Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
Agenda Item 14.b

Applicant: Fountain Creek Watershed Flood Control and Greenway District

Water Activity Name: Fountain Creek Bank Restoration at the Frost Ranch

Water Activity Purpose: Non-consumptive

County: El Paso

River Basin: Arkansas

Water Source: Fountain Creek

Amount Requested: $75,000 (Statewide Account); $30,000 (Arkansas Basin Account)

Matching Funds: $84,100 ($45,300 cash, $38,800 in-kind)

Staff Recommendation
Staff recommends approval, upon the condition of addressing concerns specified below in the Issues/Additional Needs section, of up to $30,000 from the Arkansas Basin Account and $75,000 from the Statewide Account to help fund the Fountain Creek Bank Restoration at the Frost Ranch.

Water Activity Summary:
The water project is proposed to restore an eroding stream bank of Fountain Creek at the Frost Ranch in southern El Paso County. The project bank lies along an eroding meander where Fountain Creek has migrated into a bank with no riparian vegetation. The lack of vegetation along 400 feet of the river left bank allows the soil to be readily removed during high flow events. The landowner has experienced flood damage and bank erosion that has caused loss of property, damage to fences, loss of productivity, and loss of habitat and vegetation. Since 2010, the bank has migrated as much as 70 feet.

The Bank Assessment for Non-point source Consequences of Sediment (BANCS) model was used to evaluate bank characteristics and flow distribution along the Frost Ranch reach to provide an estimation of bank erosion rates. The eroded eastern bank adjacent to the Frost property likely yields between 0.4 and 1.0 tons of sediment per foot of streambank per year. Most stable streambank features in this reach of Fountain Creek yield approximately 0.1 tons of sediment per foot of streambank per year. The scoured sediment from this reach is depositing downstream where it has the potential to destabilize a well functioning stream segment.

The objective of the project is to stabilize 400 feet of Fountain Creek so that downstream sediment contributions are similar to vegetated reference reaches. The applicant proposes to design and construct features to protect the bank and prevent erosion in this reach.

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

The application articulates how the project meets the Evaluation Criteria as summarized below:

Tier 1: Promoting Collaboration/Cooperation & Meeting Water Management Goals & Identified Needs:
Fountain Creek is identified as a environmental and recreational water needs focus area in the Arkansas Basin Water Needs Assessment Report. The project is support by the Lower Arkansas Conservancy District, Colorado Open Lands, Central Colorado Conservation District, El Paso County and the private landowner. It will re-establish native vegetation and improve riparian and in-stream habitat. Reduce sediment loading will protect downstream reaches from flooding as well as protect the physical integrity of irrigation diversions.

Tier 2: Facilitating Water Activity Implementation:
WSRA are necessary to complete the design and construction of this project. The funds will be used to leverage local cash and in-kind support. The project will serve as a demonstration of habitat-sensitive restoration techniques that will be proposed throughout the Fountain Creek Watershed. The Fountain Creek Watershed, Flood Control and Greenway District will be initiating a series of sediment transport studies to identify priority sites along the main stem of Fountain Creek, similar to Frost Ranch that can benefit from the demonstrated habitat-sensitive restoration techniques to reduce erosion.

Tier 3: The Water Activity Addresses Issues of Statewide Value and Maximizes Benefits:
The water activity includes bank and channel improvements that assist in the recovery of the Arkansas Darter, a threatened and endangered wildlife species and the Flathead Chub, a Colorado state species of concern. The project compliments the efforts of the CWCB Watershed Restoration Program by implementing a design to improve ecological function while protecting life and property from flood damage.

Discussion:
With the exception of the project bank, this reach of Fountain Creek is an exemplary healthy reach. The creek in this vicinity is relatively stable, well-vegetated and neither aggrading or degrading. It is bordered by dense riparian and wetland buffer and associated high-value habitat. The vegetation buffer provides roughness that slows velocities and root mass that holds the stream banks together during floods. Restoring the project bank in this reach would prevent further impacts to the otherwise well functioning reach at much lower cost that repairing it after further damage. In addition, this healthy reach was recently used as a reference reach to collect stable geomorphic and survey data to guide another channel restoration project on a site upstream. As such, considerable data for that study has already been collected for this site.
The project bank has a relatively low height compared to other severely eroding banks on Fountain Creek. That will allow the project to proceed with available WSRA funds to demonstrate effective habitat-sensitive restoration techniques at a reasonable cost. The concept for restoration will utilize the construction of a bankfull bench against the toe of the eroding bank. The bench width will restore the creek to a reference width and improve sediment transport capacity. The bench will be stabilized with appropriate toe protection and augmented with willow and other riparian plantings to increase habitat and provide sustainable flood velocity mitigation and soil protection.
The project bank is readily accessible and will be an excellent location to demonstrate techniques that can be used to systematically address larger erosion and sedimentation issues along Fountain Creek. Addressing these issues will begin to reduce the sediment supply that is contributing to irrigation, flooding, and stream stability problems downstream on Fountain Creek and the Arkansas River.

Issues/Additional Needs:
- The applicant should provide staff with a monitoring plan that describes geomorphic and vegetation monitoring methodologies.
- The monitoring plan should conform to the CWCB Measurable Results Program's Standard Operating Procedures for Topographic Survey of Stream Channels.
- All proposed river channel work should conform to the CWCB Rules and Regulations for Regulatory Floodplains in Colorado

Staff Recommendation:
Staff recommends approval, upon the condition of addressing concerns specified below in the Issues/Additional Needs section, of up to $30,000 from the Arkansas Basin Account and $75,000 from the Statewide Account to help fund the Fountain Creek Bank Restoration at the Frost Ranch.

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 and Final Deliverable: 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. 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.

Location Map: