Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
September 21-22, 2016
Agenda Item 19(g)

Co-Applicants & Fiscal Agent:	Lower Arkansas Valley Water Conservancy District & Fort Lyons Rule 10 Association.
Fiscal Agent:	Lower Arkansas Valley Water Conservancy District
Water Activity Name:	Phase 2 of Tailwater Return Flow Study of Fort Lyon Canal
Water Activity Purpose:	Agricultural
County:	Bent
Drainage Basin:	Arkansas
Water Source:	Arkansas River
Amount Requested/Source of Funds:	$26,000 Arkansas Basin Account* $148,796 Statewide Account* $174,796 Total Grant Request * The Roundtable Chair Recommendation Letter indicating $36,000 request from the Arkansas Basin Account; and $138,796 request from the Statewide Account are incorrect, while the values in the Application are correct and are reflected above.
Matching Funds:	Basin Account Match ($26,000) = 15% of total grant request; Applicant Match ($75,000) = 43% of Total Grant Request (meets 5% min); Basin & Applicant Match ($101,000) = 57.8% of Total Grant Request (meets 25% min). (refer to *Funding Summary/Matching Funds* section)

Staff Recommendation:

Staff recommends approval of up to $26,000 from the Arkansas Basin Account; and $148,796 from the Statewide Account to help fund the project titled: Phase 2 of Tailwater Return Flow Study of Fort Lyon Canal.

Water Activity Summary: If approved, WSRF grant funds will constitute additional funding to continue a study currently underway pursuant to a Water Supply Reserve Account grant originally titled: *FIRI Analysis and Tailwater Return Flow Study on Fort Lyon Canal Project*. The overarching goal of the Project is to conduct an investigation and collect data to determine whether adjustment to the assumed tailwater factor and irrigation efficiency factor for flood irrigation in the H-I Model and Irrigation System Analysis Model (ISAM) is warranted to more accurately reflect actual conditions, as both of these inputs are considered overly conservative.

The first phase of the Project determined that given the extensive size of the Fort Lyon Canal and the amount of data needed to support potential adjustments to the H–I Model and the ISAM, the Project should be pursued in a phased approach. Phase One of the Project is yielding promising results – showing that the tailwater assumption contained in the H-I Model and ISAM does appear to be overly conservative. However, additional study and data are required before the results are sufficiently persuasive to support a potential State of Colorado request to Kansas for a modification of the irrigation efficiency factor and tailwater factor assumptions in the H-I Model and ISAM. Therefore, Lower Ark seeks funding for a second phase of the Project that will (1) allow for continued site monitoring and data collection on actual amounts of tailwater occurring from flood irrigated farms and (2) to begin on-farm measurement and data collection to analyze irrigation efficiency.

Discussion: This project furthers multiple goals and objectives of the Arkansas Basin Implementation Plan. With respect to the Colorado Water Plan, this project supports Objective A Supply-Demand Gap: "Protect and Develop Compact Entitlements and Manage Risks," Objective D. Agriculture: "Support Agricultural Conservation and Efficiency," (Section 10.3).

Of particular note are the benefits which may derive from this project's alignment with Objective H. Education, Outreach and Innovation: Inform Coloradans about water issues to encourage engagement and innovation in determining Colorado's water future." By assessing return flow patterns in the field, as agriculture becomes more efficient, this project may benefit Colorado's future water use with respect to both agricultural efficiency and water quality.

Issues/Additional Needs: No issues or additional needs have been identified.

Threshold and Evaluation Criteria:
The application meets all four Threshold Criteria.

Tier 1-3 Evaluation Criteria:
This activity has undergone review and evaluation and staff has determined that it satisfies the Evaluation Criteria. Please refer to WSRA Application for applicant's detailed response.

Funding Summary/Matching Funds:

Funding Source	Cash	In-kind	Total
Lower Arkansas Valley Water Conservancy District	$75,000	$0	$75,000
WSRA Arkansas Basin Account	$26,000	n/a	$26,000
WSRA Statewide Account	$148,796	n/a	$148,796
Total Project Costs	**$249,796**	**$0**	**$249,796**

CWCB's Project Manager: Craig Godbout

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 revised WSRA Criteria and

Guidelines, 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.