

Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)
RM-CESU Cooperative Agreement Number: H1200040001 (IMR)

PROJECT COVER SHEET

TITLE OF PROJECT: Technical Support for Trail Restoration and Maintenance

NAME OF PARK/NPS UNIT: Arches and Canyonlands National Parks

NAME OF UNIVERSITY PARTNER: Montana State University

NPS KEY OFFICIAL:

Jeff Troutman, National Park Service, Chief, Resource Management, 2282 S. West Resource Blvd., Moab, Utah 84532; Phone: 435-719-2130 Email: jeff_troutman@nps.gov

PRINCIPAL INVESTIGATOR:

Dr. David W. Roberts
Montana State University
Department of Ecology
Bozeman, MT 59717-3460
406 994-4548
droberts@montana.edu

RESEARCHER:

Henry Shovic, PhD, Montana State University, Department of Ecology, hshovic@bridgeband.com

COST OF PROJECT:

Direct Cost: \$13,075
Indirect Cost (17.5% University-CESU overhead): \$2,288
Total Cost: \$15,363

NPS ACCOUNT NUMBER: 1341-1000-NZI

NAME OF FUND SOURCE: Park Base

PROJECT SCHEDULE, FINAL PRODUCTS, AND PAYMENTS:

Date of Project Initiation: September 15, 2008 with a completion date six calendar months from project initiation, subject to weather constraints.

List of Products: Products include: reports, maps, spatial data, site reviews with specialists, and presentations for management. For the defined scope of this pilot project, the following are anticipated.

- Up to 10 different maps at 36 in by 48 in and 8.5 x 11 size suitable for presentation (provided in hard-copy, Adobe Acrobat (pdf), and images for Powerpoint (jpg) at appropriate resolution).
- 3 documents in WORD format presenting results under each objective.
- 1 presentation of results for on-site managers.
- Remote briefings as requested.
- Two field excursions of 3 days each (GPS data collection and QA/QC field verification, and final presentations of project results).
- Spatial and analysis data provided via FTP or DVD, including collected and synthesized base data, metadata, and all GIS analysis projects. All new spatial data will meet all NPS spatial data standards.

- Final completion report due to the RM-CESU

Payment Schedule: Payment of regular invoices from the University, as received by the NPS.

Invoices are payable only if the reports and/or products have been received and approved by the NPS key official. The NPS will withhold payment of the final 10% of project funds until the NPS Key Official receives and approves the final report and/or products. The NPS will not pay invoices for less than \$200, unless it is the last invoice to close the project account.

Due Date for Final Report and/or Other Products: October 30, 2009

End Date of Project: March 1, 2010

CONTRIBUTION OF PROJECT TO OBJECTIVES OF CESU:

The NPS RM-CESU Research Coordinator indicates, by initials here, that this project contributes to the purpose of the CESU and is consistent with the approved Mission Statement, Strategic and/or Annual Work Plan.

/s/ Initialed by Kathy Tonnessen, RM-CESU Research Coordinator, on August 7, 2008

ATTACHMENTS

Attach, to this project cover sheet: 1) a Scope of Work that includes a detailed budget, list of products, and project schedule; and 2) Attachment Form 4.9 (substantial involvement and public purpose).

FINAL REPORT: DISTRIBUTION

Upon project completion, the NPS park/unit must submit a copy of the final products and/or final report (electronic copy required; paper copy optional) to the NPS RM-CESU Research Coordinator and to the RM-CESU host university (The University of Montana). Send electronic copies to rmcesu@forestry.umt.edu and/or kathy_tonnessen@nps.gov. Mail paper copies to RM-CESU, The University of Montana, College of Forestry and Conservation, Missoula, MT 59812.

In addition, send a copy of the final report to the NPS Technical Information Center, which is the official repository for all NPS technical reports: National Park Service, Technical Information Center, P.O. Box 25287, Denver, CO 80225.

