FINAL PILOT YEAR 2000
UPPER CLARK FORK RIVER BASIN
RESTORATION WORK PLAN

PREPARED BY:

STATE OF MONTANA
NATURAL RESOURCE DAMAGE PROGRAM
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DECEMBER 2000

I hereby approve of this document and the funding recommendations contained herein:

_____ _____

Governor Marc Racicot Date

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Acronyms

Advisory Council	Upper Clark Fork River Basin Remediation and Restoration Education Advisory Council
ARCO	Atlantic Richfield Company
BPMC	Bridger Plant Materials Center
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Clark Fork River
DEQ	Montana Department of Environmental Quality
DOI	U.S. Department of Interior
DOT	U. S. Department of Transportation
EPA	U.S. Environmental Protection Agency
GAIN	Government, Academic, Industry, Non-Profit
MFWP	Montana Fish, Wildlife and Parks
MMBF	Million Board Feet
MOA	Memorandum of Agreement
MSU	Montana State University
NRCS	Natural Resource Conservation Service
NRIS	Montana Natural Resource Information System
NRDP	Natural Resource Damage Program
OSHA	Occupational Safety and Health Administration
RMEF	Rocky Mountain Elk Foundation
RPPC	UCFRB Restoration Plan Procedures and Criteria
SBC	Silver Bow Creek
STARS	Streambank Tailings and Revegetation Studies
Tribes	Confederated Salish and Kootenai Tribes
U. of MT	University of Montana
UCFRB	Upper Clark Fork River Basin
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service

1.0 EXECUTIVE SUMMARY

1.1 Background

Through a partial settlement of its natural resource damage lawsuit against the Atlantic Richfield Company (ARCO) in 1998, the State of Montana obtained approximately $130 million for restoration of injured natural resources in the Upper Clark Fork River Basin (UCFRB). In 1999 the State developed a draft *UCFRB Restoration Plan Procedures and Criteria* (*RPPC*) to provide the framework for expending these restoration funds. The State revised the draft based on input from the UCFRB Remediation and Restoration Education Advisory Council (Advisory Council)[1] and public comment and finalized the *RPPC* in February 2000. Rather than embarking on a prescriptive process, the State elected to establish a granting process whereby various entities could apply for Restoration funds based on procedures and criteria set forth in the *RPPC*. The criteria are aimed at funding the best mix of projects that will restore or replace the natural resources that were injured, and/or services provided by those resources that were lost, due to releases of hazardous substances from ARCO and its predecessor's mining and mineral processing operations in the UCFRB.

In February 2000, the State launched its Pilot Year 2000 grant cycle with distribution of grant application materials and the *RPPC*. The Montana Department of Justice Natural Resource Damage Program (NRDP) administers the Restoration Grant funding process. The State is using this first year of the annual restoration planning cycle as a pilot year to test the planning process it has devised. Experience and knowledge gained during this year will allow the State in subsequent years to modify the process and schedule as appropriate. The State set out restrictions in the *RPPC* for the Pilot Year 2000 grant cycle that limit grant funding to $7 million, limit the number of funded projects to between ten and twenty, and require demonstration of pilot year "urgency." Restoration grant eligibility requirements are as follows:

Applicant Eligibility: Governmental and private entities and private individuals are eligible to apply for UCFRB Restoration Fund Grants.

Project Type Eligibility: Three types of projects are eligible for funding:

- Restoration projects that will restore, rehabilitate, replace, or acquire the equivalent of injured natural resources and/or the services lost as a result of releases of hazardous substances by ARCO or its predecessors that were the subject of the Montana v. ARCO lawsuit.

- Planning projects that involve developing future grant proposals.

- Monitoring and research projects that pertain to restoration of natural resources in the UCFRB.

[1] The Advisory Council consists of ten citizen volunteers representing the public and various interest groups and five government representatives. A list of Advisory Council members is provided in Appendix F.

Project Location Eligibility: Only projects that are located in the UCFRB or projects that would restore native trout in the Big Blackfoot River are eligible for funding. Activities associated with research projects do not have to occur within the UCFRB, provided the proposed research project pertains to injured natural resources in the UCFRB.

1.2 Pilot Year 2000 UCFRB Restoration Work Plan Overview

The *RPPC* sets forth the process the State followed in evaluating applications and recommending funding. This *Final Pilot Year 2000 UCFRB Restoration Work Plan* (*Final Work Plan*) describes the State's evaluation of the submitted grant applications and draft funding recommendations. The following summarizes the various phases of the application evaluation process and describes the sections of this *Final Work Plan* that are reflective of these phases.

- In April 2000, the State received 13 Pilot Year 2000 grant applications for a total funding request of $10,647,091. Appendix A contains project abstracts provided by the applicants. Appendix B provides maps showing the location of some of the projects.

- The NRDP screened the 13 applications for minimum qualifications and determined that four did not meet one or more of the minimum qualifications. Section 2.0 summarizes the NRDP minimum qualification determinations.

- The NRDP evaluated the nine remaining projects according to criteria specified in the *RPPC*. Section 3.0 summarizes these nine projects. Appendix C provides the NRDP's detailed criteria evaluations for each project. These evaluations were based on application review guidelines contained in Appendix E that were derived from the criteria set forth in the *RPPC*. Appendix D provides the Budget Summary Tables and the Environmental and Human Safety Impact Checklists provided by the applicants for these nine projects.

- The NRDP compared the projects on a criterion-specific basis as described in Section 4.0. The NRDP then ranked the projects in order of preference for funding consideration based on these criteria comparisons. Section 5.0 contains these rankings.

- In July 2000, the NRDP submitted a *Pre-Draft Pilot Year 2000 Restoration Work Plan* (*Pre-Draft Work Plan*) to the Advisory Council, the U.S. Environmental Protection Agency (EPA), the U.S. Department of Interior (DOI), the Confederated Salish and Kootenai Tribes (Tribes), and any other interested parties. The *Pre-Draft Work Plan* contained the NRDP's grant evaluations and funding recommendations. Appendix F provides comments from EPA, Tribes, and DOI on the grant applications and/or the *Pre-Draft Work Plan* and the Advisory Council's funding recommendations based on their review of the *Pre-Draft Work Plan*.

- In August 2000, the Governor's UCFRB Trustee Restoration Council[2] made funding recommendations for Pilot Year 2000 Restoration Grants that were incorporated into the *Draft Pilot Year 2000 UCFRB Restoration Work Plan (Draft Work Plan).*

- The State solicited public comment on the *Draft Work Plan* between September 9 and October 10, 2000. A total of 41 individuals and 24 entities submitted either written comments or provided oral comments at the public hearings held in the UCRFB. The NRDP drafted responses to these comments for consideration by the Trustee Restoration Council.

- In November 2000, the Trustee Restoration Council considered public comments on the *Draft Work Plan* and the NRDP's draft response to these comments in making final funding recommendations to the Governor that are provided in Section 6.0. The Council recommended that $6,935,208 be approved for Pilot Year 2000 Restoration Grants. The following are the eight projects and amounts recommended for funding by the Trustee Restoration Council:

  - Greenway Service District, "Silver Bow Creek Greenway" – $1,772,758;

  - Bighorn Environmental, "Enhanced Revegetation of Silver Bow Creek Reach A" - $110,800;

  - Bridger Plant Materials and Deer Lodge Valley Conservation District, "Development of Acid/Heavy Metal Tolerant Cultivars" - $141,439;

  - Montana Fish, Wildlife and Parks, "Lost Creek Watershed Project" - $518,382;

  - Rocky Mountain Elk Foundation, "Watershed Land Acquisition" - $3,764,231;

  - Rock Creek Trust, "Z-4 Ranch Conservation Easement" - $10,000;

  - University of Montana, "Technical Assistance for Watershed Restoration Analysis and Planning - $9,550; and

  - Montana Fish, Wildlife, and Parks, "Manley Ranch Conservation Easement," - $608,048.

- In December 2000, Governor Racicot considered the Trustee Restoration Council's final funding recommendations and the input from various individuals and entities that commented on the *Draft Work Plan* and the *Pre-Draft Work Plan.* The Governor approved the Council's final funding recommendations contained in Section 6.0.

[2] The Trustee Restoration Council consists of the Governor's Chief of Staff, the Attorney General, the Chairman of the Advisory Council, and the Directors of the State's three natural resource agencies.

1.3 Responses to Public Comments

The NRDP finalized the *State of Montana's Responses to Public Comments on the Draft Pilot Year 2000 UCFRB Restoration Work Plan* (*Response to Comments*) based on the Trustee Restoration Council's final funding recommendations. Public input on the *Draft Work Plan* is summarized in the Project Criteria Narratives (Appendix C) of the *Final Work Plan*. The *Response to Comments* indicates what changes were made in the *Draft Work Plan* as a result of public comment. The *Response to Comments* is available upon request from the NRDP or from the Department of Justice web site at www.state.doj.mt.us under "Legal Services."

2.0 MINIMUM QUALIFICATION DETERMINATIONS

The State initially evaluated the 13 Pilot Year 2000 applications according to the following minimum qualification criteria specified in the *RPPC*:

- The application is completed fully and accurately and contains all necessary information.

- The proposed project would restore, rehabilitate, replace or acquire the equivalent of the natural resources that were the subject of Montana v. ARCO and injured as a result of releases of hazardous substances by ARCO or its predecessors.

- The proposed project would be located in the UCFRB. (This requirement does not apply to: (1) research projects, provided that the proposed research pertains to restoration of natural resources located in the UCFRB; and (2) projects to restore native trout, provided such projects are located in the Big Blackfoot River basin and there is a showing that it would be impractical or uneconomic to restore such trout in the UCFRB.)

- The applicant has the ability, financial means, and other qualifications necessary to undertake the proposed project.

- The projected cost of the project as estimated by the applicant is a reasonable approximation of the project cost.

- The project should not wait for funding in the following years.

The NRDP determined that the following four applications did not meet one or more of the minimum qualification criteria:

- Anaconda Deer Lodge County - Deer Lodge Valley Restoration Project

- Montana Fish, Wildlife and Parks - Haefner's Dam Project

- Montana Tech of the University of Montana - Groundwater/Surface Water Interactions in a Reconstructed Stream Channel

- Montana Tech of the University of Montana - Upper Clark Fork River Basin Numeric Model: A Resource for Decision-making

Applicants for these four projects were given the opportunity to appeal minimum qualification rejection determinations to the Trustee Restoration Council. No appeals were received. In its minimum qualification determinations, the NRDP noted uncertainties regarding whether University of Montana's "Technical Assistance for Watershed Restoration Analysis and Planning" and GAIN Consortium's "Soil Amendment Screening" proposals met the legal threshold of providing significant information that would lead to or enhance the restoration of injured natural resources in the UCFRB. These projects, along with the seven other remaining projects, were fully evaluated.

3.0 PROJECT SUMMARIES

Table 1 summarizes the nine projects that received full evaluation. The total request for Restoration funds for these projects is $9,255,977. The following summary of each project is provided for assistance in understanding the project evaluations and comparisons contained in Section 4.0. More detailed project abstracts, which were provided by the applicants, are contained in Appendix A.

Bighorn Environmental Services – Enhanced Revegetation of Silver Bow Creek Reach A

Hereafter, this project will be referred to as "Bighorn Environmental." This proposal presents a funding request for $110,800 to restore wildlife habitat along Reach A (the first mile) of Silver Bow Creek in the next year. Major components include planting of woody and wetland plants in the floodplain and the addition of organic matter to backfill materials. Restoration revegetation activities will be coordinated with remedy revegetation activities.

Deer Lodge Valley Conservation District/Bridger Plant Materials – Development of Acid/Heavy Metal Tolerant Cultivars

Hereafter, this project will be referred to as "Bridger Plant Materials." This project is a joint effort between the Deer Lodge Valley Conservation District and the Natural Resource Conservation Service (NRCS) Bridger Plant Materials Center (BPMC). This proposal will collect, test, select, grow and ultimately release indigenous native plants that demonstrate superior adaptation to the Anaconda upland area. Foundation seed for the releases will be produced and maintained by the BPMC for distribution to commercial seed growers. The proposal is for $141,439 over four years.

GAIN Consortium – Soil Amendment Screening

Hereafter, this project will be referred to as "GAIN." The GAIN project consists of two components: 1) a 15-week greenhouse study using tailings and impacted soils collected from the field and amended in the laboratory to study amendment efficacy on plant growth; and 2) the development of a proposal for future work (Phase I proposal), which would involve field studies based on results of the greenhouse studies. Long-term field studies might be used to develop a "cost-and-effectiveness over-time model" that would evaluate the long-term cost and benefits of several remedial actions. Of the $28,050 total project costs for one year, $10,000 would come from the Restoration Fund. Project partners would provide the remainder of the funding.

Greenway Service District – Silver Bow Creek Greenway

Hereafter, this project will be referred to as the "Greenway." This proposal presents a funding request for approximately $1.77 million to develop a recreational trail corridor and to restore aquatic and riparian resources along the first 3 miles (Reaches A through C) of Silver Bow Creek west of Butte. The Greenway activities will be coordinated with remedial actions. The proposal also provides an overview of the planned Greenway efforts for the entire 22 miles of Silver Bow

Creek over the next 10-12 years. The evaluations in Section 4.0 focus on the pilot-year proposal that covers the first 3 miles of the Greenway project.

Montana Fish, Wildlife and Parks – Lost Creek Watershed Project

Hereafter, this project will be referred to as "Lost Creek." This project involves the rehabilitation of approximately 27 miles of Lost Creek, a significant tributary of the upper Clark Fork River. The project seeks to improve water quality and fish and wildlife habitat through activities such as riparian fencing and grazing management, development of off-stream watering facilities, stabilization or relocation of certain stream segments, streambank revegetation, and creation of fish passage structures. The project is a four-year effort, with activities having begun in 1999, and involves approximately $1.7 million. The amount requested from the Restoration Fund is $518,382. There would also be in-kind contributions from six cooperating landowners along the Creek.

Montana Fish, Wildlife and Parks – Manley Ranch Conservation Easement

Hereafter, this project will be referred to as "Manley Ranch." The Manley Ranch encompasses 16,000 acres overlapping the Clark Fork-Blackfoot divide in Granite and Powell Counties, about 4 miles northeast of Drummond. This proposal seeks $608,048 in Restoration funds to acquire a Phase I conservation easement applicable to 3,416 acres in the headwaters of Morris Creek, a tributary of the Clark Fork River. Project partners are seeking an additional $2.2 million from other funding sources to acquire easements on the Phase I lands outside of the UCFRB (1,220 acres), Phase II lands (4,484 acres) and Phase III lands (6,800 acres) in the Blackfoot River drainage. These easements will impose restrictions on certain human activities including timber harvest, ranching, and development in order to preserve fish and wildlife habitat, open space, and scenic views.

Rock Creek Trust – Z-4 Ranch Conservation Easement

Hereafter, this project will be referred to as "Z-4 Ranch." This project is a 2100-acre conservation easement on the Z-4 Ranch in the upper Rock Creek drainage. The easement applies to property that includes portions of the East and Middle Forks of Rock Creek. Stream rehabilitation work will be conducted on the East Fork following finalization of the easement. The easement will impose restrictions on certain human activities including timber harvest, ranching, and development in order to protect open space and scenic beauty, fish and wildlife habitat, water quality, and to renaturalize the streams and their riparian zones. Restoration funds would provide $10,000 of the $133,900 easement cost. Stream rehabilitation costs, which would not use Restoration funds, are estimated at $125,193.

University of Montana – Technical Assistance for Watershed Restoration Analysis and Planning

Hereafter, this project will be referred to as "U. of MT." This project involves a request of $9,550 from the Restoration Fund to design an informational database for UCFRB restoration planners. The database design will expand on the Montana Natural Resource Information System's (NRIS) statewide watershed information system. The project involves outreach to local

watershed groups and conservation districts to determine their database needs and provide training. The end products of this project are conversion of some data sets to a useable form and a recommendations report to NRIS on full database development. This report will identify UCFRB restoration planning needs, available data and data gaps, and the additional tasks and funding needed to develop an informational database.

The Rocky Mountain Elk Foundation - Watershed Land Acquisition

Hereafter, this project will be referred to as "Watershed Land Acquisition." The Rocky Mountain Elk Foundation (RMEF) holds a purchase option to acquire approximately 32,500 acres in the UCFRB from Y.T. Timber via a phased acquisition over 4 years. The property is located between Anaconda and Georgetown Lake and includes the bulk of the Warm Springs Creek watershed not already in public ownership. RMEF is seeking $6,075,000 in Restoration funds to acquire approximately 9,000 acres for state ownership and management by the Montana Fish, Wildlife and Parks (MFWP). These lands consist of two parcels that provide prime wildlife habitat and numerous recreational opportunities – the Garrity Mountain parcel (6,707 acres) and the Clear Creek parcel (2,264 acres). RMEF is also seeking $13,925,000 from the federal Land and Water Conservation Fund for approximately 23,500 acres for federal ownership and management by the U.S. Forest Service (USFS). The option agreement allows Y.T. Timber to conduct timber harvest activities over 7 years subject to the terms of a timber management policy.

Table 1. Summary of Proposals

Applicant	Project	Budget	Expenditure Timeframe
University of Montana	Technical Assistance for Watershed Restoration Analysis and Planning	NRDP - $9,550.00 Other - $8,593.00 Total - $18,143.00	2001 - 6 month project
GAIN Consortium	Soil Amendment Screening	NRDP - $10,000.00 Other - $18,050.00 Total - $28,050.00	2001 (May 2001 to Feb. 2002)
Rock Creek Trust	Z-4 Ranch Conservation Easement	NRDP - $10,000.00 Other - $249,093.00 Total - $259,093.00	2001
Bighorn Environmental Services	Enhanced Revegetation of Silver Bow Creek Reach A	NRDP - $110,800.00	1 year (10/2000 to summer 2001)
MFWP	Lost Creek Watershed Project	NRDP - $518,382.00 Other - 1,118,840.00 Total - $1,707,222.00	4 Year Project 2000-2004; NRDP $$ breakdown: 2001 - $293,224; 2002 - $206,451; 2003 - $18,707
Deer Lodge Valley Conservation District/Bridger Plant Materials Center	Development of Acid/Heavy Metal Tolerant Cultivars	NRDP - $141,439.00 Other - $323,174.00 Total $456,613.00	4 year; 1/2001 to 1/2005; Costs are not broken down by year
MFWP	Manley Ranch Conservation Easement	Phase I easement NRDP - $608,048.00 Other - $391,132.00 Total - $999,180.00	2001 - Phase 1 Phase I, II & III - $2,848,000
Greenway Service District	Silver Bow Creek Greenway	Pilot Year Only NRDP - $1,772,758.00 Other - $741,575.00 Total - $2,515,333.00	Reach A $307,339 2001 Reach B $974,742 2001 Reach C $490,676 2001 Total Greenway Costs (10-12 years) - $18 million Projected NRD Request - $14.8 million
Rocky Mountain Elk Foundation	Watershed Land Acquisition	NRDP -$6,075,000.00 Other - $14,137,015.00 Total - $20,212,015.00	Applicant requested $6,075,000 in 1st year; however, project could be spread out over 2-3 years; critical need for $2,000,000 in 1st year. Phase 1: up to $2,000,000 in Dec. 2000 Phase 2: up to $7,000,000 in Dec. 2001 Phase 3: up to $7,000,000 in Dec. 2002 Phase 4: remainder in Dec. 2003
			Total NRDP Requests - $9,255,977

4.0 PROJECT CRITERIA EVALUATIONS AND COMPARISONS

4.1 Project Comparison Methodology

The State has evaluated the projects according to the criteria specified in the *RPPC*. These evaluations are set forth in the attached Project Criteria Narratives (Appendix C). In the *RPPC*, the State established a non-quantitative process in which the projects are ranked against each other. The criteria were not rated in terms of importance or assigned numeric values. While each criterion is important, each criterion as applied to individual projects will vary in its importance depending on the nature of the project and unique issues it raises. The *RPPC* criteria are generally grouped as follows:

- 9 General Legal Criteria derived from natural resource damage legal requirements;
- 8 General Policy Criteria that reflect the State's restoration goals and policies;
- 5 criteria specific to land acquisition projects; and
- 2 criteria specific to monitoring and research projects.

The Project Criteria Narratives are the major basis for comparing projects as they provide the detailed information needed to determine how well one project meets or addresses a particular criterion compared to another project. These narratives summarize more detailed evaluations conducted by the NRDP with assistance from other State agency technical experts and consultants. In response to public comments on the *Draft Work Plan* requesting more detailed information on project budgets and environmental impacts in this document, the applicant's Budget Summary Tables and Environmental and Human Health and Safety Impact Checklists are provided in Appendix D[3]. Appendix E contains the "Application Review Guidelines" the NRDP developed based on the *RPPC*. These Guidelines categorize the likely manner in which restoration projects meet or address a particular criterion. For example, for technical feasibility, projects are categorized as reasonably feasible, uncertain feasibility, or not feasible. These categories provide a framework to assist in evaluating and comparing projects consistently.

4.2 Project Criteria Comparisons

This section compares the projects pursuant to each criterion, summarizing the similarities and differences between projects that were determined through a comparison of the Project Criteria Narratives.

4.2.1 Stage 1 Criteria Required by Legal Considerations

#1 Technical Feasibility

This criterion evaluates the degree to which a project employs well-known and accepted technologies and the likelihood that a project will achieve its objectives. The State will not fund projects considered technologically infeasible**.** Eight of the nine projects were considered to have a reasonable likelihood of achieving their objectives, although to varying degrees of

[3] Checklists were not required for the two projects that requested $10,000 or less – the U. of MT and Z-4 Ranch projects.

certainty. Four projects have a greater certainty concerning their feasibility given the effort on the projects to date – Bighorn Environmental, Bridger Plant Materials, the Watershed Land Acquisition, and Z-4 Ranch. Bighorn Environmental provides a good level of detail and specificity concerning the necessary revegetation plan components. Bridger Plant Materials started its seed development efforts in 1995 and has already determined what species are likely to perform best in the acid/heavy metal soil conditions of the Anaconda area. Many of the major steps involved in facilitating the Watershed Land Acquisition purchase have been completed and the remaining steps are underway. The terms of the easement on the Z-4 Ranch have been finalized and the majority of funding has been secured to finalize the acquisition.

The next group of projects are those that are considered reasonably feasible, but with more issues that need to be resolved or tasks to be completed than the above four projects. Those projects are Greenway, Lost Creek, Manley Ranch and U. of MT. There are uncertainties regarding the ecological features of the Greenway that will be addressed in the design phase. For Lost Creek, uncertainties exist about a few aspects of habitat improvement and bank stabilization designs, materials, and methods that will need to be resolved during the engineering design phase. Many of the critical steps associated with the land transactions and negotiation of easement terms for the Manley Ranch have yet to be completed. Although the U. of MT project did not thoroughly address all the necessary aspects of database development, it is considered reasonably feasible given its reliance on the State's existing watershed database.

The technical feasibility of the GAIN project is considered uncertain due to the lack of justification for the selected approach, insufficient information on study protocol, the vague descriptions of future phases, and uncertainties regarding sufficiency of the budget.

#2 Relationship of Expected Costs to Benefits

This criterion evaluates the degree to which project costs are commensurate with project benefits. While it is possible to quantify most costs, quantifying benefits is more difficult. Thus, application of this criterion is not a straight cost/benefit analysis.

Benefits were considered to significantly outweigh the costs for the Bighorn Environmental, Bridger Plant Materials, and Z-4 Ranch projects. Benefits were considered to outweigh costs for the Greenway, Lost Creek, Manley Ranch, and Watershed Land Acquisition projects.

Benefits were considered commensurate with costs for the GAIN and U. of MT projects. These two projects are the initial phases of larger projects. Given that funding for those later efforts is uncertain, this cost/benefit evaluation is based on the costs/benefits of the initial efforts. If full database development later occurs, it is likely that the benefits of the U. of MT project would be considered to outweigh the costs. For the GAIN project, there is insufficient information regarding future efforts to make a similar determination.

#3 Cost-Effectiveness

This criterion examines whether a particular project accomplishes its goal in the least costly way possible, with preference given to projects with demonstrated cost-effectiveness. Applicants

were to address this criterion through the analysis of alternatives and justification of the selected alternative. Most applicants chose only to compare their proposals to the no-action alternative, which makes the evaluation of this criterion difficult. Bridger Plant Materials provided adequate information to demonstrate that the selected alternative is most cost-effective. The Bighorn Environmental, Greenway, Lost Creek, Manley Ranch, Watershed Land Acquisition, and Z-4 Ranch projects are considered likely to be cost-effective. The cost-effectiveness of the U. of MT and GAIN projects is considered uncertain due to the lack of sufficient information.

#4 Environmental Impacts

This criterion evaluates whether and to what degree the proposal will have an adverse impact on environmental resources. None of the projects will cause significant adverse impacts to the environment. In the long-term, all the projects except the GAIN project are anticipated to benefit environmental resources and those benefits are highlighted in analyses of other criteria, such as the cost/benefit criterion and the multiple criteria that evaluate benefits to injured or other natural resources. Too many uncertainties are associated with the GAIN proposal to judge its long-term benefits to the environment. Some projects have potential short-term adverse impacts associated with construction (Greenway, Lost Creek), but these can be mitigated. There are potential adverse impacts associated with the continued grazing and timber harvest activities on the Z-4 and Manley ranches and continued timber harvest activities on the Watershed Land Acquisition property. The proposals, however, provide more protection to the environment than would occur if these activities were to occur in the absence of conditions (e.g. timber management and grazing management plans) required by the projects. For the Greenway and Watershed Land Acquisition projects, potential environmental impacts exist because of the greater public access these proposals provide. These impacts can be addressed, however, through access controls and management plans.

#5 Human Health and Safety Impacts

This criterion evaluates whether and to what degree the proposal will have an adverse impact on human health and safety. None of the projects will cause significant adverse impacts to human health and safety. Four projects (Bridger Plant Materials, GAIN, Greenway, and Lost Creek) have potential impacts related to construction or field activities, but none are deemed significant with the indicated mitigative efforts.

#6 Results of Superfund Response Actions

This criterion examines the relationship between a project and completed, planned, or anticipated Superfund response actions. The State will tend to favor projects that build on response actions rather than those that undo a response action. Four projects positively coordinate with or augment on-going or planned Superfund response actions - Bighorn Environmental, Bridger Plant Materials, Greenway and Lost Creek. Of those, the Greenway and Bighorn Environmental projects have the greatest coordination involving use of Montana Department of Environmental Quality (DEQ) remedial consulting and construction contractors. The five other projects (GAIN, Manley Ranch, U. of MT, Watershed Land Acquisition, and Z-4 Ranch) are considered

consistent with Superfund response actions. While it's uncertain whether these projects will augment response actions, they will not interfere with or duplicate the results of these actions.

#7 Recovery Period and Potential for Natural Recovery

This criterion evaluates whether and to what degree a project affects the time frame for natural recovery of the injured resources to their baseline conditions. Reduction of the recovery period benefits a project's overall ranking. The Bighorn Environmental and Greenway projects will reduce the recovery period for injured resources. Both will revegetate the floodplain area of Silver Bow Creek, Bighorn Environmental in Reach A, and the Greenway in Reaches A, B and C. The Greenway will also create additional aquatic habitat with the construction of enhanced streambanks. Assuming use of Bridger Plant Material's foundation seed by commercial growers to fulfill future restoration needs, this project would reduce the time in which upland wildlife habitat would recover to baseline. The Lost Creek project may enhance recovery potential. The other projects (GAIN, Manley Ranch, U. of MT, Watershed Land Acquisition, and Z-4 Ranch) are not expected to have any effect on recovery potential of injured resources in the UCFRB.

This criterion also evaluates the potential for natural recovery of injured resources. If a resource is expected to recover on its own in a short period of time, a restoration action may not be justified. This situation did not apply to any of the projects.

#8 Applicable Policies, Rules, and Laws

This criterion evaluates to what degree the proposal is consistent with all applicable policies of state, federal, local and tribal government and in compliance with applicable laws and rules. Consistency with applicable policies, rules, and laws benefits a project's overall ranking. The State concludes that all nine projects can be implemented in compliance with applicable laws and rules and consistent with applicable policies.

