1982 ANNUAL REPORT TO THE COLORADO GENERAL ASSEMBLY FROM THE COLORADO WATER CONSERVATION BOARD February 26, 1982

Introduction

37-60-122 (1)(a), CRS 1973, as amended, directs the Colorado Water Conservation Board to submit an annual report to the General Assembly. The purpose of this annual report is threefold.

First, 37-60-122 (1)(a), CRS 1973, as amended, 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 37-60-121 (1), CRS 1973, as amended. 37-60-122 (1)(a), also directs that the Board's report include a suggested list of priorities for the funding of such proposed facilities.

Second, 37-60-121 (1)(c), CRS 1973, as amended, directs the Board to apprise the General Assembly of the steps taken to comply with the criteria which are set forth in 37-60-121 (1)(b), CRS 1973, as amended. In consideration of making expenditures from the construction fund, the Board is to be guided by the subject criteria.

Finally, 37-60-121 (4)(b), CRS 1973, as amended, directs the Board to make an accounting of all expenditures from the construction fund incurred through the end of the previous fiscal year for the personal services, operating, travel and subsistence, and capital expenses of administering and managing the construction fund program. This subsection specifies that the Board is authorized to expend for such purposes, on a continuing basis, not more than one and one-half percent of the moneys appropriated, allocated, or otherwise credited to the construction fund.

Projects Recommended for Authorization

At its December 3-4, 1981, and February 5, 1982, regular meetings, the Board reviewed and voted to recommend that eight projects be authorized. The Board action at the December meeting

encompassed front-end cost-sharing for the congressionally authorized Narrows and Animas-La Plata projects, it being the Board's recommendation that $25 million be made available in FY 82-83 for these two projects, said sum to be allocated between the two projects in the same proportion as the cost of each project bears to the combined costs of both projects, with the state sharing in the returns accruing to a federal project in proportion to the state's financial participation in a project.

Following the Board's lead, the legislative leadership and the Governor conferred concerning the matter of front-end cost-sharing for federal projects. When it was ultimately decided to seek authorization for the Colorado Water Resources and Power Development Authority to proceed, the Board held a special meeting on January 5, 1982, to review the project documents for the Narrows and Animas-La Plata projects pursuant to 37-95-107, CRS 1973, as amended. The Board forwarded these documents to the General Assembly together with its recommendation that the Development Authority be authorized to proceed with the consideration of the two projects. SJR 6 has, of course, been the result of this process.

Given the passage of SJR 6, six proposed projects, as reflected in the attached Table 1, remain for the General Assembly's consideration at this time. A brief summary of each of these projects is attached for your information. The projects for the Town of Erie and the City of Craig involve the construction of new reservoirs. The remaining projects entail the repair and rehabilitation of existing facilities.

With the exception of the Rio Grande Reservoir project, the Board recommends that it be authorized to expend moneys from the construction fund in an amount not to exceed 50 percent of the total cost of constructing a project. With respect to the proposed Rio Grande Reservoir project, you will note that the Board recommends, contrary to past practices, that 100 per cent of the construction costs of this project ($1,134,500) be financed with moneys from the construction fund and that $619,500 of this sum be non-reimbursable.

This project is a unique opportunity which the Board believes justifies the investment. In addition to rehabilitation for the benefit of the Rio Grande Reservoir Company users, the project will make available to the State Engineer about 17,000 acre-feet of reservoir capacity to be used to administer the Rio Grande Compact. The departure from standard practice is warranted because the state would be purchasing this reservoir capacity for the benefit of water users throughout the Rio Grande Basin.

With respect to the project for the Town of Erie, the Board's recommendation is made expressly contingent upon the

satisfaction of two conditions. First, the town should be required to obtain a storage decree for the project before the state enters into a contract with the town to construct the project. Secondly, the Board is of the opinion that the town needs to provide additional information satisfactory to the Board demonstrating that there is a financially viable project. Absent information satisfactory to the Board, the state should not participate in the project.

