

**HEALTHY RIVERS AND STREAMS  
CITIZENS ADVISORY BOARD  
Woody Creek Community Center  
June 21, 2012 - 4 p.m.**

<b>4:00</b>	<b>Public Comment</b>	
<b>4:05</b>	<b>Board Comment</b>	
<b>4:15</b>	<b>Approval of Minutes</b> April 19, 2012 meeting	
<b>4:20</b>	<b>Briefing of Crystal River - America's Most Endangered Rivers for 2012</b>	Bill Jochems
<b>4:30</b>	<b>Water Conservation Campaign Funding Request</b>	Sharon Clarke - Roaring Fork Conservancy
<b>4:45</b>	<b>Rio Grande Park Stormwater Improvements Funding Request</b>	Stephen Ellsperman - City of Aspen Director of Parks and Open Space
<b>5:15</b>	<b>Request for Proposal for the study of the relationship between the value of the residential real estate in Pitkin County and the Roaring Fork River</b>	John Ely

**Upcoming 2012 regular meeting dates**

*July 19*

*August 16*

*Sept 20*

**HEALTHY RIVERS AND STREAMS CITIZENS ADVISORY BOARD**  
**Meeting Minutes**  
**April 19, 2012**  
**Redstone, CO**

---

---

**Board members present:** Ruthie Brown, Greg Poschman, Lisa Tasker, Bill Jochems, and Steve Hunter

**Board members absent:** Rick Neiley and Andre Wille

**Others present:** John Ely, Lisa MacDonald, Carla Ostberg

---

---

**Public Comment** – None

**Board Comment** – Chairman Poschman was excited about the list of projects in front of the Board Ms. Brown attended the Watershed Collaborative.

**Approval of Minutes**

*Ms. Brown moved to approve the minutes of February 16, 2012. Ms. Tasker seconded the motion. The motion passed 5 to 0.*

**Financial Assistance for Onsite Wastewater Treatment Systems Replacement**

Carla Ostberg– Pitkin County Env. Health Dept.

Ms. Ostberg gave the Board an informational update on the effects of failing onsite wastewater treatment systems in Pitkin County and solutions for assisting property owners in need of replacing their systems. Suggestions included a local improvement district or a type of loan program through the healthy rivers fund. The Board asked Ms. Ostberg for further information which she will forward on to them.

**Roaring Fork Conservancy Updates on: Watershed Plan and Water Conservation Report, the Watershed Plan Brand, the Coal Basin Restoration and the Water Conservation Campaign**

Sharon Clarke – Roaring Fork Conservancy

Ms. Clarke thanked the Board for its support. The watershed plan is complete and available on-line along with all the documents associated with it. The watershed brand was created and completed. The water conservation report was one of the original actions in the watershed plan and using the information from the report for a water conservation campaign was the second part of the report. The conservancy will come back to the Board after the workshop in May. They are also a field trip on June 22<sup>nd</sup> of basin.

The urgency due to drought conditions is here to do a water conservation campaign. Ms. Clarke shared some recommendations from the CWCB with short and long term solutions to look at. She asked the Board for input on conservation campaigns and discussed some of the recommendations in the packet. She stated outdoor water use has the biggest impacts on the rivers. Ms. Clarke will come back to the Board with funding needed to get the people needed for the campaign. The Board expressed a desire for public awareness as part of the campaign.

**Watershed Gauging Project**

Tim McFlynn and Ellen Vaughn - Friends of Rivers & Renewables (“FORR”)

FORR recognizes that responsible water development requires the best possible understanding of any potentially impacted water resource. To this end, FORR is working with stream ecology experts to develop a “net” of stream gauges as a basis for determining the health of rivers and streams in the Roaring Fork river basin.

**Draft RFP for study describing the relation of the real estate market in Pitkin County to the Roaring Fork River**

Virginia Newton

Ms. Newton presented the Board with a draft request for proposals for real estate economics and the Roaring Fork River.

**City of Aspen's Storm Water Program**

April Long, City of Aspen's Storm Water Manger

Ms. Long introduced the Board to the City's Storm Water Program, also known as the Clean River Initiative, and gave some background on the program as well as updates on projects the City is working on.

**Adjourn**

The meeting adjourned at approximately at 7:10 pm.

