

**Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet**

Applicant: El Paso County Water Authority
(EPCWA)

Amount Requested: \$70,000.00

Water Activity Name: Upper Black Squirrel
Creek Basin – Aquifer Recharge and Storage
Evaluation

Source of Funds: Basin Account

Matching Funds: Yes, \$70,000.00

Water Activity Purpose:

Not specified; Study or Analysis of Structural Project.

Evaluation of the potential to store and recover water in the Black Squirrel Creek designated groundwater basin.

County:

El Paso

Drainage Basin:

Arkansas

Water Source:

Non-tributary groundwater waste water return flows. Possible future opportunities include water transfers and/or transbasin return flows.

Water Activity Summary:

The alluvium of Black Squirrel Creek in central El Paso County is within the Upper Black Squirrel Creek Designated Groundwater Basin.

Colorado Water Resources Circular #32, published by the Colorado Water Conservation Board, provides an overview of water resources in El Paso County (1976). The Circular documents 400,000 acre-feet of water in storage in the Black Squirrel alluvial aquifer in 1964 declining to 350,000 acre-feet by 1974, a loss of 50,000 acre-feet. That trend has continued to the present, perhaps affording an opportunity to recharge that portion of the alluvium that once stored water. Once placed back in the aquifer, the water is no longer subject to loss by evaporation, as is the case in surface storage facilities. Cherokee Metropolitan District is well along in its effort to investigate recharging treated effluent into the Black Squirrel alluvial aquifer. Pilot studies indicate the concept is feasible, recharge rates are good and water quality may actual improve.

The EPCWA applied for a Severance Tax Grant in the 2006-7 application period and was told \$40,000 would be available, subject to General Assembly approval, in July 2007. Individual project cooperators have pledged an additional \$70,000.00. Colorado Geologic Survey, as the study investigator, has expanded the scope of work to include a pilot recharge project based on initial study results and analysis. Existing

municipal supply systems could access recharged water, representing a substantial cost savings over new construction. Agricultural interests could be restored, enhanced and/or sustained by thoughtful management of the recharge and recovery administration.

This funding request suggests that a cooperative, regional approach to recharge of the Black Squirrel could benefit many parties. Rather than allow return flow to travel downstream to the Arkansas River, store the effluent in the alluvial aquifer at approximately the same elevation. If other sources of water can be identified, in wet years when irrigation demand is reduced, perhaps more water can be recharged and captured in storage. In a drought condition, the aquifer can be pumped to supplement supplies. This form of water banking has proven successful in many parts of the arid West.

The initial study will provide the basis for pilot recharge project located within the Upper Black Squirrel Designated Groundwater Basin. One element of investigation is the overlying land ownership. It is of interest to note the substantial State Land Board land holdings in the basin.

Source water initially is likely to be Denver Basin aquifer return flows. The goal is to validate the potential for significant non-evaporative storage (the 1976 CWCG/USGS study documents 50,000 af of draft) to justify infrastructure development to deliver rotating fallowed agricultural water as a source.

Matrix of current funding participants:

Entity Name	EPCWA(CWCB Grant)	Upper Black Squirrel M.D.	Cherokee	Sunset	Meridian Ranch	Woodmen Hills	Colo. Sprgs Utilities	Dev. Advstr. Bd.	SB 179 Funding	Total
2007	\$40,000	\$10,000	\$10,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$70,000	\$155,000
2008 (1)	\$0	\$5,000	\$5,000	\$5,000	\$0	\$0	\$5,000	\$5,000	\$0	\$25,000
Total:	\$40,000	\$15,000	\$15,000	\$10,000	\$5,000	\$5,000	\$10,000	\$10,000	\$70,000	\$180,000
Notes:	Sponsor a Policy Conference on Groundwater Recharge and Recovery									\$20,000
(1)	Costs for 2008 are estimates only and subject to annual budget approval.									TOTAL: \$200,000
(2)	Current cost estimate for Scope of Work by Colorado Geologic Survey approximately \$178,000									

Summary of Tasks:

The objective of this project is to evaluate and refine the existing knowledge of the hydrogeology of the alluvial aquifer system in the Upper Black Squirrel Creek Basin for the purposes of assessing the potential for aquifer recharge and storage implementation. Geographic, geologic, hydrologic and water quality data will be collected and analyzed to evaluate the recharge potential, storage capacity, and water quality impacts in the study area. A phase 2 scope of work is proposed to tune into a select site or sub-basin for potential pilot project implementation.

Task 1 - Historical Data Compilation and Site Characterization

Task 2 – Field Data Collection

Task 3 – Data Analysis, Evaluation, and Mapping

Task 3 (2) – Phase 2 Data Analysis, Evaluation, and Mapping

Task 4 - Reporting Task 5 - Project Management

Task 4 (2) – Reporting (Phase 2)

Task 5 - Project Management

Task 5 (2) - Project Management (Phase 2)

Discussion:

Northern El Paso County was identified in the Statewide Water Supply Initiative (SWSI) as a significant gap area for meeting 2030 water demands. The implementation of this study should provide valuable information to examine the potential to more fully utilize existing resources and the potential to provide storage for new water resource development or to store agricultural water transfers.

Although not specifically addressed the activity does appear to meet the threshold criteria. It provides information to help refine water availability and initiates a method for addressing water needs and utilizing water supplies.

Issues/Additional Needs:

Confirmation on how the activity meets the threshold criteria. Attachment reference but not included.

The applicant should provide more information regarding the schedule of activities and key milestones.

More specific budget breakdown that includes: rates, level of effort, other unit and direct costs. In addition, since this activity involves two funding sources from CWCB the budget should delineate which activities will be specifically undertaken with the Water Supply Reserve Account.

The applicant should provide addition information on the Cherokee Metropolitan District Study and specifically address how the studies complement each other and how they will not duplicate each other.

The mapping of existing water delivery infrastructure in Task 1 should also include mapping of the waste water systems; especially if this is likely to be a source of aquifer recharge.

Information was not provided regarding service area, tap, rates etc. The authority is the applicant and does not directly provide water, its members do. Staff does not feel that this information is essential at this time.

An analysis of the legal, policy and management issues related to implementing this project in a designated basin are not addressed under this study. Staff has some concern that should these issues prove to be a fatal flaw then the benefits derived from these funds would be reduced. A \$20,000 line item is show on Matrix of current funding participants for a policy conference on Groundwater Recharge and Recovery. However it is not part of the scope of work for this funding request. If funding from the WSRA is to be used a detailed description of the conference topics, outcomes and costs must be provided.

Staff Recommendation:

Staff recommends approval of up to \$70,000.00 from the Arkansas Basin - Basin Account Fund of the Water Supply Reserve Account to implement the proposed study. This approval is conditioned on the receipt of the information requested in the issues/additional needs section.

All products, data and information developed as a result of this grant must be provided to 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.