RM-CESU CONTACTS

Kathy Tonnessen
National Park Service Research Coordinator
Rocky Mountains CESU
The University of Montana
College of Forestry and Conservation
Missoula, MT 59812
Phone: 406-243-4449
FAX: 406-243-4845
Kathy_tonnessen@nps.gov

Christine Whitacre
National Park Service Cultural Resource Specialist
Rocky Mountains CESU
The University of Montana
Department of Anthropology
Missoula, MT 59812
Phone: 406-243-2660
FAX: 406-243-2652

Christine_whitacre@nps.gov

Lisa Gerloff
Executive Coordinator
Rocky Mountains CESU
The University of Montana
College of Forestry and Conservation
Phone: 406-243-5346
FAX: 406-243-4845
lisa.gerloff@cfc.umt.edu

DETAILED SCOPE OF WORK, SCHEDULE, PRODUCTS

Scope: The present tasks and products are designed to be a pilot project to support a larger effort to increase road and trail sustainability in these National Parks, responding to growing visitor use, increasing resource damage, and climate change.

Because this is a pilot project, data collection is limited to available GIS data, other spatial data, and field review as specified below. Specifications or tasks may, however, be modified to fit emerging needs as they are identified. To assure project objectives continue to be relevant, the cooperators will coordinate closely with National Park Service (NPS) personnel, especially with Trails and Roads, GIS, and Resource Management.

Objective One: To provide a synthesis of current trail maintenance methods and a perspective on the sustainability program in Arches and Canyonlands National Parks.

- Task A: Research and synthesize technical documents and methods of trail restoration used in arid landscapes, including literature used in the BLM, USFS, and NPS; and field review with trails and roads specialists. This includes both general soil conservation and erosion control recommendations for trails and roads, and specific methods used in Arches and Canyonlands National Parks.

Objective Two: Re-route projects - alternative development analysis and support.

- Task A: Provide site-specific project services, including analysis and display of vegetation, landscape, and soils information in map form and development of reroute alternatives using landscape data, visitor use information, local NPS management and specialist input. This can include 3-D scientific visualization, watershed analysis, quantitative analysis of potential soil and vegetation impacts, and field review and documentation.

Two project sites are included:

- Salt Creek Re-route – Canyonlands N. P.
- Maze District “Fault-line” Trail – Canyonlands N. P.
- Fort Bottom Ruin Social Trail Problem – Canyonlands N. P.

Objective Three: to help inventory and prioritize potential trouble areas, as well as support decision making on use management, as well as to provide factual support for trail condition classification for one National Park (selected by NPS).

- Task A: Synthesize and spatially present available soil survey and landscape data (including elevation, vegetation, slope, and available condition inventories).
- Task B: Develop and implement a way of spatially showing potential trouble areas in on a Park-wide basis for management. This spatial analysis will use geology, soils surveys, landscape data, interviews with resource specialists, and site visits.
- Task C: Increase the factual database of effects and conditions on the ground, including representative field observations and expert opinion of resource specialists.

Products: Products include reports, maps, spatial data, site reviews with specialists, and presentations for management. For the defined scope of this pilot project, the following are anticipated.

- Up to 10 different maps at 36 in by 48 in and 8.5 x 11 size suitable for presentation (provided in hard-copy, Adobe Acrobat (pdf), and images for Powerpoint (jpg) at appropriate resolution).
- 3 documents in WORD format presenting results under each objective.

- 1 presentation of results for on-site managers.
- Remote briefings as requested.
- Two field excursions of 3 days each (GPS data collection and QA/QC field verification, and final presentations of project results).
- Spatial and analysis data provided via FTP or DVD, including collected and synthesized base data, metadata, and all GIS analysis projects. All new spatial data will meet all NPS spatial data standards.

BUDGET

Professional Services

H. Shovic, PhD
 (256 hours @ \$40/hr) \$ 10,240

Travel (6 working days; two site visits)

PerDiem (meals, incidentals) \$ 307
 Lodging \$ 420
 (waived if NPS provides powered trailer pad)

Mileage
 2968 miles (two site visits) \$ 1,409
 @\$.475

Materials \$ 200
 GIS equipment and license \$ 500

Total Direct Costs \$ 13,075

IDC @17.5% \$ 2,288.

