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15 November 2013

Mr. Chris Sturm
 Stream Restoration Coordinator
 Watershed and Flood Protection Section
 Colorado Water Conservation Board
 Department of Natural Resources
 1313 Sherman Street, Room 721
 Denver, CO 80203

**Re: Colorado Watershed Restoration Grants Program Special Release Grant
 Application for Upper Fountain Creek and Cheyenne Creek Flood Restoration Master
 Plan Project**

Dear Mr. Sturm,

The Fountain Creek Watershed, Flood Control and Greenway District is pleased to submit our Grant Application under the Colorado Watershed Restoration Grants Program Special Release for Upper Fountain Creek and Cheyenne Creek Flood Restoration Master Plan Project. This application is made on behalf of a coalition of partners who will be participating in the performance of the project and who have committed cash funding and in-kind match to support the project. The coalition, led by the Fountain Creek Watershed Flood Control and Greenway District, consisting of the City of Colorado Springs, Colorado Springs Utilities, El Paso County, Manitou Springs, Green Mountain Falls, Woodland Park, Teller County, the Coalition for the Upper South Platte (CUSP), Pikes Peak Area Council of Governments, and the Pikes Peak Regional Building Department, are collectively contributing \$175,000 cash and \$87,500 in-kind as match for our requested \$175,000 CWCB funding. The total Project budget is \$437,500.

We recognize that the funds provided under this Special Release are restricted to the 18 counties affected by the September 2013 floods, of which El Paso County is one. Since the Fountain Creek Watershed and Upper Fountain Creek extend a short distance into Woodland Park and Teller County and since significant flood flows in Upper Fountain Creek in the September 2013 storms were generated in that reach of Upper Fountain Creek, we have included that portion of Upper Fountain Creek in our proposed Restoration Plan development so that the plan will comprehensively cover all issues associated with flooding in Upper Fountain Creek. However, we will not apply any funding from this Grant to that portion of Upper Fountain Creek outside El Paso County.

The District and our coalition partners have been working diligently to mitigate the effects of fire damage and flooding in the Fountain Creek watershed. Efforts are under way to correct issues

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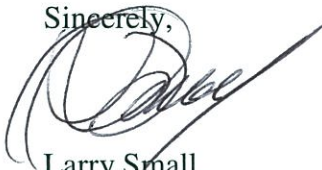
associated with the Waldo burn area including Camp Creek, Williams Creek, Upper and Lower Douglas Creeks and West Monument Creek, where local governments have invested over \$9.3 million in engineering studies and design, but substantial work remains to be done. The work proposed under this application will integrate and build upon this ongoing effort to provide our coalition a holistic restoration plan for Upper Fountain Creek and Cheyenne Creek to permit restoration activities to be effective and lasting for the protection of public health, safety, and welfare and the protection of assets at risk.

We look forward to your favorable review of our Grant Application.

If you need further information, please contact me at 719-447-5012 or Graham Thompson, our Engineer, at 719-575-0100.

Thank you for your assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Larry Small', written over a circular stamp or seal.

Larry Small,
Executive Director

1.0 PROJECT PROPOSAL SUMMARY SHEET

Project Title: *Upper Fountain Creek and Cheyenne Creek Flood Restoration Master Plan*

Project Location: *The Upper Fountain Creek corridor located between Woodland Park and the confluence with Monument Creek in Colorado Springs and the Cheyenne Creek corridor from Cheyenne Canyon to the confluence with Fountain Creek. See the attached study map.*

Grant Type: *Colorado Watershed Restoration Program Special Release October 2013*

Grant Request/Amount: *\$175,000 (CWCB)*

Cash Match Funding: *\$175,000 which includes \$25,000-The Fountain Creek Watershed Flood Control and Greenway District, \$100,000-City of Colorado Springs, \$25,000-Colorado Springs Utilities, & \$25,000-El Paso County*

In-Kind Match Funding: *\$87,500 including \$37,500-Pikes Peak Regional Building Department, & \$50,000 Combined from City of Colorado Springs, Colorado Springs Utilities, Teller County, El Paso County, City of Manitou Springs, Town of Green Mountain Falls, City of Woodland Park, Pikes Peak Area Council of Governments & Coalition for the Upper South Platte*

Project Sponsor(s): *Fountain Creek Watershed Flood Control and Greenway District (the District)*

Contact Person: *Name: Mr. Larry Small, Executive Director*

E-mail Address: lsmall42@comcast.net or Fountainckdist@aol.com

Phone Number: (719) 447-5012

Brief description of the project

This project will provide flood restoration master planning along reaches in the Upper Fountain Creek and Cheyenne Creek watersheds following the flood events that occurred in the summer of 2013. This work will assess impacts to the stream corridors and develop conceptual plans for mitigation of flooding and sedimentation, and restoration of the corridors. The hydrology of the Upper Fountain Creek watershed has received attention during the past year as a result of significant effects on the watershed since the Waldo Canyon Fire in 2012. The Coalition for the Upper South Platte contracted with Wildland Hydrology to complete the Waldo Canyon Watershed Assessment of River Stability and Sediment Supply (WARSSS). In addition, El Paso County contracted with Matrix Design Group (Matrix) to update and modify the Upper Fountain Creek watershed hydrologic and hydraulic models to evaluate the effects of the Waldo Canyon fire on the hydrology of the basin and downstream flood inundation. The Waldo Canyon Post-fire Flood Study, along with the Waldo Canyon WARSSS identified that the fire imposed significant changes on the hydrology and sediment volumes generated in the burn area including an increase in the annual flow-related sediment load from Upper Fountain Creek tributaries from under 200 tons/year to over 40,000 tons/year post-fire! The post-fire conditions identified by these studies coupled with the flood events in the summer of 2013 have led to extensive flood damage, property and infrastructure damage, erosion and sedimentation, and loss of flood capacity going forward. Further, significant flood damage occurred on Cheyenne Creek during the summer floods. These conditions predicate the need to integrate and build upon existing studies to achieve post-fire/post-flood restoration master planning. Study tasks will include hydrologic, hydraulic, and geomorphic analysis, alternatives screening and analysis, conceptual plan and prioritization, cost estimation, and reporting. The primary goal will be an actionable plan for the restoration of Upper Fountain and Cheyenne Creeks.