#9 Resources of Special Interest to the Tribes and Department of Interior (DOI)

Pursuant to a Memorandum of Agreement (MOA), the State is to pay particular attention to natural resources of special interest to the Confederated Salish and Kootenai Tribes (Tribes) and DOI. Projects that may cause potential negative impacts to resources of special interest require special consideration according to provisions of the MOA. The State solicited information from both the Tribes and the DOI regarding these resources or sites that are relevant to proposals. Appendix F contains their input.

Based on information available to the State at this time, none of the proposals involve potential negative impacts to resources of special interest. Seven projects may or will have beneficial impacts to natural resources of special interest. Regarding which projects benefit these resources the greatest, DOI indicated two categories of projects. The first category is projects that would probably benefit migratory birds, listed species, and their habitat (Manley Ranch, Watershed Land Acquisition and Z-4 Ranch). The second category is projects that would probably benefit migratory birds (Bighorn Environmental, Lost Creek, and Greenway). For Bridger Plant Materials, DOI only noted that acid-tolerant plants might be appropriate restoration elements.

With widespread use of the foundation seed generated by Bridger Plant Materials, this project may benefit migratory birds, listed species, and their habitats.

The GAIN greenhouse studies and U. of MT database framework will have no impact on these resources. If the U. of MT project were to lead to full database development, it offers a mechanism for these resources to be more readily considered should information on these resources be incorporated in the database. The benefits to these resources from the GAIN proposal are uncertain due to the vague description of long-term objectives.

The Tribes noted in their review of the *Draft Work Plan* that the Greenway, Bighorn Environmental, Lost Creek, and Z-4 Ranch projects involve physical disturbance of land that might involve a potential impact to Tribal cultural resources and/or Tribal religious sites. The Z-4 Ranch project, however, will not use Restoration funds for the stream rehabilitation activities. The Tribes deferred their evaluation of potential impacts from the other three projects until more detailed plans are available as part of project implementation.

4.2.2 Stage 2 Criteria Reflecting Montana Policies

#10 Project Location

This criterion evaluates the proximity of the proposal to the injured resources it restores or replaces. The *RPPC* expresses a preference for restoration projects that occur at or near the site of injury. This criterion is not applicable to the GAIN and U. of MT projects because they are research projects. All other 7 projects are within the UCFRB. Two projects, Bighorn Environmental and the Greenway, are in injured areas. Although the Bridger Plant Materials project involves research at its Center in Bridger, the field testing and seed collection activities will occur at various locations within or near the upland injured areas. The Lost Creek and the Watershed Land Acquisition projects are in close proximity to injured areas. The Z-4 Ranch and Manley Ranch are in the UCFRB but are not considered in close proximity to injured areas. They will, however, provide services to user groups originally harmed.

#11 Actual Restoration of Injured Resources

This criterion evaluates whether and to what extent a project actually restores an injured resource. A preference exists for those projects that constitute actual restoration (i.e., they operate directly on the injured resources). For those projects that do not constitute actual restoration, a preference can be given to those that may or will indirectly contribute to restoration of injured natural resources over those that do not so contribute.

Only the Bighorn Environmental project constitutes actual restoration in its entirety. The ecological components of the Greenway project constitute actual restoration and other components of the project contribute to actual restoration. Assuming use of Bridger Plant Materials' foundation seed by commercial growers, this project will contribute to restoration. Four other projects may indirectly contribute to actual restoration of injured resources - Lost Creek, Watershed Land Acquisition, Z-4 Ranch, and Manley Ranch. Of the five projects that might contribute to actual restoration, Bridger Plant Materials is likely to make the greatest

contribution by providing foundation seeds that can be used in numerous restoration efforts. Next is the Lost Creek project that may enhance the nearby injured aquatic resources through the anticipated improvements to the water quality and fisheries habitat of Lost Creek. The three land/easement acquisition projects may contribute to restoration primarily from a long-term protectiveness standpoint, with the Watershed Land Acquisition likely to have a greater contribution than the Manley Ranch and Z-4 Ranch easements given the scale of the project and its greater proximity to the injured areas. The Manley and Z-4 ranch easements will protect and improve tributary streams to the Clark Fork River, which may, in the long term, provide recruitment of native trout to the River as conditions improve.

The GAIN and U. of MT projects do not constitute nor contribute to actual restoration. The U. of MT project provides for the development of a planning tool for restoration projects but does not offer the same level of potential benefits to actual restoration of injured resources as do the other projects. Whether or not the future work of the GAIN project would contribute to restoration cannot be judged since this work is only vaguely described.

#12 Relationship between Service Lost and Service Restoration

This criterion examines the connection between the services that a project seeks to address and the services that were lost or impaired as a result of natural resource injuries. Projects that closely link the services that are a project's focus with the service flows that have been impaired will be favored over those projects that do not.

This criterion is not applicable to the U. of MT or GAIN projects, which do not provide lost or impaired services. Of the other projects (Bighorn Environmental, Bridger, Greenway, Lost Creek, Manley Ranch, Watershed Land Acquisition, and Z-4 Ranch), all provide some of the same services that were lost or impaired due to injuries to natural resources. Some of the services provided by the Greenway proposal, such as biking and skating, are substantially different from the services lost or impaired as a result of injury to natural resources.

The purpose of this criterion was to separate those projects whose focus is to provide the same or similar services as those lost or impaired from those projects whose focus is to provide dissimilar services. All of the projects have a focus of providing the same or similar services to those that were lost.

#13 Project Beneficiaries and Collateral Benefits

This criterion involves the evaluation of who and what will benefit from a return of services, with preference for those user groups (natural resources and/or persons) originally harmed by injury to natural resources. This criterion also considers the degree to which a project will produce benefits to more than one resource and/or service. Thus, in comparatively ranking projects according to this criterion, projects are initially ranked based on their benefits to user groups (natural resources and/or persons) originally harmed, and next sorted based on their benefits to other natural resources and services.

All the projects except for the GAIN project will benefit natural resources or persons originally harmed. Projects that provide the greatest benefits to both injured natural resources and those

persons originally harmed by natural resource injuries are the Bighorn Environmental and Greenway projects. The Greenway offers the benefit of enhanced aquatic habitat in addition to the enhanced wildlife habitat offered by both projects. Also, the Greenway offers services and collateral benefits of a greater magnitude than Bighorn Environmental, particularly to the persons originally harmed. Next follows Bridger Plant Materials, which will not only provide foundation seed for use in restoration of natural resources and services in the Uplands area, but also for use in the many other areas impacted by hard rocking mining in other areas of Montana and the western United States.

Four projects will benefit persons originally harmed and may contribute to restoration of injured natural resources – Watershed Land Acquisition, Lost Creek, Manley Ranch and Z-4 Ranch. Since other criteria evaluate benefits to injured natural resources and all these projects will benefit persons originally harmed, distinctions among these four projects is further based on their collateral benefits. The Watershed Land Acquisition will provide a variety of recreational opportunities over an extensive area close to Anaconda and protect numerous fish and wildlife resources through public ownership. Lost Creek will significantly improve stream stability, water quality, and fish and wildlife habitat in the Lost Creek watershed. The Manley Ranch and Z-4 Ranch projects offer a similar level of benefits to collateral natural resources and/or services. The Z-4 Ranch project offers greater benefits to aquatic resources and associated services than the Manley Ranch project, while the Manley Ranch project offers greater benefits to wildlife resources and associated services than the Z-4 Ranch. The Manley Ranch project protects a greater area and offers greater public access to private land than the Z-4 Ranch project.

The U. of MT proposal will assist with restoration planning for both injured natural resources and other resources of the Basin that would be of value to both persons originally harmed and others. The level of benefits to these user groups, however, is considered less than those derived from the above projects. Given the vagueness of the future work of the GAIN project, it is not possible to determine project beneficiaries and collateral benefits.

#14 Public Support

This criterion assesses the level of public support based on information submitted to the State with the project applications, during the application review process, or during the public comment period.

The Greenway and Watershed Land Acquisition projects have broad public support from numerous and varied entities and the greatest demonstrated public support of all the projects. The Manley Ranch project has broad public support demonstrated by the comments of support submitted from numerous and varied persons and entities during the public comment period. The Z-4 Ranch and Lost Creek projects have demonstrated moderate support by the multiple funding sources obtained (Z-4 has funding support of ten different public and private entities), through the enlisted cooperation of landowners (MFWP is coordinating with 6 landowners along 27 miles of Lost Creek), and through public comments. The Bridger Plant Materials project also has moderate public support but to a somewhat lesser degree, with letters of support from five federal and state agencies and the local conservation district.

The U. of MT and Bighorn Environmental projects had limited public support, each with a few letters of support. The GAIN application had letters of support from project partners but not other entities.

#15 Matching Funds

High amounts of matching funds have been secured for the Z-4 Ranch (93%), Bridger Plant Materials (70%), and Lost Creek (70%) proposals. Next follow the GAIN and U. of MT projects with in-kind matches of 65% and 47%, respectively. The landowner contribution on the Manley Ranch project is 40% based on how much the negotiated price per acre is below the appraised market value. Limited matching funds have been or will be provided for the Greenway (17%). Minimal to no matching funds are provided for the Bighorn Environmental and Watershed Land Acquisition proposals.

The State's matching fund analysis for the Greenway does not include the estimated cost to be saved through coordination with remedy. Also, for the three projects that are phases of a larger project (Greenway, Manley Ranch, and the Watershed Land Acquisition), only matching funds for the portion of the project that is subject of pilot-year funding were considered.

#16 Ecosystem Considerations, Coordination, and Integration

This criterion examines the relationship between the project and the overall resource conditions of the UCFRB by considering how a project coordinates with other ongoing or planned restoration, remediation, or other actions and how it fits within a broad ecosystem context. Planned restoration activities include, but are not limited to, the State's Restoration Determination Plan for sites still undergoing litigation.

Eight projects fit within a broad ecosystem context, are sequenced properly from a watershed management approach, and do not interfere with the State's Restoration Determination Plan. Of these, Bighorn Environmental, Bridger Plant Materials, and the Greenway projects offer the added benefit of direct coordination with ongoing or planned restoration and remediation actions in the UCFRB. Of the five other projects (Watershed Land Acquisition, Lost Creek, Manley Ranch, Z-4 Ranch, and U. of MT), the Watershed Land Acquisition offers the best attributes from an ecosystem standpoint because it protects significant headwaters of the Clark Fork River and because of the expansive, forested habitat it will protect through public ownership and management. The Lost Creek project will significantly improve stream stability, water quality, and fish and wildlife habitat in a comprehensive, sequenced approach in the watershed of a significant tributary of the Clark Fork River. The Manley Ranch and Z-4 Ranch projects are considered similar for this criterion. Both protect tributaries of the Clark Fork River, but Rock Creek (Z-4 Ranch) is a more a significant tributary than Morris Creek (Manley Ranch) and offers greater long-term potential for enhancing bull trout and westslope cutthroat trout recruitment to the Clark Fork River. Both projects protect quality wildlife habitat, but the Manley Ranch's extensive acreage of intermountain habitat and biodiversity is considered of greater ecological significance than the habitat of the Z-4 Ranch. The U. of MT proposal allows for restoration planning to occur from an ecosystem approach but does not offer the more direct benefits of the

other projects. The GAIN proposal has the potential to conflict with the State's Restoration Determination Plan.

#17 Normal Government Functions

As set forth in the *RPPC*, the State, through its restoration program, will not fund activities for which a governmental entity would normally be responsible or that would receive funding in the normal course of events. Restoration funds may be used to augment funds normally available to government agencies to perform a particular project if such cost sharing would result in implementation of a restoration project that would not otherwise occur through normal agency function.

All projects were considered outside of normal agency function in that they did not involve activities that a governmental entity is obligated by law to conduct or would normally conduct. While the MFWP is involved with conservation easements and land acquisitions, it is not specifically responsible for acquiring the proposed public lands/interests in the UCFRB, nor would it receive funding for these projects in the normal course of events.

4.2.3 Stage 2 Land Acquisition Criteria

Four projects involve acquiring public lands or interest in public lands – The Greenway, the Manley Ranch, the Watershed Land Acquisition, and the Z-4 Ranch. These projects were compared based on the five criteria specific to land acquisition projects.

#18 Desirability of Public Ownership

This criterion assesses the benefits of public ownership or interest in land to restoration of injured natural resources or lost services. Acquisition projects that benefit injured natural resources or provide lost services are favored over those that do not. The benefits of public ownership are considered major for both the Greenway and Watershed Land Acquisition projects, given the substantial recreational services they offer in or near large communities in the UCFRB. Public ownership aspects of the Greenway will also benefit injured natural resources. The public ownership aspects of the Manley Ranch and Z-4 Ranch projects have limited potential to benefit injured natural resources, but will provide lost services to a moderate and minor degree, respectively.

#19 Habitat Protection

This criterion considers the value of the property to be acquired as habitat for wildlife and other terrestrial and aquatic biota. Factors considered include species diversity, relative availability of habitat nearby, and habitat quality. The Watershed Land Acquisition and Manley Ranch projects offer protection of what is considered exceptional habitat, the value generally proportional to the project acreage. The Z-4 Ranch project offers protection of good habitat. The Greenway would offer protection of what is expected in the future to become good habitat.

#20 Spillover Benefits

This criterion examines whether and to what degree the acquired land or interest in land benefits either an injured area or, more generally, a larger surrounding uninjured area. The Greenway project provides major benefits to an injured area. The three other projects offer limited potential to injured resources as described under criterion #11, with the Watershed Land Acquisition likely to have a greater contribution than the easements given the scale of the project and its greater proximity to injured areas. The Watershed Land Acquisition also provides major benefits to a larger surrounding uninjured area. This acquisition significantly increases the amount of land near Anaconda that can be managed for benefits to natural resources. Acquisition of winter range associated with the Garrity Mountain parcel would benefit the extensive area where elk and deer spend the remainder of the year. In comparison, the Manley Ranch and Z-4 Ranch projects offer moderate and minor benefits to a larger surrounding area, respectively.

#21 Access to Public Lands

The criterion evaluates to what extent access to public land is facilitated by the proposal. Projects that facilitate public access are considered favorable compared to those that do not. The Greenway and Watershed Land Acquisition significantly facilitate access to public land. The Manley and Z-4 Ranch easements provide limited public access to private lands but do not facilitate access to public lands.

#22 Price

This criterion evaluates whether the proposed land, easements, or other property interests are being offered for sale at fair market value. The Z-4 Ranch price is considered reasonable as it is based on an appraised fair market value that is cut by approximately 50% via landowner donation. For the Manley Ranch project, the negotiated price is 60% of appraised fair market value of the easement based on a restricted appraisal, thus the estimated landowner contribution is 40%. The prices of the Greenway and Watershed Land Acquisition projects have not been finalized. The price for the Watershed Land Acquisition will be based on the appraised fair market value or a lower price. The Greenway price estimates are based on remedial price negotiation.

4.2.4 Stage 2 Research and Monitoring Criteria

The following additional criteria are applied to research and monitoring projects. The GAIN and U. of MT projects are strictly research projects. Since the Bridger Plant Materials project has research components, it was also evaluated as a research project. Since the U. of MT and GAIN projects are $10,000 or less, these applicants did not have to specifically address the two monitoring and research criteria. However, with the information provided by the applicant, the contribution to overall scientific program and assistance to restoration planning can be determined.

#23 Overall Scientific Program

This criterion evaluates whether a research or monitoring project is coordinated or integrated with other scientific work in the UCFRB. The Bridger Plant Materials and U. of MT projects coordinate with other scientific work in the Basin. Based on the past coordination that has already occurred, Bridger Plant Materials is considered superior to the U. of MT for this criterion. The GAIN project has coordination potential that was not addressed in the application.

#24 Assistance with Restoration Planning

This criterion evaluates whether, and to what degree, the research project will directly assist with future restoration efforts. Bridger Plant Materials will provide major benefits to restoration planning by providing foundation seed for and critical information regarding successful revegetation efforts. U. of MT lays the foundation of an information database that could be of moderate benefit to restoration planning. The GAIN greenhouse studies by themselves would have little or no benefit to restoration; the benefits of the future phases of this project cannot be evaluated due to insufficient information.

SECTION 5.0 OVERALL PROJECT RANKING

This section provides the NRDP's overall ranking of projects. Based on the NRDP's analysis of how well the projects meet or address the *RPPC* criteria, the NRDP believes that all the projects except for the GAIN project merit funding in terms of their benefits to the restoration or replacement of injured natural resources and/or services. The GAIN proposal had so many uncertainties due to the insufficiency of the application that the NRDP does not recommend it for funding consideration. Table 2 presents the NRDP's ranking of the eight projects in the following order of preference for funding based on the Stage 1 and 2 criteria comparisons provided in Section 4.0.

Table 2. Project Ranking

Project	Requested Restoration Funding
#1 Greenway	$ 1,772,758
#2 Bighorn Environmental	110,800
#3 Bridger Plant Materials	141,439
#4 Lost Creek	518,382
#5 Watershed Land Acquisition	6,075,000
#6 Z-4 Ranch	10,000
#7 Manley Ranch	608,048
#8 U. of MT	9,550
TOTAL	**$ 9,245,977**

As noted previously, the *RPPC* does not rank criteria in terms of importance, noting that "each criterion as applied to individual projects will vary in its importance depending on the nature of the project and unique issues it raises." A project does not need to meet all of Stage 1 and Stage 2 criteria in order to be considered worth funding. A project may rank poorly compared to others for a particular criterion, but that criterion may be inapplicable or relatively unimportant for that type of project. Or, the merits of a project based on some number of criteria may significantly outweigh its deficiencies noted for a particular criterion. Although the eight projects did not meet all of the Stage 1 and 2 criteria, none was considered so deficient by any one criterion to conclude that it did not merit funding. The following discussion summarizes why the NRDP concludes these eight projects merit funding and the NRDP's ranking of these projects.

Greenway and Bighorn Environmental

The Greenway and Bighorn Environmental projects rank highest based on their benefits to injured natural resources and lost services. They best meet the majority of the Stage 1 and 2 criteria and are the only two projects that will act directly upon, and reduce the recovery period for, injured natural resources. These projects excel compared to other projects in terms of their coordination with remedial efforts, in restoring lost services, and in providing benefits to the original user groups.

The Bighorn Environmental and Greenway projects involve revegetating the floodplain, which is critical to restoring the riparian habitat and stream function of Silver Bow Creek. Bighorn Environmental will revegetate the first mile of Silver Bow Creek whereas the Greenway will revegetate the next two miles. Both proposals will achieve cost savings and enhance restoration benefits through the planned coordination with remedy, so funding now is critical. The Greenway offers additional benefits to restoration of injured resources by the enhancement of streambanks to improve aquatic habitat. Bighorn Environmental has a more detailed revegetation plan than Greenway. The Greenway, however, provides a sufficient revegetation budget and appropriately defers detailed design to allow coordination with DEQ's remedial contractor.

A major feature of the Greenway is the development of a recreational trail corridor along Silver Bow Creek, which has strong public support. By acquiring access to Silver Bow Creek via land purchases and or easements, the proposal will secure public use. The Greenway trail system offers substantial recreational opportunities to the large populace near Silver Bow Creek, yielding substantial benefits to lost services. While the NRDP has some concerns about the level and costs of development associated with access features of the entire Greenway project, the access features proposed in the pilot year are considered appropriate because the trail access features in this pilot-year proposal are in close proximity to Butte.

The NRDP considers both these projects to be of equivalence in terms of their merit for funding, thus making it difficult to rank one over the other. Bighorn Environmental has less public support and matching funds than the Greenway; however, these factors are considered secondary to the restoration benefits the project will achieve. Bighorn Environmental constitutes actual restoration in its entirety, whereas actual restoration is only a portion of the Greenway project. Considering the larger revegetation effort of the Greenway compared to Bighorn Environmental and the potential benefits of the Greenway trail corridor, the NRDP ranks it above Bighorn Environmental.

Bridger Plant Materials

Bridger Plant Materials can significantly contribute to the restoration of injured natural resources and services by providing the foundation seeds that can be used for numerous revegetation efforts in the UCFRB, particularly those in upland areas. The product of this project can be used to directly restore injured wildlife habitat by providing superior seed for trees, shrubs, forbs, and grasses. By doing so, it also helps restore the same services that these injured resources once provided. This project can also benefit natural resources and services in other areas of Montana

and the western U.S. that have been impacted by hard rock mining. It is cost effective, positively coordinates with remedial actions, has high matching funds (70%), and moderate public support.

Following these three restoration projects are four replacement projects that primarily benefit natural resources outside injured areas and offer services considered the same or similar to services lost or impaired by natural resource injuries in the UCFRB -- Lost Creek, Watershed Land Acquisition, Z-4 Ranch, and Manley Ranch. Of these, the NRDP ranks the Lost Creek and Watershed Land Acquisition higher than the easement projects due to their closer proximity to injured resources and the greater level of benefits they would provide.

Lost Creek

Through a variety of activities, the Lost Creek project will rehabilitate approximately 27 miles of Lost Creek, a significant tributary to the Clark Fork River in close proximity to injured areas. The project is a model for watershed planning in that it entails a cooperative effort of the majority of the landowners along Lost Creek and will significantly improve stream stability, water quality, and fish and wildlife habitat in a comprehensive, sequenced watershed approach. It has a high level of matching funds and moderate public support, has been planned to coordinate with remediation activities, and may enhance the nearby injured aquatic resources through the anticipated improvements to the water quality and fisheries habitat of Lost Creek. Although it does not provide the opportunity for recreational services to the extent as provided by the Watershed Land Acquisition, it ranks higher than the Watershed Land Acquisition given its greater potential to improve natural resources and because it represents a model approach that may be applied in future restoration efforts across the UCFRB.

Watershed Land Acquisition, Z-4 Ranch, and Manley Ranch

By acquiring public ownership of high quality and extensive fish and wildlife habitat and recreational lands, the Watershed Land Acquisition will provide guaranteed public access, protect these areas from development, and maintain and enhance natural resources through conservation-focused public management of those resources. The strong aspects of the proposed State acquisition are the exceptional big game winter habitat on the Garrity Mountain parcel and the substantial recreational services the project offers near Anaconda, many of which are the same as services lost due to natural resource injuries. The timber harvest activities will have negative environmental impacts, primarily to wildlife and visual quality, until forest regeneration occurs. The proposal offers conditions that provide greater protection to environmental resources than would occur if the landowner were to harvest in the absence of these conditions. The project has substantial and broad public support but minimal, if any, matching funds. Considering its long-term benefits, NRDP believes the project is well worth funding.

The Watershed Land Acquisition, Manley Ranch, and Z-4 projects are not expected to reduce the recovery period for injured resources. The projects, however, may contribute to restoration of aquatic resources to a limited degree in conjunction with future remediation and restoration efforts on the Clark Fork River. Compared to the easement projects, the Watershed Land Acquisition offers a greater scale of services that are the same as or similar to lost services and

greater protection of a larger area (9,000 acres for the State acquisition and 32,500 for the entire acquisition) closer to injured resources. Thus, it comparatively ranks better than the easement projects in terms of its benefits to injured natural resources and lost services. It also ranks higher than the easement projects based on the additional land acquisition criteria evaluated.

The Z-4 Ranch and Manley Ranch conservation easements offer relatively similar benefits of conservation of open space and scenic beauty, wildlife habitat and the associated wildlife, water quality, and aquatic habitat and fisheries. Within the Manley Ranch Phase I lands are the headwaters of Morris Creek, which supports a genetically pure strain of westslope cutthroat trout, and exceptionally diverse wildlife habitat that includes key winter range. The Z-4 Ranch easement involves stream rehabilitation work that will improve the water quality, aquatic habitat and aquatic life of the East Fork of Rock Creek, which provides good rearing and spawning habitat for bull trout and westslope cutthroat trout.

Both easements protect tributaries of the Clark Fork River, but Rock Creek (Z-4 Ranch) is a much more significant tributary than Morris Creek (Manley Ranch) and offers greater long-term potential for enhancing native trout recruitment to the Clark Fork River. Both projects protect quality wildlife habitat, but the Manley Ranch's extensive acreage of intermountain habitat and biodiversity is considered of greater ecological significance than the habitat of the Z-4 Ranch. Both offer limited public access. The Manley Ranch easement offers guaranteed public access of 350 hunter days during the fall hunting season in addition to the access by landowner permission offered by both easements. Based on the land acquisition criteria, the Manley Ranch offers slightly greater benefits. The NRDP ranks the Z-4 Ranch higher than Manley Ranch in considering all the criteria, primarily because of the higher net benefits the Z-4 Ranch achieves with its high matching costs (93%) and low cost.

U. of MT

The eighth ranked project is the U. of MT database framework proposal, which is the first phase of developing an UCFRB informational database. This project ranks lower for the majority of criteria relative to other projects, principally because the criteria favor direct restoration activities as opposed to research activities. The NRDP believes a properly planned and developed informational database specific to the UCFRB would be a valuable tool to restoration planning. For this reason and given its low costs, the NRDP believes that this preliminary project is worthy of funding.

6.0 FINAL FUNDING RECOMMENDATIONS

6.1 Background

As set forth in the *RPPC*, the NRDP submitted the *Pre-Draft Work Plan* for comment to the Advisory Council, the EPA, the DOI, and the Tribes. After considering the comments received from these entities, the NRDP revised the *Pre-Draft Work Plan* and submitted it to the Trustee Restoration Council for its approval.

Appendix F contains the comments of the EPA, DOI, and Tribes on the Pilot Year 2000 grant applications and the EPA's comments on the *Pre-Draft Work Plan.* The DOI comments are incorporated in the evaluation of a project's effect on resources of special concern to the Tribes and DOI, which is one of the project evaluation criteria. The EPA's comments focus on assuring that the planned coordination between Greenway and Bighorn Environmental restoration projects and the Silver Bow Creek remediation does not jeopardize the remediation schedule, costs, or effectiveness. These concerns will be addressed at the grant contracting and project implementation phases. The Tribes deferred their evaluation of potential impacts from the three projects that involve physical disturbance of lands (Greenway, Bighorn Environmental, Lost Creek) until more detailed plans are available as part of project implementation.

Appendix F also contains a summary of the Advisory Council's funding recommendations based on review of the *Pre-Draft Work Plan*. Through a process of voting on each project, the Advisory Council recommended funding eight projects for a total of $7 million and the commitment of $2.3 in next year's available grant monies to allow complete funding of the Watershed Land Acquisition project. These recommendations matched those of the NRDP staff. Votes were not unanimous on all the projects.

On August 23, 2000 the Trustee Restoration Council met to consider the *Pre-Draft Work Plan* and comments received on the *Pre-Draft Work Plan* in deciding on draft funding recommendations for Pilot Year 2000 Restoration Grants. The Trustee Restoration Council recommended full funding of the Greenway, Bighorn Environmental, Bridger Plant Materials, Lost Creek, Z-4 Ranch, and U. of MT projects and partial funding of the Watershed Land Acquisition at $3.7 million. They did not approve funding for the Manley Ranch conservation easement. They also did not approve commitment of $2.3 million from next year's available funding to complete the Watershed Land Acquisition in its entirety. Consequently, the Trustee Restoration Council retained the $7.0 million limitation set forth in the *RPPC* on Pilot Year 2000 funding allocations. These recommendations were set forth in the State's *Draft Work Plan*. The State then solicited public comment on the *Draft Work Plan* between September 9 and October 10, 2000.

6.2 Final Funding Recommendations

On November 14, 2000, the Trustee Restoration Council considered the public comments on the *Draft Work Plan*, the NRDP's draft response to these comments, and the Advisory Council's input on the *Draft Work Plan* (provided in Appendix F). The Trustee Restoration Council approved funding for the seven projects recommended in the *Draft Work Plan* at the funding

levels previously approved. They also approved full funding of the Manley Ranch project. Governor Racicot approved these recommendations in December 2000. Table 3 summarizes the final funding recommendations.