Recommended Project Deauthorization

The second phase of a municipal water treatment and distribution system for the Town of Parachute was authorized by Section 5 of Chapter 426, Session Laws of Colorado 1981. Subsequent to this authorization, the Town of Parachute obtained grant moneys from the Department of Local Affairs and other funds which enabled the town to complete the project to more than twice its originally contemplated treatment capacity. Under the circumstances, the town no longer has a need for the $200,000 authorized in 1981. At its February 5, 1982, regular meeting, the Board, without objection from the town, voted to recommend to the General Assembly that the project be deauthorized.

Compliance with Construction Fund Criteria

Since the adoption of the criteria set forth in 37-60-121 (1)(b), CRS 1973, as amended, all actions taken by the Board concerning the construction fund program have been in compliance with the criteria. In particular, the Board has taken the following steps:

1. Nearly two-thirds of the Board's cost of the projects recommended in this annual report are for projects which will increase the beneficial consumptive use of Colorado's compact entitled waters.

2. All applications for domestic water treatment and distribution systems and flood control projects have been rejected by the Board since March, 1981.

3. All feasibility studies initiated by the Board include the information required by criteria (IX).

4. The Board has embarked upon a major program to provide front-end cost-sharing for federally authorized projects, reformulate and rescope other federally authorized projects, initiate feasibility studies on major new storage facilities, and identify and commence studies on the dams in the state most in need of repair and rehabilitation pursuant to the dam safety inspection program of the State Engineer's office. All of this is being carried out by the Board with an eye towards the

statutory criteria which specify that approximately two-thirds of the money available to the construction fund shall be devoted to projects which will increase the beneficial consumptive use of Colorado's compact entitled waters.

Expenditures During FY 80-81

The following expenditures of construction fund moneys were made during FY 80-81 pursuant to 37-60-121 (4), CRS 1973, as amended:

Personal Services	$ -0-
Operating	12,083.48
Travel	2,536.32
Capital	-0-
Total	$14,619.80

JWM/gl

Attachment: as stated

STATE OF COLORADO

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Phone: (303) 839-3441

M E M O R A N D U M

TO: Members, Senate Committee on Agriculture, Natural Resources, and Energy

FROM: J. William McDonald

DATE: February 1, 1982

SUBJECT: Projects Recommended for Authorization by the Colorado Water Conservation Board

Introduction

37-60-122(1)(a), CRS 1973, as amended, directs the Colorado Water Conservation Board to annually submit proposed projects which it recommends be constructed with moneys appropriated or otherwise credited to the construction fund created pursuant to 37-60-121(1), CRS 1973, as amended. 37-60-122(1)(a) also directs that the Board provide a suggested list of priorities for the funding of the projects which it recommends.

Recommendations

At its December 3-4, 1981, regular meeting, the Board reviewed and voted to recommend that seven projects be authorized in the order of priorities listed in Table 1 (attached). The Board action encompassed front-end cost-sharing for the Congressionally authorized Narrows and Animas-La Plata projects, it being the Board's recommendation that $25 million be made available in FY 82-83 for these two projects, said sum to be allocated between the two projects in the same proportion as the cost of each project bears to the combined costs of both projects, with the State sharing in the returns accruing to a federal project in proportion to the State's financial participation in a project.

Following the Board's lead, the legislative leadership and the Governor conferred concerning the matter of front-end cost-sharing for federal projects. When it was ultimately decided to seek authorization for the Colorado Water Resources and Power Development Authority, the Board held a special meeting on January 5, 1982, to review the project documents for the Narrows and Animas-La Plata projects pursuant to 37-95-107, CRS 1973. As you know, the Board subsequently forwarded these documents to the General Assembly together with its recommendation that the Development Authority be authorized to proceed with the consideration of the two projects. S.J.R. 6 has, of course, been the result of this process.