2.0 APPLICANT QUALIFICATIONS

2.1 Identify the lead project sponsor and describe the other stakeholders’ level of participation and involvement. 10 points

The lead project sponsor will be the Fountain Creek Watershed Flood Control and Greenway District. The District encompasses the Fountain Creek watershed in El Paso and Pueblo Counties and includes the Cheyenne Creek watershed. Funding partners include the City of Colorado Springs, Colorado Springs Utilities, and El Paso County. Project management will be provided by the District, while representatives from the funding partners will meet regularly as a leadership team. Staff time will include directing work, providing data, participating in best-practices and alternatives workshops, attending progress meetings and providing technical review work products. Political leaders and staff of other participating governments and in-kind partners will provide data, technical support, and workshop and meeting participation. The Coalition for the Upper South Platte (CUSP), the Pikes Peak area Council of Governments (PPACG), City of Manitou Springs, Town of Green Mountain Falls, City of Woodland Park, Teller County, & the Pikes Peak Regional Building Department will offer data, completed studies, staff technical assistance, and volunteer field assistance.

2.2 What information is the project sponsor using to develop the proposed plan or project? Include any relevant information regarding existing watershed plans, geomorphic assessments, flood studies, fire protection plans, riparian conditions assessments, aquatic/terrestrial habitat conditions, wildlife studies, and/or river restoration reports. 10 points

The District will rely on the following documents to guide planning and evaluate the post-fire/post-flood conditions: 1)Strategic Plan, Fountain Creek Vision Task Force, 2011; 2)The Fountain Creek Corridor Restoration Master Plan completed in 2011; 3)U.S. Army Corps of Engineers (Corps) -Fountain Creek Watershed Study –Watershed Management Plan, January 2009; 4)U.S. Geological Survey (USGS) – Remediation Scenarios for Attenuating Peak Flows & Reducing Sediment Transport in Ftn. Creek Colorado, Draft 2013 and other U.S. Geological Survey scientific reports; 5)Waldo Canyon Fire Watershed Assessment: The WARSSS Results & Master Plan for Watershed Restoration and Sediment Reduction, April 2013; 6)Waldo Canyon Post-fire Flood Study, July 2013; 7)Cheyenne Creek LOMR, 2011; 8)Williams Canyon Preliminary Engineering Study, ongoing; 9)Camp Creek Basin Study, ongoing; and 10) Woodland Park 2014 planning and design documents including Fountain Creek Channel Stability Analysis and Stormwater Master Plan.

2.3 Specify in-kind services and cash contributions (match) amount for the proposed activities. CWCB recommends that the applicant provide 50% match of the project’s total cost. Discuss whether other funding sources are secured or pending. 10 points

In-kind - \$87,500 (secured):

CUSP Student volunteers to perform field geomorphic data collection-\$10,000

District Technical Advisory Committee (TAC), along with staff from the funding and in-kind partners, to include providing data, participating in best-practices and alternatives workshops, attending progress meetings and providing technical review -\$40,000

Pikes Peak Regional Building Department to provide high-definition photogrammetry-\$25,000, and GIS support-\$12,500.

Cash Contribution – \$175,000 (secured):

\$25,000-The Fountain Creek Watershed Flood Control and Greenway District, \$100,000-City of Colorado Springs, \$25,000-Colorado Springs Utilities, & \$25,000-El Paso County

3.0 ORGANIZATIONAL CAPABILITY

3.1 What is the applicant organization's history of accomplishments in the watershed? Provide several past project examples. List partner organizations and agencies with which applicant worked to implement past projects. 10 points

The District has made it a priority to participate in and in many cases has provided leadership, expertise and funding for the research, development and implementation of potential solutions for the problems in the Fountain Creek Watershed. The following is a brief recap of the cooperative efforts between The District and others for improving the watershed health of the Fountain Creek Watershed:

1. *The District is currently working with Matrix to complete the planning, design, and eventual construction of the Fountain Creek Bank Restoration at the Frost Ranch demonstration project with funding from the CWCB Water Supply Reserve Account.*
2. *The District is currently working with USGS on a Post Burn Water Quality Sampling of Monument and Fountain Creek in which they provided \$12,000 in funding and USGS provided \$6,000.*
3. *The District is currently working with the USGS Colorado Water Science Center to assess the effectiveness of various management strategies for attenuating peak flows and reducing erosion and depositional side effects of anthropogenic-induced sediment transport on the main stem of Fountain Creek downstream of Colorado Springs.*
4. *The District was instrumental in working with Colorado Springs Utilities as well as the governmental staff and volunteers within Pueblo and El Paso Counties to facilitate and complete The Fountain Creek Corridor Restoration Master Plan.*
5. *The District and NRCS, provided funding and administration services for the design and implementation of the Side Detention and Sediment Collector projects located along Fountain Creek within Pueblo in 2011.*
6. *The District was instrumental in securing funding, providing funding, serving in a leadership role and/or serving as applicant for the following grant applications:*
 - a. *Colorado State Parks -Non-motorized Recreational Trails Grant 2010: Fountain-Clear Spring Connector. The District provided leadership and financial support of \$5,000.*
 - b. *CWCB – Water Supply Reserve Account 2012: Fountain Creek Bank Restoration at the Frost Ranch. The District provided \$45,300 in cash funds and served as applicant.*
 - c. *Great Outdoors Colorado -River Corridors Initiative Grant 2012: The Fountain Creek Watershed Trails and Recreation Projects. The District served as one of the applicants and funded the preparation of the application*
 - d. *Great Outdoors Colorado -Trails and Recreation Project 2011: The District provided \$15,000 match to the City of Colorado Springs for design of the Front Range Trail through Clear Spring Ranch and \$10,000 match to the City of Pueblo for the design of the Palo Verde Park Trail Extension to Fountain Creek.*