Table 3. Final Funding Recommendations

Project	Requested Restoration Funding	Recommended Restoration Funding
#1 Greenway	$ 1,772,758	$ 1,772,758
#2 Bighorn Environmental	110,800	110,800
#3 Bridger Plant Materials	141,439	141,439
#4 Lost Creek	518,382	518,382
#5 Watershed Land Acquisition	6,075,000	3,764,231
#6 Z-4 Ranch	10,000	10,000
#7 Manley Ranch	608,048	608,048
#8 U. of MT	9,550	9,550
TOTAL	**$ 9,245,977**	**$ $6,935,208**

6.3 Funding Conditions

In making its final funding recommendations, the Trustee Restoration Council placed the following conditions on some of the projects to reiterate conditions reflected in the Project Criteria Narratives in Appendix C. The Governor also approved these conditions.

- For the Silver Bow Creek Greenway, Bighorn Environmental, and Lost Creek projects: Funding recommendations are conditional upon approval of final designs for the various elements of these proposals.

- For the Silver Bow Creek Greenway project: Funding recommendations are conditional upon coordination with and approval by the NRDP of all land acquisition activities, including NRDP review and approval of all appraisals.

- For the Manley Ranch Conservation Easement project: Funding recommendations are conditional upon the NRDP review and approval of the final easement terms and appraisal.

- For the Watershed Land Acquisition project: Funding recommendations are conditional based on the NRDP having authority to negotiate precisely which lands are to be acquired with the partial funding and to negotiate the final price for these lands after the appraisals and any appraisal reviews are completed and the status of access to the Clear Creek parcels is clarified. The NRDP will negotiate a price at or below the appraised value.

APPENDIX A

PROJECT ABSTRACTS

APPENDIX A
Pilot Year 2000 Grant Proposal Abstracts

The following are the abstracts submitted to the Natural Resource Damage Program for Pilot Year 2000 Restoration Grant Funds. These projects are verbatim as submitted by applicants.

Applicant Name: Anaconda-Deer Lodge County

Project Title: Deer Lodge Valley Restoration Project

Project Description and Benefits:

We plan to aerial spray 5723 acres in the project area with 1 ½ pints Tordon and 1 pint 2-4-D, the other 600 acres we plan to spray with ½ ounce Escort, quart LV. Ester, 1 ½ pints Tordon and pint spray adjuvant. 80 acres of the project area with need to be hand sprayed with 2 quarts Curtail per acre around the homes. Most of the project area has been planted with leafy splurge beetles since 1992. Studies have shown that after the application of herbicides the plant weakens and the beetles thrive.

The project area at one time was prime rangeland and wildlife habitat for elk, mule deer and some white tail deer. Heavy metals were deposited in the soil from the emissions from the smelter's stack. The metals in the soil change the pH and make it easier for the weeds to grow. "EPA's recently released Clark Fork River Ecological Assessment concludes that metals from historic mining wastes cause adverse effects on at least some plant and animal species." Once the weeds take root they choke out the native grasses by emitting a poison. "Metal concentrations are highest in the upper two inches of soil. Elevated metal concentrations on the soil surface prevent seed germination and, thus, natural regrowth. Because of this, the plant types found in these areas have changed from predominantly forest with open grassland to predominantly sparse grassland or bare ground. This change in vegetation has greatly reduced the amount of wildlife habitat."

By eliminating the weeds and revegetating with native grasses we will be restoring the land to what it once was. The deer and elk will return to their natural habitat. The majority of this area is part of Fish Wildlife and Parks Block Management Program. It will become a good hunting area again which will help improve the economy.

Applicant Name: Bighorn Environmental Sciences, LLC.

Project Title: Enhanced Revegetation of Silver Bow Creek (SBC), Reach A, Subarea 1, SST OU

Project Description and Benefits:

The SBC floodplain is one of the most harmed resources in the UCFRB as a result of tailings deposition during floods early in the 20th century. Damages include aquatic devastation, loss of wetland functions and values, and diminished wildlife habitat and recreational use. Some impairment is due to loss of vegetation. This proposal will restore natural vegetation in the floodplain. The applicant has been responsible for SBC remedial revegetation planning.

Under a strict interpretation of remedy, remedial revegetation falls short of baseline in three respects, which are addressed by the proposed on-site, in-kind restoration measures:

1. Amount of woody species, especially willows, across the floodplain in appropriate habitats. Approximately 10,000 willow seedlings and 300 larger aspen and cottonwood seedlings are proposed.
2. Amounts of soft-stemmed native wetland plants, mainly sedges, rushes, and bulrushes, across the floodplain in appropriate habitats. 20,000 are proposed.
3. Nutrient cycling: soil organic content and associated soil food web, which are associated with developed soils in contrast to the raw, biologically inert borrow material being used as cover soil to replace the removed tailings. 167 dry tons of organic matter is proposed for the drier, non-weedy plant habitats.

The activities proposed here use proven technologies that are likely to succeed. The agents of floodplain recovery, i.e., native wetland plants, will be planted throughout the floodplain in appropriate habitats. Further attention to the stream channel and bank are unwarranted. The channel will migrate. The floodplain will change. Beavers may modify the floodplain more than floods. Since stable endpoints play a small role, if any, in riparian system structure, attention should shift to the recovery process, which is largely vegetational. Local research has identified plant-habitat relations that form the basis for transplanting prescriptions. These native species must be transplanted, not seeded.

If approved by 12/00, transplantings will be concurrent with remedial plantings in spring-early summer 2001. In the most likely construction scenario for Reach A, optimal placement of organic soil amendment is fall/00, but a lesser surficial application in early spring/01, or after seeded plants establish, will yield tangible benefits.

The vegetational enhancements proposed here can be implemented by MDEQ with minor modifications to the existing remedial revegetation contract. Monitoring of remedial and enhanced revegetation can likewise be coordinated to optimize results and costs.

Applicant Name: Deer Lodge Valley Conservation District/Bridger Plant Materials

Project Title: Development of Acid/Heavy Metal-Tolerant Cultivars Project

Project Description and Benefits:

Thousands of acres at the Anaconda Smelter site in western Montana are barren or support limited plant cover consisting of predominantly exotic species. Current reclamation efforts using native species to revegetate these acidic and heavy metal contaminated minelands rely primarily on plant materials developed for coal strip-mine reclamation in dry, high pH soils of eastern Montana. A lack of species developed specifically for hardrock minelands spurred the initiation of a project to collect, test, select, grow and ultimately release indigenous native plant materials that demonstrate superior adaptation to these sites. The Development of Acid/Heavy Metal-Tolerant Cultivars (DATC) project, initiated in 1995, is sponsored by the Deer Lodge Valley Conservation District in cooperation with the Natural Resources Conservation Service-Bridger Plant Materials Center. The grass, forb and shrub species in development are suitable for a wide range of vegetation zones and provide significant wildlife habitat. The denuded land at the Smelter Hill Uplands, Mount Haggin area, and, Anaconda and Opportunity Ponds has resulted in significant erosion and topsoil loss that continues to injure watershed resources. The selection of distinct plant races or ecotypes capable of thriving in these contaminated soils will benefit the Upper

Clark Fork River Basin watershed by reducing soil erosion and contaminate dispersal, improving air quality, and increasing nutrient cycling in the ecosystem. The establishment of indigenous native plants will also improve wildlife habitat by providing food and shelter for numerous wildlife species. In addition, the aesthetics and health of the neighboring communities will be positively affected. Accordingly, services such as outdoor recreation, tourism and hunting will benefit from successful revegetation of the area.

Applicant Name: Gain Consortium

Project Title: Soil Amendment Screening

Project Description and Benefits:

ABSTRACT
The Soil Amendment Screening planning project is intended to field test a selected number of soil and amendments and examine their relative efficacy for ameliorating contaminated soils, screen native plants for stabilization and remedial effectiveness, and examine the use of novel structural approaches to soil stabilization. The study and screening activities will be used to develop a cost and effectiveness over time model for future projects. This two-part study will complete greenhouse feasibility studies and prepare a phase 1 proposal for future submission to the UCFRB Restoration Fund program. The ultimate results of this project are stronger public-private partnerships, healthier watersheds, and streams that meet "full uses."

Applicant Name: Greenway Service District

Project Title: Silver Bow Creek Greenway

Project Description and Benefits:

Funding to develop and construct restoration improvements within the Silver Bow Creek Corridor over the same ten-year period established for remedial work, with restoration design submittals and expenditures made annually commensurate with progress and workplans for remedial action.

The proposal presents a broad discussion of the 26-mile project and a detailed funding request for restoration work in Reach A, B and C of Subarea One as defined in the Streamside Tailings Operable Unit (SSTOU). The proposed project is directly consistent with the stipulations of the SSTOU's Record of Decision and is based on the applicant's preliminary design plan (completed in 1997) to develop a sound strategy for restoration enhancements, protection and beneficial use of the Silver Bow Creek Corridor.

The project will restore and rehabilitate natural resources that suffered severe and widespread injury as a result of area mining and begin to replace those lost or impacted services within the corridor.
Major goals are:

- Restore aquatic, riparian/wetland and uplands ecosystems
- Acquire and provide access to a passive recreational corridor
- Implement remediation and restoration activities as one project
-

Major tasks include:

- Design and construct in-stream habitat structures and streambank enhancements to promote the restoration of a self-sustaining fishery to the creek;
- Amend soils to accelerate growth, vigor and stability of "remedial" vegetation;
- Plant additional varieties and quantities of native plant species to enhance ecosystem diversity;
- Introduce upper story plantings (e.g. shrubs and trees) to improve aquatic ecosystems;
- Develop controlled access to the corridor at designated "trailheads" to protect the restored landscape and manage passive recreational activities.

The proposed project is predicated on the firm belief that coordinating construction of the remedial action and restoration enhancements within the corridor would lead to lower project costs and considerable savings of settlement proceeds.

Applicant Name: Montana Fish, Wildlife and Parks

Project Title: Haefner's Dam Project

Project Description and Benefits:

This project involves the restoration of Haefner's Dam. The project will restore a 2-3 acre wetland that previously existed on this site. Haefner's Dam was originally constructed as a turn of the century off stream storage facility on Warm Springs Creek to provide city water for Anaconda. The dam was breached in two locations in the 1970's. The project will involve negotiating an easement with Deer Lodge County on 34.39 acres of county property. The County has expressed interest and support for the project. The project will involve the repair, regrading of the dam, and installation of a water control structure. Water will be provided by an onsite spring and will not require diversion from Warm Springs Creek as the original structure. Ducks Unlimited has toured the site and offered its engineering and construction support. Historically, the impoundment supported a trout population and a variety of waterfowl and marsh species. Currently there is limited waterfowl use on a small wetland formed by the flow of the spring. The areas support significant moose and deer use. The property contains a portion of Warm Springs Creek, city wells, and dense riparian vegetation. It lies on the western end of a stream side corridor that runs along Warm Springs Creek involving the Washo Fish Hatchery and city park lands.

Applicant Name: Montana Fish, Wildlife and Parks

Project Title: Lost Creek Watershed Project

Project Description and Benefits:

The Lost Creek Watershed Project will "replace" injured resources through the creation and enhancement of fish, wildlife and water quality resources equivalent to those that were injured. The project will reduce excessive nutrient and sediment inputs, improve fish and wildlife habitat, remove fish passage barriers, improve water quality and restore Lost Creek's natural channel patterns. Lost Creek's condition not only contributes to the Clark Fork River's poor water quality but also reduces its potential as a spawning tributary for Clark Fork River trout. To improve the degraded channel condition of Lost Creek and reconnect it to the Clark Fork River, a major watershed restoration effort is required. The project will restore Lost Creek, while maintaining the ranching economy of the Deer Lodge Valley. Approximately 66% of the project's funding has been secured and these funding sources require project objectives to be implemented in each field season (2000-2002).

The Lost Creek Watershed Project involves the coordination of riparian and upland restoration activities to improve the Lost Creek watershed. The project incorporates six landowners covering 27 stream miles from the community of Lost Creek to the Clark Fork River. The project will address four fish passage barriers through either barrier removal or installation of fish passage. A dewatered stream reach will be reactivated through the reconstruction of a headgate, reconnecting Lost Creek to the Clark Fork River. One concentrated livestock feeding facility will be relocated and off-site water developed. The riparian area in this reach will be fenced and livestock excluded. Several channelized reaches exist within the project area and in these reaches, the stream will be either relocated in its original position or stabilized in place. Approximately 76% of the stream's riparian corridor is poorly vegetated, and therefore riparian revegetation and management is a major component of this project.

Applicant Name: Montana Fish, Wildlife and Parks

Project Title: Manley Ranch Conservation Easement, Phase I

Project Description and Benefits:

The Manley Ranch encompasses 16,000 acres overlapping the Clark Fork-Blackfoot divide in Granite and Powell Counties, about 4 miles northeast of Drummond. It embodies what the Upper Clark Fork River Basin was before damages occurred, but is threatened by financial obligations. The Manley family has retained the services of American Public Land Exchange Company (APLE) to find a solution that would avoid subdivision and allow the family to continue owning and working the ranch. APLE and the Manleys solicited participation by The Conservation Fund (TCF) to secure an initial loan. TCF is now seeking commitments among potential partners who would purchase a series of conservation easements, covering the entire ranch. If adequate commitment is secured, TCF would provide bridge financing, allowing further time for conservation easements to be acquired.
This proposal is for the NRD Program to fund the purchase of a Phase I conservation easement on 3,780 acres in the headwaters of Morris Creek, a tributary of the Clark Fork, at a cost of $672,840. Fish, Wildlife & Parks (FWP) would hold and manage this easement, and would expect to contribute funding with other partners for a Phase II easement in late 2001 or 2002. Morris Creek supports pure-strain westslope cutthroat trout and a 3.5-mile stretch of healthy riparian habitat on Phase I lands for a diversity of wildlife. By protecting the Morris Creek headwaters, water quality in the Clark Fork will be enhanced. Upland stands of Douglas-fir, juniper, aspen and sagebrush add habitat diversity for elk, mule deer, black bear and other wildlife. The Phase I conservation easement would prevent subdivision and other forms of habitat loss, provide for a rest-rotation grazing program, and guarantee reasonable public access for hunting and fishing in perpetuity.

Applicant Name: Montana Tech of the University of Montana

Project Title: Groundwater/Surface Water Interactions in a Reconstructed Stream Channel

Project Description and Benefits:

Natural streams are complex systems with living organisms connected in a functional relationship with groundwater, surface-water, riparian habitat and streamside vegetation. For reconstructive efforts along Silver Bow Creek to be successful in establishing habitat suitable for fisheries and wildlife, it is essential that the construction design include elements that will enhance a functional connection between all of these components. In particular, interactions between groundwater and surface water (i.e., the hyporheic zone) and long-term monitoring plans will be insufficient in scope to assess whether the reconstructed

stream channels successfully provide the types of biogeochemical interactions which occur at a small scale in natural aquatic ecosystems.

To assist in the evaluation of whether the current remedial efforts have the potential to create a healthy stream ecosystem, a number of specific tasks will be performed. Piezometer transects will be installed at strategic localities in Segment A, the upper part of Segment B, a reconstructed channel site near Rocker, MT, and a control site on Blacktail Creek. Detailed groundwater/surface-water interactions within the stream channel and floodplain sediments will be evaluated from piezometer head data, tracer studies, synoptic stream surveys, and surface and groundwater chemistry data. This information will be used to determine the vertical and lateral extent of the hyporheic zone, and the geochemical and biological processes occurring in these zones. Numerical modeling will be used to further evaluate the chemical and physical processes occurring in the stream channel and floodplain sediments, and may be used to in a predictive sense to simulate possible modifications to the reclamation design. Monthly monitoring will allow us to evaluate transient (seasonal and long-term) changes in the physical and chemical characteristics of the hyporheic zone. Additionally, diurnal water quality changes, in-channel microinvertebrate surveys, and vegetation studies along the stream and within adjacent riparian zones will be included in our holistic approach to evaluating the reconstructed riverine ecosystem

The existing and proposed monitoring plans for the Upper Clark Fork River basin are insufficient to completely evaluate the success of the restorative efforts. We feel it is imperative that more detailed studies begin immediately. Our approach is to compare existing healthy stream systems with reconstructed reaches so that recommendations and changes can be made in a timely fashion, and in such a way as to provide a significant improvement to the long-term quality of the water, habitat, and ecology of Silver Bow Creek.

Applicant Name: Montana Tech of the University of Montana

Project Title: Upper Clark Fork River Basin Dynamic Model: A Resource for Decision Making

Project Description and Benefits:

Utilizing and managing the vast amounts of information that has been amassed through extensive monitoring and scientific study of the Upper Clark Fork River Basin for restoration effectiveness and decision making is difficult. Therefore, development of a dynamic model of the geomorphology, sediment transport, ground and surface water interactions, geochemistry, and biological resources is proposed. This model can be used to predict future trends in the UCFRB as restoration actions take place and can also be used as a scenario "developer" for proposed restoration activities. “What if" scenarios can be fed into the dynamic digital model so that results might be analyzed before any restoration work actually takes place at a particular site. The model could be used to predict today what the response of the basin would be tomorrow and in the long-term. In effect, what happens upstream will be expressed downstream, and the model can answer how.

A great deal of information on numeric modeling is already in place today, but it is limited in dimension or has only limited application to isolated segments of stream reaches. The proposed new model will use (to the extent possible) existing models and other available information as foundations to build an encompassing model. Public ownership of the model will make it available to the public and in effect will create a resource for decision making. Current and future data gathered in the basin will be input to the model with output in Geographic Information Systems (GIS) format that can be visually represented. The model will have a total system perspective but with focused and concentrated efforts. Much in the way that simulation is used by corporate America, a UCFRB dynamic numerical model will provide a necessary and timely tool for providing informed management decisions.

Applicant Name: Rock Creek Trust

Project Title: Z-4 Ranch Conservation Easement

Project Description and Benefits:

The 2,100 acre Z-4 Ranch conservation easement is part of the Rock Creek Trust's drainage-wide conservation effort in Rock Creek. The easement will allow a 3rd generation ranching family to continue ranching while protecting scenic open lands and wildlife habitat. The project also involves an important stream protection and rehabilitation component along the East Fork of Rock Creek. The stream was severely straightened years ago by the highway department. Riparian vegetation was removed and it now contains one of the hottest spots in the state for whirling disease. It is arguably the worst stream reach in the drainage.

The Z-4 project is one of the Trust's many individual conservation projects that will help assure that Rock Creek's nationally famous scenic beauty, wildlife habitat, and fishery remain healthy and continue to provide clean water to the beleaguered Clark Fork system. Rock Creek is the cleanest tributary and serves as a critical refuge and spawning area for five species of trout, including bull trout (threatened) and the state fish, west slope cutthroat trout (under consideration for threatened status). Long renowned for its fishery, FWP and the Governor have declared Rock Creek as one of a handful of "Core Recovery Areas" in the state for bull trout.

The Trust was created as partial mitigation for large powerlines which crossed the drainage in 1986. As the inheritor of decades of lively public support for Rock Creek, the Trust's highly successful conservation work has protected over 10,200 key acres and 13.5 miles of stream frontage. This level of protection means that Rock Creek will remain a bright spot for environmental quality in the severely damaged Clark Fork watershed, a watershed that despite restoration efforts, will need habitat and fishery mitigation for years to come. Timing for the Trust's work along this "Blue Ribbon" stream is critical as development threats loom.

Applicant Name: Rocky Mountain Elk Foundation

Project Title: Watershed Land Acquisition

Project Description and Benefits:

The Rocky Mountain Elk Foundation (RMEF) holds a purchase option to acquire approximately 32,500 acres of land in the Upper Clark Fork River Basin from the YT Timber Company. The property is located between Anaconda, MT., and Georgetown Lake and makes up the bulk of the Warm Springs Creek drainage not already in public ownership. The property has high public values including habitat for native fish (bull trout and westslope cutthroat trout), critical big game winter range, alpine lakes and wetlands. RMEF is applying for a $6,075 million grant from the Upper Clark Fork River Basin Restoration Fund (UCFRB) to acquire approximately 9,000 acres of the property for the State of Montana. The remaining 23,500 acres is targeted for purchase by the U.S. Forest Service (U.S.F.S.) using Federal Land and Water Conservation Fund dollars. The State portion of the acquisition is located in close proximity (less than five miles) to the damaged Anaconda Uplands and Opportunity Ponds. Acquisition of the State portion of the property will replace soil, vegetation and wildlife habitat related services lost in the Upper Clark Fork Basin including services lost in the Anaconda Uplands from smelter

emissions and lost in and beneath the Opportunity Ponds from hazardous materials. Acquisition of the Watershed Property by public entities will benefit water quality in Warm Springs Creek, the major tributary of the Upper Clark Fork River and aid in the restoration of the river. Habitat for the threatened bull trout and the westslope cutthroat trout and spawning areas for brown trout will be enhanced or maintained with the Watershed land Acquisition. A critical linkage for wildlife between the Flint Range and the Pintlar Range will also be protected from development. The Watershed Land Acquisition project is a partnership between the RMEF, the State of Montana and the U.S.F.S. The first phase of the option is due December 1, 2000 and RMEF is requesting a grant to exercise at least the initial phase of the option. Funding of the initial phase of the option by the UCFRB Restoration Fund is pivotal to the remaining phases of the option agreement.

Applicant Name: University of Montana

Project Title: Technical Assistance for Watershed Restoration Analysis and Planning

Project Description and Benefits:

The goal of this project is to lay the foundation for a cost-effective informational database for watershed restoration analysis that will meet the needs of restoration project planners in the Upper Clark Fork River Basin. This effort will build on the Montana Natural Resources Information System's (NRIS) ongoing efforts to develop TMDL-related interactive web-based mapping. The Upper Clark Fork Basin has more information than most watersheds, and has special concerns with respect to large-scale mining and smelting remediation and restoration. We propose to assist NRIS in identifying, compiling and analyzing relevant information for incorporation into a detailed and comprehensive interactive mapping system for the Upper Clark Fork Basin. In addition, we'll provide technical guidance to NRIS on the type of information and analysis that is most critical to planning of restoration projects. We'll also work with conservation districts and other groups in the basin to determine how best to make that information useful to them. Our project's purpose is to assist basin citizens in obtaining and using the best available information needed to identify and evaluate restoration needs, options and actions in the basin.

APPENDIX B

PROJECT MAPS

To obtain copies of Project Maps contained in the
Final Pilot Year 2000 Upper Clark Fork River Basin Restoration Work Plan,
please contact:

State of Montana
Natural Resource Damage Program
1301 East Lockey
P. O. Box 201425
Helena, MT 59620-1425

(406) 444-0205

APPENDIX C

PROJECT CRITERIA NARRATIVES

Bighorn Environmental –
Enhanced Revegetation of Silver Bow Creek Reach A

Project Summary

This proposal presents a funding request for $110,800 to restore wildlife habitat along Reach A (the first mile) of Silver Bow Creek in the next year. Major components include planting of woody and wetland plants in the floodplain and the addition of organic matter to backfill materials. Restoration revegetation activities will be coordinated with remedy revegetation activities.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

   The project employs well-known and accepted revegetation technology in design, engineering and implementation components of the project. The selected approach is based on the overlying technical principle that plant species must be matched to appropriate habitats. The project applicant demonstrates management skills necessary to implement revegetation along Silver Bow Creek. Because the applicant is also the revegetation consultant on the remedial design, coordination with remedy should occur without difficulty. The applicant adequately identifies the specific modifications to remedial design necessary to implement this proposal. It should be recognized that this coordination requires strict accounting of restoration vs. remedial costs to comply with the terms of the Silver Bow Creek Consent Decree.

2. Relationship of Expected Costs to Expected Benefits – High Net Benefits

   Costs are estimated at $110,800. The benefits gained from this expenditure significantly outweigh the costs associated with the project. Revegetation of Silver Bow Creek beyond what is planned under remedy is critical to enhance wildlife habitat and improve wetland functions. The project also enhances recreational opportunities. Remedial and restoration efforts will vastly improve the extensive injuries along this important corridor.

3. Cost-Effectiveness – Likely Cost Effective

   The applicant compared the selected approach to the no-action alternative and enhanced revegetation at a later time. A no-action alternative may result in an array of undesirable plant species, including weeds, throughout the floodplain of Silver Bow Creek. Enhanced revegetation later would be more costly and ineffective due to increased competition from undesirable species.

   The proposed project should yield a plant species composition that is similar to baseline. Planting additional vegetation simultaneously with remedial revegetation ensures that a variety of species will be given a chance to establish in the floodplain. The selected

approach offers cost efficiencies through use of Montana Department of Environmental Quality's (DEQ) revegetation consultant and construction contractors. Transaction costs associated with design, contract bid and award, and contractor oversight are reduced.

The applicant could have considered different planting intensity alternatives. For example, alternatives could have been developed that revegetated more or less of the floodplain than presented in this proposal. It is difficult to establish with certainty whether the quantity of revegetation is adequate to restore the creek to baseline. The important revegetation goal is that soil-stabilizing native plants, rather than weeds, recolonize the floodplain. There is no special revegetation formula, however, and planting two or three times more plants than proposed may not be more cost effective at the end. The NRDP believes the quantity of plants proposed is a good starting point and cost effective.

The applicant has proposed a 1.5% organic matter placement in the floodplain. Organic matter improves the physical condition of the soil and provides nutrients, microorganisms and enhanced soil development. The applicant does not discuss alternative quantities of organic matter to be placed on the floodplain. The appropriate percentage of organic matter to apply is variable, depending on soil conditions and the source of organic matter. Many reclamation efforts require between 1% and 3% organic matter. The NRDP will coordinate with the applicant in deciding the areas of the floodplain to apply the proper quantity of organic matter.

Due to the difficulty in ascertaining exactly how much vegetation and organic matter is appropriate, this proposal is judged as likely cost effective.

4. Environmental Impacts – No Adverse Impacts

The project will have no adverse environmental impacts. As noted by the applicant, it can provide a beneficial impact to numerous environmental resources.

5. Human Health and Safety Impacts – No Adverse Impacts

The project presents no adverse human health and safety impacts.

6. Results of Superfund Response Actions – Positive Coordination

The project coordinates with and augments the results of the remedial efforts on Silver Bow Creek. The applicant has drafted the revegetation work plans for the remedial action at the site. Because of this, the applicant has adequate knowledge of the remedial efforts planned and how to dovetail further revegetation plantings with the existing response plan. The applicant states that this proposal could be implemented by modifying a few line items in the remedial revegetation contract. The anticipated modifications include revising the revegetation map, procuring additional plant materials and planting services, and purchasing and applying organic soil amendment using the specifications found in the remedial revegetation contract.

It is important to note that the majority of plantings planned under remedy are located on or along the creek banks. This proposal will focus on plantings of willows, trees and sedges away from the creek banks in the 32 acres of the floodplain that are conducive for these plants.

7. Recovery Period and Potential for Natural Recovery – Reduces Recovery Period

   The proposal reduces recovery time. Planting vegetation in the floodplain of Silver Bow Creek as proposed will enhance wildlife habitat quantity and diversity. The present remedial revegetation plan is focused on bank revegetation and not floodplain revegetation. That is necessary for restoration. This proposal will help ensure that a diverse and multi-vegetated layered riparian corridor will be the endpoint for Reach A of Silver Bow Creek.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   The applicant has assumed that because the restoration actions will occur at the same time as the remedial action, no additional permits will be needed and thus did not provide information on applicable permits. The remedial actions are the subject of CERCLA permit exemptions that are not available for restoration actions. However, since the restoration activities beyond remedy activities only involve hand planting of trees and shrubs and placement of organic matter, no additional permits are necessary.

9. Resources of Special Interest to the Tribes and DOI – Beneficial Impact

   This project is expected to have a beneficial impact on resources of special interest to both the Tribes and DOI. DOI has specifically indicated that successful restoration of the natural vegetation would probably be beneficial to migratory birds. The Tribes deferred review of Tribal cultural and/or religious sites related to this project until detailed plans are available during the project implementation phases (see Appendix F).

Stage 2 Criteria

10. Project Location – Within Basin & Proximate

    All of the restoration activities associated with this proposal will be conducted along the injured terrestrial resource areas of Silver Bow Creek.

