Exhibit A

Scope of Work

WATER ACTIVITY NAME :
South Platte River Recreation and Habitat Feasibility Study

GRANT RECIPIENT –Greenway Foundation

FUNDING SOURCE – Metro Basin Account

South Platte River Recreation and Habitat Feasibility Study – Scope of Work

Introduction and Background

The South Platte River through the metro Denver area has been channelized. The natural flow regime has been regulated; high flows have been dampened and base flows have increased. The natural aquatic habitat that existed before urbanization has been replaced with steep banks and little diversity in streambed structure. The changes in hydrology and geomorphology have resulted in reduced riparian and aquatic diversity.

In addition to the limited habitat and aquatic species, there is not much recreational use in this reach primarily because of perceived poor water quality. Because of the development surrounding this reach, there is little opportunity to widen the river; however, the Chatfield Reservoir reallocation (CRR) of flood storage could result in dedicated instream flows that may benefit recreation and aquatic habitat in the South Platte River through Denver. This study would compliment and build upon the findings of the Chatfield Reservoir Reallocation FR/EIS project, specifically with regard to the retimed releases from Chatfield Reservoir.

This proposed project complements the Metro and South Platte Basin Roundtable's (BRTs) Nonconsumptive Needs Assessment. The Metro and South Platte BRTs are currently identifying environmental and recreational attributes such as Greenways, Public Fish Areas, Flatwater and Whitewater Boating, Riparian Habitat Areas, Waterfowl Hunting, and Threatened and Endangered Species.

The location, type, and quality of existing habitat and riparian vegetation will be identified through field reconnaissance. Proposed improvement options will be developed to complement the existing habitat and vegetation. Biological, physical, and hydrological characteristics will be examined and improvement options will be identified based on stakeholder input. The feasibility study will also identify required permits to implement the proposed improvements. Any improvements recommended as part of the feasibility study will be based on maintaining or improving these attributes.

Objectives

The objectives of this study are to:

1) Map the location, type, and quality of existing habitat and riparian vegetation through field reconnaissance. Incorporate existing information into the analysis, including environmental and recreational attributes such as greenways, public fish areas, flatwater and whitewater boating, riparian habitat areas, waterfowl hunting, and threatened and endangered species based on information the Metro and South Platte BRTs are currently collecting.

2) Simulate rating curves and estimate flow frequencies based on existing flow data and Urban Drainage and Flood Control District annual surveyed cross-sections and USGS flow data. Use the simulated rating curves to examine the benefit of increased flows from the Chatfield Reservoir reallocation and other sources of water and of flood storage for dedicated instream flows on enhanced habitat and recreation opportunities. Options will be developed and evaluated, specifically considering how water can be delivered to downstream user groups and provide the greatest ecological and recreational benefit for the same firm yield water supply.

3) Develop conceptual-level design of proposed recreation and habitat enhancement opportunities. Provide plan-view maps showing proposed improvement locations, and typical cross-sections of improvements. Provide planning level cost opinions for proposed improvements.

4) Identify potential required permits to implement proposed improvements.

Tasks
This workplan is divided into three major tasks, addressing each of the objectives. The following is a list and description of tasks to be completed under this work plan:

Task 1 – Data Acquisition and Site Reconnaissance

- Identification of existing studies and reports (geomorphic, planning, hydrologic and hydraulic); Acquire USGS and Chatfield Reservoir Reallocation (CRR) flow data for study area (Dartmouth Avenue to 20th Street) and hydraulic model, if available. Acquire and review Urban Drainage and Flood Control District (UDFCD) studies. Sources of information include the following:
  - Phase B Major Drainageway Planning study
  - Geomorphic Assessment at Surveyed Cross-sections
  - Flood Hazard Area Delineation
  - Available existing South Platte River USGS stream gage data for period of record for one stream gage upstream of the project extent, all available USGS stream gages within the Project Extent, and one gage downstream of the project extent.
  - Acquire Federal Emergency and Management Agency (FEMA) floodplain mapping and Flood Information Study, if available.

- The Metro and South Platte BRTs are currently identifying environmental and recreational attributes such as Greenways, Public Fish Areas, Flatwater and Whitewater Boating, Riparian Habitat Areas, Waterfowl Hunting, and Threatened and Endangered Species. Any improvements recommended as part of the feasibility study would be based on maintaining or improving these attributes. The project team will coordinate with the Metro Basin Roundtable and the South Platte Roundtable's Nonconsumptive Subcommittees and incorporate information they have collected into this analysis.

- Conduct field investigation in Study Area identifying the location, type, and quality of existing aquatic habitat and recreational features.

  Assumptions:
  - Site reconnaissance can be conducted in three full days
  - One stakeholder meeting is assumed for this task
  - Draft TM will be provided to stakeholders, and one set of comments will be submitted to incorporate into the final TM

  Task 1 Deliverables:
  Deliverable will include a technical memorandum (TM) summarizing existing geomorphic, hydrologic, hydraulic, habitat and recreational characteristics. TM will include Study Area mapping summarizing existing river channel characteristics. Meeting minutes from BRT Nonconsumptive Subcommittees will be prepared.
  Total Cost: $58,813

Task 2 – Assessment of Opportunities and Challenges

Based on existing hydrology and proposed CRR flows, the project team will identify opportunities to enhance aquatic habitat and increase recreational opportunities within the Study Area utilizing the information collected in Task 1.