**Approved:**

**Attest:**

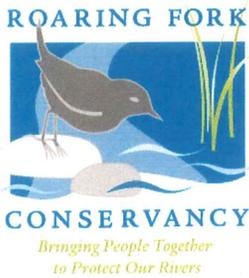
---

Greg Poschman – Chairman  
Healthy Rivers and Streams Board

---

Lisa MacDonald

DRAFT



June 21, 2012

Re: Funding for a Coal Basin Pilot Road Reclamation Project

Dear Healthy Rivers Board,

Roaring Fork Conservancy just received a CWCB Watershed Restoration Grant for \$39,579 for a road reclamation project in Coal Basin. We are requesting \$13,277 cash match from the Pitkin County Rivers Board allowing us to complete the pilot project this summer. The USFS is providing a \$43,750 in-kind match. This pilot project will yield essential information on the most effective treatments for landscape-scale restoration. We hope to complete this project this year for two reasons: 1) it takes several years to evaluate the effectiveness of the three treatment options and 2) to take advantage of the renewed interest and support of this project. The Rivers Board wrote a letter of support for this grant proposal in January. The design of the pilot project was improved based upon input from several technical experts at the Coal Basin and Crystal River Area Restoration Workshop held on May 1<sup>st</sup> and 2<sup>nd</sup>. We have attached a description of this project and detailed budget. I will be available on Thursday June 21 at your board meeting to discuss this in more detail and answer any questions you have.

Thank you for your interest in this important project.

Sincerely,

Sharon Clarke  
Land and Water Conservation Specialist

**BOARD OF DIRECTORS**

Ramsey Kropf  
*President*  
Rick Neiley  
*Vice President*  
*Rivers Council Liaison*  
Jennifer Sauer  
*Secretary*  
Gail Orrick  
*Treasurer*  
Carter Brooksher  
Stephen Ellsperman  
Andrew Light  
Jim Light  
Rick Lofaro  
*Executive Director*  
Don Schuster  
Diane Schwener  
*Past President*  
Larry Yaw

**PROGRAM STAFF**

Rick Lofaro  
*Executive Director*  
Claire Britt  
*Office Manager*  
Sharon Clarke  
*Land & Water*  
*Conservation Specialist*  
Sarah Johnson  
*Education Coordinator*  
Tim O'Keefe  
*Education Director*  
Chad Rudow  
*Water Quality*  
*Coordinator*  
Sarah Woods  
*Director of*  
*Philanthropy*



## **Attachments**

### **Coal Basin Road Reclamation Pilot Project Description**

The overall Coal Basin Restoration Project goal is to reduce sediment and total iron delivery to the Crystal River stream channel from Coal Basin; attenuate the Crystal River hydrograph; restore floodplain function at the Coal Creek/Crystal River confluence, including reducing the flood risk to the historic Town of Redstone; and improve overall riparian and instream habitat. The objective of the pilot project is to assess the benefits of several different techniques on a smaller-scale to determine the cost/benefit ratio of each different method for the planned landscape-scale restoration of Coal Basin.

This pilot project would undertake a 3-acre (4 areas) road reclamation project (Figure 1) on the extensive decommissioned road network in the former mining areas of Coal Basin. Road erosion features will be treated by constructing alluvial fans to disperse flow (Figure 2). This technique was recommended by resource experts at the Coal Basin Restoration Workshop on May 1 and 2, 2012<sup>1</sup> as the best way to achieve our project goals. Three treatments will be applied: soils will be amended by incorporating a mix of biochar and compost on two areas, one area will be amended with compost only, and one area will receive no amendments (Table 1). All four areas will be re-vegetated using native trees and grass seed.

This pilot project will allow us to assess the effectiveness and utility of using biochar and/or compost, coupled with drainage improvements, to: reducing surface runoff (improving water quality), improve the water and nutrient-holding capacity of soils (improving water infiltration and revegetation), enhance upland vegetation (stabilizing upland soils), restore native vegetation and forested landscapes, as well as providing the ancillary benefit of carbon sequestration (20 tons of C in biochar).

We will monitor/sample/analyze/test soils and monitor/analyze vegetation in the pilot road reclamation activity area, and sample/analyze surface waters for key water quality parameters in Coal Basin and on the Crystal River above and below the confluence with Coal Creek. Collaborative soil testing will be conducted by the USFS and Biochar Reclamation Labs, LLC (BRL) to provide data on the efficacy of biochar as a soil amendment in the Coal Basin watershed. Four monitoring events will occur, two each summer for 2 years. Measurements of vegetation cover (%) and soil moisture (%) will be made. Vegetation cover will be estimated directly using 5% breakpoints (Mueller-Dombois and Ellenberg, 1974), with multiple independent estimates at each plot and all estimates averaged together. Improvement in the diversity and density of native species will indicate success. Soil moisture will be measured at three locations within each plot using a soil moisture probe and a single soil temperature measurement will be taken using a soil temperature probe after stabilization. Values will be combined and averages reported. Increases in soil moisture and decreases in soil temperature will indicate success. Improvements in soil moisture and native vegetation will indicate the optimum treatment option.