11. Actual Restoration of Injured Resources – Restoration

    The proposal constitutes actual restoration of the injured resources along Silver Bow Creek.

12. Relationship between Service Loss and Service Restoration – Same

    Wildlife habitat services have been severely reduced in and along all of Reach A and all 22 miles of Silver Bow Creek. This proposal should enhance these lost services. Recreational services such as picnicking and wildlife viewing have also been impacted along all of Reach A and all of Silver Bow Creek. This project should also enhance these lost services.

13. Project Beneficiaries and Collateral Benefits – Original

    This project significantly benefits the people inside and outside the UCFRB who have been harmed by the loss of services. The project also benefits wildlife that has been harmed by the loss of wildlife habitat along the entire creek.

14. Public Support – Limited

    The application does not include documentation of public support. During the public comment period on the *Draft Work Plan*, three individuals or entities commented in support of this project.

15. Matching Funds – None

    No matching funds are provided.

16. Ecosystem Considerations, Coordination, and Integration – Coordinates and Integrates

    The proposal coordinates with remedial activities along the creek. Not only will proper revegetation in Reach A benefit that specific section; but also the entire creek and even the Clark Fork River will benefit by the planned enhanced revegetation. Seeds from grasses, trees and forbs planted in Reach A will enhance plant recolonization in downstream reaches. This project assures that a proper mix of vegetation will be planted and maintained in this Reach so that undesirable plant species will not spread. Also, if Restoration funds are given to the Greenway Service District, then coordination with that entity would be necessary. The project fits within a broad ecosystem context as it involves improvements to the headwaters of the Clark Fork River.

17. Normal Government Functions – Outside Normal Government Function

    The specific activities proposed by this project do not entail those for which a governmental agency would normally be responsible or that would receive funding in the normal course of events. DEQ and EPA have determined that the proposed revegetation is beyond the scope of remediation.

Land Acquisition and Monitoring and Research Criteria – Not Applicable

Deer Lodge Valley Conservation District/Bridger Plant Materials Center
Development of Acid/Heavy Metal Tolerant Cultivars

Project Summary

This project is a joint effort between the Deer Lodge Valley Conservation District and the NRCS Bridger Plant Materials Center (BPMC). This proposal will collect, test, select, grow and ultimately release indigenous native plants that demonstrate superior adaptation to the Anaconda upland area. Foundation seed for the releases will be produced and maintained by the BPMC for distribution to commercial seed growers. The proposal is for $141,439 over four years.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

   The specific tasks that the applicant states it will accomplish are to: 1) collect seeds from the Anaconda area; 2) prepare the seeds by seed stratification, germination testing, and greenhouse/field plant production; 3) evaluate the performance of the plants grown; 4) produce seeds in field plots, which includes cultural practices such as spraying, tilling, hoeing, seedbed preparation, seed drilling, irrigation, fertilization and harvesting; 5) conduct field trial establishment and evaluation of plants to document their performance; and 6) release source-identified seeds that demonstrate superior growth performance after two growing seasons.

   The project applicant has demonstrated that the technologies proposed, such as seed collection and propagation, are reasonably likely to achieve their stated objectives. The application includes a thorough scope of work demonstrating the applicant's knowledge and expertise applied to this project and similar projects. The project is centered on the fact that utilization of local seed adapted to the site is superior to non-local seed. Commercially grown seed from locally adapted plants has higher viability and greater chance of survival than non-locally collected seed. Applying these principles to reclamation of coal minelands in eastern Montana and Wyoming has proven successful. The proposal involves collecting and testing 7 forb, 15 grass, and approximately a half-dozen shrub and conifer species that, through past studies by BPMC, have already been demonstrated to be superior native species. The Plant Material Centers are the primary vehicle for conservation plant releases nationwide and the activities to be conducted are the specialty of the BPMC and other centers. These efforts are feasible and the BPMC has demonstrated it has the expertise to accomplish this effort.

2. Relationship of Expected Costs to Expected Benefits – High Net Benefits

   The total cost for this proposal is $473,232 to be spent over four years. The Restoration fund share is $141,439 (30%) over four years, or about $35,000/year. Salaries and benefits for a project technician over four years are the primary elements to be funded under this proposal.

The benefits from this project include: 1) release of acid/metal tolerant grass and forb species; 2) release of hardy, vigorous, adapted woody species; 3) data on best plant species for upland sites; and 4) data on optimal species composition seed mixes for viable plant communities. Presently, there is a lack of locally adapted seed available for restoring the upland areas. Forb and shrub seed is nonexistent and only a few grasses are presently available from non-local sources such as eastern Montana. The grass and forb seeds that become available from this effort can be utilized as foundation seed for use by seed growers to provide a seed source for reclaiming the upland injured areas over the next 15 or more years. Nurseries can directly utilize shrub and tree seeds that are collected. Thus, the project facilitates restoration of native wildlife habitat, acceleration of nutrient cycling, stabilization of soils and enhancement of soil properties, and establishment of self-perpetuating plant communities in the Anaconda upland areas as well as other areas impacted by hard rock mining. For these reasons, the NRDP believes the benefits gained from this proposal significantly outweigh its costs.

3. Cost-Effectiveness – Cost Effective

   The applicant provides an adequate analysis to show that the selected proposal is cost effective and that a no-action alternative would result in the use of inferior seed sources. The use of inferior seed may increase reclamation expenses due to potential reclamation failure. If inferior seed sources were utilized this would hinder restoration success and continue the present unavailability of valuable seed sources. The only other likely alternative is collecting seed as needed from the site, which would be far more expensive and time-consuming than the selected approach and thus disadvantageous to restoration of injured resources. The NRDP believes that the commercial production of native specie seeds reduces the cost of revegetation by enhancing the potential for long-term restoration success.

4. Environmental Impacts – No Adverse Impacts

   The project activities do not present any potential adverse impacts to the environment. By providing foundation seeds of native species, the project provides beneficial impacts to air, water, soil, vegetation, and fish and wildlife habitats and species.

5. Human Health and Safety Impacts – No Significant Adverse Impacts

   The applicant indicates that the potential adverse health impacts to protect employees from exposure to contaminated soils will be mitigated through following applicable OSHA hazardous waste training and handling regulations and procedures. Thus the project will not adversely impact human health and safety.

6. Results of Superfund Response Actions – Positive Coordination

   The project positively coordinates with and augments remedial actions. The positive coordination is evidenced by the demonstrated support of the multiple entities involved in remediation/reclamation of areas impacted by mining in the UCFRB (see criterion #14). The proposal will provide plant materials and information that will be essential for effective

remedy and restoration activities. Grass and forb foundation seed will be ready for seed growers in 2001. The seed growers would then have grass and forb seeds ready for restoration and remedial grassland revegetation efforts by 2002. Shrub seed will become available in 2003 and nursery plants will be ready for planting in the field when they are a year or two old. Source- identified Douglas fir, Lodgepole Pine, Limber Pine and Juniper will be collected, cleaned and ready for nurseries by early 2002. Tree seedlings from nurseries will then be ready for establishment when they are one or two years old, which would be in 2003 or 2004.

7. Recovery Period and Potential for Natural Recovery – Reduces Recovery Period

   The products of this project can be used to directly restore injured wildlife habitat by providing superior seed for trees, shrubs, forbs, and grasses. The plants that come from these seeds will be adapted to both the climatic conditions at the site and to acid and metals in the soils. Assuming that these plants and seeds are used in future restoration efforts at injured upland areas to increase the density or diversity of vegetation attained through remedial actions (see criterion #6) or to address injured areas not covered by remedy, then this project would reduce the time in which upland wildlife habitat would recover to baseline.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   The applicant has provided sufficient information to show that all applicable policies, rules and laws were considered and no permits, deeds, or easements are needed.

9. Resources of Special Interest to the Tribes and DOI – Beneficial Impact

   The project provides a product that can improve the wildlife habitat in injured areas and thus will beneficially impact sensitive fish and wildlife species. DOI noted in its comments that acid-tolerant plants may be appropriate restoration elements. The Tribes indicated that, because this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F).

Stage 2 Criteria

10. Project Location – Within Basin and Proximate

    The project's field-testing and seed collection activities will occur at various locations within or near the upland injured areas. Seed production activities will occur at the Bridger Plant Materials Center (BPMC), 45 miles south of Billings. The seed and information developed is specifically focused on revegetation of the Mount Haggin, Smelter Hill and Stucky Ridge injured areas.

11. Actual Restoration of Injured Resources – Contributes to Restoration

Assuming that the products of this project are used in future restoration actions, then this project would contribute to the restoration of injured wildlife habitat by replacing lost vegetation with native species adapted to both climatic conditions at the site and to acid and metals in the site soils. Furthermore, if these restoration actions complement remedial actions that also use these plants and seeds (see criteria #6 and #7), then this project would contribute to restoration by increasing the density or diversity of vegetation attained through remedial actions, or by addressing areas not covered under remedy.

12. Relationship Between Service Loss and Service Restoration – Same

The services lost in the uplands due to habitat loss include hunting, tourism and other outdoor recreation. Utilizing site-adapted seed and woody plant stock from local seed source is important in re-establishing the plant communities upon which these upland services depend. Assuming use of the foundation seed by commercial growers to fulfill future restoration needs, this project will contribute to restoring some of the same services that were lost.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

Assuming use of the foundation seed by commercial growers to fulfill future restoration needs, the project will benefit wildlife such as birds and mammals that will reside in the injured areas. Benefits will also occur to the Butte and Anaconda residents and others who have been directly impacted by the upland injuries. Services such as picnicking, hunting, hiking and scenic viewing from the Anaconda area will result from successful reclamation of the upland injured areas. In addition to benefiting injured natural resources and services they can provide, this project can also benefit natural resources and services in other areas of Montana and the western U.S. that have been impacted by hard rock mining.

14. Public Support – Moderate

The applicant has demonstrated support from the key agencies that are involved with restoration and remediation at the site. Representatives of EPA, DEQ, NRCS, MSU, ARCO, and the Deer Lodge Valley Conservation District provided letters of support. During the public comment period on the *Draft Work Plan*, the State did not receive any comments specific to this project.

15. Matching Funds – High

The applicant has secured over 70% ($326,793) match for this $473,000 project. Matching funds come mainly from the EPA's Mine Waste Technology Program. Other matching funds come from the USDA and Deer Lodge Valley Conservation District.

16. Ecosystems Consideration, Coordination, and Integration – Coordinates and Integrates

As described under criterion #6, this project will coordinate well with the planned remedial actions in the upland injured areas of Smelter Hill and Stucky Ridge. The project is consistent with the State's Restoration Determination Plan and does not interfere with the ongoing litigation. The project also fits within a broad ecosystem context by providing a product than can be used for restoration of upland areas.

17. Normal Government Functions – Outside Normal Government Function

The specific activities proposed by this project do not entail those for which a governmental agency would normally be responsible or that would receive funding in the normal course of events. Grant monies have funded this project in the past.

Land Acquisition Criteria – Not Applicable

Monitoring and Research Criteria – Portions of the project involve research.

23. Overall Scientific Program – Coordinates

As described under criterion #6, this project will coordinate well with the planned remedial actions in the upland injured areas of Smelter Hill and Stucky Ridge. The BPMC has coordinated efforts to date on this project with other agencies and researchers performing reclamation activities in the UCFRB, including EPA, DEQ, MSU, NRCS, ARCO, and local conservation districts. This coordination will continue as planned by the applicant.

24. Assistance with Restoration Planning – Major Benefits

The project will provide critical information for successful revegetation of injured areas on optimal seed blends, composition, and application rates. Thus it is likely to be of major benefit to other restoration efforts involving revegetation.

GAIN Consortium - Soil Amendment Screening

Project Summary

The GAIN project consists of two components: a 15-week greenhouse study using tailings and impacted soils collected from the field and amended in the laboratory to study amendment efficacy on plant growth; and the development of a proposal for future work (Phase I proposal), which would involve field studies based on results of the greenhouse studies. Long-term field studies might be used to develop a "cost-and-effectiveness over-time model" that would evaluate the long-term cost and benefits of several remedial actions. Of the $28,050 total project cost for one year, $10,000 would come from the Restoration Fund. Project partners would provide the remainder of the funding.

Stage 1 Criteria

1. Technical Feasibility – Uncertain Feasibility

The NRDP considers the technical feasibility of this project to be uncertain due to the following:

1) Uncertainty as to whether innovative or experimental technologies proposed in the project are likely to achieve the stated goals and objectives. The applicant identifies the following objectives to accomplish the goal of reducing or eliminating the mobilization of metal/metalloid impacted soils in the UCFRB:

- to examine and evaluate the use of selected amendments in a greenhouse setting for the in-situ stabilization or remediation of impacted soil;
- to examine and evaluate the use of selected native plant species for in-situ stabilization or (phyto)remediation of impacted soil; and,
- to prepare a Phase I proposal to expand the greenhouse research program to full in-situ application in the UCFRB.

As the applicant notes, some of the amendments and their applicability to conditions such as those that occur at the Clark Fork River site have not been extensively researched to date. While this project, because it is a research project, should not be faulted for evaluating new technologies or methods, the applicant should have nevertheless discussed in some detail the bases and associated uncertainties for the use of the amendments selected for this study. The applicant merely states, "These [amendment] materials were chosen due to their potential for adsorbing metals in contaminated soils" and references some supporting literature. The absence of a more detailed discussion presents considerable uncertainty as to whether the project is likely to achieve its goals and objectives. A discussion of the use of these amendments in other circumstances, and how this would have supported their use in this study, would have helped address the uncertainty related to this issue. Although the immediate focus of this project is not on the long-term model, it is worth noting that the model itself presents several sources of uncertainty given its dependence on the success of the selected amendments, which as described above appears uncertain.

2) The many and significant uncertainties associated with the project that would require future resolution, including the following:

- questions to be addressed by the field studies that would be refined through the greenhouse study;
- interpretation of greenhouse study results for purposes of devising the field studies;
- scope and timeframe for addressing long-term study objectives;
- effects of potentially confounding variables (i.e. amendment quality; metals, nutrient and micronutrient concentrations in tailings/impacted soils; pH);
- source of control soils and relevance to overlying soils;
- other factors affecting long-term vegetation success (i.e. drought, overwintering);
- bioaccumulation of metals in plant tissues;
- chemical analyses of amended materials.

These are significant issues that will require future resolution. The lack of discussion in the project proposal about these issues, among others, significantly increases the uncertainty about the feasibility of this project.

3) Uncertainty related to management skills necessary to implement the technologies at the project site in an acceptable period of time. While the project schedule presented in the proposal appears reasonable, it is questionable whether the project cost of $28,000 is sufficient, given the scope of activities and the related logistical issues this project entails (field collection of one ton of tailings and one half ton of soils; cultivation and testing of nearly three-hundred plants; measurement and analysis of plant growth responses; chemical analysis of tailings and soil samples, both amended and unamended; statistical analysis of study data; final report preparation and preparing a Phase I proposal). The scope of the project and the likely insufficiency of the budget may adversely affect the timeframe for completion of this study.

2. Relationship of Expected Costs to Expected Benefits – Commensurate Benefits and Costs

There is substantial uncertainty in the evaluation of this criterion because of uncertainty associated with technical feasibility, as well as uncertainty about the costs of future work beyond what is described in the application. If this evaluation is restricted only to the greenhouse studies described in the proposal, then the benefits of the project could be of little practical value to remediation and restoration activities because of the lack of field confirmation. If it is assumed that greenhouse studies yield information that would result in further field studies (and possibly development of a model), then the evaluation cannot be made because the costs of these efforts have not been estimated. This is not to say that the results of the greenhouse studies alone are not beneficial in some sense, if only from a scientific and theoretical standpoint. Because of the relatively low cost of this project, and because of the expectation that some useful information will be obtained from the greenhouse studies, it was concluded that project benefits and costs were commensurate.

3. Cost-Effectiveness – Uncertain

The applicant does not sufficiently discuss the "no-action" alternative, or any other alternatives to the proposed project. The "no-action" alternative was rejected by the applicant "due to the experience of the Consortium members in developing scientifically-accurate cost-benefit analyses for restoration efforts in the basin." This explanation is irrelevant to the information requested by the NRDP (i.e. a discussion of the no-action alternative in the context of other alternatives that could accomplish the same goals as those of the proposed project). In the context of this project, a no-action alternative could have discussed the use of more traditional tailings/impacted soils reclamation methodologies, such as capping or incorporation of lime. The applicant mentions "leave in place" alternatives, however, this discussion is unclear.

Another alternative the applicant mentions is the use of a "traditional consultant or general contractor project management." Again, this is irrelevant to the NRDP's analysis of cost-effectiveness because it focuses on the mission of the Consortium rather than the merits of the proposed study in comparison to other possible alternatives. Other alternatives that could have been discussed include a study comparing the efficacy of the proposed amendments and plant species to those that have been traditionally used in reclamation activities in the UCFRB. The cost-effectiveness of this project cannot be determined because the applicant provided insufficient information.

4. Environmental Impacts – No Significant Adverse Impacts

Alone, greenhouse studies would not result in significant adverse impacts. The only tangible impacts would be disturbance of soils and vegetation from the collection of floodplain tailings and soils for use in laboratory testing

5. Human Health and Safety Impacts – No Significant Adverse Impacts

The greatest potential for human health and safety impacts is from exposure to elevated contaminant levels during the collection and testing of tailings and contaminated soils. The applicant states that the level of human exposure is well below levels established by EPA and OSHA. The applicant also states that personnel with potential exposure risks will receive proper handling and emergency response training. This is interpreted to mean that a safety plan of some sort is in existence or will be developed to mitigate potentially significant human health exposures and risks.

6. Results of Superfund Response Actions – Consistent

Alone, the greenhouse studies would not conflict with planned response actions. Alternatively, it is not clear whether the studies would provide information that might augment the results of a response action. Without field confirmation of greenhouse study results, there would seem to be a lesser likelihood that results of the greenhouse studies would be capable of augmenting other remediation or restoration actions. Because of the

uncertainty about future endeavors and application of the results of these greenhouse studies, this evaluation focuses only on the greenhouse studies described in the application.

It should be noted that there might be a potential for positive coordination that has not been taken advantage of by the applicants. See the discussion for criterion #23, below.

7. Recovery Period and Potential for Natural Recovery – No Effect on Recovery Period

Alone, the greenhouse studies (and field studies as well) would have no effect on the recovery period. Due to the uncertainties about the nature of future work, it is uncertain whether the results of these studies will affect the recovery period

8. Applicable Policies, Rules and Laws – Consistent

The applicant was not required to submit information for this criterion. As a research project, it does not appear that most of the items this criterion addresses are relevant or applicable to this project. However, several items do need consideration: access to lands for collection of tailings/contaminated soils; proper disposal of materials used in greenhouse studies; any federal or state requirements related to worker safety in the circumstances described in this project (for example, Worker Safety Plans, or Laboratory Safety Plans).

9. Resources of Special Interest to the Tribes – No Impact

The greenhouse studies will have no impact on these resources. The Tribes indicated that, because this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F).

Stage 2 Criteria

10. Project Location – Not Applicable

This project is a research project; consequently, this criterion is not applicable.

11. Actual Restoration of Injured Resources – No Restoration

This evaluation concerns both short-term (greenhouse studies) and longer-term (field studies and possible model results) project components. As an initial matter, it should be stated that the basis for the project (evaluating the efficacy of amendments in tailings/impacted soils) is contrary to the State's previously stated alternatives for restoration, i.e. removal, not amendment, of tailings and contaminated soils. The State's opposition to the Streambank Tailings and Revegetation Studies (STARS) was based on several factors. Perhaps the most significant was that STARS would fail over the long-term. Of other significance, however, was the State's analysis that STARS would provide limited improvements in wildlife habitat, due to its dependence on a relatively few number of plant species (primarily acid/metals tolerant grass and forb species). If the greenhouse studies showed that the three woody species under consideration could be used to remediate tailings/impacted soils (regardless of

the amendment used in a remedial action), then the results of the studies could show a potential for greater vegetative diversity in an amendment-based remedy – assuming that the amendment chosen was one tested in the GAIN project. However, the study design does not attempt to compare these new amendments to traditionally used lime amendments, especially in a field setting, so it is problematic whether a remedial alternative would opt for newer amendments over more traditional lime-based technologies. Furthermore, it does not appear that the timeframe of the GAIN study (completion of field-testing) would coincide with remedial decisions on the Clark Fork River.

Long-term field studies could further validate the use of woody species in a remedial alternative. However, it is uncertain how many years down the road it would be before an alternative amendment-based technology would be implementable, if ever, and whether the newer amendments would prove superior to lime amendments (again, this borders on speculation because the study design has not proposed this kind of comparison). If the results of this study are used to develop a model that would assist in remediation and restoration decision-making, then the project might contribute to restoration if it can, as the applicant suggests, analyze various remedial or restoration alternatives for economic and ecological cost-benefits. However, there is substantial uncertainty as to when this would occur, whether it would occur (based on technical feasibility uncertainties), and whether the model output would be of value.

In summary, while this project might produce data that would benefit restoration efforts, this is highly uncertain because the present study design does not go in that direction, and the goals, objectives and anticipated results of long-term study objectives are only vaguely described. At a minimum, the GAIN study would have to address the State's present concerns with STARS if it was to have the potential of resulting in a useful restoration technology.

12. Relationship between Service Loss and Service Restoration – Not Applicable

This research project is not intended to restore or replace lost or impaired services. Thus, this criterion is not applicable.

13. Project Beneficiaries and Collateral Benefits – No Benefits to Original or Collateral

The greenhouse studies alone will provide no original or collateral benefits, as it is intended to be a preliminary step to Phase I field studies.

14. Public Support – None

The applicant has demonstrated no public support for this project. The only letters of support provided in the application are from one of the project sponsors (Bitterroot Restoration, Inc.) and two of the manufacturers of the amendments that will be evaluated in this study (Montana Clino-Z, and Rocky Mountain Remediation Services, L.L.C.). During the public comment period on the *Draft Work Plan*, two entities commented in opposition to funding this project, stating it should be funded by other funding sources.

15. Matching Funds – High

Approximately 65% of the project funding is from sources other than the Restoration funds.

16. Ecosystem Considerations, Coordination, and Integration – Conflicts

At a minimum, the project does not appear to coordinate with other Superfund efforts that have evaluated or are evaluating tailings/impacted soils amendments, revegetation and remediation (STARS and ARTS). There is nothing in the application that shows the applicant considered or consulted the vast amount of information generated by these two projects. These studies may have provided valuable information for designing the GAIN study. Regardless, as described above, the project has the potential to conflict with the State's Restoration Determination Plan, as discussed in criterion #11.

17. Normal Government Functions – Outside Normal Government Function

No particular agency is specifically responsible for this kind of research, nor does any agency receive funding for this kind of research in the normal course of events. Previous research involving amendment-based technologies was conducted under special circumstances, such as the need to fill a data gap relating to remediation technologies. Hence, such research is considered to be outside normal government function.

Land Acquisition Criteria – Not Applicable

Monitoring and Research Criteria

23. Overall Scientific Program – Does Not Coordinate

As described above, other work has been conducted or is being conducted that looks at tailings amendments and remediation. The applicant has demonstrated awareness of at least one of these projects (STARS), but has not demonstrated any attempt to coordinate with this or other projects, and has not provided any explanation of why such coordination was not considered.

24. Assistance with Restoration Planning – Minor Benefits

The greenhouse studies alone would be of little or no benefit to future restoration. The value of the data is in developing Phase I field validation studies and possibly model development that might be of use in evaluating remedial and restoration actions.

Greenway Service District – Silver Bow Creek Greenway

Project Summary

This proposal presents a funding request for approximately $1.77 million to develop a recreational trail corridor and to restore aquatic and riparian resources along the first 3 miles (Reaches A through C) of Silver Bow Creek west of Butte. The Greenway activities will be coordinated with remedial actions. The proposal also provides an overview of the planned Greenway efforts for the entire 22 miles of Silver Bow Creek over the next 10 – 12 years. This evaluation focuses on the pilot-year proposal that covers the first 3 miles of the Greenway project, with consideration of the overall Greenway project concept where applicable.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

The NRDP has a reasonable degree of confidence that the technologies proposed for the project can be applied to Silver Bow Creek. The tasks required to meet the goals and objectives of the project generally employ standard technologies. The following discussion focuses on the 4 major components of the plan – access features, revegetation, streambank enhancement, and land acquisition. The access features constitute a majority of project costs.

Access Features

There are no significant uncertainties associated with the technical feasibility of the access components of this proposal. The primary access components include a 10-foot paved trail, bridges, and two trailheads or "stations". Stations for recreational use and services primarily consist of parking lots, restrooms, picnic areas, and landscaping. Detailed design for these two stations, Whiskey Gulch in Reach A and Rocker in Reach B, are not in the proposal. However, all station components are listed in the proposal's detailed cost sheets. The 1998 draft Greenway Design Report, which was attached to this proposal, details the many Greenway components with drawings along the entire creek. The 1998 document gives added confidence to the NRDP that the access features can be reasonably implemented.

Revegetation

The applicant also proposes revegetation in Reaches A, B, and C beyond what is planned under remedy. Detailed revegetation components are not included in the plan. It is appropriate, however, and more efficient to detail these efforts only after the remedial revegetation efforts have been determined. The applicant will rely on the expertise of the remedial contractor for designing most revegetation components. The NRDP agrees with the applicant that coordination with the remedial revegetation contractor will be vital for any successful revegetation to take place.

There are uncertainties about the technical revegetation elements outlined in the proposal. The uncertainties pertain to the location and quantity of organic matter and plants. The quantity of revegetation intended for Reaches A through C is 17,000 small trees and shrubs

and 600 large trees and shrubs. The quantity of organic matter (at 2%) is approximately 1545 tons over 54 acres in Reaches B and C. The number of acres to receive organic matter may be high and may result in elevated costs. These issues will be thoroughly reviewed and determined during the design phase. Thus, it is assumed for the purpose of this review that appropriate locations and quantities of revegetation elements will be selected. Once revegetation specifics are determined, well-established technologies exist to implement these efforts.

Enhanced Streambanks

A minor component of this proposal (in terms of total costs) involves enhancing remedial streambanks to create improved aquatic habitat along Reach C. This effort is intended only for Reach C because the applicant predicted banks in Reaches A and B would be constructed under remedy by the end of 2000. The detailed design for streambank construction was not provided because the applicant will rely on DEQ's fluvial geomorphology contractor for designing the enhanced banks. The enhanced bank effort involves designing some of the banks to become undercut banks by the creation of banks with erodible toes. This appears technically feasible, although the technique has not been significantly tested to date and sufficient supporting documentation is not provided in the application. The NRDP supports the concept of a design to create undercut banks, but may require more supporting information before approving its utilization.

Land Acquisition

The Greenway will provide public access to the Silver Bow Creek corridor by acquiring lands or easements on land along the Creek. The lands in Reach A through C that are designated for access efforts total 145 acres. The Greenway Service District has extensively researched land ownership. To date access negotiations have been initiated with landowners along the first few miles of Silver Bow Creek. The Greenway Service District has demonstrated that land access efforts are reasonably feasible.

Overall Technical Feasibility

A key component of the improved streambanks, revegetation and access components is coordination with the remedial process. Although there are uncertainties associated with the revegetation and streambank enhancement efforts, they are not considered significant given the planned effort to work out detailed design in conjunction with remedial efforts. It should be recognized that this coordination requires strict accounting of restoration vs. remedial costs to comply with terms of the Silver Bow Creek Consent Decree. Given the cost efficiencies that can be achieved with such coordination, DEQ remedial staff have indicated their willingness to participate in this cooperative effort.

2. Relationship of Expected Costs to Expected Benefits – Net Benefits

Costs proposed for the first three miles of Silver Bow Creek are approximately $1.77 million. Costs for Reach A total $0.3 million, for Reach B $1.0 million and for Reach C, $0.5 million. The breakdown of cost categories for the $1.77 million is as follows: ecological features—30% ($531,000), access features—60% ($1,060,000), and land acquisition/easements—10% ($177,000).