Total **\$ 15,363**

SUBSTANTIAL INVOLVEMENT DOCUMENTATION

Task Agreement No. or PR No. _____

Project Title: Technical Support for Trail Restoration and Maintenance, Arches and Canyonlands National Parks

Type of funds to be used for this project (select one): ONPS

I. Why was this cooperator selected?

Dr. Shovic was selected because of his knowledge of and experience working with soils, geology, and geomorphology related to trail planning, trail building, and trail maintenance. Mr. Shovic also has GIS related skill that will prove useful to this project.

2. Explain the nature of the anticipated substantial involvement?

The NPS will provide guidance in objective-setting, monitor results, provide site-specific requirements and data, and act as liaison with Park Management. Estimated involvement is as follows.

- 20 hours Trails Coordinator
- 5 hours Resource Manager
- 5 hours GIS specialist
- Available digital spatial data and trail documentation

The NPS Resource Manager and the cooperator will jointly participate in developing, reviewing and modifying project proposals, data, and or reports. The NPS Resource Manager and cooperator will jointly participate in project research and/or fieldwork. The NPS will have substantial direct involvement prior to project activity to insure compliance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). The project findings will be incorporated into NPS operations for maintaining trails and backcountry roads.

3. Why is the substantial involvement considered to be necessary for this project?

Site specific analysis by the resource manager with local knowledge of use, previous problems/fixes and associated resource issues combined with the scientific knowledge and hands on skills of Dr. Shovic is necessary to provide solutions to the trail/road problems facing managers.

4. What are the products expected?

- Up to 10 different maps at 36 in by 48 in and 8.5 x 11 size suitable for presentation (provided in hard-copy, Adobe Acrobat (pdf), and images for Powerpoint (jpg) at appropriate resolution).
- 3 documents in WORD format presenting results under each objective.
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5. What is the purpose of the agreement?

Research and synthesize technical documents and methods of trail restoration used in arid landscapes, including literature used in the BLM, USFS, and NPS; and field review with trails and roads specialists. This includes both general soil conservation and erosion control recommendations for trails and roads, and specific methods used in Arches and Canyonlands National Parks.

Provide site-specific project services, including analysis and display of vegetation, landscape, and soils information in map form and development of reroute alternatives using landscape data, visitor use information, local NPS management and specialist input. This can include 3-D scientific visualization, viewshed analysis, quantitative analysis of potential soil and vegetation impacts, and field review and documentation.

Help inventory and prioritize potential trouble areas, as well as support decision making on use management, as well as to provide factual support for trail condition classification for one National Park (selected by NPS).

6. Explain why the project or activity entails a relationship of assistance rather than a contract for services.

This project involves sharing skills, work experience and local knowledge to improve the capacity of NPS Staff to plan for trails in appropriate areas, build trails, maintain trails and keep appropriate records to monitor trail conditions/maintenance needs. Site specific analysis by the resource manager with local knowledge of use, previous problems/fixes and associated resource issues combined with the scientific knowledge and hands on skills of Mr. Shovic will provide solutions to the trail/road problems facing managers. Properly designed and well maintained trails will improve public safety and enjoyment of our National Parks and promote stewardship of these public lands.

7. How was the determination made that the costs proposed are accurate and proper?

Cost estimates were based on government per diem rates, mileage figures from maps, estimates of hours of work based on past experience with similar projects, and actual costs of needed materials to support the work.

Jeff Troutman	08/05/2008		
_____	_____	_____	_____
Key Official/ATR	Date	Contracting Office	Date

NOTE: THIS FORM IS NOT PART OF THE TA AND IS FOR NPS INTERNAL USE ONLY. CONSEQUENTLY, IT SHOULD BE SEPARATED BY A PAGE BREAK AND FOLLOW THE TA BUDGET.