Building on a successful smaller-scale effort in another part of the Roaring Fork Watershed (Figure 3), the project's road reclamation pilot activity will yield important additional information on the efficiency and utility of biochar as a soil amendment. Results from our project will be presented in peer-reviewed publications and presentations; this is particularly significant given the growing interest in biochar as a multipurpose reclamation material and the widespread call for long-term field studies. A successful pilot

---

<sup>1</sup> Resource experts included Justin Anderson, Brian McMullen, Steve Hunter, Mark Weinhold, Scott Snelson, and Mark Lacy, White River National Forest; Sandra Ryan-Burkett, Rocky Mountain Research Station; and Dave Rosgen, Wildland Hydrology.

project may also have economic implications - indicating the need for increased and local biochar production capabilities to make landscape-scale applications feasible.

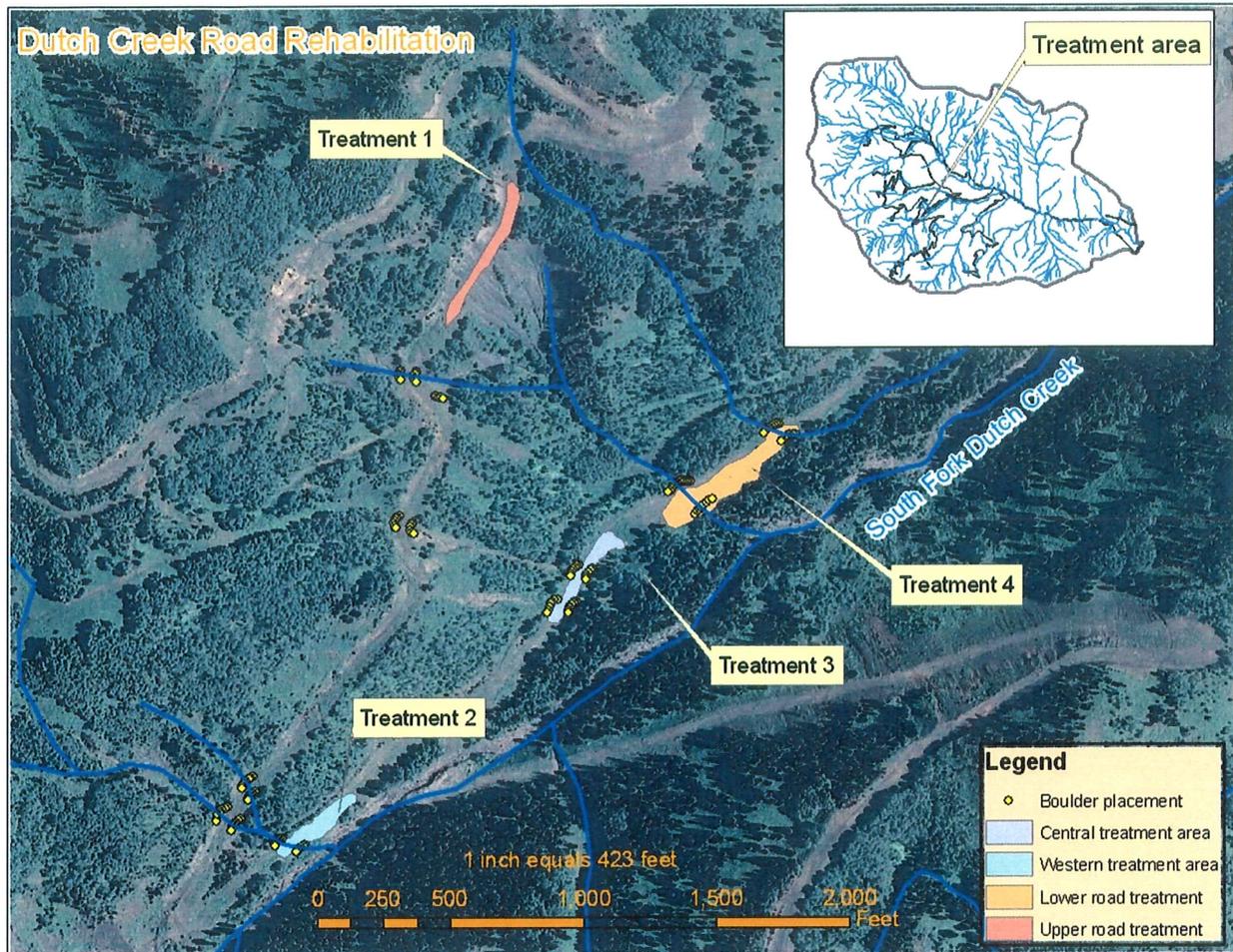


Figure 1. Pilot project treatment areas.