Although the applicant seeks $1.77 million for this year's budget, the applicant clearly stated that restoration along the entire 22-mile creek is the ultimate goal of the project. The applicant estimates total Greenway costs to be $18 million. Of that $18 million, the applicant intends to request a total of $14.8 million from the Restoration Fund. This funding will be sought during the next 10 to 12 years, while DEQ conducts remedial actions. The applicant intends to use other sources of funding for operation and maintenance costs. The breakdown of cost for the entire $18 million project is as follows: ecological features—37%, access features—55% and land acquisition/easements—9%.

The benefits gained from this project outweigh the costs associated with the project. Benefits will be substantial for the public desiring access to the Silver Bow Creek floodplain. The public benefits of having trail access to the corridor include hiking, walking, fishing, picnicking and general outdoor activities. High public use of the trail is anticipated between Butte and Rocker. Benefits to the injured resources are also substantial, in that enhanced wildlife and aquatic habitats will eventually benefit aquatic and terrestrial resources. Creation of deformable banks will allow the stream to function more like a natural channel. The project will benefit not only the citizens of Butte and Anaconda, but also citizens of Montana as a whole.

3. Cost-Effectiveness – Likely Cost Effective

The applicant considered two alternatives to the selected proposal – the no-action alternative and an alternative of delaying the project until Silver Bow Creek remedial efforts are completed in 10-12 years. The applicant adequately addressed why both those alternatives are inferior to the selected alternative. The no-action alternative would result in significantly less vegetation along Reaches B and C for recreational and wildlife use. If aquatic habitat improvements were not added to the banks along Reach C, there would be a decrease in aquatic habitat potential. The access components of the proposal would also be absent in a no-action scenario, thus making the creek less accessible to the public. Delaying the project until remedy is completed would be inefficient and delay restoration of injured resources.

Other alternatives that could have been considered are those involving various levels of development. The 1998 Design Report presented three levels of development - minimum, moderate and full levels of development for the entire 22 mile Greenway project. The difference between the levels of development focuses primarily on the quantity of features outlined for the nine access stations - the minimum level having no stations and only a trail with bridges and the maximum level having all nine stations with "secondary features." The costs total $4 million for the minimum level, $8 million for the moderate level, and $11 million for the maximum level of development. In comparing the proposal's access features to those of the Design Report, the proposal is comparable to full development, which is the level that the Greenway Authority selected as appropriate after considering public input on the Design Report. It should be noted that the 1998 Design Report did not include most ecological features provided in this proposal.

Access Feature Alternatives

Trail access components for this proposal include a 10' wide, 4" thick asphalt trail, culverts, bridges, and miscellaneous access control and signage. The choice of a 10' wide asphalt trail is considered appropriate given the heavy anticipated use of the Greenway between Rocker and Butte and the need to provide safe two-way traffic for bicycles and pedestrians. Proposed access features for the Whiskey Gulch and Rocker stations include paved parking areas, curbs, sidewalks, landscaping, toilets (vault toilets at Whiskey Gulch; flush toilets at Rocker), picnic tables, picnic shelters (Rocker only), bike racks, benches, trash receptacles, water, signage, and lighting. Flush toilets at the Rocker station are warranted given the proximity of existing infrastructure and anticipated level of use. In review of projected costs of trail and station access features, the NRDP's engineering consultant noted that most of the costs seem reasonable.

Certain trail and access features in Reaches A through C were presented as "Non-pilot Year Development Costs." These deferred costs, which are not part of the requested $1.77 million, total $700,000 and cover secondary trails, trailside benches, trailside interpretive areas, and some access components for the Rocker station. All the access components for the Whiskey Gulch station are included in the pilot year proposal. Non-pilot year access components for the Rocker Station include an acre of additional parking, renovation of an old railroad depot, train boarding facilities, train track realignment, wood decking, seatwall, concrete steps and railings. These additional costs could have represented an alternative to the present proposal. It is uncertain whether some of these deferred access features would qualify as restoration and whether they will be included in future Restoration Fund requests.

It is difficult to assess which, if any, of this proposal's station components could or should be eliminated to achieve a greater level of cost-effectiveness by providing the same benefits at lower costs. The NRDP believes that these two stations, as presented by the applicant for this year's funding, are cost-effective and appropriate given the anticipated heavy use of the Greenway between Rocker and Butte.

Ecological Feature Alternatives

It is difficult to assess whether the quantity of plants and organic matter listed in the ecological components are cost-effective due to the lack of detail. At some point, the additional costs associated with increasing revegetation efforts exceed the benefits created by those efforts. But determining that point is difficult, as there are no specialized revegetation formulas for these quantities. As discussed, it is appropriate to defer development of the details of the restoration revegetation effort until after the remedy revegetation design is finalized. Because of the planned coordination with the remedial ecological contractor, the NRDP believes the proposed revegetation effort is likely to be cost-effective.

The technical feasibility discussion noted uncertainties associated with the recommended method to create undercut banks. Undercut banks can provide excellent fish habitat. Undercut banks will naturally form over time, but it is difficult to estimate how long it will take. Because the proposal does not clearly state the cost of restoring streambanks, it is difficult to assess the value of the accelerated creation of undercut banks with respect to the added costs of applying this technology over more traditional bank construction methods.

However, since the detailed design of the enhanced streambanks will be determined later in coordination with the remedial ecological contractors, the cost-effectiveness of this particular component can be better determined and the project can be adjusted as appropriate.

4. Environmental Impacts – No Significant Adverse Impacts

Development of the Greenway presents no significant adverse impacts to the environment. The applicant acknowledges in the environmental impact checklist that permits are required and will be obtained for wetland protection and floodplain management impacts. The efforts that will most impact the corridor are six stream crossings. The planned coordination of stream crossings and the trail with remedial actions will minimize the duration of short-term impacts to surface water quality associated with construction activities.

A potential exists for impacts to sensitive areas from increased public access to the floodplain. The access management components of the project, however, are likely to reduce these potential impacts. The Greenway trails and trailheads provide access control points and will also serve to minimize motor vehicle travel in the area. The NRDP concurs with the applicant's evaluation that, once constructed, the Greenway will provide beneficial impacts to environmental resources and the public's use of them.

5. Human Health and Safety Impacts – No Significant Adverse Impacts

Dust and noise impacts may occur during construction. The applicant indicates dust impacts will be mitigated. The planned coordination with remedial action will shorten the duration of potential impacts. Most construction activities will occur away from residential areas. The NRDP has concerns about pedestrian safety with railroad activity in the corridor. Even though rail use is light, it is imperative that rail safety is fully considered during implementation of the project.

6. Results of Superfund Response Actions – Positive Coordination

This project will complement and enhance remedial actions on Silver Bow Creek. Coordination with remedy is imperative to the success of the project. The applicant intends to maximize that coordination through use of the DEQ remediation design and construction contractors on revegetation and streambank enhancement activities. Access features will also be designed to complement remedial actions. DEQ remedial design and construction contractors will be used to design and construct the access features that, from a practical and economic standpoint, should be constructed simultaneously with remedial actions. The positive coordination of the Greenway with remedial actions is also reflected in the Streamside Tailings Operable Unit Record of Decision regarding incorporation of components consistent with a recreational corridor land use along Silver Bow Creek.

7. Recovery Period and Potential for Natural Recovery – Reduces Recovery Period

Organic matter placement in the backfilled materials, which is the major ecological effort planned, will accelerate recovery of vegetation in the floodplain of Reaches B and C. Plantings of floodplain trees and shrubs will improve the quantity and diversity of wildlife habitat along Reaches A-C of Silver Bow Creek. Enhancement of streambanks in Reach C may enhance the recovery of fisheries by pool creation. A major component of this plan is access management, which will enhance recovery of all the injured resources by properly controlling public use. If the public accessed the entire floodplain, versus staying on a trail, then recovery may actually be inhibited.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

The applicant's technical narrative identifies the necessary permits and intent to acquire them. The applicant's statements regarding permit exemptions under CERCLA that would apply to restoration activities are inaccurate. The applicant has noted this inconsistency and acknowledges the need for acquiring the indicated permits. Reasonable assurance is also provided that any easement, deed and/or right-of-way necessary for this proposal will be obtained. Butte-Silver Bow and Anaconda-Deer Lodge city-county governments have both passed ordinances authorizing the establishment of the multi-jurisdictional Greenway District and indicated full endorsement of this proposal. Also of note is that in 1995 the City and County of Butte-Silver Bow created an open space corridor, via the County's *Comprehensive Land Use Master Plan*, along a quarter mile of both sides of Silver Bow Creek.

9. Resources of Special Interest to the Tribes and DOI – Beneficial Impact

The project is expected to have a beneficial impact to the interests of both the Tribes and DOI because of improved wildlife and aquatic resources. DOI recognizes that successful restoration of the natural vegetation would probably be beneficial to migratory birds. The applicant states that the "Butte-Silver Bow Historic Preservation Officer reports that although there are known Tribal cultural resources in the vicinity, there are no resources within the Silver Bow Creek corridor and within the project area." The Tribes deferred review of Tribal cultural and/or religious sites related to this project until detailed plans are available during the project implementation phases (see Appendix F).

Stage 2 Criteria

10. Project Location – Proximate

All the restoration activities associated with this proposal will be conducted along the injured resource areas of Silver Bow Creek.

11. Actual Restoration of Injured Resources – Restoration/Other

Some project components constitute actual restoration: 1) planting additional plants and adding organic matter to the cover soils to enhance wildlife habitat; and 2) construction of enhanced streambanks to accelerate development of aquatic habitat features in Reach C.

Other project components contribute to restoration: 1) purchase of land or conservation easements along the Silver Bow Creek floodplain; and 2) protection of restored riparian areas through controlled public access. Access features primarily constitute replacement of lost services.

12. Relationship between Service Loss and Service Restoration – Same and Similar

This project will provide some of the same services that were lost as a result of natural resource injuries. Those services include fishing, hiking, birdwatching, wildlife viewing, and open space enjoyment. Although the project will also provide services that are substantially different than the services lost or impaired, such as skating and biking, the project's focus is to provide some of the same or similar services as those lost or impaired. The lost services due to injuries to Silver Bow Creek are so vast that improvements made by this proposal will enhance all types of recreation along the 3-mile trail corridor.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

The Greenway project will benefit the residents of the Butte and Anaconda areas and the citizens of Montana as a whole. A clear and direct relationship exists between the benefits derived from the project and the user groups who have lost use of injured resources. Benefits to injured aquatic and terrestrial resources will also result from the actions proposed.

14. Public Support – Broad

The public support for this project is strong as evidenced by the community planning efforts that have been devoted to the project, and by letters of support. Since the Greenway Service District was formed over two years ago to help implement the project, it has received wide public support. The 1998 Design Report, which involved considerable public input, has been presented to the public a number of times. The public response to this document and the entire Greenway concept has been positive. Letters of support are included in the application from: 1) Butte-Silver Bow Council of Commissioners; 2) Anaconda – Deer Lodge County; 3) Butte Local Development Corporation; 4) Project Green; and 5) Butte-Silver Bow Chamber of Commerce. The heavy use and popularity of the nearby Blacktail Creek Trail is an indication of the likely popularity of the Greenway.

During the application review period, the State received a comment letter from the George Grant Chapter of Trout Unlimited, which noted both positive and negative observations about the proposal. Trout Unlimited supports the positive benefits of providing public trail access and enhancement of injured resources by implementation of the proposed ecological components. Trout Unlimited questioned the need for some of the station components such

as railroad track relocation and depot renovation and the design specification for a 10' wide trail.

During the public comment period on the *Draft Work Plan*, the State received numerous comments regarding this project. Twenty-eight persons or entities commented in support of funding the project. Six persons or entities expressed concerns about certain aspects of the Greenway, particularly the access features. One commentator requested more emphasis on the project's connection to the Silver Bow Creek Record of Decision.

15. Matching Funds – Limited

Matching funds for the first three miles of Silver Bow Creek are about 17% of the $1.77 million. These matching funds come primarily from the Community Transportation Enhancement Program (CTEP) provided by Montana Department of Transportation.

Matching funds for the entire $18 million project are also estimated to be about 17%. This would include the matching funds associated with Montana's Department of Transportation I-90 rest area, tentatively planned for the Opportunity area. Not considered under this criterion are the cost-savings to be derived from coordination with remedy, which the applicant estimates to be 15% of the pilot year's proposal costs and 27% of the entire project costs.

16. Ecosystems Considerations, Coordination, and Integration – Coordinates and Integrates

The NRDP believes that this project needs to fully coordinate with remedial actions in order to succeed and this proposal provides that coordination. Utilization of the remedial fluvial geomorphology and revegetation contractors is essential to the project success. The project fits within a broad ecosystem context as it involves improvements to the headwaters of the Clark Fork River. Creating enhanced revegetation in Reaches B and C will not only benefit Silver Bow Creek, but will also benefit the Clark Fork River. Seeds from grasses, trees and forbs planted in Reaches B and C will be a continual source for colonizing vegetation downstream. Also, if funding is granted to Bighorn Environmental, coordination with that proposal will be necessary.

17. Normal Government Functions – Outside Normal Government Function

None of the project activities entail those that a governmental entity is obligated by law to conduct or would normally conduct. DEQ and EPA have determined the proposed revegetation and aquatic efforts to be beyond the scope of remediation.

Land Acquisition Criteria

18. Desirability of Public Ownership – Major Benefits

Public access is a fundamental objective and requirement of this proposal. Public ownership of or interest in the Greenway corridor lands provides major benefits to injured natural

resources and provides lost services as previously described. The project will enhance restoration of fish and wildlife habitat along Silver Bow Creek. It will provide additional opportunity for a variety of recreational services in or near Butte, Anaconda, Opportunity, Rocker and Ramsay, communities that were greatly impacted by natural resource injuries.

19. Habitat Protection – Good

    There is presently little or no aquatic or wildlife habitat in or along the creek. Provided that remediation and restoration efforts are successful, good habitat will be provided in the future.

20. Spillover Benefits – Major

    The purchase of land or easements covering approximately 145 acres of Silver Bow Creek's floodplain in Reaches A through C provides major benefits to injured natural resources through the restoration components of this proposal and through the protection of restored areas by controlling public use. The entire Silver Bow Creek injured area will also benefit from this effort.

21. Access to Public Lands – Facilitates

    This project will create new and enhance existing public access by changing some private lands into public ownership. Public access to the Silver Bow Creek recreational corridor will be accomplished either through easements or land purchases.

22. Price – Uncertain

    The price for land parcels or easements has not been determined; therefore, it is uncertain how they compare to fair market value. ARCO and the State will be providing trail easements to the majority of the lands in Reach A. Decisions will be made in 2001 on whether to secure easements on or purchase privately owned lands in Reaches B and C. The project applicants have based land acquisition costs on the land purchases that the State, ARCO and Silver Bow Creek landowners have recently been negotiating of $1000 per acre, which is a reasonable basis for estimation. The Greenway Service District intends to coordinate all land acquisition activities with the State.

Monitoring and Research Criteria – Not Applicable

Montana Fish, Wildlife and Parks –
Lost Creek Watershed Project

Project Summary

This project involves the rehabilitation of approximately 27 miles of Lost Creek, a significant tributary of the upper Clark Fork River. The project seeks to improve water quality and fish and wildlife habitat through activities such as riparian fencing and grazing management, development of off-stream watering facilities, stabilization or relocation of certain stream segments, streambank revegetation, and creation of fish passage structures. The project is a four-year effort, with activities having begun in 1999, and involves approximately $1.7 million. The amount requested from the Restoration Fund is $518,382. There would also be in-kind contributions from 6 cooperating landowners along the Creek.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

   Overall, this project employs well-known, commonly used materials and methodologies to accomplish stream rehabilitation work such as bank stabilization, riparian revegetation and fencing, and fish passage and habitat structures. There are uncertainties about a few specific aspects of the habitat improvement and bank stabilization designs, materials, and methods that will need to be resolved during the engineering/design phase. These include the use of rootwad revetments, log and rock deflectors, and gradient control structures instead of creating deformable channel margins; and using a 50-year design discharge instead of a lower-flow (i.e. 10-year) discharge. These issues would need to be reviewed during the design phase prior to construction, and the applicant does provide for such review in conjunction with an independent biologist and/or hydrologist. Importantly, the issues discussed above do not bear significantly on the feasibility of the project. Rather, they reflect uncertainty as to which of several possible approaches would best accomplish the project's objectives.

2. Relationship of Expected Costs to Expected Benefits – Net Benefits

   Costs are presented in the project summary. Numerous benefits will or might result from this project: enhanced trout habitat; increased trout populations in Lost Creek, with possible positive effects on Clark Fork River trout populations; enhanced health of riparian and floodplain vegetation; enhanced or increased wildlife habitat and associated wildlife; improved water quality in Lost Creek, with possible positive effects on water quality in the Clark Fork River; increased water quantity in Lost Creek and possibly the Clark Fork River; enhanced recreational use (fishing, wildlife viewing) on Lost Creek; and possibly others. Because this project addresses many resources and services, and because there is a likelihood that these resources and services will improve significantly in a relatively short time frame (for example, several years for riparian vegetation), the benefits of this project were deemed to be higher than the costs.

3. Cost-Effectiveness – Likely Cost Effective

   The applicant discusses the "No-Action" alternative, but presents no other alternative other than the one selected. Given the stated goals of the project (restore Lost Creek's water quality, aquatic and terrestrial habitats and riparian conditions to a natural, self-maintaining channel and complete a TMDL for sediment and nutrients), and the specificity of the project to Lost Creek, there really is no other substantially different alternative that can accomplish these goals other than the one proposed and selected by the applicant. The only other possible alternatives would be restoration actions of a greater or lesser intensity (i.e. revegetation densities), or use of alternative techniques or methodologies (i.e., different kinds of riparian fencing).

4. Environmental Impacts – No Significant Adverse Impacts

   The Environmental Impact Checklist and Narrative identify potential short-term adverse impacts to surface water quality, historical and archaeological sites, aesthetics and visual quality, existing riparian vegetation, and noise. The applicant has identified efforts to be undertaken and permits to be obtained to mitigate surface water, vegetation, and cultural resource impacts.

5. Human Health and Safety Impacts – No Significant Adverse Impacts

   Short-term noise impacts related to construction activities should not be significant, due to the relative seclusion of the site, and efforts will be made to mitigate these impacts.

6. Results of Superfund Response Actions – Positive Coordination

   Restoration activities have been planned and sequenced to coordinate and assist with anticipated remediation activities in the upper end of the Lost Creek watershed (upland/riparian soil amending and revegetation), and to avoid conflict with potential response actions on the Clark Fork River.

7. Recovery Period and Potential for Natural Recovery – May Reduce Recovery Period

   This project may reduce the time frame for recovery of injured aquatic resources. Although this project is a "replacement" project, in that the focus is primarily on the fisheries resources of Lost Creek, the project may enhance water quality and trout populations in the Clark Fork River and, thus, may reduce the recovery period of injured Clark Fork River aquatic resources to a limited degree.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   The applicant presented a thorough analysis of applicable policies, rules and laws, including an identification of the anticipated necessary permits and a discussion of a timetable for their acquisition.

9. Resources of Special Interest to the Tribes and DOI – Beneficial Impact

   Cultural resource assessments will be conducted prior to all construction activity, and appropriate measures would be undertaken to prevent adverse impacts. It should be noted that improved water quality in Lost Creek should improve water quality in the Clark Fork River, which could be beneficial to bull trout. DOI indicates that the project would have a beneficial impact on migratory birds. The Tribes deferred review of Tribal cultural and/or religious sites related to this project until detailed plans are available during the project implementation phases (see Appendix F).

Stage 2 Criteria

10. Project Location – Within the Basin and Proximate

    The project is located on a tributary to the upper Clark Fork River. It is considered proximate to injured natural resources due to the physical connection between the resources of Lost Creek and those of the Clark Fork River, and the anticipation that the services provided by both systems will be used by some of the same users.

11. Actual Restoration of Injured Resources – May Contribute to Restoration

    (See criterion #7, "Recovery Period and Potential for Natural Recovery," above.)

12. Relationship between Service Loss and Service Restoration – Same

    The services replaced by this project may be considered the same as those lost, particularly as they reflect services provided by Silver Bow Creek (i.e. riparian habitat and wildlife and attendant recreational services such as wildlife viewing; fisheries and attendant services such as small-stream fishing). The proximity of Lost Creek to Silver Bow Creek, and their similarity in size, suggests that the replacement services provided by Lost Creek would be substantially equivalent to some of the services lost on Silver Bow Creek.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

    Although the benefits are primarily to a replacement resource and the recreational services the replacement resource would provide, the project will benefit the people of the UCFRB and others whom have been impacted by natural resource injuries. It may also provide limited benefits to the natural resources originally harmed (and thus to the related services).

14. Public Support – Moderate

    The application includes two letters of support for the project from two public agencies. Funding is derived from eight different entities, including federal, state, and local agencies, and private corporations. At least 6 landowners along the creek are participating in the project – only one landowner along the creek has declined to participate.

During the public comment period on the *Draft Work Plan*, three entities commented in support of funding the project. Another entity noted positive aspects of the project.

15. Matching Funds – High

Approximately 70% of the project funding is from sources other than Restoration funds.

16. Ecosystem Considerations, Coordination, and Integration – Integrates

The project does coordinate with other restoration/remediation activities (see criterion #6), although such coordination is a relatively minor aspect of the project and is not likely to achieve efficiencies to a significant degree. From an ecosystem perspective, this project would address a number of issues (water quality, fisheries, riparian habitat and associated wildlife) in a comprehensive, sequenced approach in the watershed of a significant tributary to the upper Clark Fork River. The project does not interfere with the State's Restoration Determination Plan or with on-going litigation.

17. Normal Government Functions – Outside Normal Government Function

This project involves stream rehabilitation activities primarily on private lands for which MFWP or the landowner would normally seek grant funding. MFWP is involved in similar activities statewide; however, MFWP is not specifically responsible for these activities at this project site, nor does it receive funding for such activities in the normal course of events. On projects such as Lost Creek, MFWP normally provides matching funds and additional in-kind contributions. The department's cost share of the total project cost is about 7%. In-kind contribution is comprised of approximately 34% of the time of one fisheries biologist, and other support staff time (purchasing department, design and construction bureau, and administrative support). Approximately $37,000 is requested in Restoration Funds for a contract technician from the University system. According to the applicant, MFWP's normal agency functions do not incorporate the extensive monitoring and site evaluations required for project implementation or evaluation, thus the need for a contract technician.

Land Acquisition Criteria – Not Applicable

Monitoring and Research Criteria – Not Applicable

Montana Fish, Wildlife and Parks –
Manley Ranch Conservation Easement

Project Summary

The Manley Ranch encompasses 16,000 acres overlapping the Clark Fork-Blackfoot divide in Granite and Powell Counties, about 4 miles northeast of Drummond. MFWP seeks $608,048[4] in Restoration funds to acquire a Phase I conservation easement applicable to 3,416 acres in the headwaters of Morris Creek, a tributary of the Clark Fork River. Project partners are seeking an additional $2.2 million from other funding sources to acquire easements on the Phase I lands outside of the UCFRB (1,220 acres), Phase II lands (4,484 acres) and Phase III lands (6,880 acres) in the Blackfoot River drainage. These easements will impose restrictions on certain human activities including timber harvest, ranching, and development in order to preserve fish and wildlife habitat, open space, and scenic views. Although the following criteria evaluations focus on the Phase I easement only, consideration is also given to the effect of acquiring easements on the entire Manley Ranch property, where appropriate.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

Conservation easements are a well-established, successful method to accomplish preservation of fish and wildlife habitat, open space, and scenic views. The MFWP has considerable experience in the successful development and management of conservation easements. This experience is fortified by the participation of the American Public Land Exchange Company and The Conservation Fund in this effort as well as the landowner's demonstrated land stewardship and support of easement terms that will preserve the natural resource values of the property. The technical narrative demonstrates adequate knowledge and planning to effectuate a successful agreement. For these reasons, the project appears to have a reasonable feasibility of meeting its objectives.

Many of the critical steps associated with the land transactions and negotiation of easement terms have yet to be completed, which lends some uncertainty to the project feasibility. These include completing the full appraisal, the easement terms, the Grazing Management and Forest Stewardship Plans, and MFWP's baseline inventory and other assessments required for land acquisition projects. These steps are considered routine and thus don't constitute a significant uncertainty. Any funding recommendations would need to be based on certain assumptions/conditions tied to these steps that remain uncompleted.

[4] The original request for Restoration funds was $672,840 based on a Phase I estimated acreage in the UCFRB of 3,780. This request was reduced to $608,048 based on a revised estimate of the Phase I acreage in the Clark Fork Basin of 3,416.

Since this project is part of a larger project, it is appropriate to evaluate how the future phases affect the feasibility of the Phase I easement. The Phase I easement, if funded, will remain in place regardless of the funding outcome of Phase II and III easements.

2. Relationship of Expected Costs to Expected Benefits – Net Benefit

The direct costs and indirect costs are primarily the easement purchase price and the project partners' direct costs associated with developing and managing the easement. The MFWP's costs in developing and managing the easement will be covered through its Habitat Montana Program and represent an in-kind contribution to the project. The three phases of the conservation easement for the entire 16,000-acre Manley Ranch property total $2.8 million. Easement costs will be based on the appraised fair market value or the negotiated price of $178/acre, whichever is less. Thus the maximum cost of the Phase I easement is $608,048.

Primary benefits from this easement include the conservation of wildlife habitat and associated big-game and non-game wildlife, aquatic habitat and fisheries, water quality, open space and scenic beauty, and associated recreational opportunities. Phase I lands offer exceptional diverse wildlife habitat that provides key winter range for approximately 300 elk and 100 mule deer and spring/fall/summer habitat for this herd and another herd of 500 elk. Phase I lands also include the headwaters of Morris Creek, a small stream that supports native pure-strain westslope cutthroat trout. Morris Creek is not a substantial recreational fishery, however, it is of significant biological value. Phase I lands border 6 miles of a county road and offer scenic views. The easement will guarantee a minimum of 350 hunter-days during the fall hunting season, which is an average of 4 hunters per day over a 90-day hunting season. Access for other public recreational uses will remain at the landowner's discretion.

Acquisition of the Phase I conservation easement will increase the likelihood of obtaining funding from other sources for Phase II and III easements and enhance the effectiveness of the proposed easement donation offered by Dutton Ranch of 3520 acres east of Phase I. Like Phase I lands, these other lands offer high quality fish and wildlife values. The entire property connects wildlife habitat between the East and West Garnet Ranges and offers habitat for many threatened and sensitive fish and wildlife species further discussed under criterion #9.

Overall, project benefits are to natural resources and the services they provide through protection of impacts that might be expected to occur without a protective conservation easement in place. Project benefits are considered to outweigh costs from the perspective of the Phase I lands alone, and even more so from the perspective of the entire Ranch property.

3. Cost-Effectiveness – Likely Cost Effective

The stated goal of this project is to maintain and enhance in perpetuity the high quality native fish and wildlife habitat presently existing on the Manley Ranch and provide reasonable public recreational access while allowing continuing uses such as ranching, grazing, and timber harvest. The applicant only considered no action (sale or subdivision/development) as

the only practical (or likely) alternative to the project. Other alternatives that may have been considered such as public ownership or sale to a conservation buyer are not likely or suitable options given the constraints and objectives identified by the applicant. Given that easement negotiations are underway and some terms already determined, it is difficult to identify other easement proposals (e.g. other partners, lower price per acre, different terms) for comparative purposes. The proposed easement will provide the necessary restrictions to ensure habitat preservation and will be obtained at or below the appraised easement value (refer to discussion under criteria #22), at a fraction of the fee-title appraised value. Easement monitoring costs will be covered by MFWP. The cost per acre is comparable to that of other conservation easements handled by MFWP. Thus, even though the comparison of alternatives is limited, the proposed approach for acquiring an easement is considered likely to be cost-effective.

4. Environmental Impacts – No Significant Adverse Impacts

The applicant determined that the conservation easement would have either no environmental impacts or potentially beneficial environmental impacts focusing on prevention of impacts that could occur without a protective easement. In evaluating this project strictly as a land transaction, it has no adverse environmental impacts. However, activities associated with the land transaction also need to be considered. Timber harvest and cattle grazing operations will continue under this project. These activities can have adverse impacts to water quality and quantity, vegetation quality and quantity, and fish and wildlife habitat and species if they are not conducted in an environmentally sound manner.

