2003 FINAL
UPPER CLARK FORK RIVER BASIN
RESTORATION WORK PLAN

PREPARED BY:

STATE OF MONTANA
NATURAL RESOURCE DAMAGE PROGRAM
1301 EAST LOCKEY
P. O. BOX 201425
HELENA, MT 59620-1425

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I hereby approve of the project funding recommendations as stated in this document:

_____ _____

Governor Judy Martz Date

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Acronyms

ADLC	Anaconda-Deer Lodge City County Government
Advisory Council	Upper Clark Fork River Basin Remediation and Restoration Education Advisory Council
ARCO	Atlantic Richfield Company
BMPs	Best Management Practices
B-SB	Butte-Silver Bow City County Government
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Clark Fork River
DEQ	Montana Department of Environmental Quality
DNRC	Montana Department of Natural Resources and Conservation
DOI	U.S. Department of Interior
EPA	U.S. Environmental Protection Agency
FWP	Montana Fish, Wildlife and Parks
MDT	Montana Department of Transportation
MOA	Memorandum of Agreement
NRDP	Natural Resource Damage Program
RPPC	UCFRB Restoration Plan Procedures and Criteria
ROD	Record of Decision
SBC	Silver Bow Creek
TMDL	Total Maximum Daily Load
Tribes	Confederated Salish and Kootenai Tribes
UCFRB	Upper Clark Fork River Basin
USFS	U.S. Forest Service

1.0 EXECUTIVE SUMMARY

1.1 Background

The State of Montana obtained approximately $130 million for restoration of injured natural resources in the Upper Clark Fork River Basin (UCFRB) through a partial settlement of its natural resource damage lawsuit against the Atlantic Richfield Company (ARCO) in 1999. In February 2000, the State released the *UCFRB Restoration Plan Procedures and Criteria* (*RPPC*) that provided the framework for expending these Restoration funds. The document was based on input from the UCFRB Remediation and Restoration Education Advisory Council (Advisory Council)[1] and public comment. Rather than embarking on a prescriptive process, the State elected to establish a grant 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. Using experience gained from the first two grant cycles, the State revised the *RPPC* in March 2002.

The Montana Natural Resource Damage Program (NRDP) administers the UCFRB Restoration Grant process. UCFRB Restoration Grant eligibility requirements include:

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

Project Location Eligibility: Only projects that are located in the UCFRB 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.

The State has awarded approximately $21 million for 27 projects since December 2000. Information on these projects can be found on the Department of Justice website at www.doj.state.mt.us under "Montana Lands" or upon request from the NRDP (406-444-0205).

[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 E.

1.2 Overview of the 2003 Grant Cycle and the *2003 Final UCFRB Restoration Work Plan*

This *2003 Final UCFRB Restoration Work Plan* (*Final Work Plan*) describes the State's evaluation of the 2003 Restoration Grant applications and draft funding recommendations. The *RPPC* sets forth the process the NRDP follows in evaluating applications and recommending funding. The following summarizes the various phases of the application submittal and evaluation process and describes the sections of the *Final Work Plan*.

- In January 2003, the NRDP distributed the 2003 grant application materials and conducted educational workshops on the application process.

- In March 2003, the NRDP received six grant applications for a total funding request of $5,301,099. Subsequently, two applicants reduced their funding requests, thereby reducing the total funding request to $4,816,656.

- In April 2003, the NRDP issued its minimum qualification determinations for the six applications. All six projects were judged as meeting all the minimum qualification criteria, as covered in Section 2.0.

- The NRDP evaluated the six projects according to criteria specified in the *RPPC*. Appendix A provides maps for the six projects. Section 3.0 summarizes the projects. Section 4.0 summarizes the NRDP's detailed Project Criteria Narratives that are contained in Appendix B and constitute the basis for project comparisons and funding recommendations. These evaluations were based on application review guidelines contained in Appendix D that were derived from the criteria set forth in the *RPPC*. Appendix C provides the Budget Summary Tables and the Environmental Impact Checklist provided by the project applicants.

- The NRDP received input from the Confederated Salish and Kootenai Tribes (Tribes) and Department of Interior on this year's projects that is provided in Appendix E.

- The NRDP compared the six 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 presents these rankings.

- The NRDP presented the July 2003 *Pre-Draft Work Plan* to the UCFRB Advisory Council at its July 9, 2003 meeting. The NRDP recommended three projects for full funding and three projects for partial funding in the *Pre-Draft Work Plan*.

- At its August 13, 2003 meeting, the Advisory Council voted to recommend five of the six projects for funding in the amounts recommended by the NRDP in its July 2003 *Pre-Draft Work Plan*. A summary of the Advisory Council's input is continued in Appendix E.