Table 1. Proposed treatments for the pilot project.

Treatment Area Name	Number	Treatment
Upper Road	1	Alluvial fan construction/compost/biochar/plantings
Western	2	Alluvial fan construction/compost/biochar/plantings
Central	3	Alluvial fan construction/plantings (control)
Lower Road	4	Alluvial fan construction/compost/plantings

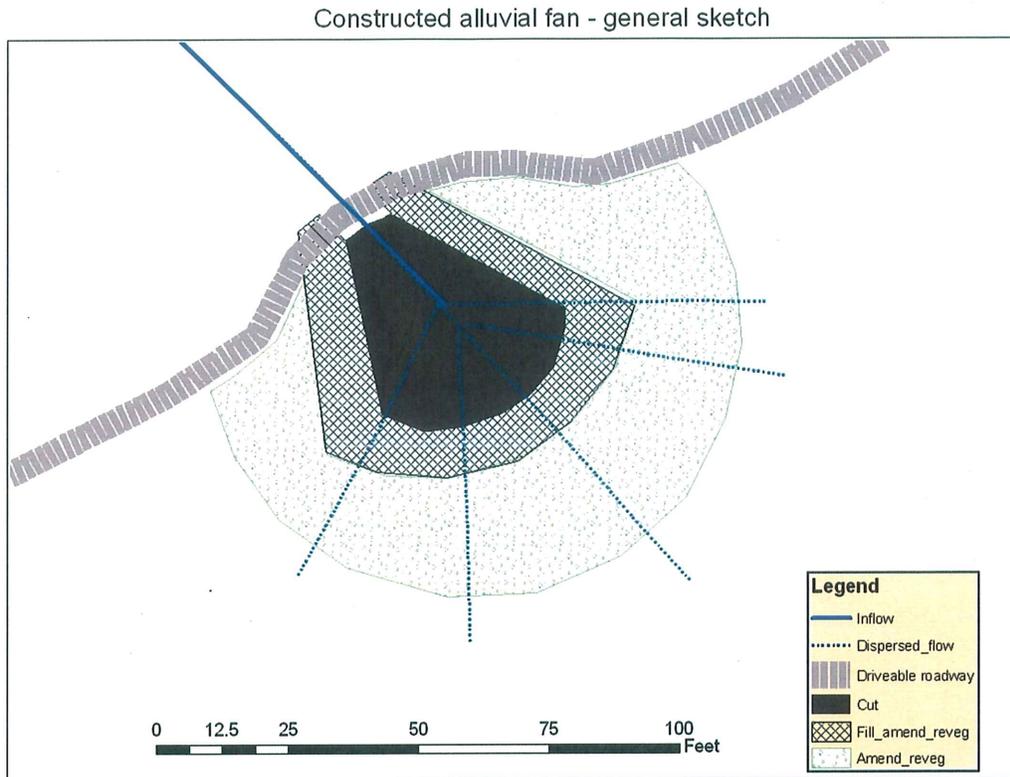


Figure 2. Schematic constructed alluvial fan design.