Although no specifics are currently available on the time frame for and quantity of timber harvest activities that will occur on the property, the terms of the conservation easement indicate that through the Forest Stewardship Plan, silvicultural practices will be prescribed to promote healthy, diverse, growing forests and wildlife habitat. The MFWP, State Forester, and landowner must agree to this Plan. Compliance with all state, federal, and local laws governing harvest activities is mandatory, such as the compliance with the Montana Stream Side Zone Management Act. Also, the activities will have to meet the State's voluntary best management practices, at a minimum. Additional notifications and harvest restrictions (e.g. no clear cutting) are covered in the draft conservation easement terms.

A Grazing Management Plan, to be developed by a MFWP grazing specialist in cooperation with the landowner, will be part of the conservation easement. This plan will be based on the landowner's existing operation, incorporating rest-rotation principles to enhance riparian vegetation and maintain the current condition of upland rangelands. At a minimum, the Plan will require that all native rangeland and riparian pastures be completely rested yearlong from livestock grazing during every third year, and that grazing during the plant growing season will occur only once in three years.

The prescriptive management techniques to be provided in the Forest Stewardship and Grazing Management Plans and implemented by the landowner are designed to perpetuate and improve existing land management practices that have preserved fish and wildlife habitat on the Manley Ranch to date. Based on these controls, the potential adverse impacts from

future timber harvest and grazing activities are not considered significant. It is also worth noting that this project ensures the implementation of environmentally sound management practices that would not otherwise be required by law.

5. Human Health and Safety Impacts – No Adverse Impacts

   This project does not involve any activities that would impact human health and safety.

6. Results of Superfund Response Actions – Consistent

   This project will not duplicate or interfere with results of a completed, planned, or anticipated Superfund response action.

7. Recovery Period and Potential for Natural Recovery – No Effect on Recovery Period

   Phase I lands cover the headwaters of Morris Creek, which bisects the property over a distance of approximately 3.5 miles and enters the Clark Fork River approximately 7 miles beyond the property boundary. Given its distance from injured upland resources, this project will not affect the recovery period of those resources. The project will maintain or enhance the aquatic resources of Morris Creek, which supports an isolated, native westslope cutthroat trout population. This creek is a relatively small perennial stream with intermittent flow below the Ranch. An easement alone is not expected to have a direct effect on the recovery of injured aquatic resources of the Clark Fork River. The value of the Morris Creek fishery is as a genetic resource for native trout recruitment. In conjunction with efforts to improve water quality and aquatic habitat of the Clark Fork River, the protection and enhancement of Morris Creek can benefit the recruitment potential for the native westslope cutthroat trout populations in the Clark Fork River.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   The applicant has provided reasonable assurance that the necessary land transaction documents (e.g. fee-title ownership) and local coordination will occur.

9. Resources of Special Interest to the Tribes and DOI – Beneficial

   The DOI has indicated that the long-term protection afforded through an easement on the property would likely benefit migratory birds, listed species, and their habitat. The immediate surrounding area is at the southern edge of occupied grizzly bear habitat. Morris Creek (Phase 1) and Douglas Creek (Phase III) support native, pure-strain westslope cutthroat trout. MFWP indicated the presence of an active bald eagle nest (Phase III) and a lek for Columbian Sharp-tailed Grouse on the Ranch property (Phase III) and the occurrence of wolves, lynx, and pileated woodpeckers in the general area. The ranch property is part of a remnant landscape-scale link across North America for migratory populations of sandhill cranes, bald eagles, and osprey. It is on the southwest fringe of the fall staging area for upwards of 400 sandhill cranes.

The State's Heritage Database indicates four sites of historical interest that would be protected from future impacts by an easement. The Tribes indicated that, because this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F).

Stage 2 Criteria

10. Project Location – Within the Basin

The property boundary is 7 miles from the Clark Fork River and not surrounded by any upland injured area. Although not proximate to injured resources, the geographic extent of this project's service benefits would extend throughout much of the Basin as described under criterion #12.

11. Actual Restoration of Injured Resources – May Contribute to Restoration

While this project does not constitute actual restoration of injured natural resources, it may contribute to restoration of injured resources as described under criterion #7.

12. Relationship between Service Loss and Service Restoration – Same

The Phase I easement provides replacement wildlife habitat services (e.g. hunting and wildlife viewing) that are considered substantially equivalent to those lost or impaired due to injuries to upland terrestrial resources. The Morris Creek fishery is not considered a substantial recreational resource.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

The project primarily benefits the replacement of fish and wildlife resources outside of injured areas and the recreational services these resources provide. Because hunters and anglers from Butte/Anaconda/Deer Lodge Valley and Missoula areas travel to the Drummond area to hunt/fish on private and public lands, this project would also provide services to one of the user groups originally harmed, particularly hunters. The open space and scenic views protected by the easement benefit an even broader user group. The stipulated public hunting provisions of the easement will help the economic viability of the Manley Ranch and other neighboring ranches impacted by expanding elk populations.

14. Public Support – Broad

The application provides letters of support from the USFWS and Manley family and notes the strong public support for and success of easements in the Blackfoot River Valley. During the application review period, the State received a comment letter from the Granite County Commissioners indicating they have no objection to the easement provided the wildlife would be managed in a manner that would not burden adjacent landowners.

During the public comment period on the *Draft Work Plan*, 17 persons or entities commented in support of funding this project. Two entities commented in opposition to funding this project, stating it should be funded by other funding sources. One entity noted its neutral position on funding this project. One person commented in opposition to the use of Restoration funding for any conservation easement.

15. Matching Funds – Reasonable (Phase I)/High (entire acquisition)

Based on the negotiated price of $178/acre, a restricted appraisal estimate of $292.50/acre suggests that the Manley family will be donating approximately $391,132 in appraised value toward the completion of the Phase I easement portion in the UCFRB. Thus the landowner contribution would be 40% based on how much the negotiated price per acre is below the full market value. MFWP will donate all their administrative costs as in-kind services but did not provide an estimate of these costs.

From the standpoint of the entire Manley Ranch easements, matching funds are considered high. Proposed funding from other sources for the 1220 acres of Phase I easement area that is outside the UCFRB and Phase II and Phase III easements is 80% of the total easement costs for the entire Ranch. The Montana Agricultural Heritage Commission has committed $135,000 to easement costs for Phase I lands that are outside the UCFRB. Pending approvals, MFWP will be contributing $82,160 to this portion of the project.

16. Ecosystem Considerations, Coordination, and Integration – Integrates

This project does not directly coordinate with other ongoing or planned restoration or remediation actions in the UCFRB, nor will it interfere with the State's Restoration Determination Plan or on-going litigation. The project does coordinate with the conservation easement initiatives in the Blackfoot Valley. It also fits within a broad ecosystem context in that it involves protection of the headwaters of a Clark Fork River tributary and extensive acreage of a native intermountain habitat that supports broad species diversity.

17. Normal Government Functions – Outside Normal Government Function

MFWP is involved in the acquisition of conservation easements through the Habitat Montana Program and through other funding sources such as grant funds. However, the MFWP is not specifically responsible for acquiring conservation easements in the UCFRB, nor does it receive funding for such acquisitions in the normal course of events. MFWP is working to provide $466,360 for Phase II, but is unable to fund Phase I in the near-term due to the prior commitment of available MFWP funds for other conservation easement projects across the State. MWFP will fund the administrative responsibilities associated with the easement as part of its budgeted expenses to implement a high priority project with existing authority and funds.

Land Acquisition Criteria

18. Desirability of Public Ownership – Moderate

The benefits from public ownership of the Manley easement to injured natural resources and/or lost services are considered moderate. Although the project will not directly benefit injured natural resources, it will provide lost services as described under criterion #12. The easement area has exceptional wildlife habitat and the easement terms will guarantee public access of a minimum of 350-hunter days during the fall hunting season.

19. Habitat Protection – Exceptional

Phase I lands have critical winter range for elk and mule deer and extensive acreage of a native intermountain habitat complex (i.e. bunchgrass, riparian, aspen, sagebrush, juniper, Douglas fir/lodgepole pine vegetation types). MFWP indicates this is one of the largest intact ecological communities of this type west of the Continental Divide. Availability of this habitat complex that supports broad species diversity in the immediate area is low except for the neighboring proposed Dutton Easement Donation, which MFWP plans to pursue to expand this protected habitat. The sensitive fish and wildlife species that will benefit from this project are described under criterion #9.

20. Spillover Benefits – Moderate

The potential benefits of the project to injured natural resources are limited as previously noted. The project will definitively benefit a larger surrounding area that is not injured as it involves the protection of 3416 acres of prime wildlife habitat. The entire property is an area of habitat overlap for at least 2 distinct population units of migratory mule deer and elk and forms a connection between winter and summer ranges. Black bear and mountain lion and other wide-ranging species would benefit from maintaining the Manley Ranch as a significant component of their larger home ranges.

21. Access to Public Land – Does not facilitate

Access to public land will not be facilitated by this proposal. It provides some public access to private lands for recreational activities as previously described.

22. Price – Reasonable

The project costs are based on a negotiated preliminary price of $178/acre pending results of a full fee-title and easement appraisal. The project partners have agreed to a price per acre based on the fair market value that will not exceed this negotiated price, which is considered reasonable based on other MFWP conservation easements. Although a full appraisal has not been completed, the restricted appraisal of $292.50/acre indicates this negotiated price to be 40% below the estimated fair market value.

Monitoring and Research Criteria – Not Applicable

Rock Creek Trust - Z-4 Ranch Conservation Easement

Project Summary

This project is a 2100-acre conservation easement on the Z-4 Ranch in the upper Rock Creek drainage. The easement applies to property that includes portions of the East and Middle Forks of Rock Creek. Stream rehabilitation work will be conducted on the East Fork following finalization of the easement. The easement imposes restrictions on certain human activities including timber harvest, ranching, and development in order to protect open space and scenic beauty, fish and wildlife habitat, water quality, and to renaturalize the streams and their riparian zones. Restoration funds would provide $10,000 of the $133,900 easement cost. Stream rehabilitation costs, which would not use Restoration funds, are estimated at $125,193.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

   The Rock Creek Trust completed its Baseline Inventory Report documenting the condition of the natural resources, conservation interests, and improvements associated with the property in December 1999. The Trust and the landowner have agreed to the terms of the easement and easement language, which includes a Timber Management Plan. An appraisal was completed, and the easement was finalized in September 2000. Although details about stream rehabilitation work have not been provided, this work is not part of the Restoration Fund request. Since the terms of the easement have been finalized and the majority of project funding has been secured, there does not appear to be any impediment to a successful completion of this project.

2. Relationship of Expected Costs to Expected Benefits – High Net Benefits

   The total cost of the easement is $133,900, of which $10,000 would come from the Restoration Fund. This amounts to approximately $63.75 per acre, not including the landowner's easement cost (donation), which is approximately $61.50 per acre. Thus, total per-acre easement costs are about $125.

   According to MFWP, the per-acre cost for the Z-4 easement is comparable to MFWP conservation easements where public access is provided. The benefits that will be obtained from this easement include conservation of open space and scenic beauty, wildlife habitat and associated wildlife, water quality, and aquatic habitat and fisheries. While there is nothing especially unique about the wildlife or habitat of the Z-4 Ranch (see criterion #19), it does include significant acreage of native upland range and Douglas fir forests; 1.25 miles of the East Fork of Rock Creek, which provides good rearing and spawning habitat for bull trout and westslope cutthroat trout; and, glacially-derived pothole lakes that provide feeding and nesting sites for migrant and resident waterfowl. Native grasslands and upland native range provide winter range and cover for mule and white-tailed deer and elk. Greater benefits to water quality, aquatic habitat and aquatic life would accrue from planned rehabilitation work

on the East Fork of Rock Creek, which flows through portions of the ranch subject to the easement. Public access by permission of the landowners to the Z-4 Ranch for hunting and fishing purposes has historically been allowed, and is anticipated to continue. Given the multitude of benefits associated with this easement, and that the easement runs in perpetuity, this project was concluded to provide high net benefits, using either the total easement cost or the Restoration Fund cost as the basis for the evaluation.

3. Cost-Effectiveness – Likely Cost-Effective

The applicant does not adequately discuss the "No-Action" alternative, or any other alternatives to the proposed project. The "No-Action" alternative is disregarded because it would not meet the mission of the Trust. This is irrelevant to the issue of whether a "No-Action" alternative would or would not result in restoration of injured resources and/or lost services. Other alternatives that could have been discussed include easements on a different parcel of land; easements on a greater or lesser portion of the Z-4 Ranch than what is the subject of this project; different easement terms and conditions; or public ownership or sale to a conservation buyer. Assumedly, the process of obtaining the easement involved evaluating various easement alternatives. Given the circumstances of this project, being that terms of the easement had already been negotiated for this specific property and that Restoration Funds are being used to "replace" Trust funds already committed to this project, it is difficult to identify, after-the-fact, other appropriate alternatives. Thus, even though the comparison of alternatives is limited, the proposed easement is considered likely to be cost-effective, particularly given that this easement includes a 50% landowner donation.

4. Environmental Impacts – No Significant Adverse Impacts

The applicant determined that the conservation easement would have potentially beneficial environmental impacts focusing on maintenance of water quality, wildlife habitat, open lands and scenic beauty. The applicant noted specifically protection of water quality through the reduction in the number of potential septic systems related to subdividing restrictions.

In evaluating this project strictly as a land transaction it has no adverse environmental impacts. However, activities that would be allowed to continue under terms of the easement need to be considered. For example, timber harvest and ranching would continue under this easement. These activities can have adverse impacts to water quality and quantity, vegetation quality and quantity, and fish and wildlife habitat, even if activities are conducted under sound management plans and in accordance with environmental laws and regulations. The applicant states that any "commercial" harvest of timber would be conducted under a harvesting plan developed in conjunction with the Rock Creek Trust. No grazing management plan will be developed. However, given the goals and objectives of the easement and the authority of the Rock Creek Trust to promote environmentally sound land use practices, it is likely that potential adverse impacts from future timber harvest, grazing and ranching, and other activities that might affect land, air and water resources would not be significant. Nevertheless, it has to be acknowledged that some short-term adverse impacts are possible and indeed likely from the activities allowed under this easement.

5. Human Health and Safety Impacts – No adverse impacts

   This project does not involve any activities that would impact human health and safety.

6. Results of Superfund Response Actions – Consistent

   This project will not duplicate or interfere with results of a completed, planned or anticipated Superfund response action.

7. Recovery Period and Potential for Natural Recovery – No Effect on Recovery Period

   Because the easement is intended to preserve environmental attributes such as water quality, wildlife habitat, open lands, etc., it alone would not have a direct effect upon the recovery period per se. Stream rehabilitation work that is contemplated following the completion of the easement should positively affect water quality and fisheries in the East Fork of Rock Creek and in the upper Rock Creek drainage. The project location is sufficiently removed from the areas of injured resources on the Clark Fork River that it would not be expected to have a direct effect on the recovery period of injured resources or the associated lost services. Nevertheless, as water quality and fisheries improve in the Clark Fork River through remedial and restoration actions, the East Fork of Rock Creek could become an important spawning tributary and recruitment source for the benefit of bull trout and westslope cutthroat trout populations in the Clark Fork River.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   The conservation easement itself does not appear to require any permits, deeds, easements or rights-of-ways, or involve directly any laws, rules or policies. There are provisions in the easement to ensure consistency of the terms of the easement with existing laws and regulations. For example, Section XIV states, "In the event of any conflict between the provisions of this easement and the provisions of any use and zoning restrictions of the State of Montana, Granite County, or any other governmental entity with jurisdiction, the more restrictive provisions shall apply. This easement shall be interpreted in accordance with the laws of the State of Montana. Nothing in this easement should be construed to permit any activity otherwise prohibited by the valid laws and regulations of any federal, state, or local government or governmental agency having competent jurisdiction over the Property."

   The applicant provided little information about stream rehabilitation work that would be conducted over the next several years, other than identifying funding sources and entities that would be involved in the planning and implementation of this work. Presumably, these agencies have the knowledge and experience to address the issues of permits, applicable laws, etc. that would be relevant to completing a stream restoration project. Because the funds requested from the Restoration Fund are being applied only to the cost of the conservation easement, the lack of information related to the stream rehabilitation work did not negatively affect the evaluation of this criterion.

9. Resources of Special Interest to DOI and the Tribes – Beneficial

According to DOI, the easement would provide long-term protection for habitats utilized by migratory birds and several threatened and endangered species, particularly bull trout. Stream enhancement work could improve conditions favorable to bull trout and westslope cutthroat trout, both of which have been documented on the Z-4 Ranch. The applicant's "Baseline Inventory" also noted a documented siting of a great grey owl, which has also been identified as a species of special concern. The Tribes indicated that, because the easement portion of this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F).

Stage 2 Criteria

10. Project Location – Within the Basin

The Z-4 Ranch is located in the headwaters of Rock Creek, a major tributary to the Clark Fork River. Although the two resources are physically connected by surface water and perhaps biologically (i.e. fisheries), the project location is not near the area of injury (approximately 35 miles distant). Nevertheless, the geographic extent of this project's service benefits would extend throughout much of the upper Clark Fork River basin, as the upper Rock Creek drainage sees significant use by residents of Butte/Anaconda, the Deer Lodge Valley, and Missoula.

11. Actual Restoration of Injured Resources – May Contribute to Restoration

The Z-4 Ranch is located in the headwaters of Rock Creek, a major tributary to the Clark Fork River. Although the distance to the Clark Fork River is approximately 35 miles, the two resources are physically connected by surface water and perhaps biologically (i.e. fisheries). The conservation easement alone probably would not contribute to restoration of the originally injured resources. Stream rehabilitation work that is planned over the next several years should enhance water quality conditions and fisheries in the upper reaches of Rock Creek that, in theory at least, should beneficially affect the Clark Fork River. Given the distance of the Z-4 Ranch from the Clark Fork River, and the scope of actions being proposed, effects on the Clark Fork River itself, however, might not be significant or measurable. Also, see criterion # 7.

12. Relationship between Service Loss and Service Restoration – Same

The conservation easement primarily replaces lost services by ensuring the conservation of certain environmental attributes (i.e. open space, vegetation and wildlife habitat, water quality and fisheries), and through stream rehabilitation work. These attributes, and the services they provide, are virtually the same as those originally lost or injured. There may be subtle differences between the sites originally injured and the site of this project in some physical attributes (topography, elevation, and geology), which give the site a slightly different character (vegetation, plant associations, etc.) than those originally injured. However, the project generally addresses the same kind of services that were provided in the

injured areas of the upper Clark Fork River (riparian wildlife habitat); the uplands in the Anaconda area (uplands wildlife habitat), and fisheries of Silver Bow Creek.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

The project benefits are primarily to replacement fish and wildlife resources outside of injured areas and the recreational services these resources provide. From a prospective standpoint, the project will benefit injured aquatic and riparian habitat by preventing future degradation. Because the upper Rock Creek drainage is used frequently by residents of the Deer Lodge Valley, the Butte and Anaconda areas, and by residents of Missoula, this project would provide services to many of the user groups originally harmed.

14. Public Support – Moderate

The applicant submitted no specific letters of support for the project. However, the broad base of funding acquired by the applicant for this project demonstrates support for the project. Funding for the conservation easement was obtained from ten different public and private entities, including foundations and conservation organizations. Over 10% of the easement cost was met through donations from individuals. The landowner was a particularly significant source of funding.

During the public comment period on the *Draft Work Plan*, five persons or entities commented in support of funding this project. Another entity noted positive aspects of the project. One person commented in opposition to the use of Restoration funding for any conservation easement.

15. Matching Funds – High

Approximately 93% of the cost of the conservation easement is being funded from sources other than Restoration funds. Including the cost of stream rehabilitation work, approximately 96% of the cost of the entire project is being funded from sources other than Restoration funds.

16. Ecosystem Considerations, Coordination, and Integration – Integrates

The project does not directly coordinate with other ongoing or planned restoration or remediation actions. The project does, however, fit into a broader ecological watershed perspective of the upper Clark Fork River Basin. The Z-4 easement complements other conservation easements (totaling approximately 10,000 other acres) that have been acquired in the Rock Creek drainage basin. Considered collectively, they can provide a proportionally greater replacement of resources and services, and may contribute proportionally more to the restoration and natural recovery of injured resources in the Clark Fork River, than any one easement could do alone. By itself, the Z-4 easement does provide protection to several headwater streams of a significant tributary to the Clark Fork River that are important to several threatened and endangered species, or species of special concern. The project does not interfere with the State's Restoration Determination Plan or with on-going litigation.

17. Normal Government Functions – Outside Normal Government Function

The Rock Creek Trust, a non-profit corporation, is seeking the funding of and handling the management of this easement. MFWP is involved in the acquisition of conservation easements through the Habitat Montana Program and through other funding sources such as grant funds. However, the MFWP is not specifically responsible for acquiring conservation easements in the UCFRB, nor does it receive funding for such acquisitions in the normal course of events. Although MFWP is not providing funding for the easement portion of this project, it will provide consultation on the stream rehabilitation work that will be conducted over the next few years. Because MFWP does not have the financial resources to fund all conservation easements that are proposed, funding this project with a Restoration Fund grant is considered outside of a normal agency function.

Land Acquisition Criteria

18. Desirability of Public Ownership – Minor Benefits

As noted above, the project location is sufficiently distant from the injured Clark Fork River resource that it is uncertain whether benefits to resources (water quality, fisheries, wildlife habitat) that would occur at the project location alone would be manifested at the Clark Fork River proper. It is likely that lost services due to natural resource injuries will be replaced by activities associated with the project.

19. Habitat Protection – Good

While the "Baseline Inventory" identifies numerous plant species that comprise diverse wildlife habitats and support a wide variety of animal species, there does not appear to be anything "unique" about the habitats and attendant wildlife that are found on the Z-4 Ranch. The most significant habitat is that provided by the East Fork of Rock Creek to bull trout and westslope cutthroat trout. Nevertheless, the overall habitat that the easement would protect is valuable. Without the easement, development pressures would likely increase as has happened in many other areas in the Rock Creek drainage, which would decrease the existing wildlife habitat values.

20. Spillover Benefits – Minor

As described above, the project may provide little or no benefit directly to the injured area because of the distance from the project site to injured areas, and because of the limited activities that would be undertaken for stream rehabilitation work. The area which would directly benefit is not exceptionally large – approximately 2100 acres of the Z-4 Ranch property, and some unquantifiable surrounding area which would likely experience beneficial effects on water quality, wildlife habitat, and wildlife from implementation of the conservation easement and the stream rehabilitation work.

21. Public Access – Does not facilitate

Access to public land is not presently impaired under existing ranch operations, and no new or enhanced access will be created under terms of the easement.

22. Price – Reasonable

The easement cost is based on a recent appraisal of the property, and was determined using standard valuation methodologies. Moreover, the landowner contribution of approximately 50% may be considered superior to what is typical of other easements. The total cost of the easement is $133,900, which amounts to approximately $63.75 per acre. This does not include the landowner's easement cost (donation), which is approximately $61.50 per acre. Thus, total per-acre easement costs are about $125. MFWP has indicated that these costs are comparable to other MFWP conservation easements.

Monitoring and Research Criteria – Not Applicable

University of Montana –
Technical Assistance For Watershed Restoration Analyses and Planning

Project Summary

This project involves a request of $9,550 from the Restoration Fund to design an informational database for UCFRB restoration planners. The database design will expand on the Montana Natural Resource Information System's (NRIS) statewide watershed information system. The project involves outreach to local watershed groups and conservation districts to determine their database needs and provide training. The end products of this project are conversion of some data sets to a useable form and a recommendations report to NRIS on full database development. This report will identify UCFRB restoration planning needs, available data and data gaps, and the additional tasks and funding needed to develop an informational database.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

This evaluation is confined to determining whether it is reasonably feasible that this project will accomplish its goal of designing a UCRFB database framework. Although the applicant did not thoroughly address all the necessary aspects of database development, the NRDP believes the project can reasonably be expected to accomplish its goals based on the technology and management aspects of the project. Database development is a well-known and accepted technology and has been successfully applied for similar purposes. The project's potential to meet its goals is enhanced by the applicant's intent to build on the existing NRIS statewide watershed information system and to coordinate with NRIS, conservation districts, and other local watershed groups. There are no significant uncertainties associated with the projected phases of this database framework development. Based on the NRDP's experience with similar database efforts, however, there are uncertainties associated with full database development and maintenance not identified by the applicant that need to be addressed in the design of the database framework. Those problems include data-sets becoming outdated; producers maintaining their own systems alongside the system maintained by NRIS; differing data storage structures; and lack of long-term support.

2. Relationship of Expected Costs to Expected Benefits – Commensurate

Total project costs are estimated at $18,143, with a request of $9,550 in Restoration Funds. This project basically lays the foundation for an informational database that would require significantly greater funding to be developed. The applicant estimates costs for database development could range from $25,000 to $45,000.

The benefits of this project are tied to its assistance with restoration planning, which is described under criterion #24. The NRDP believes an informational database would be valuable to restoration planning efforts by providing for centralized information storage and

retrieval and various data analyses and reporting options. Even if the full database development were not funded in the future, the project would provide a useful guide that is currently not available to existing electronic information. This guide can help coordinate future restoration data collection and evaluation efforts and help eliminate duplicative efforts. Considering the database framework by itself, costs are considered commensurate with benefits. Assuming the full database development were to be funded, benefits are considered greater than costs.

3. Cost-Effectiveness – Uncertain

   The applicant did not sufficiently identify and evaluate alternative database design approaches, noting only those lower costs that can be achieved with university staff and matching funds compared to private professional rates. While this may be true, it does not provide sufficient justification for the selected approach as the most cost effective. The applicant should have at least discussed having NRIS design the database framework since NRIS is the entity targeted for full database development. Perhaps this alternative was not possible given NRIS' priorities and workload constraints. The NRDP considers the selected approach appropriate because it expands on the existing NRIS statewide watershed information system and involves likely database users such as conservation districts. Whether the approach would have been more or less cost effective than another alternative, such as the one identified above, cannot be determined with the information provided.

4. Environmental Impacts – No Adverse Impacts

   This project does not involve any activities that would adversely impact the environment.

5. Human Health and Safety Impacts – No Adverse Impacts

   This project does not involve any activities that would adversely impact human health and safety.

6. Results of Superfund Response Actions – Consistent

   This project will not interfere with or duplicate the results of completed, planned, or anticipated Superfund response actions. It may augment the coordination between response and restoration by providing a guide to existing data and improving access to information.

7. Recovery Period and Potential for Natural Recovery – No Effect on Recovery Period

   This project will not change the timeframe for recovery. It can assist in making restoration planning more efficient.

8. Applicable Policies, Rules and Laws – Consistent

   There are no applicable rules and laws relevant to this project. The projects fits with the State's policy and efforts to have NRIS serve as the clearinghouse for natural resource information. Although coordination with local entities has not occurred, is it planned during project implementation and would be required if the project were to be funded.

9. Resources of Special Interest to the Tribes and DOI – No Impact

   Producing a database framework will have no impact on these resources. Full database development, however, may potentially benefit these resources of special interest by providing an efficient method to obtain information on these resources and thus increase the likelihood that these resources will be properly considered in future restoration-planning efforts. The Tribes indicated that, because this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F).

Stage 2 Criteria

10. Project Location – Not Applicable

    This project is a research project, thus this criterion is not applicable.

11. Actual Restoration of Injured Resources – No Restoration

    This project does not constitute actual restoration of injured natural resources. If this database framework and the follow-up database development were to be funded, this project would provide a planning tool for restoration projects.

12. Relationship between Service Loss and Service Restoration – Not Applicable

    This project will not restore or replace lost or impaired services, thus this criterion is not applicable.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

    The groups targeted to benefit from this project are watershed groups, conservation districts, governmental entities, and citizens in general. As a tool to assist with restoration planning, it can benefit both the persons and natural resources originally harmed and other persons and/or natural resources.