Given the passage of S.J.R. 6, five proposed projects, as reflected in S.B. 87, remain for the General Assembly's consideration at this time. A brief summary of each of these projects is attached for your information. The project for the City of Craig involves the construction of a new reservoir. The remaining projects entail the repair and rehabilitation of existing facilities.

With the exception of the Rio Grande Reservoir project, the Board recommends that it be authorized to expend moneys from the construction fund in an amount not to exceed 50 percent of the total cost of constructing a project, exclusive of the Board's costs for any feasibility studies completed prior to the authorization of a project. To make this clear, I suggest that a new sentence be added starting at line 24, page 2, to read as follows:

> "The board's cost toward any project specified in paragraph (a) of this subsection (1) except for the Rio Grande Reservoir project, shall not exceed 50 percentum of the total cost of constructing a project."

With respect to the proposed Rio Grande Reservoir project, you will note that the Board recommends, contrary to past practices, that 100 percent of the construction cost of this project ($1,134,500) be financed with moneys from the construction fund and that $619,500 of this sum be non-reimbursable.

The project is a unique opportunity which the Board believes justifies the investment. In addition to rehabilitation for the benefit of the Rio Grande Reservoir Company users, the project will make available to the State Engineer about 17,000 acre-feet of water to be used to administer the Rio Grande Compact. The departure from standard practice is warranted because the state would be purchasing reservoir capacity to improve beneficial consumptive use in the Rio Grande basin.

JWM/gl

Attachments

Table 1.

Priority	Project Name	Location (County)	Total Cost	State Cost	Repayment Period (yrs)	Service Charge %	Annual Charges	Total Repayment
1	Narrows	Morgan	$365,000,000	$25,000,000				
1	Animas-La Plata	La Plata	490,000,000					
2	Rio Grande Reservoir	Hinsdale	1,134,500	1,134,500	40	5	$ 30,014	$ 1,200,568
3	Groundhog Reservoir	Montezuma	250,000	125,000	40	5	7,285	291,400
4	Beeman Irrigation Company	Weld	220,000	110,000	40	5	6,411	256,432
5	City of Craig	Moffat	6,300,000	3,150,000	40	5	183,582	7,343,280
6	Fossil Creek Reservoir	Larimer	4,114,000	2,057,000	40	5	119,882	4,795,278
	Total		$867,018,500	$31,576,500			$347,174	$13,886,958

STATE OF COLORADO

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TO: Members, CWCB

FROM: Bill McDonald

DATE: November 23, 1981

SUBJECT: Agenda Item 7c, December 3-4, 1981, Board Meeting--
Projects Proposed for Authorization

Introduction

As you can see from the agenda, feasibility studies have been completed and processed for nine projects. Three of these would be new projects, while the remaining six involve repairs to existing facilities. Attached you will find brief summaries of each of the projects.

Section 37-60-121(1)(b), CRS 1973, as amended, specifies that:

> (I) Approximately two-thirds of the moneys available to the [construction] fund shall be devoted to projects which will increase the beneficial consumptive use of Colorado's compact entitled waters;
>
> (II) The balance of the moneys available...shall be devoted to projects for the repair and rehabilitation of existing water storage and delivery systems.

The projects presented for the Board's consideration are in compliance with this proviso, as follows:

(1) New projects which will increase beneficial consumptive use:

Narrows/Animas-La Plata	$25,000,000
Fruitland-Mesa	4,370,000
Town of Erie	1,645,000
City of Craig	3,150,000
Overland	2,855,000
Manoka	450,000
	$37,470,000

(2) Repairs and rehabilitation:

Rio Grande	$ 1,135,000
Overland	858,000
Waneka	619,000
Groundhog	125,000
Fossil Creek	2,057,000
Beeman	110,000
	$ 4,904,000
TOTAL	$42,374,000

The Overland and Waneka projects are listed under both categories because they encompass the repair of existing dams as well as provision for new capacity at those reservoirs. Thus, total construction costs have been allocated between the two functions.