3.2 What level of staffing will be directed toward the implementation of the proposed project/planning effort? Discuss the number of staff and amount of time dedicated for the project. Will volunteers be utilized, and if so, how? 10 points

Mr. Larry Small, Executive Director of the District, will serve as project manager and provide 20% of his time to this project. The District intends to contract with Matrix to provide engineering consulting support. Matrix will provide one senior level staff person from two of its Colorado offices as well as several support staff. Senior level staff will dedicate approximately 20% of their time, while support staff will spend approximately 40% of their time working on this project. Matrix will engage subconsultants as needed to include planning, contributors to the WARSSS study, other flood study representatives. Volunteers from the CUSP will be utilized during technical phase to provide on the ground field reconnaissance and geomorphic data collection. In addition, The District TAC, funding and in-kind

partners will provide data, technical support, and workshop and meeting participation. The Matrix project manager will be Graham Thompson P.E., who brings more than 19 years of experience to the water resources team at Matrix. He has completed numerous watershed and stream corridor planning projects, including the high-profile U.S. Army Corps of Engineers Fountain Creek Watershed Study, and the Fountain Creek Corridor Restoration Master Plan. Graham has led the design and construction of stream restoration and stormwater infrastructure projects for federal, municipal, and industrial clients. Currently, Graham is the project manager for the Colorado Springs Utilities Fountain Creek Realignment project at Clear Spring Ranch. In addition, he was a team member on the Waldo Canyon WARSSS team. Graham holds a Master of Science in Environmental Engineering from New Mexico State University. He also has advanced training in applied river morphology and river restoration.

4.0 EFFECTIVENESS OF PROPOSAL

4.1 Demonstrate that the project budget and schedule are realistic. Please use the attached budget/timeline spreadsheet. 10 points

Please see the attached project budget and schedule.

4.2 Discuss the multi-objective aspects of the project and how they relate to each other. Describe similar activities in the watershed and how this project complements but does not duplicate those activities. Multi objectives may include (but are not limited to) channel stabilization, riparian re-vegetation, habitat improvement, recreation opportunity enhancement, natural hazard reduction, flood mitigation, water supply delivery improvement, fish migration improvement, ephemeral/intermittent channel stabilization, and upland erosion mitigation. 20 points

The plan will build on the District's and its partner's efforts to improve watershed health in the Fountain Creek Watershed by addressing specific problem areas in Upper Fountain Creek and Cheyenne Creek subwatersheds. The effort will identify the extent and priority of sites requiring restoration in the study reaches. By integrating the results of recent fire, flooding, and sedimentation studies (WARSSS, Waldo Flood Study, USGS), the District and its partners will create a framework to evaluate the priority of site-specific needs with respect to the overall response of the watersheds to future flood events. This integrated, holistic view of the watershed coupled with the local needs identified within the study reaches will facilitate the prioritization and conceptual design of specific mitigation needs. Alternatives will be developed from 2011 Fountain Creek Corridor Restoration Master Plan tool box along with best-practices employed by partners and stakeholders during recent WARSSS and other post-fire mitigation efforts and screened with respect to technical feasibility related to multi-objective aspects identified and cost effectiveness. A cohesive suite of site-specific alternatives will be refined into a conceptual plan with the prioritization of sites and an understanding of mitigation needs. The District and its partners will be able to initiate restoration projects that are complimentary to these mitigation needs, as well as stakeholder objectives and activities throughout the watershed. This final, actionable plan for the restoration of Upper Fountain and Cheyenne Creeks will provide the revitalization concept and mitigation sites and methods focused on reducing erosion, sedimentation and flooding, while improving water quality, and riparian and aquatic habitats. The proposed restoration plan and conceptual designs will be used to guide funding and final design to mitigate the priority sites identified in the proposed assessment project.

4.3 Describe the proposed implementation plan. How will the master planning lead to prioritization and implementation of projects that mitigate flood risk and improve stream function? 10 points

The proposed plan will be implemented in a way that is supported by the integrated assessment described above in section 4.2 to reduce redundancy and promote continuity of restoration activities

throughout the study areas. Prioritization will be determined based on both site specific and management plan conditions. Every effort will be made to create a priority designation that promotes achieving of multi-objectives while working within site constraints and specified budgets. The concept plan will include:

- Mitigation at site-specific areas*
- Developed alternatives*
- Screened for multi-objective criteria, site constraints and cost effectiveness*
- Specific plan and recommendation*
- Maps and conceptual designs*
- Prioritization for budgeting and pursuit of funding*

4.4 Discuss how the applicant plans to work together with its respective Basin Roundtable and/or the CWCB to incorporate the results of its master plan into Sections 4.2, 4.4, and/or 4.7 of the Roundtable's Basin Implementation Plan and/or sections 5.3 or 5.7 of Colorado's Water Plan Annotated Framework.

10 points

Matrix, on behalf of the District, has had initial coordination with the Arkansas Basin Roundtable chair and discussed the integration of Upper Fountain Creek and Cheyenne Creek restoration planning. The Basin Implementation Plans are intended to address overall health including forest health and associated pre-fire prevention/suppression and post-fire mitigation. The Upper Fountain Creek and Cheyenne Creek watersheds are an important part of the Arkansas Basin from the standpoint of supply and consumptive use. These basin plans provide an opportunity for prototyping and will be incorporated as addenda or appendices to the Basin Implementation Plan to serve as case studies for catastrophic post-fire and post-flood mitigation. Post-event impacts in both of these watersheds have had direct effects on water supply infrastructure (see attached photos). Secondary effects include both consumptive and non-consumptive use impacts such as alteration of water yield, sedimentation, water quality degradation, destruction of aquatic and terrestrial habitat, and reduced recreational access.