14. Public Support – Limited

Two letters of support are provided in the application, one from the Missoula Water Quality Advisory Council and another from NRIS. During the public comment period on the *Draft Work Plan*, the State did not receive any comments specific to this project.

15. Matching Funds – Reasonable

Matching funds constitute 47% of the total project cost. Matching funds provided by the University of Montana include indirect costs and all the personnel costs for Dr. Vicki Watson, estimated to be at 10% over the 6-month project time frame (approximately 100 hours).

16. Ecosystem Considerations, Coordination, and Integration – Integrates

The project does not entail the direct coordination with on-going or planned restoration or remediation efforts that provide significant cost-efficiencies. It does, however, involve identifying available electronic data that would be relevant to these efforts. The project will not interfere with the State's Restoration Determination Plan or any on-going litigation. The project fits within a broad ecosystem context as it provides a tool for restoration planning on an ecosystem basis.

17. Normal Government Functions – Outside Normal Government Function

This project involves the integration of information access efforts funded by governmental and private entities, such as the State's TMDL database, Clark Fork River Data Management System, and the Montana Rivers Information System. While agencies fund database efforts specific to their mission and responsibilities, no one agency is specifically responsible for funding an "umbrella" UCFRB database like this proposal that integrates these varied efforts.

Land Acquisition Criteria – Not Applicable

Monitoring and Research Criteria

23. Overall Scientific Program – Coordinates

This project involves coordination with other scientific work being conducted in the Basin because it will identify the information products of those other efforts to be incorporated in a "clearinghouse" UCFRB database.

24. Assistance with Restoration Planning – Moderate

This project lays the foundation for a comprehensive database that would benefit restoration planning. A central database would a valuable tool for restoration planning and monitoring, by providing for centralized information storage and retrieval and a variety of data analyses

and reporting options. This project will assist the planning efforts of the State and other restoration planners since it focuses on designing an improved, centralized access to watershed data and analysis tools that would not require specialized technical training or equipment. To aid in maximizing the database's usefulness, the applicants will enlist the input of local watershed groups such as Soil Conservation Districts in designing a database that will suit their needs. However, whether this database will be developed and maintained depends on future funding that is uncertain. Thus, this project's assistance to restoration planning is also evaluated based on benefits solely derived from this initial database design effort. The proposed database framework will, at a minimum, provide a guide not currently available to existing electronic data and resources. Given the voluminous data on natural resources and contamination problems in the Basin that is available from numerous entities, this guide will be a resource to the State and other restoration planners. It can help coordinate future restoration data collection and evaluation efforts and help eliminate duplicative efforts.

Rocky Mountain Elk Foundation – Watershed Land Acquisition

Project Summary

The Rocky Mountain Elk Foundation (RMEF) holds a purchase option to acquire approximately 32,500 acres in the UCFRB from Y.T. Timber via a phased acquisition over 4 years. The property is located between Anaconda and Georgetown Lake and includes the bulk of the Warm Springs Creek watershed not already in public ownership. RMEF is seeking $6,075,000 in Restoration funds to acquire approximately 9,000 acres for state ownership and management by Montana Fish, Wildlife, and Parks (MFWP). These lands consist of two parcels that provide prime wildlife habitat and numerous recreational opportunities – the Garrity Mountain parcel (6,707 acres) and the Clear Creek parcel (2,264 acres). RMEF is also seeking $13,925,000 from the federal Land and Water Conservation Fund for approximately 23,500 acres for federal ownership and management by the U.S. Forest Service (USFS). The option agreement allows Y.T. Timber to conduct timber harvest activities over 7 years subject to terms of a timber management policy. The following criteria evaluations cover aspects of both the proposed State acquisition and the entire acquisition, focussing on the State acquisition.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

   RMEF has successfully orchestrated similar state/federal land acquisitions and completed many of the major steps involved in brokering this purchase. Those steps include negotiating an option agreement and timber harvest policy with Y.T. Timber; obtaining a preliminary appraisal and arranging for a full appraisal; conducting the necessary coordination with MFWP and USFS; and completing or arranging for necessary title work such as the title commitment and mineral report. The land acquisition is planned well, as demonstrated in the thoroughness of the application materials. Other than funding, uncertainties are tied to the remaining land transaction steps such as the due diligence investigations of the Clear Creek parcel and the final appraisal. Given the RMEF's progress to date on this complex transaction and experience with other similar transactions, this project is considered reasonably feasible.

2. Relationship of Expected Costs to Expected Benefits – Net Benefit

   The total land purchase costs are estimated at $20 million, with the State's costs estimated at $6.075 million. Although the actual purchase price for the proposed State acquisition has not been determined (refer to criterion #24), this evaluation assumes the maximum cost will be the estimated $6.075 million.

   By acquiring public ownership of high quality fish and wildlife habitat and recreational lands, the project will provide public access, protect these areas from development, and maintain and enhance natural resources through conservation-focused public management of those resources. Major public benefits attributable to the entire project include:

- Guaranteed public access to lands that provide an array of services, including hunting, fishing, wildlife viewing, hiking, bird watching, and other general recreational opportunities.

- In the long-term, maintenance and enhancement of habitat for elk, mule deer, whitetail deer, bighorn sheep, moose, black bear, mountain lions and mountain goats. The acquisition would help preserve an expansive, continuous forested habitat between the Flint Creek and Pintlar ranges and forested areas to the south for movement of bighorn sheep, moose, wolverine, and lynx.

- In the long-term, maintenance and enhancement of native trout habitat. Bull trout and westslope cutthroat trout are found in the Storm Lake, Twin Lakes, Barker and Cable creeks. The Warm Springs Creek Drainage is designated a core area for the recovery of bull trout in the UCFRB.

- The protection of a portion of the Warm Springs watershed from potential detrimental impacts associated with sale and development of the property. The project area includes Storm and Hearst Lakes, which provide community water supplies. With this protection, the water quality of Warm Springs Creek will be maintained or improved, which could, over the long term, assist the restoration of injured aquatic resources of the Upper Clark Fork River.

- Preservation of open space and scenic views between Anaconda and Georgetown Lake.

Two distinct parcels make up the proposed lands for State acquisition – the Garrity Mountain parcel (6,707 acres) and the Clear Creek parcel (2,264 acres). Both these parcels offer the general benefits described above: watershed protection; maintenance or enhancement of a variety of fish and wildlife habitat and species; access for fishing, hunting, wildlife viewing, hiking and other recreational activities; and open space and scenic views. The Garrity Mountain parcel provides critical winter range for elk, deer, and bighorn sheep. Although the Clear Creek parcel does not provide critical winter game habitat equivalent in quality to that of the Garrity Mountain parcel, it offers the benefits of protection of the Hearst Lake municipal water supply, winter range for mountain goats, and habitat for elk, moose, and deer, primarily during summer.

RMEF provided an economic analysis predicting that elk and deer hunters would spend over $310,000 annually for gas, food, lodging, and incidental expenses. Given this analysis, and considering the other recreational opportunities afforded by the proposed acquisition, this project will benefit the local economy.

A strong aspect of this project is that it provides substantial recreational opportunities near Anaconda. The project area had once been part of the public domain and of great use in the past by Anaconda area residents. Some negative impacts to environmental resources will occur from the planned timber harvest activities as detailed under criterion #4. The State may have to spend monies restoring some of the harvested areas. However, the project

provides environmentally protective conditions that would not be imposed without the option agreement. In evaluating the long-term benefits associated with the entire acquisition or only the proposed State acquisition, the NRDP considers the benefits derived from the project to outweigh its costs.

3. Cost-Effectiveness – Likely Cost Effective

RMEF compared the benefits/costs of no action, entire federal ownership, and entire state ownership to the proposed state/federal ownership. The no-action alternative involves timber harvest without the additional restrictions provided by the timber harvest policy and subsequent sale to a private entity. This could result in development and associated negative impacts to natural resources of the area and the public's use of them. The selected alternative of joint state/federal partnership has the advantage of cost-sharing and splitting the properties based on desired State (Garrity Mountain parcel) and federal ownership (parcels closest to existing USFS lands). Therefore, the selected approach is considered cost-effective compared to these alternatives presented in that it accomplishes greater benefits for the same costs. Other alternatives that could have been discussed include those of varying levels of timber harvest activities and the associated varying levels of price (e.g. a higher price per acre for lands with more timber remaining). Since the NRDP was not involved in the negotiations with Y.T. Timber, the NRDP does not know whether Y.T. Timber would consider alternate timber harvest volumes. Assuming that Y.T. Timber would only consider a sales agreement that allowed the indicated timber reservation, and that the price will be at or below fair market value, the NRDP does not believe a suitable alternative exists that will produce similar benefits at lower costs. Thus the project is considered likely to be cost-effective.

4. Environmental Impacts – No Significant Adverse Impacts (in the long term)

RMEF determined that the Watershed Land Acquisition would have no environmental impacts or potentially beneficial environmental impacts, focusing on prevention of impacts by precluding harmful development. The NRDP concurs with the applicant's evaluation that, from this standpoint, the project will have beneficial impacts to soil, air, water (surface water and ground water), wetlands, vegetation, fish and wildlife habitat and species, and aesthetics for reasons already discussed. However, environmental impacts from activities that would be allowed to continue under terms of the option agreement also need to be considered in determining whether this acquisition would be in the State's best interest.

Under the terms of the options agreement, Y.T. Timber retains the right to harvest 30 million board feet (MMBF) of merchantable timber over the next 7 years following an agreed-upon timber harvest policy. Approximately 20 MMBF has already been harvested on the entire property since 1981. The estimated remaining merchantable timber after harvest activities are completed on the entire property is 20 MMBF.

Of the 30 MMBF timber reservation, approximately 5.2 MMBF will be harvested on the proposed State parcels. Some 2000 acres of non-forested, grassland habitat on the Garrity Mountain parcel will not be harvested. Almost all of the Clear Creek parcel will not be harvested due to the steep terrain, the low quantity of merchantable timber, and the restrictive

covenants associated with this parcel. A potential exists for up to 365,000 board feet to be harvested from this parcel via helicopter logging; however, whether this will occur is still uncertain.

The timber harvest policy has provisions that, in addition to the 30 MMBF cap and 7-year harvest timeframe restrictions, require Y.T. Timber to: 1) meet all applicable laws and regulations governing harvest operations, which primarily include water quality laws and rules and the Montana Stream Side Zone Management Act; 2) comply with State's voluntary best management practices for forestry; 3) comply with additional restrictions in the Storm Lake and Twin Lake creek drainages that support bull trout fisheries; 4) emulate previously employed harvest methods considered acceptable by state and federal forestry officials; and 5) meet specified road construction standards. The timber policy also offers the opportunity for RMEF, USFS, and MFWP to monitor harvest methods. It is also understood that the State, once it acquires the property, will succeed to the rights of RMEF to enforce the timber harvest provisions. The MFWP, RMEF, USFS, and Y.T. Timber have signed a memorandum of understanding stating that the timber harvest policy is "generally acceptable and will protect the wildlife and natural resources associated with the Property."

Harvesting of up to 5.2 MMBF and construction of approximately 16 miles of roads on the State Acquisition has the potential to increase erosion and impact water quality and quantity. Impacts to Barker and Big Gulch from increased sedimentation may occur. The removal of 5.2 MMBF of timber has the potential to impact the timing and duration of spring runoff due to the removal of forest canopy. The applicable rules and laws and additional restrictions provided in the timber harvest policy are intended to prevent significant impacts to surface waters and fisheries from the proposed harvest activities. These restrictions are designed to reduce excessive runoff and sedimentation and maintain shade in the riparian area.

The proposed timber harvest will impact visual quality and wildlife habitat, use and distribution for decades until forest regeneration occurs. RMEF recognizes these impacts in the application, stating "[T]imber has historically been harvested on the property and harvest scheduled over the next several years combined with harvest that has occurred in the last decade will likely reduce security cover for big game and impact habitats for some forest dependent species and forest dwelling species over the short-term." Generally, species dependent on mature forest habitats will be negatively impacted. Elk security and winter thermal cover will be reduced due to timber removal and road construction. Alternately, some species such as mule deer may benefit from the opening of timber canopy and increased shrub production. Negative impacts to wildlife habitat could result in more restrictive hunting opportunities.

The construction of approximately 16 miles of logging road may increase the noxious weeds and erosion along roadbeds and road cuts. Y.T. Timber will broadcast seed the roadways at the completion of their harvest activities on a one-time basis. The MWFP will need to address weed control and native vegetation reseeding as necessary along roadways and other disturbed sites in its management plan for the acquired lands. MWFP will also need to address issues such as reseeding roadways and creek crossings to reduce erosion and closing roads to deal with the lost cover for wildlife until forest regeneration occurs. Insufficient

information is available at this time to determine the magnitude and costs of these efforts following the completion of timber harvest.

RMEF notes that the Y.T. Timber purchased the property to harvest timber for its sawmills and intends to conduct additional harvest activities regardless of this transaction. The NRDP is not privy to specific information regarding Y.T. Timber's business plans and thus cannot specifically predict the volume or type of harvest activities that would occur without this transaction. What is certain, however, is that the conditions that would occur under the proposed options agreement provide greater protection to environmental resources than would be applicable should Y.T. Timber harvest in the absence of these conditions.

Potential impacts to environmental resources can occur with the increased public access the project provides (e.g. high intensity camping or use of off-road vehicles in fragile areas). Through the use of conservation-oriented management plans, the MFWP and USFS can reduce the likelihood and magnitude of these impacts.

5. Human Health and Safety Impacts – No adverse impacts

   This project does not involve any activities that would adversely impact human health and safety. By preventing development, and with management policies designed to maintain or enhance natural resources, the project will protect water supplies, streams, and groundwater from uses that would degrade them.

6. Results of Superfund Response Actions – Consistent

   This project will not duplicate or interfere with results of a completed, planned, or anticipated Superfund response action. It integrates with future response actions because it protects headwater streams upgradient of injured aquatic resources.

7. Recovery Period and Potential for Natural Recovery – No Effect on Recovery Period

   This project, by itself, will not affect the timeframe for recovery of injured resources. It has potential to enhance restoration of injured natural resources in conjunction with other restoration activities as described under criterion #11.

8. Applicable Policies, Rules and Laws – Consistent/Sufficient Information Provided

   RMEF has already provided many of the needed land transaction documents and arranged for completing the remaining tasks. RMEF has also coordinated with local entities and properly addressed the applicable policies, rules, and laws associated with this transaction, such as those that cover the proposed timber harvest activities.

9. Resources of Special Interest to the Tribes and DOI – Beneficial

   The DOI has indicated that the long-term protection afforded through an easement on the property would likely benefit migratory birds, listed species, and their habitat. Public

ownership and management of the property will preclude development and maintain or improve terrestrial and aquatic habitats. The property supports the bull trout and lynx; both listed as threatened under the Endangered Species Act; the westslope cutthroat trout, a species of special concern; and the wolverine, a rare species. The Warm Springs Creek Drainage is designated a core area for the recovery of bull trout in the UCFRB.

The Tribes indicated that, because the easement portion of this project does not involve physical disturbance of land, it does not present a concern regarding Tribal cultural or religious sites (see Appendix F). The Tribes also provided a letter of public support for this project.

Stage 2 Criteria

10. Project Location – Within the Basin and Proximate

The lands proposed for State ownership between Anaconda and Georgetown Lake are close to the Smelter Hill (about 1.5 miles), Stucky Ridge (about 2.0 miles), and Mount Haggin (about 4.5 miles) injured areas. Thus, this project is considered proximate to injured areas.

11. Actual Restoration of Injured Resources – May Contribute to Restoration

Although this project does not specifically restore an injured area, it has the potential to enhance the recovery of fish and wildlife populations in nearby injured areas in conjunction with other restoration actions. Public ownership and management will maintain or enhance the fish and wildlife habitat and species in the project area. Warm Springs Creek is a primary tributary of the Upper Clark Fork River and is the most important spawning tributary for brown trout. Maintenance or enhancement of water quality and fisheries habitat in the Warm Springs Creek watershed headwater streams that support native trout could possibly, over the long term, contribute to improved water quality and fish populations in the Clark Fork River. While the project will not enhance the restoration of wildlife habitat in the nearby-injured areas, the acquisition may enhance wildlife populations whose range might extend to the nearby-injured areas given initiation of restoration efforts in those areas.

12. Relationship between Service Loss and Service Restoration – Same and Similar

The project area includes structurally diverse habitats that are similar to those of the terrestrial injury areas – upland areas that are a mix of native grasslands and forests and wetland and riparian communities. Given these similarities in habitat and the proximity of this area to the injured areas, a close link exists between services lost and services replaced by this project. The fishing, hunting, wildlife viewing, bird watching and general recreational services to be provided by this project are substantially equivalent to some of the services lost due to natural resource injury in the UCFRB including the Anaconda Uplands. This project will also provide some services that are similar to but not the same as lost services, such as migratory bird habitat that was once available in the area now occupied by Opportunity Ponds.

13. Project Beneficiaries and Collateral Benefits – Original and Collateral

This project primarily benefits natural resources outside injured areas and the services these resources provide. In the long term, it may also benefit injured natural resources and lost or impaired services provided by those injured natural resources as described under criterion #7. Beneficiaries of the services provided by this project include the same groups originally harmed by injury to natural resources in the UCFRB. In particular, those who can no longer enjoy the wildlife habitat of the injured Anaconda Uplands and Opportunity Ponds are likely to use the project area for hunting, fishing, and wildlife viewing and general recreation. The fish and wildlife species to be protected and enhanced by this project are the same species that once occupied the injured areas of the Clark Fork River (bull trout, westslope cutthroat) and damaged Anaconda Uplands (elk, deer, moose, sheep). The open space and scenic views protected by the acquisition benefit an even broader user group.

14. Public Support – Broad

The application indicates strong public support from numerous and varied entities and individuals. Groups supporting the project include the Anaconda- Deer Lodge County Commission and Planning Department, MFWP, the Montana Fish, Wildlife, and Parks Commission, the George Grant Chapter of Trout Unlimited, Clark Fork Pend Oreille Coalition, Montana Wilderness Association, Skyline Sportsman's Association, the Montana Wildlife Federation, Montana Coalition for Appropriate Management of State Lands, Anaconda Snowmobile Club, Public Lands Access Association, and the Confederated Salish and Kootenai Tribes. Three of these letters, while indicating overall support of the project, noted concerns regarding the timber reservation and the need to focus management for ecological values and restoration. In addition to these groups, 181 individuals signed a petition supporting the land acquisition and 15 individuals/families also wrote letters of support.

During the public comment period, the State received numerous comments about this project. Eighteen persons or entities commented in support of funding this project. Most of them also recommended funding the entire project in the Pilot Year 2000 grant cycle through the commitment of $2.3 million of next year's available funding. Three individuals or entities expressed concerns regarding the timber harvest provisions associated with the Watershed Land Acquisition. One entity suggested more detailed scrutiny of the timber harvest aspects of the project.

15. Matching Funds – None to Minimal (State acquisition)/High (entire acquisition)

From the standpoint of only the 9,000 acres proposed for State ownership, the matching funds are none to minimal. The applicant has indicated its estimated transaction costs for the entire acquisition of $212,015 as matching funds. The estimated State portion of those costs based on the proportion of state acreage to total acreage of 28% would be approximately $60,000. However, whether RMEF incurs net transaction costs depends on the difference between RMEF's purchase price and the governments' purchase price, which is uncertain at this time. If RMEF sells these lands to the State and United States at a price higher than what

it is paying, then it will be able to recoup these costs and perhaps more. RMEF has also indicated its willingness to raise $50,000 to $100,000 in stewardship funds to assist MFWP with management costs.

For the entire Watershed Land Acquisition Project involving the purchase of 32,500 acres, $6.075 million is requested from the UCFRB Restoration Fund and $13.925 million is requested from the federal Land and Water Conservation Fund. Thus, from the standpoint of the entire acquisition, matching funds are high (70%).

16. Ecosystem Considerations, Coordination, and Integration – Integrates

This project does not specifically coordinate with other ongoing or planned restoration or remediation actions within the UCFRB nor does it interfere with any such action, including the State's Restoration Plan or on-going litigation. The project fits within a broad ecosystem context. The project provides an expansive, continuous forest habitat connecting the Flint Creek and Pintlar mountain ranges. Having this large area protected from incremental habitat loss and fragmentation should help maintain healthy wildlife populations. From an ecosystem standpoint, protecting the headwaters of Warm Springs Creek, an important tributary to the UCFRB, is an important step in restoration as it helps reduce additional detrimental impacts to downstream, injured resources. Finally, the protection of the significant fish and wildlife habitat as described previously offers benefits to the UCFRB ecosystem.

17. Normal Government Functions – Outside Normal Government Function

MFWP is involved in land acquisitions through the Habitat Montana Program and through other funding sources such as grant funds. However, MFWP is not specifically responsible for acquiring lands in the UCFRB, nor does it receive funding for such acquisitions in the normal course of events. The acquisition of the Garrity Mountain Property has been a MFWP priority since 1996 but has not been acted on due to lack of funding and other statewide commitments. It is unlikely the State could acquire this property through its normal agency funding, and certainly not within the time frame of the negotiated options agreement. MFWP has not requested use of Restoration Funds to cover future land management costs. As noted under criterion #14, RMEF is committed to providing monies that could be used by MFWP for these costs.

Land Acquisition Criteria

18. Desirability of Public Ownership – Major Benefits

Public ownership of this Watershed Property will provide replacement of lost or impaired services as described under criterion #12 and has the potential to benefit injured natural resources as described under criterion # 7. The project offers protection of the headwaters of an important tributary to the Clark Fork River and offers high quality hunting, fishing, wildlife viewing and general recreational opportunities in close proximity to injured areas and the UCFRB communities that were greatly impacted by natural resource injuries. For

these reasons, public ownership is considered to offer significant benefits to injured natural resources and lost or impaired services.

19. Habitat Protection – Exceptional (in the long term)

The Watershed Property has a diversity of habitats including riparian, wetland, forest, grassland, lakes, and streams and supports a variety of fish and wildlife species. An estimated 2,000 acres of riparian or wetland habitat exist on the entire property in the form of lakes, ponds, streams, and wetlands. The project will benefit species of special concern as described under criterion #9. RMEF states that, according to MFWP, the quality of the habitat on the State acquisition is good to excellent. The wildlife habitat will be diminished from timber harvest activities as described under criterion #4. With forest regeneration in harvested areas, the acquisition area will offer excellent habitat values, especially in combination with adjacent public lands.

20. Spillover Benefits – Major

This acquisition provides major benefits to the natural resources of a large surrounding area that is not injured. Limited benefits to injured areas may occur in the long term as described under criterion #7. This acquisition significantly increases the amount of land near Anaconda that can be managed for benefits to natural resources. The acquisition would help preserve an expansive, continuous forested habitat between the Flint Creek and Pintlar ranges and forested areas to the south for movement of bighorn sheep, moose, wolverine, and lynx. Acquisition of the critical winter range associated with the Garrity Mountain parcel would benefit the extensive area where elk and deer spend the remainder of the year. The acquisition will benefit aquatic and terrestrial sensitive species as described under criterion #9.

21. Access to Public Land – Facilitates

With public ownership, this acquisition both creates new and enhances existing public access. It also would facilitate access to extensive amounts of USFS land adjoining the property on the west, south, and north portions of the property. It should be noted that whether or not the acquisition includes legal access and vehicular access to the Clear Creek parcels is uncertain.

22. Price – Uncertain

The application indicates RMEF intends to offer to sell the land at the appraised value to be determined by a full appraisal. The request of $6.075 million from the Restoration Fund is based on a restricted appraisal fair market estimate of $675/acre. RMEF provided a full appraisal to the NRDP on October 31, 2000; the appraised value is $700/acre. The USFS conducted a review appraisal for both the federal and State parcels. The NRDP is currently reviewing both the full appraisal and the USFS review appraisal. Thus, the actual price of the State acquisition is unknown at this time, with the final price to be negotiated by the NRDP after the appraisals and any appraisal reviews are completed and the status of access to the

Clear Creek parcel is clarified. The NRDP will negotiate a price at or below the appraised value. In determining a reasonable purchase price for government agencies, the effect of Y.T. Timber's donation lands should be taken into consideration.

Monitoring and Research Criteria – Not Applicable

APPENDIX D

PROJECT BUDGET SUMMARIES AND IMPACT CHECKLISTS

To obtain copies of the Project Budget Summaries and Impact Checklists contained in the
Final Pilot Year 2000 Upper Clark Fork River Basin Restoration Work Plan, please contact:

State of Montana
Natural Resource Damage Program
1301 East Lockey
P. O. Box 201425
Helena, MT 59620-1425

(406) 444-0205

APPENDIX E

APPLICATION REVIEW GUIDELINES

APPENDIX E

APPLICATION REVIEW GUIDELINES

STAGE 1 CRITERIA REQUIRED BY LEGAL CONSIDERATIONS

1. TECHNICAL FEASIBILITY

General Considerations: Reviewers should bear in mind that the ultimate question to be answered under this criterion is: To what degree is the project likely to achieve its objectives? As per the DOI regulations, "Are the technology and management skills necessary to implement the project well known and does each element of the plan have a reasonable chance of successful completion in an acceptable period of time?" To evaluate both the technology aspects and management aspects, the application asks for a scope of work as well as information regarding successful application of the selected technology to similar sites. We are not just evaluating whether a particular technology has been successfully applied in the past, but also whether it will work as applied to this particular project as planned by the applicant.

Reasonably Feasible: The following descriptions apply to a project that is "Reasonably Feasible."

- The project employs well-known and accepted technology in design, engineering and implementation components of the project, and/or;

- The project applicant demonstrates that any innovative technologies proposed in the project are reasonably likely to achieve their stated objectives.

- Any uncertainties/issues requiring future resolution associated with the project are insignificant.

- There is a reasonable degree of confidence that the technologies proposed to be utilized in the project (whether well-known and accepted or experimental or innovative) can be applied to the project site to achieve their stated objectives.

- The project applicant demonstrates management skills necessary to implement the technologies at the project site in an acceptable period of time.

Based on these findings, the project is "Reasonably Feasible," and is therefore reasonably likely to achieve its objectives.

Uncertain Feasibility: If any of the following descriptions apply to a project that otherwise satisfies the description of a "Reasonably Feasible" project, then the project is of "Uncertain Feasibility."

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- It is uncertain whether any innovative or experimental technologies proposed in the project are likely to achieve their stated objectives.

- There are many or significant uncertainties associated with the project that require future resolution.

- It is uncertain whether the technologies proposed to be utilized in the project (whether well-known and accepted or experimental or innovative) can be applied to the project site to achieve their stated objectives.

- It is uncertain whether the project applicant demonstrates management skills necessary to implement the technologies at the project site in an acceptable period of time.

Based on these findings, the project is of "Uncertain Feasibility," and therefore the likelihood of the project achieving its objectives is uncertain.

Not Feasible: The conclusion that a project is "Not Feasible" may be based on one or more of several possible findings, including:

- Technologies (or a technology) proposed in the project are (is) not likely to achieve their (its) stated objectives.

- The project applicant does not demonstrate management skills necessary to implement the technologies (technology) at the project site in an acceptable period of time.

Based on these findings, the State concludes that the project is "Not Feasible," and therefore not likely to achieve its objectives.

2. RELATIONSHIP OF EXPECTED COSTS TO EXPECTED BENEFITS

General Consideration: Pursuant to this criterion, reviewers should evaluate to what extent a project's costs are commensurate with the benefits it provides. All costs and benefits, both direct and indirect, should be considered in this evaluation. Costs include monetary and other costs associated with the project. Because some project benefits and costs may be hard to quantify, reviewers should not attempt to assign a monetary value to all costs and benefits.

Note: Because this criterion involves a weighting of all benefits expected to be derived from a project against all costs associated with the project, it is suggested that reviewers undertake this evaluation only after completing all other Stage 1 and Stage 2 criteria evaluations. If the project is part of a larger project, evaluate the costs/benefits from the perspective of the benefits the project achieves by itself and its costs, as well as the benefits of the larger project and its costs. This criterion will ultimately be used to relatively compare projects. At this stage, however, the evaluation is confined to assessing the degree to which the project's costs are commensurate with the project's benefits.