Recommendations

1. With respect to the Erie, Craig, Waneka Reservoir, Groundhog Reservoir, Fossil Creek Reservoir, and Beeman Irrigation Company projects, all of which are proposed for authorization on a 50 percent cost-sharing basis, the staff recommends that these projects be recommended to the General Assembly for authorization under the terms set forth in the summary for each project.

2. With respect to the Fruitland-Mesa, Rio Grande Reservoir, and Overland Reservoir projects, whose sponsors are proposing financing terms not presently authorized by statute, it would appear that the Board has several options open to it:

a. Decline to recommend the projects at all.

b. Recommend the projects for 50 percent financing, with repayment of the Board's investment to be made (as presently required by statute).

c. Recommend the projects for more than 50 percent financing, with repayment of the Board's investment to be made (possible under present law).

d. Recommend the projects for 50 to 100 percent financing, with some portion of the Board's investment being non-reimburable.

e. Forward the projects to the General Assembly for its consideration without any recommendation from the Board.

f. Defer action on the projects until a future Board meeting pending further staff analysis and deliberations by the Board.

Option d. would require either that section 37-60-121(1)(b) be expressly amended or that the projects be authorized notwithstanding the provisions of said section.

3. It is recommended that the Board's recommendation for the authorization of these projects include the following list of priorities (which list is required by section 37-60-122(1)(a)):

Priority	Project
1	Front-end cost-sharing for Narrows and Animas-La Plata projects
2	Rio Grande Reservoir
3	Groundhog Reservoir
4	Waneka Reservoir
5	Beeman Irrigation Company
6	Overland Reservoir
7	City of Craig
8	Fossil Creek Reservoir
9	Fruitland Mesa Reservoir
10	Town of Erie

JWM/gl

from the project sponsor as the board deems necessary in order to adequately protect the board's investment in a project.

(2) (a) Contracts entered into by the Colorado water conservation board pursuant to sections 37-60-106 (1) (o) and 37-60-119 (2), Colorado Revised Statutes 1973, for the use of the projects specified in paragraph (a) of subsection (1) of this section, shall be subject to the payment periods and total payments set forth therein; except that total payments shall be adjusted to reflect any changes in expenditures made by reason of paragraph (b) of subsection (1) of this section.

(b) The Colorado water conservation board may extend the payment period for any project and defer one or more annual payments, notwithstanding the provisions of paragraph (a) of this subsection (2), if, in the board's opinion, the entity requesting such extension and deferment demonstrates that it has encountered significant and unexpected financial difficulties and that it has been duly diligent in its efforts to comply with the repayment provisions of its contract with the board.

SECTION 3. Safety Clause. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Under this financing arrangement water use charges would be levied by the State at the rate of $30,014 per year for 40 years for a total repayment of $1,200,568.

The options available to the Board in responding to this request were outlined in the covering memo for this agenda item.

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Priority	Project Name	Board Cost	Payment Period (yrs)	Total Payment
2	Rio Grande Reservoir	$ 619,500	(Non-reimbursable)	
	Rio Grande Reservoir	515,000	40	$1,200,568
3	Groundhog	125,000	40	291,400
4	Beeman Irrigation Company	110,000	40	256,432
5	City of Craig	3,150,000	40	7,343,280
6	Fossil Creek Reservoir	2,057,000	40	4,795,278
	Total	$6,576,500		$13,886,958

COLORADO WATER CONSERVATION BOARD
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November 1981

GROUNDHOG RESERVOIR PROJECT

INTRODUCTION

The Groundhog Reservoir is the main storage facility for the Montezuma Valley Irrigation Company. It stores 21,000 acre-feet of water which is used for supplemental irrigation on 35,000 acre of land in the Montezuma Valley in the Cortez area. The reservoir is located approximately 30 miles northeast of Dolores, Colorado. It has an earthfill dam which was constructed in 1939. The dam has a maximum height of 135 feet with a crest length of 710 feet. The water released from the Groundhog Reservoir during the irrigation season is considered vital to the agricultural segment of the ecomony in the Montezuma Valley.