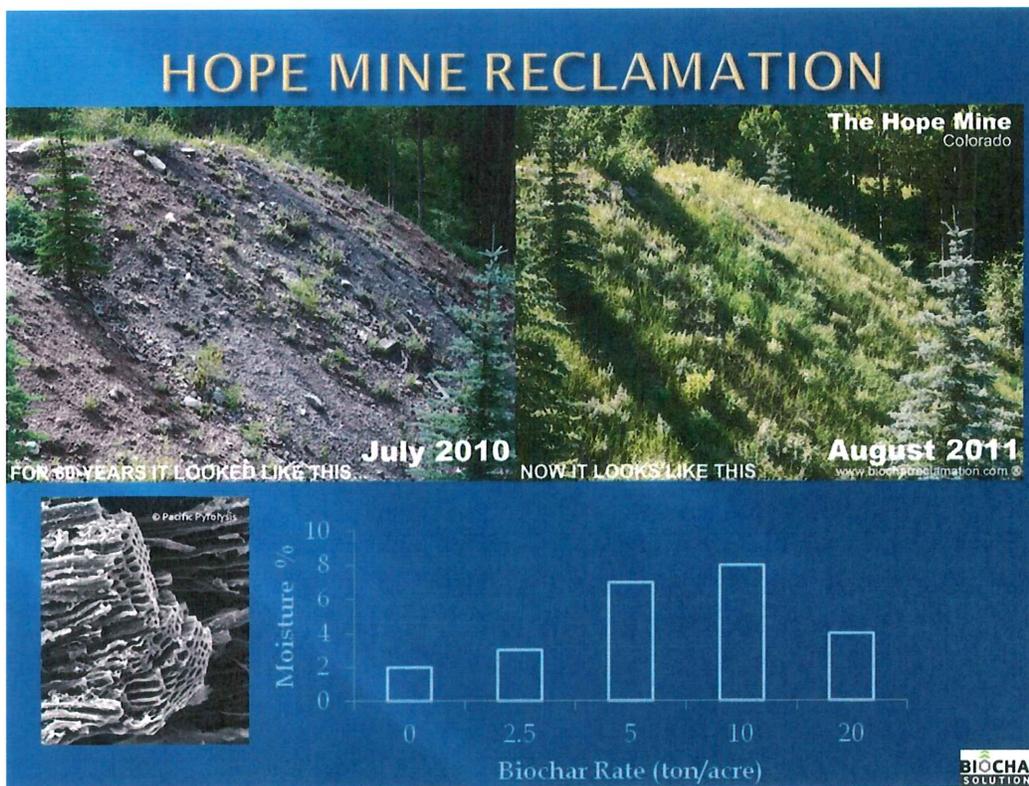


Figure 3. Improvements in soil moisture at the Hope Mine reclamation site with different application rates of biochar.

**Budget**

<b>Tasks</b>	<b>Total Cost</b>	<b>In-Kind</b>	<b>Pitkin Cash Match</b>	<b>CWCB Requested Amount</b>
Project planning and on-site supervision	12,000	12,000		0
RFC Project oversight, fiscal agent	6,930			6,930
Trackhoe 315 with thumb Time	5,620			5,620
Operator	4,000	4,000		0
D-5 Bulldozer Time	5,000	5,000		0
Operator	4,000	4,000		0
3 yd Front End Loader	2,630		2,630	0
Operator	2,000	2,000		0
Dump Truck	1,000	1,000		0
Operator	2,000	2,000		0
Compost Cost	14,000		5,784	8,216
Compost Haul	6,000			6,000
Biochar Cost	9,625		4,813	4,813
Biochar Haul to South Canyon	2,000			2,000
Spruce Trees	1,500	1,500		
Grass Seed	750	750		0
				0
Tree Planting	1,500	1,500		0
				0
Soil Monitoring	14,000	8,000		6,000
Veg Monitoring	2,000	2,000		0
	<b>96,555</b>	<b>43,750</b>	<b>13,227</b>	<b>39,579</b>

## MEMORANDUM

**TO:** Pitkin County Healthy Streams & Rivers Board

**FROM:** Scott Chism, Planning & Construction Manager,  
City of Aspen Parks Department  
April Long, Stormwater Manager  
City of Aspen Engineering Department

**THRU:** Stephen Ellsperman, Parks and Open Space Director  
City of Aspen Parks Department

**DATE OF MEMO:** June 15, 2012

**MEETING DATE:** June 21, 2012

**RE:** Rio Grande Park Stormwater Improvements Funding

**CC:**

---

**REQUEST OF BOARD:** The City of Aspen Parks and Engineering Departments would like the Healthy Streams and Rivers Board to consider a \$43,000 financial partnership in the construction of Phase 2 of the Rio Grande Park Stormwater Improvements Project. (See Attachment A, *Phase 2 Design Character Sketches*, Attachment C, *Park Site Plan*)

**BACKGROUND:** The City of Aspen has made a strong commitment to environmental initiatives, including managing stormwater. City Council has directed staff to implement long-term solutions to ensure that the community is responsible for clean stormwater discharge into the Roaring Fork Watershed. An equally important goal has been to enhance the ecological integrity of areas where stormwater improvements are proposed.

Stormwater from the central core of the city and Aspen Mountain currently discharges into the Roaring Fork River from three major drainages. One of the three drainages ('East Drainage') flows from the street gutters and into Rio Grande Park near the Rio Grande Recycle Center before reaching the river. Another of the three drainages ('Central Drainage') flows under Mill Street to directly discharge into the river. The third major drainage ('West Drainage') flows into the Jennie Adair Wetlands to allow for water quality enhancement and flood control before discharging into the river. The stormwater conveyance effort currently underway at Rio Grande Park follows the successful stormwater conveyance redevelopment the City completed in 2006 at the Jennie Adair Wetlands.