High Net Benefits: Project benefits significantly outweigh/exceed costs associated with the project.

Net Benefits: Project benefits outweigh/exceed costs associated with the project.

Commensurate Benefits and Costs: Project benefits are generally commensurate with, or proportionally equal to, costs associated with the project.

Net Costs: Project costs outweigh/exceed benefits to be gained from the project.

High Net Costs: Project costs significantly outweigh/exceed benefits to be gained from the project.

3. COST-EFFECTIVENESS

General Consideration: Does the project accomplish its goals in the least costly way possible when compared to alternative projects that may accomplish the same goals? For example, if the project replaces a service, is this the most cost-effective way to replace that service? In our application guidelines, we asked applicants to provide:

1. a description of alternatives to the proposed project that were considered, including the no-action alternative;

2. a comparison of the benefits and costs of each alternative (to the extent possible); and,

3. justification for the selection of the preferred alternative.

Note: Whereas the previous criterion compared all of the costs and benefits associated with the project as proposed by the applicant, this criterion requires reviewers to compare the project as proposed with alternative methods of accomplishing the same or substantially similar goals. Reviewers should not limit this evaluation to the alternatives discussed by applicants. If the applicant does not discuss an obvious alternative, reviewers should consider that alternative in reaching their conclusions on cost-effectiveness.

Cost Effective: The applicant provides a complete and thorough analysis and the selected alternative is most cost-effective.

Likely Cost Effective: Although the applicant only provided a limited alternatives analysis, the State concludes that the selected alternative is likely to be cost-effective.

Not Cost Effective: A suitable alternative exists that will produce the same or similar level of benefits, but at significantly lower costs.

Uncertain: Insufficient information is available to conclude that the selected alternative is likely to be cost-effective.

4. ENVIRONMENTAL IMPACTS

General Consideration: To what degree will the project adversely impact the environment? Reviewers will evaluate to what degree the applicant has properly identified and addressed any potential short-term or long-term adverse impacts that significantly affect the quality of the human environment. For Montana Environmental Policy Act (MEPA) compliance, we will need to assure that all adverse environmental impacts and reasonable alternatives have been adequately characterized and considered during decision-making. If this assurance is uncertain, we may conduct some further evaluation or seek supplemental information.

Note: In the application, we divided our information requests to applicants regarding the impacts to the human environment into "environmental impacts" and "human health and safety" components. In this section, reviewers should consider applicant responses in the "environmental impacts" section as set forth in the application. In the following section, reviewers should consider applicant responses in the "human health and safety" section as set forth in the application. For assistance with MEPA terminology, please refer to Attachment A.

No Adverse Impacts: Without mitigation, the project presents no potential adverse impacts, either significant or minor, to the environment.

No Significant Adverse Impacts: Without mitigation, the project presents no potential significant adverse impacts to the environment. The project involves the potential for some minor adverse environmental impacts that do not rise to the level of significance.

Short-Term Adverse Impacts with Mitigation: The project presents potential significant short-term adverse environmental impacts. Mitigation measures, however, are included in the project that reduce otherwise significant adverse environmental impacts to below the level of significance. Mitigation that reduces significant adverse environmental impacts to below the level of significance results in a finding of no significant adverse impacts.

Long-Term Adverse Impacts with Mitigation: The project presents potential significant long-term adverse environmental impacts. Mitigation measures, however, are included in the project that reduce otherwise significant adverse environmental impacts to below the level of significance. Mitigation that reduces significant adverse environmental impacts to below the level of significance results in a finding of no significant adverse impacts.

Significant Adverse Impacts with Insufficient Mitigation: The project presents potential significant adverse environmental impacts, either short-term or long-term, and includes no (or insufficient) mitigation measures to reduce the otherwise significant impacts to below the level of significance.

5. HUMAN HEALTH AND SAFETY IMPACTS

General Consideration: To what has degree will the project have an adverse impact on human health and safety? If this is uncertain, further evaluation may be conducted or supplemental information may be gathered.

No Adverse Impacts: Without mitigation, the project presents no potential adverse impacts, either significant or minor, to human health and safety.

No Significant Adverse Impacts: Without mitigation, the project presents no potential significant adverse impacts to human health and safety. The project involves the potential for some minor adverse human health and safety impacts that do not rise to the level of significance.

Short-Term Adverse Impacts with Mitigation:. The project presents potential significant short-term adverse human health and safety impacts. Mitigation measures, however, are included in the project that reduce otherwise significant adverse human health and safety impacts to below the level of significance. Mitigation that reduces significant adverse human health and safety impacts to below the level of significance results in a finding of no significant adverse impacts.

Long-Term Adverse Impacts with Mitigation:. The project presents potential significant long-term adverse human health and safety impacts. Mitigation measures, however, are included in the project that reduce otherwise significant adverse human health and safety impacts to below the level of significance. Mitigation that reduces significant adverse human health and safety impacts to below the level of significance results in a finding of no significant adverse impacts.

Significant Adverse Impacts with Insufficient Mitigation: The project presents potential significant adverse human health and safety impacts, either short-term or long-term, and includes no (or insufficient) mitigation measures to reduce the otherwise significant impacts to below the level of significance.

6. RESULTS OF SUPERFUND RESPONSE ACTIONS

(Readily Available Information)

General Consideration: This criterion considers the results, either existing or anticipated, of completed, planned, or anticipated (if there is a reasonable measure of confidence in the anticipated action) UCFRB Superfund response actions. To what degree would the project be consistent with, augment or, alternately, interfere with or duplicate the results of such actions, including Superfund investigations and evaluations?

Note: A finding of inconsistency with response actions will *RPPC* usually, but not always, mean that the action is inappropriate or unjustifiable. As stated in the, the State will tend to favor projects that augment response actions rather than undo a response action. If, however, the State considers a response action to be ineffective and non-beneficial, then interference or

inconsistency with the response action may positively improve restoration of natural resources to baseline. This should be assessed on a case-by-case basis. If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project.

Positive Coordination: The project coordinates with and augments the results of an effective Superfund action(s).

Consistent: The project may or may not augment the results of an effective Superfund response action(s), but it will not interfere with or duplicate the results of such an action(s).

Inconsistent but Potentially Beneficial: The project would interfere with or duplicate the results of an ineffective Superfund action(s).

Inconsistent: The project would interfere with or duplicate the results of an effective Superfund action(s).

7. RECOVERY PERIOD AND POTENTIAL FOR NATURAL RECOVERY

(Readily Available Information)

Note: If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project.

General Consideration: Will the proposed restoration project affect the time frame for recovery of the injured resource and if so, to what degree? In addition to information presented by the project applicant, reviewers should rely on the 1995 Restoration Determination Plan and backup injury assessment reports to estimate natural recovery potential for injured resources addressed by the project. For projects that involve actual restoration of natural resources and, consequently, services, this criterion aims at determining just how well the project enhances the recovery period – does it significantly hasten that recovery? This criterion also evaluates the potential for natural recovery of an injured resource. If a resource is expected, on its own, to recover in a short period of time, a restoration action may not be justified.

Note: Given that the State recovered damages for past lost value of natural resources and services, it is not critical that all replacement projects consider the potential for recovery of the injured resource or services being replaced. This consideration may be relevant, however, when comparing replacement projects and relatively weighing the necessity of replacing one service or resource over another. For example, one project may replace services that will recover naturally in one year, while another project replaces services that will not recover naturally for 500 years. Depending on the service or natural resource replaced, the State may favor one of these projects over the other, based on the fact that the services or natural resources replaced will naturally recover in a short period of time for one project and not the other. For this reason, reviewers should consider recovery potential in the context of replacement projects.

Reduces the Recovery Period: The project enhances recovery potential of the injured resource and/or services provided thereby by reducing the time in which they will recover to baseline.

Note: This is a qualitative evaluation that should be assessed on a scale ranging from slight enhancement to complete restoration/replacement to baseline.

May Reduce the Recovery Period: It is possible but not certain that the project may reduce the time in which the injured resources and/or services provided thereby will recover to baseline.

No Effect on Recovery Period: The project most likely will not change the time frame for recovery.

Increases Recovery Period: The project diminishes recovery potential of the injured resource and/or services provided thereby by lengthening the time in which they will recover to baseline.

8. APPLICABLE POLICIES, RULES AND LAWS

(Readily Available)

General Consideration: To what degree is the project consistent with all applicable policies of state, federal, local and tribal government, including the *RPPC*, and in compliance with applicable laws and rules, including the consent decree?

The application requested information from applicants regarding four sub-issues: (1) permits obtained and any other permits required to complete the project, including pertinent dates; (2) deeds, easements or right-of-way agreements required to complete the project; (3) communication and coordination with local entities; and, (4) the effect, and consistency/ inconsistency with other laws, rules, policies, or consent decree requirements. The State may supplement applicant's information to the extent necessary to assess consistency with applicable policies and compliance with applicable laws and rules.

Note: For this criterion, applicants for projects over $10,000 were only required to submit readily available information. Applicants for projects of $10,000 or under were not required to address this criterion. Thus, the State may need to supplement information to evaluate this criterion. If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project.

Consistent/Sufficient Information Provided: The applicant has provided sufficient information to make the following determinations:

- All permits necessary to complete the project on schedule are identified and obtained, or reasonable assurance is provided that they will be obtained.

- All deeds and easements or rights-of-way necessary to complete the project on schedule are identified and obtained, or reasonable assurance is provided that they will be obtained.

- As necessary, the applicant has demonstrated that communication and coordination with local entities has occurred, or reasonable assurance is provided that such communication and coordination will occur.

- The applicant has demonstrated measures taken to comply with, and that the project is otherwise consistent with, other laws, rules, policies, or consent decree requirements.

Consistent/Insufficient Information Provided: Based on information provided by applicant and supplemented by State through the Attachment B form, it has been demonstrated that the project is Consistent as described above.

Inconsistent: After supplemental information has been obtained by the State (if necessary), the State concludes that the project may not be implemented consistent with policies of state, federal, local and tribal government, including the *RPPC*, or in compliance with applicable laws and rules, including the consent decree.

9. RESOURCES OF SPECIAL INTEREST TO THE TRIBES AND DOI

(Readily Available)

General Consideration: Are any of the following located in the vicinity of the proposal? This criterion will require NRDP consultation with Tribes and DOI. For affirmative response, indicate whether the project may have a positive or negative impact on Tribal cultural resources or Tribal religious sites (as defined in MOA) and/or natural resources of special environmental, recreational, commercial, cultural, historical, or religious significance to Tribes or DOI. Projects of potential negative impact require special consideration according to the provisions of the MOA. If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project.

Beneficial Impact: Project will have or may have beneficial impacts on these special sites/resources.

No Impact: Project has no adverse impacts on these special sites/resources.

Minor Adverse Impact: Project has potential minor adverse impacts on these special sites/resources but protective measures have been integrated or can be easily integrated without significant project changes.

Major Adverse Impact: The project has potential major adverse impacts on these special sites/resources that will require further consideration under terms of the MOA.

STAGE 2 CRITERIA REFLECTING MONTANA POLICIES

10. PROJECT LOCATION

General Consideration: This criterion requires evaluation of the geographic proximity of the project to the injured resources it proposes to restore or replace. The *RPPC* and application instructions express a preference for restoration (or replacement) projects that occur at or near the site of injury, with the exception of Big Blackfoot River native trout restoration or replacement activities (see specific instructions below). There is no absolute scale of distance to determine proximity. Rather, proximity may be judged independently for each project, depending on a number of factors including the natural resource injury addressed and the geographic extent of benefits that may accrue from the project.

Specific instructions regarding Big Blackfoot River native trout restoration or replacement activities: The RPPC requires projects to be in the UCFRB. For projects on the Big Blackfoot River watershed that an applicant states are intended to restore native trout that cannot, from an economic or practical standpoint, be restored in the UCFRB, categorize the project into the "Big Blackfoot Exception" below. Analyses conducted pursuant to other criteria will determine whether the project will actually accomplish what it says it will. So for the purposes of the "Big Blackfoot Exception" only, rely on applicant's statement for this criterion.

Within Basin and Proximate: All or most of the restoration or replacement activities associated with this project will be conducted at or reasonably near the site of natural resource injury to be addressed through the project.

Within Basin and Proximate/Other: Some of the restoration or replacement activities associated with this project will be conducted at, or reasonably near, the site of natural resource injury to be addressed through the project. Some of the restoration or replacement activities associated with this project will be conducted at other locations away from the site of natural resource injury to be addressed through the project.

Within Basin: All or most of the restoration or replacement activities associated with this project will be conducted at a location that is within the UCFRB but away from the site of natural resource injury to be addressed through the project.

Big Blackfoot Exception: Applicant states that this project proposes native trout restoration or replacement activities located in the Big Blackfoot River watershed which cannot, due to practical or economic considerations, be conducted within other areas of the UCFRB.

Not Applicable: The project is a research or monitoring project.

11. ACTUAL RESTORATION OF INJURED RESOURCES

General Consideration: The *RPPC* states that actual restoration of the resources that are injured should be given priority. This criterion requires evaluation of whether, and to what extent, the project will restore injured natural resources that were the subject of the Montana v. ARCO lawsuit.

Note: The term "restore" under this criterion is used in its specific meaning, i.e., actions are designed to return injured resources and services provided thereby to baseline conditions or accelerate the natural recovery process.

Restoration: All aspects of the project are intended to accomplish restoration of an injured natural resource.

Restoration/Other: Some aspects of the project are intended to accomplish restoration of an injured natural resource.

Contributes to Restoration: Although the project is not intended to directly accomplish restoration of an injured natural resource, some aspects of the project contribute to the restoration of an injured natural resource.

May Contribute to Restoration: Although the project is not intended to directly accomplish restoration of an injured natural resource, some aspects of the project may contribute to the restoration of an injured natural resource.

No Restoration: The project is not intended to accomplish restoration of an injured natural resource, nor is it likely to contribute to restoration of an injured natural resource.

12. RELATIONSHIP BETWEEN SERVICE LOSS AND SERVICE RESTORATION

General Consideration: The *RPPC* states that proposed restoration projects (general sense) that closely link the services that are the project's focus with the service flows that have been impaired, will be favored over projects that do not. To address this criterion, reviewers should examine the connection between the services that a project seeks to provide or augment and the services lost or impaired as a result of natural resource injuries.

Note: Complex projects may involve a combination of the following categories. Reviewers should note which aspects of each project falls into each of the categories.

Same: The services restored or augmented by the project are the same or substantially equivalent to services lost or impaired due to natural resource injury.

Similar: The services restored, augmented, or replaced by the project are not the same or equivalent to, but are similar to those lost or impaired due to natural resource injury.

Dissimilar: There is no connection between the services lost or impaired and the services provided or augmented by the project.

13. PROJECT BENEFICIARIES AND COLLATERAL BENEFITS

General Consideration: The *RPPC* states that projects that benefit the user group originally harmed by injury to natural resources will be favored, and that the State will also examine to what extent and degree a project will produce benefits to more than one resource and/or service. To address this criterion, reviewers should determine whether, and to what degree, the project benefits the user group (persons and/or natural resources) originally harmed and whether the project will produce benefits to other resources and/or services (collateral benefits).

Original and Collateral: The project significantly benefits the persons and/or natural resources originally harmed by the loss of services and other resources and/or services.

Original: The project significantly benefits the persons and/or natural resources originally harmed by the loss of services.

Collateral: The project does not benefit the persons and/or natural resources originally harmed, but does benefit other resources and/or services.

No Benefits to Original or Collateral: The project benefits neither the original user group nor provides collateral benefits.

14. PUBLIC SUPPORT

General Consideration: What is the extent of public support for the project demonstrated in the application?

Note: The evaluation conducted pursuant to these instructions is based exclusively on information available at the time of the evaluation, which is primarily the letters of support provided in an application. Subsequently, public support may be demonstrated throughout the funding selection process (e.g. at the pre-draft and draft review stages). Therefore, the evaluation presently undertaken will need to be updated after the public comment period on the draft Restoration Work Plan is completed. Public comment may demonstrate further support, opposition, or a mixture of support and opposition.

Broad: Documentation indicates strong and broad public support from numerous and varied persons and entities.

Moderate: Documentation indicates support from more than a few but not numerous persons and entities.

Limited: Documentation indicates public support from a few persons and entities.

None: No public support is documented.

15. MATCHING FUNDS

General Consideration: To what extent does the project entail cost sharing? The State will calculate matching funds by determining the percentage of the total project costs for activities under the project's scope of work to be funded by other sources besides Restoration Funds. For projects that are part of a larger project for which future funding will be sought, the State will only consider the matching funds dedicated to the phase of the project that is to be funded by Restoration funds. For land acquisition projects, the State will accept as matching funds payments or donations that make up the difference between the funding request and the appraised value.

Note: If necessary, reviewers will need to consult matching fund entities to determine the likelihood of matching funds. The State's determination of matching funds will not always match the applicant's determination.

High: Confirmed or likely cost share of 50% or greater.

Reasonable: Confirmed or likely cost share of between 25% and 50%.

Limited: Confirmed or likely cost share of between 10% and 25%.

Minimal/None: Cost share < 10%.

16. ECOSYSTEM CONSIDERATION, COORDINATION, AND INTEGRATION

(Applicant Response Optional)

General Consideration: How well is the project planned to integrate with other ongoing or planned restoration, remediation or other actions, considering the complex arrangement of interdependent ecological components of the UCFRB? Planned restoration actions include, but are not limited to, the State's Restoration Determination Plan for Step 2 sites that are still undergoing litigation. In addition to evaluating how projects coordinate with other actions, the criteria examine the relationship between a particular project and overall resource conditions of the UCFRB, attempting to understand the impact of a project on the ecosystem as a whole.

Note: Applicant response to this criterion is optional. If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project. Additionally, this evaluation requires a determination of whether implementation of the project will conflict with ongoing litigation. To make this determination, reviewers should consult with NRDP legal staff.

Coordinates/Integrates: Project coordinates and achieves efficiencies not otherwise possible through coordination with other restoration/remediation activities. The project fits within a broad ecosystem concept in that it improves a resource problem when viewed on a large scale, is sequenced properly from a watershed management approach, and will not interfere with other efforts. The project does not interfere with the State's Restoration Determination Plan or ongoing litigation on Step 2 sites.

Integrates: Although the project does not directly coordinate with other actions, it fits within broad ecosystem concept as described above. The project does not interfere with the State's Restoration Determination Plan or on-going litigation on Step 2 sites.

Conflicts: Project may interfere with significant, beneficial on-going or planned actions or is one that should wait from an ecosystem standpoint or a litigation standpoint (Step 2 sites) until other actions occur or certain environmental conditions occur.

17. NORMAL GOVERNMENT FUNCTIONS

(Applicant Response Optional)

General Consideration: The *RPPC* states those activities, for which a governmental agency would normally be responsible or that would receive funding in the normal course of events, (absent the UCFRB Restoration Fund) will not be funded. The Restoration Fund may be used, however, to augment funds normally available to government agencies to perform a particular project if such cost sharing would result in implementation of a restoration project that would not otherwise occur through normal agency function. For this criterion, reviewers should determine whether the project is intended to accomplish activities that would otherwise not occur through normal agency function.

Note: Applicant response to this criterion is optional. If necessary, reviewers should utilize the form attached as Attachment B to record any additional information pursuant to this criterion not included in the application and required for complete evaluation of the project.

Outside Normal Agency Function: The project does not involve activities normally conducted by government agencies or obligations of governmental entities under law for which they receive funding or for which they are responsible for securing funding.

Augments Normal Agency Function: The project involves activities that may normally be conducted by governmental agencies, except that the project augments such activities beyond a level required by law and for which funding is presently insufficient to implement the project.

Within Normal Agency Function: The project involves activities normally conducted by government agencies or obligations of governmental entities under law for which they receive funding or for which they are responsible for securing funding.

STAGE 2 CRITERIA – LAND ACQUISITION PROPOSALS ONLY

18. DESIRABILITY OF PUBLIC OWNERSHIP

General Consideration: To what extent does the public ownership of land or interests in land (e.g. water rights, conservation easements) involved in this proposal benefit injured natural resources or provide services that have been lost or impaired?

Major Benefits: The project provides major benefits to injured natural resources and/or provides lost services of major magnitude/scale in terms of the quality of services provided and the user groups likely to benefit from those services.

Moderate Benefits: The project provides moderate benefits to injured natural resources and/or provides lost services of moderate magnitude/scale in terms of the quality of services provided and the user groups likely to benefit from those services.

Minor Benefits: The project provides minor benefits to injured natural resources and/or provides lost services of limited magnitude/scale in terms of the quality of services provided and the user groups likely to benefit from those services.

19. HABITAT PROTECTION

General Consideration: What is the value, as habitat for fish and wildlife, of the property proposed for acquisition? Among other factors, consider the benefits to multiple species, the quality of the habitat, and the relative habitat availability.

Exceptional: The property provides, or will provide, exceptional habitat for fish and wildlife.

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Good: The property provides, or will provide, good habitat for fish and wildlife.

Marginal: The property provides, or will provide, marginal habitat for fish and wildlife.

20. SPILLOVER BENEFITS

General Consideration: To what extent does the acquisition benefit either an injured area or, more generally, a large surrounding area that is not injured?

Major: Acquisition provides major benefits to an injured area and/or a large surrounding area that is not injured.

Moderate: Acquisition provides moderate benefits to an injured area and/or a large surrounding area that is not injured.

Minor: Acquisition provides minor benefits to an injured area and/or a large surrounding area that is not injured.

None: Acquisition does not provide any spillover benefits.

21. PUBLIC ACCESS

General Consideration: Will access to public land be facilitated by acquisition?

Facilitates: The acquisition creates new or enhances existing access to public land.

Does not Facilitate: The acquisition does not create any new or enhance any existing access to public land.

22. PRICE

General Consideration: To what extent is the land/interest being offered for sale at fair market value?

Reasonable: Documentation indicates property is being acquired at or below fair market value.

High: Documentation indicates property is being acquired above market value.

Uncertain: Insufficient information is available at this time for comparison to fair market value.

STAGE 2 RESEARCH AND MONITORING CRITERIA

These criteria are applicable only to research and monitoring projects. Through minimum qualification determinations, we have already established that the proposed research or monitoring project pertains to restoration of injured natural resources in the UCFRB. These two criteria are designed to distinguish the level of benefits these projects will have on restoration of injured natural resources.

23. OVERALL SCIENTIFIC PROGRAM

General Consideration: To what extent is the monitoring or research project coordinated or integrated with other scientific work in the UCFRB?

Coordinates: The project will augment and not duplicate past and on-going scientific work, focusing on existing data gaps. The applicant has also demonstrated thorough knowledge of and coordination with other scientific work in the Basin.

Does not Coordinate: The project does not involve any coordination or integration with other scientific work in the Basin or may be duplicative.

Uncertain: Insufficient information has been provided to determine the level of coordination/ integration with other scientific work in the UCFRB.

24. ASSISTANCE WITH RESTORATION PLANNING

General Consideration: To what extent will this project assist with future restoration efforts?

Major Benefits: The project will be of major benefit to future restoration efforts in terms of needed information on the status and condition of natural resources and recovery potential/ constraints or assistance with restoration project planning, selection, implementation, and monitoring.

Moderate Benefits: The project will be of moderate benefit to future restoration efforts in terms of needed information on the status and condition of natural resources and recovery potential/ constraints or assistance with restoration project planning, selection, implementation, and monitoring.

Minor Benefits: The project will be of minor benefit to future restoration efforts in terms of needed information on the status and condition of natural resources and recovery potential/ constraints or assistance with restoration project planning, selection, implementation, and monitoring.

ATTACHMENT A

MEPA Terminology

The Montana Environmental Policy Act ("MEPA"), Mont. Code Ann. § 75-1-101 through § 75-1-324, requires state agencies to carry out the policies in part 1 of MEPA through the use of a systematic, interdisciplinary analysis of state actions that have an impact on the human environment. To this end, MEPA has two central requirements: agencies must consider the effects of pending decisions on the environment and on people prior to making each decision; and, agencies must ensure that the public is informed of and participates in the decision-making process. Through the "Environmental Impacts" and "Human Health and Safety" analyses, reviewers accomplish this first important requirement of MEPA. This appendix provides basic information regarding MEPA with which reviewers should be familiar before undertaking their analyses of "Environmental Impacts" and "Human Health and Safety" criteria statements.

1. Terminology used in the *RPPC*: short-term, long-term, direct and indirect adverse impacts.

The *RPPC* states that **short-term**, **long-term**, **direct** and **indirect** adverse impacts will be evaluated. "Short-term" and "long-term" adverse impacts are not specifically discussed in MEPA. These terms, however, should be used by reviewers to subjectively categorize the duration of adverse impacts potentially presented by a project.

The Montana EQC guide to MEPA provides the following definitions of "direct" and "secondary" (rather than indirect) impacts.

- **Direct impacts** are those that occur at the same time and place as the action that triggers the event.
- **Secondary impacts** are those that occur at a different location and/or later time than the action that triggers the effect.

2. MEPA evaluations apply to the "human environment."

Reviewers should be aware that the MEPA analysis of adverse impacts applies to the "**human environment**." The MEPA definition of the term "human environment" includes, but is not limited to "biological, physical, social, economic, cultural, and aesthetic factors that interrelate to form the environment. . . . [E]conomic and social impacts do not by themselves require an EIS . . ." but when an EIS is prepared, "economic and social impacts and their relationship to biological, physical, cultural and aesthetic impacts must be discussed." MEPA Model Rule II (12).

3. What is a "significant" adverse impact, and what is a "minor" adverse impact?

The determination of the "**significance**" of an adverse impact on the human environment involves the consideration of several factors, as set forth in MEPA Model Rule IV. The standard set forth in this rule is somewhat subjective, and reviewers should be familiar with the rule to make a determination of the significance of adverse environmental impacts. Additionally, there

is a library-full of caselaw (speaking metaphorically) on what constitutes a "significant adverse environmental impact." Questionable or borderline determinations should be referred for a legal opinion.

MEPA Model Rule IV sets forth the following criteria for determining the significance of an impact on the quality of the human environment:

(a) the severity, duration, geographic extent, and frequency of occurrence of the impact;
(b) the probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;
(c) growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;
(d) the quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values;
(e) the importance to the state and to society of each environmental resource or value that would be affected;
(f) any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and
(g) potential conflict with local, state or federal laws, requirements or formal plans.

"**Minor**" adverse environmental impacts are adverse environmental impacts that do not rise to the level of significance.

4. "Mitigation" under MEPA.

Mitigation reduces or prevents the undesirable impacts of an action. Mitigation measures must be enforceable. MEPA Model Rules II(14) and V(2)(h) define mitigation as: avoiding an impact by not taking certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of an action and its implementation; rectifying an impact by repairing, rehabilitating, or restoring the affected environment; or, reducing or eliminating an impact over time by preservation and maintenance operations during the life of an action or the time period thereafter that an impact continues. Examples of mitigation include designs, enforceable controls, or stipulations to reduce the otherwise significant impacts to below the level of significance.

ATTACHMENT B

Supplemental Information Form
(to be utilized by reviewers)

Results of Superfund Response Actions – Supplemental Information

Recovery Period and Potential for Natural Recovery – Supplemental Information

Applicable Policies, Rules and Laws – Supplemental Information

- Additional permits necessary to complete the project on schedule.
- Additional deeds, easements or rights-of-way necessary to complete the project on schedule.
- Additional communication and coordination with local entities necessary to complete the project on schedule.
- Additional measures necessary for compliance and consistency with other laws, rules, policies, or consent decree requirements.

Resources of Special Interest to the Tribes and DOI – Supplemental Information

APPENDIX F

AGENCY, TRIBAL, AND ADVISORY COUNCIL INPUT

To obtain copies of Agency, Tribal, and Advisory Council Input
contained in the
Final Pilot Year 2000 Upper Clark Fork River Basin Restoration Work Plan,
please contact:

State of Montana
Natural Resource Damage Program
1301 East Lockey
P. O. Box 201425
Helena, MT 59620-1425

(406) 444-0205