PROBLEM

In conjunction with the National Dam Safety Program, Bovay Engineers, Inc., completed a Phase I Inspection Report on Groundhog Dam in October, 1978. This report listed several deficiencies on the dam which the owners were asked to correct.

Most of these deficiencies indicated that stricter maintenance procedures were required on the dam and that additional monitoring devices were needed. However, the major deficiency listed in the report was that the outlet chute and stilling basin needed to be replaced.

CURRENT STATUS

Since 1979 the Montezuma Valley Irrigation Company has been correcting the deficiencies on Groundhog Dam. Most of the monitoring devices have been installed and all deficient maintenance items have been corrected.

In May, 1981, the company submitted an application to the CWCB for assistance in replacing the outlet chute and stilling basin on Groundhog Dam. Subsequently, the Soil Conservation Service prepared a feasibility report for the company on the proposed project.

PROPOSED PROJECT

The project recommended in the feasibility study calls for constructing a new outlet channel and stilling basin. A 72-inch reinforced concrete pipe approximately 300 feet in length would be installed on an alignment essentially parallel to the existing outlet chute. Reinforced concrete transitions at either end of

the pipe section would be required. The estimated cost of this project is $250,000. The benefit-cost ratio has been computed to be 1.76:1.

CONCLUSION AND RECOMMENDATION

The Montezuma Valley Irrigation Company has been correcting the deficiencies on Groundhog Dam for the past 2 years at its own expense. However, the cost of replacing the outlet works and stilling basin is more than the company can handle without outside assistance. The recommended financing for this project is therefore as follows:

Private Funds (to be obtained by the company)	$125,000
State Funds (to be repaid by water use assessments)	125,000
Total	$250,000

Under this financing arrangement, charges would be levied by the state at the rate of $7,285 per year for forty years for a total repayment of $291,400. If the private funds can be obtained @ 16% interest, then the total annual payback on this project will be $28,000, which amounts to $0.80 per acre irrigated by this reservoir.

It is recommended that the project as herein described be recommended by the Board to the General Assembly for authorization in the amount of $125,000, with the stipulation that the Montezuma Valley Irrigation Company furnish additional financing to the extent of $125,000, the Board's investment to be repaid per the terms set forth above.

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BEEMAN-MEADOW ISLAND NO. 2 DIVERSION DAM

INTRODUCTION

The Beeman-Meadow Island No. 2 Diversion Dam is located on the South Platte River approximately 3 miles southwest of Platteville, Colorado. This dam diverts about 11,000 acre-feet of water annually to 3,547 acres of farm land owned by the Beeman Irrigation Ditch and Milling Company and the Meadow-Island Ditch Company No. 2.

PROBLEM

The existing diversion dam was built of wood in the 1880's It has deteriorated to the point that it could collapse when as little as a 5-year frequency flow occurred in the South Platte River. Loss of this dam would force the irrigators to use well water for their supply. It is estimated that the use of well water would increase the cost of irrigation by approximately $50 per acre. Furthermore, 20 percent of the land currently

irrigated cannot be served by wells. This acreage would revert to dry land farming and crop production would be significantly reduced.

CURRENT STATUS

In November, 1980, the Beeman Irrigation Ditch and Milling Company and the Meadow Island Ditch Company No. 2 jointly submitted an application to the CWCB for assistance in replacing their diversion dam on the South Platte River. Subsequently, and through joint funding by the Board and the companies, a feasibility study was completed by Howard Noble & Associates, an engineering firm in Wheat Ridge, Colorado. Several alternate designs were considered by the engineer for this project.

PROPOSED PROJECT

The project as proposed by the engineer would replace the existing wooden diversion dam with a reinforced concrete structure. The new structure would utilize the same design concept as the old one except for the materials specified. The new structure will improve operation safety, make maintenance easier, and perform all of the other functions of the existing dam. The estimated cost of this project is $217,000. The benefit/cost ratio is 2.4:1.