5.0 ATTACHMENTS

Please find attached:

- 1. Scope of Work*
- 2. Budget and Schedule*
- 3. Study Map*
- 4. Study Area Photos*
- 5. Letters of Support*

ATTACHMENTS

Scope of Work

GRANTEE and FISCAL AGENT: *Fountain Creek Watershed Flood Control and Greenway District*

PRIMARY CONTACT: *Mr. Larry Small, Executive Director*

ADDRESS: *P.O. Box 26373, Colorado Springs, CO 80936-6373* **PHONE:** *(719) 447-5012*

PROJECT NAME: *Upper Fountain Creek and Cheyenne Creek Flood Restoration Master Plan*

GRANT AMOUNT: *\$175,000.00*

INTRODUCTION AND BACKGROUND

This project will provide flood restoration master planning along reaches in the Upper Fountain Creek and Cheyenne Creek watersheds following the flood events that occurred in the summer of 2013. The recent floods that occurred in August and September of 2013 had a dramatic effect on the channels, infrastructure, in-stream structures, banks, and floodplains of Upper Fountain Creek and Cheyenne Creek. This work will assess impacts to the stream corridors and develop conceptual plans for mitigation of flooding and sedimentation, and restoration of the corridors. Study tasks will include hydrologic, hydraulic, and geomorphic analysis, alternatives screening and analysis, conceptual plan and prioritization, cost estimation, and reporting. The primary goal will be an actionable plan for the restoration of Upper Fountain and Cheyenne Creeks.

The District and partners, with funding from CWCB, has undertaken a number of projects that assess the hydrology and in-stream condition of Upper Fountain Creek. These projects have assessed the hydrology of the entire watershed of Fountain Creek upstream of the confluence with Monument Creek in Colorado Springs and the condition the hydraulic structures (culverts, bridges, etc.) downstream of Sand Gulch. The recent floods, coupled with the Waldo Canyon Fire in 2012 have resulted in considerable transport of sediment and debris. The floods altered the creek bed, banks, floodplains and structures and have led to extensive flood damage, property and infrastructure damage, erosion and sedimentation, and loss of flood capacity going forward. The District proposes to assess the post flood condition of Upper Fountain Creek and the in-stream hydraulic structures in the entire watershed. This will include the upstream reaches of Upper Fountain Creek not evaluated by previous studies: the remaining 2-mile reach in El Paso County and the 2 mile reach in Teller County upstream of the county boundary to the city limits of Woodland Park. The assessment will rely on the analyses presented in previous flood studies of Upper Fountain Creek, updated land use data, modified hydrologic and hydraulic models, and observed stream flow data to determine the most technically feasible and cost effective restoration alternatives.

With a similar approach, the District will assess the hydrologic and hydraulic conditions existing in Cheyenne Creek. A recent flood study for the lower reach of Cheyenne Creek evaluated the basin hydrology and peak flood elevations downstream of Evans Avenue. This lower reach and the reach upstream of Evans Avenue will be assessed with respect rainfall-runoff estimates and methods applied in Upper Fountain Creek evaluations.

OBJECTIVES

1. Identify areas of concern within Upper Fountain Creek and Cheyenne Creek that require mitigation of flooding risk and restoration to pre-flood conditions to provide for the protection of public health, safety and welfare and the protection of assets and values at risk including public infrastructure and water supply.
2. Define a conceptual mitigation and restoration plan that is based on the results provided by the Hydrology and Hydraulics, Sedimentation/Geomorphic, and Alternatives Analyses. Assign a cost estimate and priority to each mitigation and restoration activity.
3. Create a plan to address the immediate and forthcoming needs for in-stream restoration to return the affected reaches to pre-flood conditions and establish mitigation measures to reduce the risk of future flooding, provide for channel stabilization, protection and restoration of wetland areas and protection of aquatic and riparian habitat.

TASKS

TASK 1 – Data Collection and Review

Description:

The Upper Fountain Creek corridor has been adversely affected by the recent floods of August and September of 2013. These effects were considerably exacerbated by the documented effects on the flood hydrology from the Waldo Canyon Fire in 2012. The District has been investigating the adverse effects of the fire on the rainfall-runoff relationships of Upper Fountain Creek and its tributaries. A detailed hydraulic model has been developed for Upper Fountain Creek from Sand Gulch to the confluence with Monument Creek. This model will be used to define baseline hydraulic conditions of the channel and floodplains of Upper Fountain Creek. In order to expand the hydraulic model to include the reach of Upper Fountain Creek upstream of Sand Gulch to the Woodland Park city limits an extensive data collection effort will be made.

Method/Procedure:

Additional data needs will be assessed with respect to the known areas of interest on both Upper Fountain Creek and Cheyenne Creek. Specific data collection activities will provide the necessary data for technical activities as required for hydraulic model expansion, sediment transport modeling, alternatives analysis, and conceptual plan development.

Deliverable:

A memorandum describing the data acquired will be maintained and included in progress reports and the final report.

TASK 2 – Hydrology and Hydraulics

Description:

The hydrology of Upper Fountain Creek has been studied in detail following the Waldo Canyon Fire in 2012. Much of the recent work has focused on understanding the effect of the fire on the overall hydrology of the watershed and the effects on the hydraulics of Upper Fountain Creek below Sand Gulch, Camp Creek, and Williams Creek. The Waldo Fire Study was limited to those reaches due to explicit effects of the fire. Task 2 will expand the assessment made in the Waldo Fire Study to include the detailed hydraulics of the upstream reaches of Fountain Creek to the city limits of Woodland Park.

The hydrology of Cheyenne Creek will be evaluated with the hydrologic model and report produced for a recent FEMA flood delineation Letter of Map Revision (LOMR).

Method/Procedure:

The methods applied in the previous studies on Upper Fountain Creek will be adopted for the current project. These methods updated the existing hydrologic model developed for the Fountain Creek Watershed Study (Corps study) to reflect new updates to the hydrologic classification of soils and modifications made to represent the effects of the Waldo Fire on rainfall-runoff parameters and subsequent peak flows. In addition to model updates to the hydrologic model, the District proposes to evaluate in detail the effects of the 2013 floods on the hydraulic capacity of the channel and structures of Upper Fountain Creek and Cheyenne Creek by updating the existing hydraulic models to represent post flood conditions. The models will be updated to provide a set of working analytical tools that can be applied to evaluate structure and channel capacities, base flow conditions, and peak flood elevations.