- Aquatic habitat enhancements will be based on the physical needs of target species. Target species will be identified in consultation with Colorado Division of Wildlife personnel. Physical needs

include such channel characteristics as depth and velocity of flow; geomorphic river features such as riffles, glides and pools; aquatic and overhanging riparian vegetation and rock and wood snags for protective cover and forage; and backwater pool refugia.

- Opportunities for both passive (e.g., wildlife viewing) and active (e.g., boating, fishing) recreational activities will be identified.

- Challenges and constraints to implementing aquatic and recreational improvements will be identified during this Task. Options to overcoming challenges and eliminating constraints will be identified.

Assumptions:

- The project team can obtain information on proposed CRR flows and assumptions with 4 hours of effort
- Information on target species can be collected from DOW with 16 hours of effort
- Rating curves may be estimated based on UDFCD annual cross-sections and USGS flow data within the study area. Statistical analysis of daily historic flows will be used to estimate the timing and quantity of CRR flows that would be most beneficial in terms of habitat and recreation enhancement opportunities
- One stakeholder meeting is assumed for this task
- Draft TM will be provided to stakeholders, and one set of comments will be submitted to incorporate into the final TM

Deliverables:
Deliverable will include a TM that includes recommendations for implementable habitat and recreation improvements. This TM will include recommendations for instream flow releases (timing and quantity), mapping identifying improvement locations, and typical details of proposed improvements.
Total Cost: $39,159

Task 3 – Conceptual Design for Study Area

- Prepare conceptual design of implementable habitat and recreational, improvements for the Study Area. The conceptual design will include a site map identifying improvement locations, cross-sections showing typical details, an opinion of costs to implement and maintain recommended improvements; identification of permits required to implement recommended improvements and an estimated implementation schedule.

Assumptions:

- TM1 and TM2 can be incorporated directly into the study report without substantial re-writing
- One stakeholder meeting is assumed for this task
- Draft report will be provided to stakeholders, and one set of comments will be submitted to incorporate into the final report

Deliverables:
Deliverable will consist of a study report that incorporates both Tasks 1 and 2 TMs and the Task 3 conceptual design. Recommendations for phasing improvements will be included. One presentation of findings will be prepared and delivered to stakeholders and the Metro and South Platte Basin Roundtables' Nonconsumptive Subcommittees.
Total Cost: $52,028

Proposed Schedule

Task	30	60	90	120	150	180	210	240	270
Task 1 - Data Acquisition and Site Reconnaissance									
Task 2 –Assessment of Opportunities and Challenges									
Task 3 Conceptual Design for Study Area									

Attachment 2 –Budget

South Platte River Habitat and Recreational Improvement Feasibility Study

Proposed Cost Summary

Labor

Personnel: / Hourly Rate:	Engineer/ Scientist 0 $200.00	Engineer/ Scientist 8 $190.00	Engineer/ Scientist 7 $160.00	Engineer/ Scientist 6 $140.00	Engineer/ Scientist 5 $120.00	Engineer/ Scientist 4 $110.00	Engineer/ Scientist 3 $95.00	Engineer/ Scientist 2 $85.00	Designer/ Drafter $85.00	Word Process/ Clerical $60.00	Admin $60.00		Total Hours	Total Labor Cost
Task 1 – Data Acquisition and Site Reconnaissance		80	32		96		104		48	40			400	$ 48,200
Task 2 – Assessment of Opportunities and Challenges		36	40		64		60		16	25			241	$ 29,480
Task 3 – Conceptual Design for Study Area		68	32	16	88	2	44		32	24			306	$ 39,400
Total Hours:		184	104	16	248	2	208		96	89			947	
Cost:		$34,960	$16,640	$2,240	$29,760	$220	$19,760		$8,160	$5,340				$ 117,080

Other Direct Costs

Item: / Units: / Unit Cost:	Air Travel Dollars $1.00	Copies No. $0.25	Mylars Bluelines Repro Dollars $1.00	Phone Fax Shipping Dollars $1.00	Equip-ment Supplies Dollars $1.00	Per Diem Days $100.00	Computer Hours $5.00	Auto Rental Days $65.00	Mileage Miles $0.505		Total
Task 1 – Data Acquisition and Site Reconnaissance		2415							2500		$ 1,866
Task 2 – Assessment of Opportunities and Challenges		2515							600		$ 932
Task 3 – Conceptual Design for Study Area		7015							500		$ 2,006
Total Units:		11945							3600		
Cost:		$2,986							$1,818		$ 4,804

Subcontractors

Units: / Unit Cost:	MDG $1.10	Sub Firm No. 2 $1.10	Sub Firm No. 3 $1.10	Sub Firm No. 4 $1.10		Total
Task 1 – Data Acquisition and Site Reconnaissance	7952					$ 8,747
Challenges	7952					$ 8,747
Task 3 – Conceptual Design for Study Area	9656					$ 10,622
Total Units:	25560					
Cost:	$28,116					$ 28,116

Total Costs

	Labor	Sub-contract	Other Direct Costs		Total Project Cost
Task 1 – Data Acquisition and Site Reconnaissance	$ 48,200	$ 8,747	$ 1,866		$ 58,813
Task 2 – Assessment of Opportunities and Challenges	$ 29,480	$ 8,747	$ 932		$ 39,159
Task 3 – Conceptual Design for Study Area	$ 39,400	$ 10,622	$ 2,006		$ 52,028
Total Cost:	$ 117,080	$ 28,116	$ 4,804		$ 150,000

PAYMENT

Payment will be made based on actual expenditures and invoicing by the water activity sponsor. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed.

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.