CONCLUSIONS AND RECOMMENDATIONS

The companies assessed their shareholders 3 times the normal annual assessment in 1980 to pay for the replacement of their auxiliary diversion dam at the headworks of their respective ditches. This auxiliary dam is located on a side channel of the South Platte River downstream from the main dam which is the subject of this report. Due to the large special assessment by the companies in 1980 they are short of funds for capital improvements to their system. The recommended funding for this project is as follows:

Company Funds (ASCS grant or Wichita Bank of Cooperatives)	$110,000
State Funds (to be repaid by water use assessment)	110,000
Total	$220,000

Under this financing arrangement, charges would be levied by the State at the rate of $6,411 per year for forty years for a total repayment of $256,432. If an ASCS grant is obtained, the annual payments on this project will amount to about $1.80 per acre benefited. If private money has to be obtained, the annual payments will be about $6.75 per acre benefited.

Revised 2/2/82

It is recommended that the project as described herein be recommended by the Board to the General Assembly for authorization in the amount of $108,500, with the stipulation that the Beeman Irrigating Ditch and Milling Company and the Meadow Island Ditch Company No. 2 furnish additional financing to the extent of $108,500, the Board's investment to be repaid per the terms set forth above.

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CITY OF CRAIG - RAW WATER STORAGE PROJECT

INTRODUCTION

The City of Craig and its surrounding area experienced accelerated growth during the late 1970's which was created by coal and energy development in the northwest portion of Colorado. The rate of growth has tapered off in the last year or so due to the regional slow down in coal production, but activity in this industry appears to be on the upswing again at this time. The 1970 population of Craig was 4,205 according to the U.S. Bureau of Census. In 1980 the population was 8,133. However, the 1980 census figure for the Craig water service area was about 12,500. Including outside users, it is estimated that 15,000-16,000 people are currently served by the Craig municipal water system.

PROBLEM

The City of Craig obtains its water supply from the Yampa River through direct flow rights having as their source Fortification Creek, the Deep Cut Irrigation Ditch, and the Yampa

River. The sum of these rights is 25.77 cfs. However, during dry year conditions, the only right useable by Craig is the Deep Cut Irrigation Ditch right for 8.29 cfs. This is the amount of water needed to supply the peak day demand of the present users. With continued growth in population a virtual certainty, it is essential that the City of Craig increase the safe yield of its water system during dry years.

CURRENT STATUS

In October, 1978, the City of Craig submitted an application for assistance on a State water project. In November, 1978, the City, at its own expense, retained Norton, Underwood and Lamb, an engineering firm from Greely, Colorado, to prepare a feasibility study for improvements to the water system. The draft feasibility study was provided to the CWCB staff for review and comment in November, 1979. The feasibility study has now been finalized and approved by the CWCB staff. It is the basis for recommendations on this project.

PROPOSED PROJECT

The feasibility study recommended expansion or construction of the following components of the Craig water system: intake facilities, pre-treatment facilities, water treatment plant, transmission and distribution lines, treated water storage and raw water storage. Through grants from the Colorado Department

of Local Affairs and funds from revenue bonds, the City has or is in the process of completing all of the necessary improvements to its water system except for the raw water storage reservoir. The City of Craig is requesting CWCB funds for one half of the reservoir costs only. The proposed reservoir would have a capacity of 7,580 acre-feet and the estimated cost is $6,300,000. The city is already fully metered.

CONCLUSION AND RECOMMENDATION

The City of Craig has made a concerted effort in recent years to maintain an adequate water supply for its inhabitants. It has succeeded in accomplishing this in every respect, except for raw water storage, in spite of the accelerated growth over the past 8-10 years. The proposed raw water reservoir will complete the water system so that Craig will have an adequate supply until the year 2000 or beyond.

