MEMORANDUM

TO: Members, CWCB
FROM: Bill McDonald
DATE: October 24, 1985
SUBJECT: Agenda Item 11b, November 7-8, 1985, Board Meeting--Requests for Feasibility Studies, San Miguel Water Conservancy District

Introduction

H.B. 1042 (1985 Session) authorized the construction of the San Miguel Water Conservancy District Project--Phase 2. Section 1 (4) of the bill states that:

The Colorado Water Conservation Board is authorized to expend not more than One Million Dollars of the loan authorized in subsection (1) of this section to prepare feasibility reports on the various components of the San Miguel Water Conservancy District Project--Phase 2; except that any amount expended by the Board on feasibility reports need not be repaid unless the portion of a project to which a report is addressed is in fact constructed. The monies for construction of this project shall not be made available by the Board until the Board has, in its sole discretion, determined that the project or any portion thereof is technically and financially feasible.

The San Miguel Water Conservancy District has asked that the Board commence the feasibility study which it has the authority to prepare pursuant to the above quoted language.
Discussion

The authorization of Phase 2 of the San Miguel Water Conservancy District Project was premised upon the completion of a reconnaissance study of the project which was being prepared by the District at its expense. At the time that the legislature acted, that reconnaissance study was in draft form. The reconnaissance study has now been completed to the satisfaction of the staff and we believe that it would indeed be appropriate to proceed with a feasibility study.

The staff proposes that the Board proceed with the study of this project as follows:

(1) Conduct a feasibility study of the proposed project with 100 percent Board funding, the objectives and scope of said study to be as set forth in the enclosed draft Scope of Work. Because this feasibility study will be performed entirely with state money, it will be necessary to follow the statutory procedures which govern the selection of consulting engineering firms by state agencies, rather than having the firm selected by the District.

(2) Geotechnical investigations at selected sites would be performed at Board expense only after the completion and acceptance of the feasibility study. Given that the feasibility study will not be done until the end of 1986, we would project that geotechnical investigations would be undertaken in 1987.

(3) After the completion of the necessary feasibility study and geotechnical investigations, the Board, in consultation with the District, will reach the decision as to whether to proceed with construction of the proposed project.

Recommendations

I recommend that the Board authorize the staff to proceed with the proposed feasibility study as set forth in the attached draft, with the staff being delegated the authority to select an engineering firm and to negotiate with the selected firm such cost for the feasibility study as the staff deems appropriate. I further recommend that the feasibility study not be commenced until the District has entered into a contract with the Board obligating itself to the repayment of the cost of the feasibility study to the extent required by section 1(4) of H.B. 1042.

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Enclosure: as stated
Study Objectives and Scope

The objective of this feasibility study is to evaluate the technical and financial feasibility of a system to augment existing water supplies in the San Miguel Water Conservancy District area. The system to be studied is outlined in the Reconnaissance Report for the San Miguel Project Rescoping Study. It is referred to in that report as the high elevation collection, storage, and distribution system. The proposed system would utilize streamflows from tributaries of the San Miguel River to serve agricultural and municipal demands in the District.

The study will investigate, in detail, the hydrology and water rights in the project area. The study will also evaluate the operations, yields and costs of several alternative project configurations. Two project configurations will be selected for appraisal-level analysis. The financial feasibility of the selected alternatives will be evaluated in detail.
Minimal field investigations are anticipated for this study. Detailed geologic and geotechnical investigations for a final selected project configuration will be conducted in subsequent studies.

For this study, maximum use should be made of existing data and of previous investigations conducted by the Bureau of Reclamation and by Western Engineers, Inc.

Study Tasks

The following is an outline of the major work tasks which must, as a minimum, be addressed in each proposal to study. The sequence of tasks is illustrative only and may be rearranged to suit the requirements of each proposal. It is expected that each proposal will expand upon the outline presented here, will identify the linkages between tasks, and will provide a complete description of the rationale and methodology for each major work task.

Task 1 - Hydrology

Using existing information along with additional analysis, conduct a detailed hydrologic investigation of the study area to include:
(a) Determination of a suitable period of analysis.

(b) A methodology for extending recorded streamflows as necessary.

Task 2 - Water Rights

Using existing information along with additional analysis, conduct a comprehensive water rights investigation of the study area to include:

(a) An analysis of the potential yield of the District's conditional water rights at new points of diversion.

(b) Identification of any water rights constraints which must be considered in project formulation and operation.

Task 3 - Water Demands

Using existing information along with additional analysis, estimate the total study area water demands for current and future conditions for a suitable planning horizon. This task will include:

(a) Location of irrigated areas and amounts of irrigation water required,
(b) Municipal and industrial water demands, and

(c) Opportunities for improved water management in the study area.

Task 4 - Project Elements

Identify and evaluate the elements (canals, reservoirs, siphons, pipelines, etc.) to be used in the alternative project configurations.

(a) Review each of the elements proposed in the Reconnaissance Report for the San Miguel Project Rescoping Study.

(b) Identify any additional project elements which could be used in revised project configurations.

(c) Perform reconnaissance-level evaluations of each project element.

Task 5 - System Evaluations

Develop and evaluate several alternative water supply systems using the project elements identified above.
(a) Conduct system operation studies for several alternative project configurations.

(b) Evaluate each alternative system using the results of the operation studies along with other evaluation factors.

(c) Review the results of the evaluations with the CWCB and the District.

(d) With the concurrence of the CWCB and the District, two project configurations will be selected for further analysis.

Task 6 - Designs and Cost Estimates

Prepare appraisal-level designs and cost estimates for the two selected project configurations to include:

(a) Plan, profile and cross-sectional drawings for each major project feature.

(b) Detailed cost estimates using an appropriate contingency factor for the appraisal-level designs.
Task 7 - Financial Feasibility

Evaluate the financial feasibility of the two selected alternatives.

(a) Develop one or more financing scenarios and estimate total annual costs for a suitable period of debt retirement.

(b) Evaluate the repayment capability of project beneficiaries and sponsors under each financing scenario.

Task 8 - Final Report

Prepare a final report describing the study process and summarizing the results of the study.