Alternative Agricultural Water Transfer Methods – Competitive Grant Program
Water Activity Summary Sheet
Agenda Item 30.f.

Applicant: Colorado River Water Conservation District

Water Activity Name: Water Bank Feasibility Study—Phase 2b

Water Activity Purpose: Nonstructural Activity

Drainage Basin: Colorado

Water Source: Colorado River Basin and its Tributaries

Amount Requested: $180,000

Matching Funds: $135,000 plus in-kind match

Staff Recommendation
Staff recommends approval of up to $180,000 from the Alternative Agricultural Water Transfer Methods Program to continue the feasibility analysis of a water bank contingent upon meeting the items identified in the issues and needs section of this summary.

Water Activity Summary:
Over the past several years, the Colorado River Water Conservation District, the Southwestern Water Conservation District, The Nature Conservancy, and Front Range Water Providers (collectively "The Coalition"), have worked with the CWCB staff to explore how a "water bank" could help Colorado prevent, address, and respond to a deficit at Lee Ferry and the corresponding possibility of curtailments of water uses in Colorado in order to meet the Upper Division States' obligations under the Colorado River Compact (hereinafter, "curtailments") and the effects on Colorado water users. A water bank could provide a means for pre-compact water rights to be used to allow post-compact water uses to continue when those uses may otherwise be subject to curtailment. . Specifically, certain lands that are irrigated by pre-compact water rights could be temporarily fallowed, and these water rights could be used to offset depletions associated with post-compact water uses. There are other ways that a water bank could operate using storage or other infrastructure, as well. The purpose of the water bank concept examined in this study is three-fold:

1) Proactively develop interruptible supply agreements to temporarily cease irrigation or reduce consumptive use associated with irrigation (i.e. deficit irrigation or reduce the number of cuttings) when curtailments may otherwise be necessary and then return it to full irrigation afterwards to minimize disruption
2) Develop the bank before curtailments to minimize the impacts, and
3) Explore and develop the institutional framework for transactions to minimize the risk to buyers, sellers, and the State of Colorado.

In 2011, the CWCB approved $180,000 in funding to study the feasibility of a water bank in the Colorado River basin in Colorado. This study consisted of a feasibility study to estimate potential supplies and demands for the bank (Phase 1) and a reconnaissance level evaluation of eight actual irrigation systems (Phase 2a). This work concluded that more detailed studies were necessary to properly evaluate the feasibility of a bank.

This proposal is requesting funds to investigate further of how a bank would operate to reduce consumptive use either by fallowing or deficit irrigation on three or four actual irrigation systems that were evaluated in the 2011 Phase 2 study. The 2011 Phase I study identified approximately 350,000 acre-feet of post-compact municipal and industrial water use that could be protected by a water bank. Using conservative assumptions, Phase 1 of the feasibility study estimated at least 1 million acre-feet of pre-compact irrigation water rights are currently in use. The vast majority of use irrigates hay, either from grass pasture or alfalfa. These crops may not be readily fallowed but it is possible, at least theoretically, to achieve reduced consumptive use by "deficit irrigation," applying less than a full supply of water, and thereby developing water supplies that can be

banked. However, the means and methods for successful deficit irrigation and the methods for measuring reduced consumptive use require further investigation. Therefore, feasibility of the water bank concept that is the subject this study cannot be fully ascertained without more study and a better understanding of the practical effects of, and limitations associated with, deficit irrigation practices.

The study to be funded pursuant to this proposed grant is to engage in further and more detailed studies of several of the irrigation system evaluated in Phase 2. This next study is referred to as "Phase 2B".
Phase 2B includes a focus on deficit irrigation and a portion of the project funds will be used to support field research by Joe Brummer of Colorado State University on deficit irrigation and fallowing. This phase of the study does not include other elements that eventually will need to be studied in order to develop a complete picture of feasibility for a bank. These additional elements include regional economic evaluations, environmental evaluations, further definition of how a bank would operate and function, and further evaluation of the post-compact demands the bank would serve to protect.

Discussion:
Staff agrees with the applicant that a water bank could be an effective means of reducing the risk and impacts associated with curtailments that may otherwise be needed to meet the Upper Division's Colorado River Compact obligations both for water users which rely on pre-compact water supplies and to reduce adverse consequences to Colorado agriculture in the absence of a water bank. This study is a collaborative effort involving diverse interests on a project of statewide importance.

The application indicates a cash match of $135,000 which is 40% of the total. At a recent Water Bank Feasibility Study meeting, there was some discussion by the Coalition members on which entities will contribute the cash match and how much funds each entity will contribute. These discussions are ongoing, and although the division of this responsibility may change, the Coalition members are committed to this cash match.

Issues/Additional Needs:
The application indicates that the cash match is $135,000. Prior to contracting with the State of Colorado, letters of commitment from contributing entities indicating their contribution to the project should be received by the CWCB.

All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform.

In accordance with the Criteria and Guidelines of the Alternative Agricultural Water Transfer Methods Competitive Grant Program, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

Engineering: All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.