Since Craig has issued several million dollars in bonds for water improvements in recent years, it feels that it needs outside assistance on the reservoir project. The funding recommended for this project is therefore as follows:

City of Craig (revenue bonds)	$3,150,000
State Funds (to be repaid by water users)	3,150,000
Total	$6,300,000

Under this financing arrangement, charges would be levied by the State at the rate of $183,582 per year for 40 years for a total repayment of $7,343,280. The average charge per month for water in Craig is $13.85 and for outside users it is $23.55. It is anticipated that these charges, along with expected tap fees, will finance this proposed project with a slight increase in the present water rate.

It is recommended that this project be recommended by the Board to the General Assembly for authorization in the amount of $3,150,000 with the stipulation that the City of Craig furnish additional financing to the extent of $3,150,000, the Board's investment to be repaid per the terms set forth above.

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Revised 2/2/82

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FOSSIL CREEK DAM

INTRODUCTION

Fossil Creek Dam is located just west of Interstate 25 approximately 2 miles south of the city limits of Fort Collins, Colorado. It is owned and operated by the North Poudre Irrigation Company, which serves irrigators primarily in the Wellington, Colorado area. It is an earth fill dam which was constructed in 1902. It has a maximum height of 47 feet, a crest length of 3,700 feet, and the reservoir behind the dam has a storage capacity of 11,508 acre feet. The water from this reservoir is used by the North Poudre shareholders for exchanges. These exchange rights have been in effect over the years and they are protectd by a decree.

PROBLEM

The State Engineer's Office (SEO) has restricted the storage behind Fossil Creek Dam to 7,705 acre feet (at a water depth of 31 feet) because the existing spillway will not pass the run-off from the probable maximum flood (PMF). In addition to needing an enlarged spillway, the dam also needs the front face reconstructed and riprapped, the outlet works reconstructed and the

embankment rebuilt in certain areas. All of these items need to be corrected before the storage restriction will be lifted.

CURRENT STATUS

In August, 1981, the North Poudre Irrigation Company submitted an application for a state water project. Accompanying the application was a preliminary engineering report for the rehabilitation of Fossil Creek Dam, which report had been prepared by Bruns, Inc., a Loveland, Colorado engineering firm. The company subsequently paid Bruns, Inc. to prepare a feasibility report for the dam rehabilitation. This latter report was needed to satisfy the Board's requirements for funding consideration. The feasibility report has been reviewed and approved. It is the basis for recommendations on this project.

PROPOSED PROJECT

The project as outlined in the feasibility report would be a complete rehabilitation of the existing dam. It would include extensive grading work on the embankment, a large quantity of riprap placement, a new spillway to pass the probable maximum flood, and complete replacement of the existing outlet works. The estimated cost of this project is $4,114,000, which includes $240,000 for purchase of additional right-of-way. The project has a favorable benefit-cost ratio of 1.69:1.

CONCLUSION AND RECOMMENDATION

Although the North Poudre Irrigation Company is quite large with 520 shareholders, the company will need financial assistance on a project of this magnitude. The recommended financing for this project is therefore as follows:

Company funds	$ 490,000
Private funds (Wichita Bank of Cooperatives)	1,567,000
State funds (to be repaid by water users)	2,057,000
Total	$ 4,114,000

Under this financing arrangement, charges would be levied by the State at the rate of $119,882 per year for forty years for a total repayment of $4,795,278.

The North Poudre Irrigation Company has issued 10,000 shares of stock which covers about 30,000 irrigated acres. The current assessment is $80 per share each year.

The payback on the proposed private loan is anticipated to be $284,200 per year for 30 years (based on an 18% interest rate). The effect of the total payback on this project will be to raise the annual assessment to $93 on each share of outstanding stock. This amounts to just over $4 per year for each irrigated acre.

Revised 1/8/82

It is recommended that the project as herein described be recommended by the Board to the General Assembly for authorization in the amount of $2,057,000, with the stipulation that the North Poudre Irrigation Company furnish additional financing to the extent of $2,057,000, the Board's investment to be repaid per the terms set forth above.