Deliverable:

Detailed inundation maps and tabulated model results of Upper Fountain Creek and Cheyenne Creek below Evans Avenue.

TASK 3 – Sedimentation/Geomorphic Assessment

Description:

The combination of the high intensity rainfall that occurred in August and September 2013 and the extensive amount of soil and vegetation burned in the Waldo Fire, resulted in significant erosion and sediment deposition in Upper Fountain Creek. The District proposes to develop a detailed sedimentation analysis for the proposed study reach of Upper Fountain Creek from Woodland Park to the confluence with Monument Creek. A similar assessment will be made of Cheyenne Creek although the extent of erosion and sedimentation effects resultant of the recent floods are not well documented in Cheyenne Creek. An implicit sedimentation evaluation will be performed for Cheyenne Creek with respect to updates to the hydrologic model. The overall object of Task 3 will assess the sediment load and describe possible mitigation measures at specific locations.

Method/Procedure:

The District proposes development of sediment transport models that can simulate sediment distribution in Upper Fountain Creek. The sediment transport model will be used to explicitly estimate the volumes of sediment that have been altered by the August and September floods within the Upper Fountain Creek corridor. Task 2 will involve a thorough review of recent sedimentation studies (WARSSS, Waldo Flood Study, USGS) and available data on sedimentation in Upper Fountain Creek. Required data will be collected and vetted at key areas of interest to provide rating curve and channel/floodplain capacity data. The capacity data will be for rating curve development and analysis at key locations in Upper Fountain Creek. Rating curve analysis will assess bed load, suspended load, and flow durations and be compared to ongoing sediment transport restoration work in North Douglas Creek. With reliable data, the hydraulic model developed in Task 2 will be updated to rout the distribution of sediment throughout the watershed. In areas where additional, high-resolution results are desired, further sediment transport modeling in RIVERMorph software will be performed. The total load estimate will be developed from both the explicit modeling and implicit loading estimates.

Deliverable:

Detailed technical memorandum including maps showing the areas of erosion and deposition of sediments in the Upper Fountain Creek and lower Cheyenne Creek channels will be produced.

Tabulated model results and detailed sediment load estimates will be reported.

TASK 4 – Alternatives Analysis

Description:

The results of Task 2 and Task 3 will be used to develop alternative mitigation and restoration activities that are both technically feasible and cost effective. It is documented that the 2013 floods resulted in excessive amounts of in-stream sedimentation throughout Upper Fountain Creek. This sediment has filled many depressions in the channel and reduced the storage and supply capacity of Upper Fountain Creek. The review and implicit results of the sedimentation evaluation for Cheyenne Creek will be evaluated to determine the required level of restoration or mitigation in Cheyenne Creek.

Method/Procedure:

The alternatives analysis will define a plan of action that will restore the Upper Fountain Creek channels to pre-flood conditions or mitigate the effect of the elevated sediment loads and peak flood elevations. The sediment transport models will be adjusted to evaluate the extent to which various management practices can produce favorable hydraulic conditions for the stabilization and management of the channels and structures that have been affected by the increased sediment loading.

In addition to the quantitative alternatives analysis regarding hydrology, hydraulics, and sedimentation, specific attention will be paid to evaluate the procedural response to mitigation and restoration activities. These types of alternatives will rely on feasibility criteria and are often implemented to expedite the restoration process or remove any affected resources from sensitive areas. These practices may include relocation of facilities or structures or in-situ entrapment or removal of debris and sediment.

Deliverable:

A technical memorandum documenting the alternatives development, multi-objective screening criteria, alternatives selection will be prepared.

TASK 5 – Conceptual Plan for Selected Alternative

Description:

A plan of action for development and implementation of the selected alternatives will be developed to describe the processes required for each proposed alternative.

Method/Procedure:

All analytical resources (models, other studies) will be reviewed in light of the selected alternatives. The hydraulic and sediment transport models will be modified to represent the selected criteria within each alternative selection. It is likely that each restoration goal will require site specific plan of action and no single alternative will be acceptable at all locations. Each action will be evaluated as a model scenario to test the efficacy of each selected action.

Deliverable:

A report outlining the selected suite of alternatives, concept plan for restoration, prioritization and implementation plan, and concept designs for the mitigation of the Upper Fountain Creek and Cheyenne Creek will be provided to the CWCB.

TASK 6 – Cost Estimate

Description:

The District will estimate costs for the implementation of the conceptual plan on a site specific or project basis.

Method/Procedure:

Approximate costs will be estimated for each operation and with respect to the level of service for each stakeholder. Every effort will be made to minimize costs and maximize efficiency for each project. The District will oversee the implementation of each project with an eye on cost reduction where applicable. The District will rely on stakeholder coordination and active program management to assure cost effective completion and delivery of each restoration or mitigation project.

Deliverable:

A cost estimate will be tabulated for each proposed restoration and mitigation project.

TASK 7 – Prioritization

Description:

The priority given to proposed restoration projects will be established to meet the District’s objectives and goals in the most effective and efficient way possible.

Method/Procedure:

The highest priority will be assigned to those proposed projects that require immediate or crucial action to protect life and property. Further prioritization will rely on technical feasibility criteria within a valuation of risk approach. Additional criteria will be evaluated to define priority so to maintain serial processes, and reduce project overlap or redundancy. Prioritization will be evaluated on a site specific basis with respect to how each project achieves the overall objectives of the District.

Deliverable:

Prioritization will be incorporated into the conceptual plan report.

TASK 8 – Program Management and Meetings

Description:

The District will oversee and direct project development and coordination between stakeholders, agency personnel, county and municipal staff, consultants and private interests throughout the planning, implementation and delivery of products or services.

Method/Procedure:

The District will host a monthly meeting of shareholders to review progress, maintain program goals and objectives, and address topics of concern. Considerable effort will be made to maintain cohesion and continuity between stakeholders as the conceptual plan is developed and prioritization is established.

Deliverable:

Meeting agenda and summaries will be prepared.

