibility study for this project was prepared by SCS under the authority of sections 1528-38 of the Agriculture and Food Act of 1981 (P.L. 97-98) and is the basis for the recommendation for this project.

Proposed Project

After evaluating and studying several alternative plans for the rehabilitation of the siphon structure, the alternative selected was the installation of a new concrete siphon where the present structure is now located. It will be a 950-foot underground concrete siphon designed to carry 110 cubic feet per second of irrigation water. It will have a one-year installation period and will cost \$200,000.

Proposed Financing

The proposed financing for this project is as follows:

RC&D Funds (SCS)	\$120,000
CWCB loan	<u>80,000</u>
Total	\$200,000

Under this financing arrangement, the ditch company would have to repay the Board \$4662.00 per year for 40 years, for a total repayment of \$186,480.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$80,000, subject to the terms of the proposed financing set forth above.

NCI/bj

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Town of Frederick Water Project
(Town of Frederick)

Introduction

The Town of Frederick, which is located approximately 7 miles southeast of Longmont, has requested assistance in identifying and evaluating alternative raw water supply sources.

Problem

Frederick currently receives its raw water supply from Boulder Creek via the lower Boulder Ditch, which diverts water 3 miles downstream of the Boulder Wastewater Treatment Plant. The town has experienced difficulty in producing drinking water of an acceptable quality due to taste and odor problems. In order to resolve this problem, the town, with assistance from the CWCB, conducted a feasibility study. The study was performed by Rocky Mountain Consultants, Inc., of Longmont, and is the basis for the recommendation on this project.

Proposed Project

The engineering consultant investigated three alternative means of solving Frederick's water problems: (1) purchase of water from the Central Weld Water District, (2) secondary treatment of the current supply, (3) obtaining water out of Boulder Creek above the Boulder Sewage Treatment Plant. The third alternative was selected. It would take water from Boulder Creek above the sewage treatment plant and convey it via the Boulder and Whiterock Ditch to Panama Reservoir. Water would be pumped from that reservoir and conveyed via an eight mile long pipeline to Frederick's existing raw water storage reservoir (Milavec Reservoir).

Proposed Financing

The proposed financing for this project is as follows:

Town of Frederick	
(Bond issue and/or other sources)	\$1,315,000
CWCB loan	<u>\$1,315,000</u>
Total	\$2,630,000

Town of Frederick
Page two

Under this financing arrangement, the town would have to repay the CWCB \$76,638 per year for 40 years, for a total repayment of \$3,065,520.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$1,315,000, subject to the terms of the proposed financing set forth above.

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Rock Creek Dam Project
(Colorado River Water Conservation District)

Introduction

The subject project is a proposed dam on Rock Creek approximately 27 miles northwest of Kremmling. The storage capacity of the proposed reservoir will be 50,700 acre-feet. The project sponsor is the Colorado River Water Conservation District.

Feasibility Study

Potential sites for the proposed project were identified during studies performed in 1982-1985. In August, 1985, Morrison-Knudsen Engineers, Inc., and the River District performed a reconnaissance study of these sites. Based upon the determinations in that study, Morrison-Knudsen was retained by the River District to perform a feasibility study, including the necessary geotechnical investigations. The feasibility study has been completed and is the basis for the recommendation on this project.

Proposed Project

After studying several alternate sites for a proposed dam, the consulting engineers recommended the one on Rock Creek about 3,700 feet downstream of the confluence of Horse Creek. This site is located in the Routt National Forest. The proposed new dam would be constructed of roller-compacted concrete with a height of 195 feet. It would impound a reservoir with a storage capacity of 50,700 acre-feet. The total estimated cost of the proposed project is \$18,000,000.

Proposed Financing

The financing proposed for this project is as follows:

Colorado River Water Conservation District	\$ 9,000,000
CWCB loan	\$ <u>9,000,000</u>
Total	\$18,000,000

Colorado River WCD
Page two

Under this financing arrangement, the River District would repay the CWCB \$638,550 per year for 25 years for a total repayment of \$15,963,750.

Recommendation

It is recommended that this project be authorized by the General Assembly in the amount of \$9,000,000, subject to the terms of the proposed financing set forth above.

JWM/gl