Site work at Rio Grande Park was initiated in early 2011 in association with redevelopment of the Theatre Aspen theatre tent and has been divided into two phases. Both phases of proposed improvements have a similar design character to what was created at the Jennie Adair Wetlands.

A comprehensive project budget of \$1.175 million has been established to complete both phases of the proposed environmental and stormwater enhancements at Rio Grande Park. The comprehensive budget includes costs for a proposed public restroom building, irrigation pump house and infrastructure and a pre-sedimentation treatment vault adjacent to North Mill Street.

**DISCUSSION:** The new sequence of stormwater wetland ponds will capture, cleanse and highlight storm water within the park from both the ‘East Drainage’ and ‘Central Drainage’ before it reaches the Roaring Fork River. (Attachment B, *Storm Water Flow Diagram*, Attachment C, *Park Site Plan*). Phase 1 improvements are scheduled to be completed by early July 2012 and Phase 2 improvements are scheduled to be completed by early June 2013, with the majority of Phase 2 improvements complete by fall 2012.

Specific elements that are being integrated for stormwater improvements include diverse wetlands, a sand infiltration system similar to a river ‘bench’, biofiltration swales, water quality finishing ponds, drop structures made of natural materials and a pre-sedimentation treatment vault. These stormwater practices will provide both water quality improvements with an enhanced park experience and also serve as a showcase of stormwater treatment options to be admired and replicated by other mountain resort communities.

This project has great partnership potential for the Pitkin County Healthy Streams and Rivers Board relative to a water quality improvement effort in Pitkin County. A financial partnership between the City of Aspen and the Pitkin County Healthy Streams and Rivers Board would be exciting and enable further enhancements to the planned biofiltration swales and water quality finishing ponds being developed for the Mill Street/‘Central Drainage’) flows that have a shorter treatment sequence through the park. The shorter treatment sequence in comparison to the ‘East Drainage’ also passing through the park means that every opportunity to improve water quality within the available area that is suitable in a park environment would ideally be maximized. Another opportunity would include more extensive interpretation of the benefit to the river’s water quality as a result of the project.

The \$43,000 financial partnership request for this project is based on some anticipated strain on the current budget from the necessary infrastructure costs associated with the pre-sedimentation treatment vault and proposed stormwater interpretation elements along the Mill Street/‘Central Drainage’ area described above (Attachment C, *Park Site Plan*). Difficult choices relative to implementing all of the proposed water quality features envisioned for that area are very possible without other financial partners to fully realize this very important project for river health of the upper Roaring Fork River. City staff looks forward to collaborating with the Pitkin County Healthy Streams and Rivers Board.

#### **ATTACHMENTS:**

Attachment A – Phase 2 Design Character Sketches (x2)