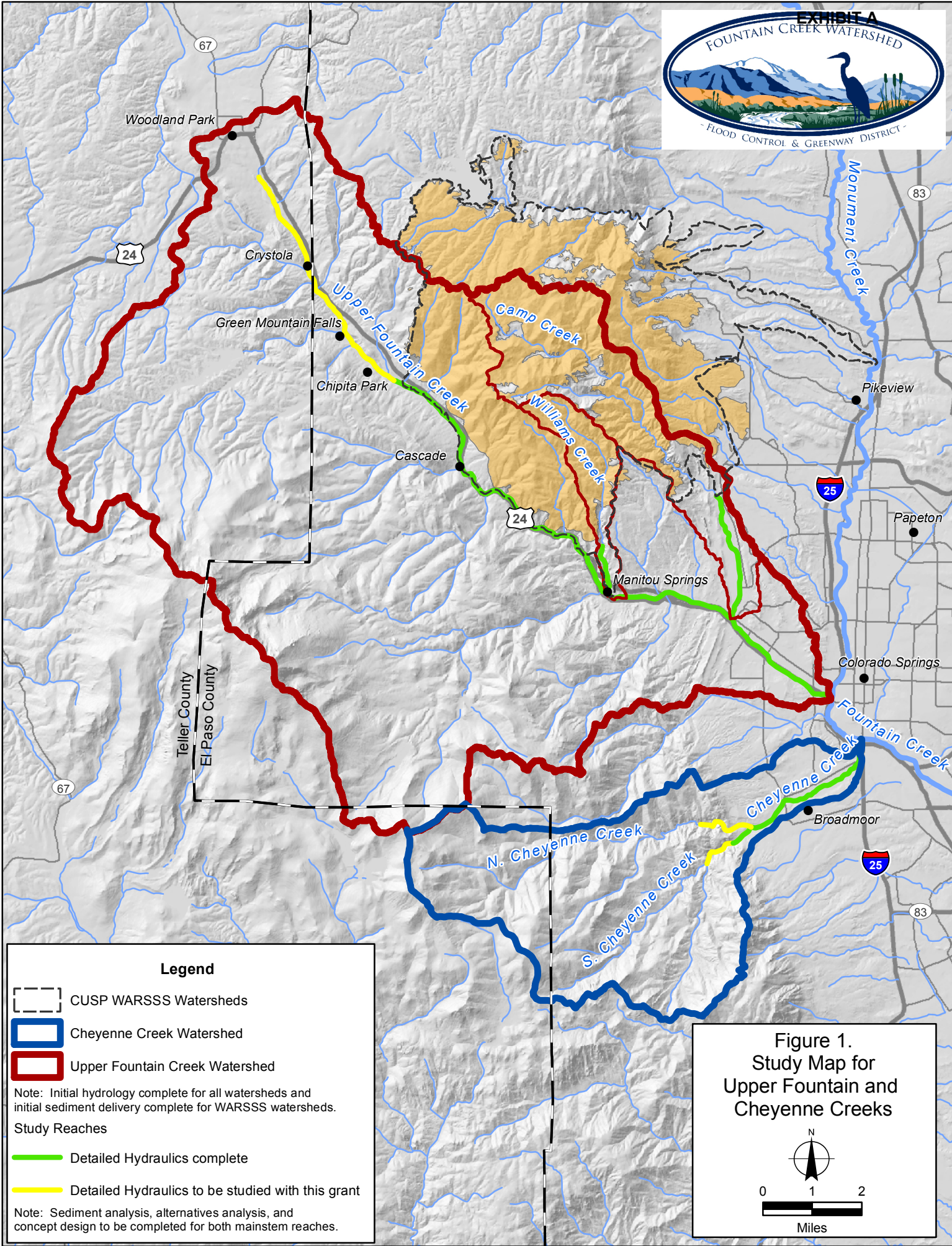
TASK 9 – Reporting and Final Deliverable

The District will provide CWCB with a final project report that describes the establishment of the restoration and mitigation plans for Upper Fountain Creek and Cheyenne Creek. This will include all specific technical information on the processes, procedures, and results of project tasks.

Technical reports will include detailed descriptions of the work performed, detailed descriptions of the data used to develop the conclusions being presented and support imagery and maps depicting the areas of concern and proposed mitigation and restoration actions.

Budget and Schedule - Upper Fountain Creek and Cheyenne Creek Flood Restoration Master Plan

Task	Description	Target Start Date	Target Completion Date	CWCB Funds	Other Funding Cash*	Other Funding In-Kind*	Total
1. Data Collection and Review	<i>Defines project extents and requirements for technical data and review..</i>	1/6/2014	6/1/2014	\$17,500.00	\$17,500.00	\$12,000.00	\$47,000.00
2. Hydrology and Hydraulics	<i>Expand the assessment made in the Waldo Fire Study to include the detailed hydraulics of the upstream reaches of Fountain Creek to the city limits of Woodland Park. Review and update model tools available for Cheyenne Creek.</i>	1/13/2014	3/21/2014	\$24,500.00	\$24,500.00	\$5,000.00	\$54,000.00
3. Sedimentation and Geomorphic Assessment	<i>Development a detailed sedimentation analysis for the proposed study reaches of Upper Fountain Creek from Woodland Park to the confluence with Monument Creek with a similar assessment of Cheyenne Creek. Development of advanced sediment transport tools as required.</i>	2/24/2014	6/27/2014	\$29,750.00	\$29,750.00	\$5,000.00	\$64,500.00
4. Alternatives Analysis	<i>Review of explicit and implicit modeling results developed for assessment of the sedimentation in Upper Fountain Creek and Cheyenne Creek will be evaluated to determine the required level of restoration or mitigation in the study reaches.</i>	2/24/2014	9/26/2014	\$29,750.00	\$29,750.00	\$12,000.00	\$71,500.00
5. Conceptual Design	<i>A plan of action for development and implementation of the selected alternatives will be developed to describe the processes required for each proposed alternative.</i>	9/15/2014	11/14/2014	\$24,500.00	\$24,500.00	\$10,000.00	\$59,000.00
6. Cost Estimation	<i>Approximate costs will be estimated for each operation and with respect to the level of service for each stakeholder.</i>	11/10/2014	11/28/2014	\$5,250.00	\$5,250.00	\$4000.00	\$14,500.00
7. Prioritization	<i>Priority given to proposed restoration projects will be established to meet the District's objectives and goals in the most effective and efficient way possible.</i>	11/17/2014	12/19/2014	\$12,250.00	\$12,250.00	\$12,000.00	\$36,500.00
8. Project Management Coordination/Meeting Time	<i>Project management. Coordination with the District on the progression of the study. Coordination of volunteer efforts and project stakeholders.</i>	1/6/2014	12/30/2014	\$17,500.00	\$17,500.00	\$19,000.00	\$54,000.00
9. Project Reporting and Final Deliverables	<i>The District will provide CWBC with a final project report that describes the establishment of the restoration and mitigation plans for Upper Fountain Creek and Cheyenne Creek.</i>	12/1/2014	12/30/2014	\$14,000.00	\$14,000.00	\$8,500.00	\$36,500.00
	Totals	1/6/2014	12/30/2014	\$175,000.00	\$175,000.00	\$87,500.00	\$437,500.00