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RIO GRANDE DAM PROJECT

INTRODUCTION

The Rio Grande Dam is located on the Rio Grande River about 20 miles southwest of Creede in southwestern Colorado. The dam is approximately 100 feet in height and the reservoir has a storage capacity of 52,000 acre-feet. The dam and reservoir are owned by the San Luis Valley Irrigation District.

The water stored by these facilities is used primarily for irrigation purposes. However, the dam also provides some flood protection to the downstream inhabitants. More importantly, since 1978 the reservoir has been used to store varying amounts of water for the purpose of assisting Colorado to meet its obligation under the Rio Grande Compact. Because of the unique situation of Rio Grande Reservoir (pre-compact construction and mainstem Rio Grande physical supply of water), the value of this reservoir to the State of Colorado and the water users of the San Luis Valley is apparent. There is no other comparable reservoir on the Rio Grande River in Colorado.

PROBLEM

A dam safety inspection was conducted on the Rio Grande Dam by Bruns, Inc. in 1978. The resulting report stated that this dam was "seriously inadequate" and "unsafe" due to an inadequate spillway and possible instability of the embankment. The State Engineer has subsequently directed the owners to correct these deficiencies.

CURRENT STATUS

In 1979, S.B. 537 authorized $90,000 from the construction fund for interim repairs, this sum to be repaid to the Board. After the emergency interim repairs to the dam had been completed, the district requested funding for a feasibility study to determine the ultimate solution to rehabilitating the dam. About 90 percent of that study was funded by the Board. It was completed by W. W. Wheeler & Associates, Inc., a consulting engineering firm from Englewood, Colorado, and is the basis for the recommendation on this project.

PROPOSED PROJECT

The feasibility study lists three alternatives for correcting the deficiencies of the Rio Grande Dam. They are as follows:

1. Raise the height of the dam, enhance the spillway, and stabilize the dam by placing additional material on the downstream face. This alternative would allow full passage of the probable maximum flood (PMF). The estimated cost is $5.25 million.

2. Raise the height of the dam and place additional material on the downstream face of the dam. This alternative would allow the dam to pass one-half of the probable maximum flood. It is estimated to cost $1.04 million.

3. Limit the storage capacity of the reservoir to about 35,000 acre-feet and provide a flood warning system. This alternative would allow the dam to pass one-half of the probable maximum flood. Is estimated to cost $360,000. Such a limitation on storage would make it impossible to use the facility for compact purposes.

Because of the cost of alternative 1, the district's engineer has not recommended it. Rather, he recommends that alternative 2 be selected for construction. Alternative 3 has been rejected because it would limit storage to 35,000 acre-feet, the potential annual loss of 17,000 acre-feet of storage being too costly for the water users to endure over the years.

CONCLUSIONS

The Rio Grande Dam and Reservoir serves several valuable purposes, such as storage of irrigation water for the San Luis Valley Irrigation District, flood protection for the inhabitants who live downstream of the dam, and storage of water to assist Colorado in meeting its obligations under the Rio Grande Compact.

Since the benefits of repairing the dam would accrue to persons other than those in the district, the district argues that a portion of the cost should be non-reimbursable. In addition, the district's engineer has advised that in his opinion the maximum capital investment which the district can repay is $515,000, assuming repayment over 40 years with a service charge of 5 percent. Finally, the district is requesting 100 percent financing on the grounds that they do not have liquid assets available with which to pay for a part of construction nor can they obtain financing from any other source.

As proposed by the district, the funding for the project would be:

State funds (to be repaid by the district)	$ 515,000
State funds (grant)	619,500
	$1,134,500

Under this financing arrangement water use charges would be levied by the State at the rate of $30,014 per year for 40 years for a total repayment of $1,200,568.

The options available to the Board in responding to this request were outlined in the covering memo for this agenda item.

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