Attachment B – Stormwater Flow Diagram

Attachment C – Park Site Plan

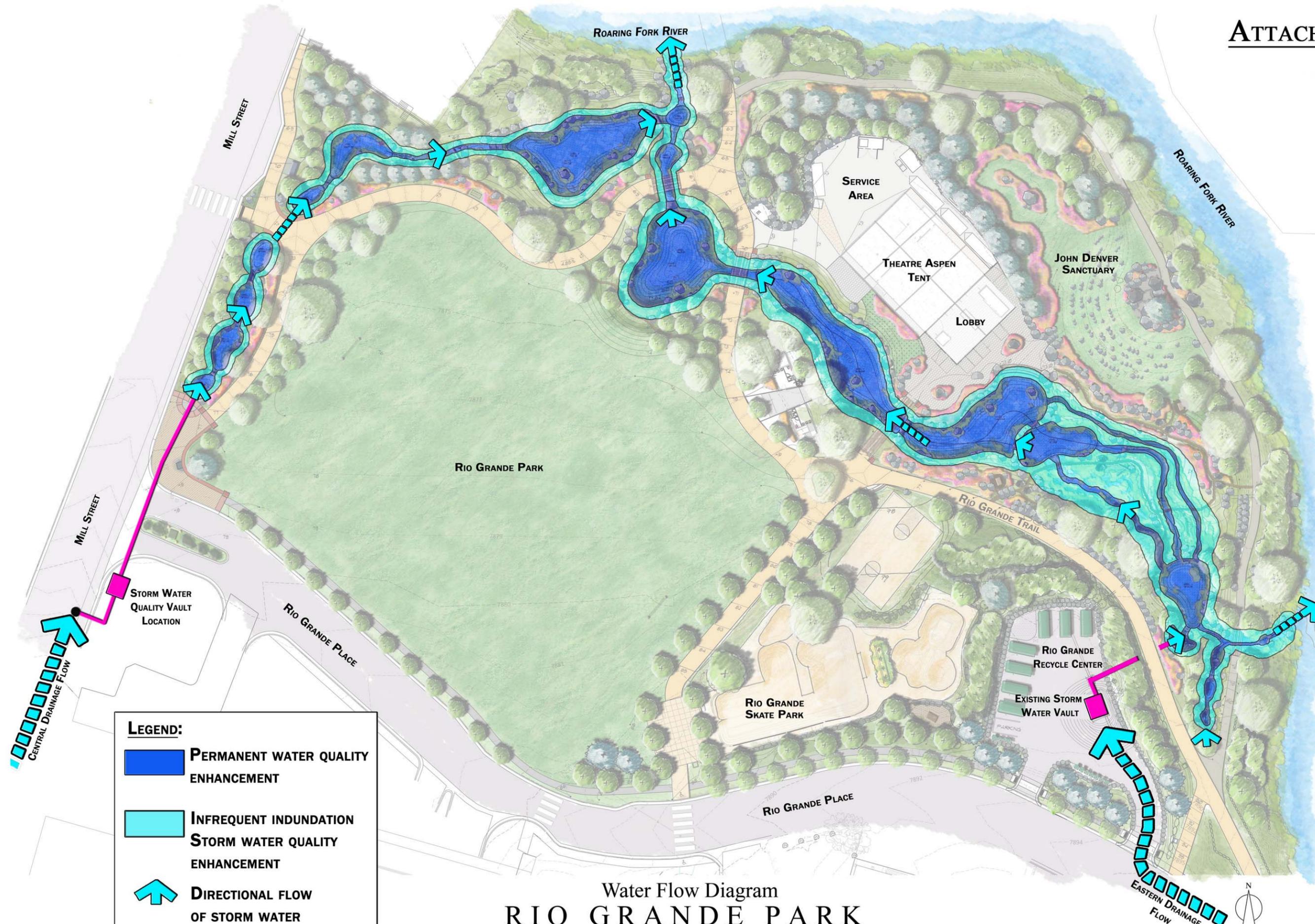
Attachment D – Cost Estimate: \$43,000 partnership request



Phase 2 Design Character Sketch



Phase 2 Design Character Sketch



**LEGEND:**

- PERMANENT WATER QUALITY ENHANCEMENT**
- INFREQUENT INDUNDATION STORM WATER QUALITY ENHANCEMENT**
- DIRECTIONAL FLOW OF STORM WATER**

Water Flow Diagram  
**RIO GRANDE PARK**  
 Aspen Parks and Recreation Dept.



SUBJECT AREA FOR POTENTIAL FINANCIAL PARTNERSHIP WITH PitCo HSRB

PROPOSED AREA FOR STORMWATER / RIVER HEALTH INTERPRETATION

STORM WATER QUALITY VAULT LOCATION

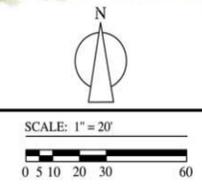
PHASING DIAGRAM



PHASE 1 CONSTRUCTION: 2011 - MID 2012  
PHASE 2 CONSTRUCTION: MID 2012 - SPRING 2013

## Park Site Plan RIO GRANDE PARK

Aspen Parks and Recreation Dept.



## ATTACHMENT D

### RIO GRANDE PARK PHASE 2 SITE : PitCo Healthy Streams & Rivers Partnership

Project Budget / Estimated Construction Costs

Aspen Parks Department

15-Jun-12

<b>WORK ITEM</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>TOTAL COST</b>
<b>SITE CONSTRUCTION: COA scope</b>				
Unclassified Excavation: Pond 7 and lower biofiltration swale for N. Mill drainage (16 days Parks Construction Crew)	1	LS	17,493.00	17,493.00
Biofiltration Swale materials for lower N. Mill drainage area				
Seed (5,475 s.f.)	5,475	SF	0.08	438.00
Native Area Mulching (straw mulch) (5,475 s.f.)	5,475	SF	0.10	547.50
Native Area Mulching (hydromulch) (5,475 s.f.)	5,475	SF	0.25	1,368.75
Wetland Plantings (5,475 s.f.)	5,475	SF	1.04	5,694.00
Plant Materials (trees, shrubs)	1	Allow	3,500.00	3,500.00
Trucking: boulders, fill, cobble, sand materi: for lower Biofiltration Swale	1	LS	2,400.00	2,400.00
Landscape Restoration (7 days Parks Restoration Crew)	1	LS	11,892.00	11,892.00
Subtotal				43,333.25
<b>Total Rio Grande Park Ph 2 Site: PitCo HSRB Partnership</b>				<b>43,333.25</b>

## AGENDA ITEM SUMMARY

June 21, 2012

---

**TO:** River Board

**FROM:** John Ely

**SUBJECT:** Request for Proposal - Real Estate Values and the Roaring Fork River

---

**Information:** At the meeting on April 19, 2012, the Board heard a presentation on the viability of a request for proposal on the economic analysis of the relationship between residential real estate values and the Roaring Fork River. The Board directed staff to move forward with the RFP process.