Legend

- CUSP WARSSS Watersheds
- Cheyenne Creek Watershed
- Upper Fountain Creek Watershed

Note: Initial hydrology complete for all watersheds and initial sediment delivery complete for WARSSS watersheds.

Study Reaches

- Detailed Hydraulics complete
- Detailed Hydraulics to be studied with this grant

Note: Sediment analysis, alternatives analysis, and concept design to be completed for both mainstem reaches.

Figure 1.
Study Map for
Upper Fountain and
Cheyenne Creeks

Miles

FILE: G:\gis_projects\Waldo_Canyon_Post_Fire\active\apps\Grant_Application\Map_JKC.mxd, 11/15/2013, jeff_clontis

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 1. Fountain Creek inundates homes in Green Mountain Falls.



Figure 2. Ute Pass Elementary is threatened by flooding and debris from the Waldo Canyon burn area.

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 3. A flash flood off the Waldo Canyon burn area cripples Hwy 24 and takes the life of a motorist.



Figure 4. Sediment from the Waldo Canyon burn area engulfs a vehicle and shuts down Hwy 24.

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 5. Floodwaters geyser from a Manitou Springs storm sewer blocked by Fountain Creek sediment.



Figure 6. Homes destroyed by flooding in Manitou Springs.

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 7. Colorado Springs Utilities raw water intake near Manitou Springs damaged by floodwaters.



Figure 8. Governor Hickenlooper surveys flood damage on Cheyenne Creek with City of Colorado Springs Mayor Steve Bach (second from left).

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 9. Flood damage to Colorado Springs Utilities water supply infrastructure on Cheyenne Creek.



Figure 10. Flood damage to structures on Cheyenne Creek.

Upper Fountain Creek and Cheyenne Creek Watershed Photos



Figure 11. Flooding destroys roadway infrastructure along Cheyenne Creek.



EXHIBIT A
VAL SNIDER
AT-LARGE
COUNCILMEMBER

November 13, 2013

Mr. Chris Sturm
Stream Restoration Coordinator
Watershed Protection & Flood Mitigation
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Sturm:

I am pleased to offer my support to the Fountain Creek Watershed, Flood Control and Greenway District's Grant Application for Watershed Restoration Planning for Upper Fountain Creek and Cheyenne Creek.

The Fountain Creek Watershed, Flood Control and Greenway District has made it a priority to participate in, and in many cases, has provided leadership, expertise and funding for the research, development and implementation of potential solutions for the problems of the Fountain Creek Watershed. The work that will be performed under this Grant, in cooperation with our partners – City of Colorado Springs, Colorado Springs Utilities, El Paso County, Manitou Springs, Green Mountain Falls, Woodland Park, Teller County and The Coalition for the Upper South Platte, will further the District's effort to identify and prioritize locations of channel instability, sediment and debris sources and assets at risk that will permit a future rigorous program of corrective actions to be undertaken to protect and improve Upper Fountain Creek and Cheyenne Creek from severe damage resulting from storm-induced flooding and post-burn effects from the Waldo Canyon fire. Colorado Springs and our neighboring communities have suffered greatly from flood water, debris and sediment in our streams and are aggressively working together to mitigate future effects from storm flows. The work under this Grant will greatly benefit our efforts to mitigate future effects and protect our Communities.

I appreciate your support in helping the District in its efforts to improve the Fountain Creek Watershed, and encourage your support of this Grant Application.

Sincerely, —

Val Snider
Council Member at Large



EL PASO COUNTY

BOARD OF COUNTY COMMISSIONERS
SALLIE CLARK
COMMISSIONER DISTRICT 3

November 15, 2013
 Mr. Chris Sturm
 Stream Restoration Coordinator
 Watershed Protection & Flood Mitigation
 Colorado Water Conservation Board
 1313 Sherman Street, Room 721
 Denver, Colorado 80203

Dear Mr. Sturm:

As the commissioner representing areas of El Paso County that have been greatly impacted by post-fire flash flooding and Colorado's recent floods, I am pleased to offer my support to the Fountain Creek Watershed, Flood Control and Greenway District's Grant Application for Watershed Restoration Planning for Upper Fountain Creek and Cheyenne Creek.

The Fountain Creek Watershed, Flood Control and Greenway District has made it a priority to participate in, and in many cases, has provided leadership, expertise and funding for the research, development and implementation of potential solutions for the problems of the Fountain Creek Watershed. The work that will be performed under this Grant, in cooperation with our partners – El Paso County, the City of Colorado Springs, Colorado Springs Utilities, Manitou Springs, Green Mountain Falls, Woodland Park, Teller County and The Coalition for the Upper South Platte, will further the District's effort to identify and prioritize projects. Included will be, locations of channel instability, sediment and debris sources and assets at risk that will permit a future rigorous program of corrective actions to be undertaken to protect and improve Upper Fountain Creek and Cheyenne Creek from severe damage, resulting from storm-induced flooding and post-burn effects from the Waldo Canyon fire.