Attached is the request for proposals with a detailed scope of work.

**Requested Board Action:** Motion to authorize expenditure of funds for \$80,000 for an economic analysis of the relationship between residential real estate values and the Roaring Fork River.



## REQUEST FOR PROPOSALS

### **For the study of the relationship between the value of the residential real estate in Pitkin County and the Roaring Fork River Contract #140-2012**

#### **I. INTRODUCTION**

Pitkin County will accept proposals from interested parties for the study of the relationship between the value of the residential real estate in Pitkin County and the Roaring Fork River

#### **II. SCOPE OF WORK**

Pitkin County is seeking qualified individuals or firms to conduct an economic analysis of the relationship between residential real estate values and the Roaring Fork River.

The study will include research to support the relationship between healthy river systems and real estate values such as the following:

- Review the literature of previous economic impact studies of rivers in Pitkin County and describe the gap in these studies related to the real estate sector.
- Apply a statistically valid and accepted method for quantitatively assessing the relationship between the Roaring Fork River (and its major tributaries) and residential real estate values in Pitkin County
- Identify and test the influence of river flow related variables on residential real estate values.
- Describe potential future diversions of native river flow from the Roaring Fork River headwaters.
- Describe the economic effects that future diversions would have on residential property values associated with the Roaring Fork River.

#### **Responsibilities of the Consultant**

The consultant shall:

1. Conduct a review of prior economic impact and value studies of water based resources in Pitkin County, and summarize what is known to date on how these water resources benefit Pitkin County. Particular note should be made of any effects on real estate values.
2. Develop a refined study design specifying a desired sample size and sampling design. Work with county staff to develop the data/variables to be requested of Pitkin County (see example of that type of data below).
3. Assemble data provided by the County plus other data deemed appropriate by the consultant to conduct a statistical analysis of the relationship between the Roaring Fork River and its major tributaries and residential real estate prices in Pitkin County.
4. Conduct statistical analysis modeling and report results of the effects of the Roaring Fork River on residential property prices. Where statistically significant influences exist, quantify the monetary effect of proximity to river and river conditions on residential property prices.

5. Provide a draft summary report describing steps #1-4 to Pitkin County for review and comment.
6. Revise statistical analysis and draft summary report to address comments and suggestions to the extent possible within the time and budget available.
7. Research and document potential future diversions along the Roaring Fork River and its major tributaries. Where possible estimate a range of reductions in flows associated with these diversions.
8. Describe the economic effects on residential real estate prices of these reduced flows. Where possible calculate the monetary effect of these losses to residential real estate along the Roaring Fork River in Pitkin County.
9. Provide a complete draft project report on the project to Pitkin County for Review and Comment.
10. Provide a final project report reflecting responses to County comments and to the extent possible within the time and budget available requested revisions to analysis.

### **Planning Assumptions**

The scope of work is predicated on assumptions regarding the provision of the raw data by Pitkin County.

#### *Data provided by the county*

A. House, Townhome and Condominium sales and appraisal data:

Access to property sales data going back to the year 2000. This data includes details of:

sale (e.g., day, month, year),

- current appraised value,
- structure (e.g., square footage, bedrooms, bathrooms), lot size, water source, sewage connection, and other features of the home (e.g., pool, fireplace).
- Neighborhood the parcel is located in

B. Data would also include distances to:

- the nearest stream, name of that stream,
- nearest ski area
- town of Aspen

C. Locations of DNR, Bureau of Reclamation and USGS gauging stations

### **Time Schedule for Project**

1. Kick off meeting in Aspen to meet with County staff, tour Roaring Fork River, and meet with real estate professionals.
2. Monthly conference calls will be held between the Consultant and County to discuss status of the work.
3. Preliminary data request to the county will be due 30 days after the kick off meeting. This data request may be revised after any feedback from the County on feasibility of this request.
4. Summary Draft report is due 90 days after the County has provided data agreed upon by the Consultant and the County.
5. Complete Draft Project Report is due 90 days after the Summary Draft Report.
6. Final project report is due 30 days after receiving comments from the County.