I appreciate your support in helping the District in its efforts to improve the Fountain Creek Watershed, and encourage your consideration and support of this important grant application.

Sincerely,



Sallie Clark
 Commissioner District 3

200 S CASCADE AVE., SUITE 100
 OFFICE: 719-520-6413
 WWW.ELPASOCO.COM



COLORADO SPRINGS, CO 80903-2208
 FAX: 719-520-6397
 SALLIECLARK@ELPASOCO.COM



November 15, 2013

Mr. Chris Sturm
Stream Restoration Coordinator
Watershed Protection & Flood Mitigation
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Sturm:

I am pleased to offer my support to the Fountain Creek Watershed, Flood Control and Greenway District's Grant Application for Watershed Restoration Planning for Upper Fountain Creek and Cheyenne Creek.

The Fountain Creek Watershed, Flood Control and Greenway District has made it a priority to participate in, and in many cases, has provided leadership, expertise and funding for the research, development and implementation of potential solutions for the problems of the Fountain Creek Watershed. The work that will be performed under this Grant, in cooperation with our partners – City of Colorado Springs, Colorado Springs Utilities, El Paso County, Manitou Springs, Green Mountain Falls, Woodland Park, Teller County and The Coalition for the Upper South Platte, will further the District's effort to identify and prioritize locations of channel instability, sediment and debris sources and assets at risk that will permit a future rigorous program of corrective actions to be undertaken to protect and improve Upper Fountain Creek and Cheyenne Creek from severe damage resulting from storm-induced flooding and post-burn effects from the Waldo Canyon fire. Manitou Springs has suffered greatly from flood water, debris and sediment in Fountain Creek and is aggressively working to mitigate future effects from storm flows. The work under this grant will greatly benefit our efforts to mitigate future effects and protect our Community.

I appreciate your support in helping the District in its efforts to improve the Fountain Creek Watershed, and encourage your support of this Grant Application.

Sincerely,

A handwritten signature in black ink, appearing to read "Marc A. Snyder".

Marc A. Snyder
Mayor, City of Manitou Springs



November 15, 2013

Mr. Chris Sturm
Stream Restoration Coordinator
Watershed Protection & Flood Mitigation
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Sturm:

I am pleased to offer my support to the Fountain Creek Watershed, Flood Control and Greenway District's Grant Application for Watershed Restoration Planning for Upper Fountain Creek and Cheyenne Creek.

The Fountain Creek Watershed, Flood Control and Greenway District has made it a priority to participate in—and in many cases, has provided leadership, expertise and funding for—the research, development and implementation of potential solutions for the problems of the Fountain Creek Watershed. The work that will be performed under this Grant, in cooperation with regional partners, including the City of Colorado Springs, El Paso County, Manitou Springs, Green Mountain Falls, Woodland Park, Teller County and the Coalition for the Upper South Platte, will further the District's effort to help identify and prioritize locations of channel instability, sediment and debris sources and assets at risk. This will permit a future rigorous program of corrective actions to improve Upper Fountain Creek and Cheyenne Creek, and protect public safety and infrastructure from severe damage from storm-induced flooding and post-fire impacts from the Waldo Canyon Fire.

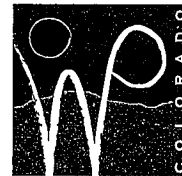
Colorado Springs Utilities infrastructure downstream of the Waldo Canyon burn scar has suffered greatly from flood and debris flows, and we are working aggressively to mitigate future damage caused by post-fire conditions. The work under this Grant will greatly benefit our existing efforts to mitigate future impacts and protect our citizen-owners' utility services and infrastructure investments.

I appreciate your consideration of helping the District in its efforts to improve the Fountain Creek Watershed, and encourage your support of this Grant Application.

Sincerely,

Gary Bostrom
Chief Water Services Officer

ELEVATE!



WOODLAND PARK
CITY ABOVE THE CLOUDS

November 14, 2013

Mr. Chris Sturm
Stream Restoration Coordinator
Watershed Protection & Flood Mitigation
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

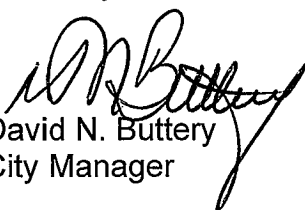
Dear Mr. Sturm:


We are pleased to offer our support to the Fountain Creek Watershed, Flood Control and Greenway District's grant application for the Colorado Watershed Restoration Program.

As an upstream neighbor and steward of the Fountain Creek headwaters, we recognize and support the efforts of the Fountain Creek Watershed, Flood and Greenway District and those of their surrounding communities. We endorse and support the development of a basin-wide master plan for the Fountain Creek Watershed.

This grant will help improve conditions within the Fountain Creek Watershed, and hopefully will help to ensure that US Highway 24 remains safe and open for access to our community and use by our citizens.

Sincerely,


David N. Buttery
City Manager


William A. Alspach, P.E.
Director of Public Works,
City Engineer



Coalition for the Upper South Platte

Post Office Box 726
Lake George, Colorado 80827

15 November 2013

Chris Sturm
Colorado Water Conservation Board
1313 Sherman St, Room 721
Denver, CO 80203

RE: Watershed Restoration Program Special Release 2013 Grant
Upper Fountain Creek & Cheyenne Creek Flood Restoration Master Plan

The Coalition for the Upper South Platte (CUSP) is pleased to partner with the Fountain Creek Watershed Flood Control & Greenway District in submitting an application for the Upper Fountain Creek & Cheyenne Creek Flood Restoration Master Plan.

CUSP will be an active participant in the project and will direct volunteer field geomorphic data collection, as well as working with private landowners to secure access across the affected areas. We estimate the value of our in-kind match to be at least \$10,000.00. The application is consistent with CUSP's mission and support.

Respectfully,

Carol Ekarius
Executive Director