- At its August 28, 2003 meeting, the Trustee Restoration Council considered the recommendations of the NRDP and the Advisory Council and heard public comment. The NRDP incorporated the Trustee Restoration Council's draft funding recommendations into the *Draft 2003 UCFRB Restoration Work Plan (Draft Work Plan)*.

- The NRDP solicited public comment on the *Draft Work Plan* from September 11, 2003 through October 14, 2003. A total 44 individuals including representatives of six entities submitted either written comments or provided oral comments at a public hearing held in Butte on September 23, 2003.

- At its November 12, 2003 meeting, the Advisory Council considered the public comments received on the *Draft Work Plan* and affirmed their earlier funding recommendations. A summary of Advisory Council input is contained in Appendix E.

- On November 21, 2003, the Trustee Restoration Council considered public comments on the *Draft Work Plan* and the NRDP's draft response to these comments. The Council affirmed the draft funding recommendations as their final recommendation. The following are the five projects and amounts recommended for funded. The Trustee Restoration Council did not recommend funding of the Thompson Park project.

    - Basin Dams - $503,006
    - Butte Waterline - $1,188,905
    - Anaconda Waterline - $995,000
    - Upper Willow Creek - $282,758
    - East Valley - $408,810

1.3 Public Comments

Public input received before and during the public comment period on specific grant projects and draft funding recommendations is summarized in the Project Criteria Narratives (Appendix B) of the *Final Work Plan*. *The State of Montana's Responses to Public Comments on the Draft 2003 UCFRB Restoration Work Plan* (December 2003) provides copies of the comment letters and public hearing comments received during the public comment period and the State's responses to these comments. This document is available upon request from the NRDP or from the Department of Justice webpage at **www.state.doj.mt.us** under "Montana Lands."

2.0 MINIMUM QUALIFICATION DETERMINATIONS

The NRDP initially evaluated the six 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 injured natural resources that were the subject of Montana v. ARCO.

- The proposed project would be located in the UCFRB. (This requirement does not apply to research projects, provided that the proposed research pertains to restoration of natural resources located in the UCFRB)

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

- That consideration or implementation of the proposed project would not interfere, potentially interfere, overlap, or partially overlap with the State's remaining claims in the Montana v. ARCO natural resource damage lawsuit, or with the State's proposed restoration determination plans for the three sites still involved in that litigation. Those sites are Butte Area One, Smelter Hill Area Uplands and the Upper Clark Fork River. In addition, projects that are proposed for implementation at the Upper Clark Fork River or Butte Priority Soils Operable Units will not be considered prior to the issuance of EPA's Record of Decision for the sites.

The six projects met minimum qualifications and were fully evaluated for Stage 1 and 2 criteria according to the *RPPC* procedures. All six projects are replacement projects.

3.0 PROJECT SUMMARIES

Table 1 summarizes the six projects submitted. The total request for Restoration funds for these projects is $4,816,656. The following summary of each project is provided for assistance in understanding the project evaluations and comparisons contained in Section 4.0. Project location maps are contained in Appendix A.

Basin Creek Dams Rehabilitation ("Basin Dams") – Butte-Silver Bow City County Government

Butte-Silver Bow City County proposes to upgrade the two Basin Creek Dams for a cost of $806,012 with $503,006 requested in Restoration funds. The Basin Creek Reservoir system comprises about 35% of Butte's annual water supply. No water treatment is presently required because of high water quality from the reservoirs. The focus of this grant is to make the improvements needed to maintain the filtration waiver and to supply the citizens of Butte with an economic, reliable, and safe drinking water supply.

The dams are located six and seven miles south of Butte. The initial construction of the dams was completed in 1895. The upper dam (#2) and reservoir serve primarily to remove sediment. The lower reservoir (#1) serves as the primary storage reservoir with a capacity of 363 million gallons (1,115 acre-feet). Dam #1 consists of mortared granite blocks and is 77 feet high and 247 feet long.

A large portion of Butte's bedrock aquifer is so severely injured that natural recovery will not occur for thousands of years, as concluded by State's 1995 Restoration Determination Plan and by the U.S. Environmental Protection Agency's 1994 Record of Decision. Restoration of the bedrock aquifer is infeasible, thus the aquifer's drinking water storage capacity and transport services have been lost for thousands of years. This proposal enhances an uncontaminated drinking water supply for Butte water users. Thus, it constitutes replacement of lost services to some of the thousands of property owners and to other members of the public in Butte that could use the aquifer if it was not injured.

Drinking Water Infrastructure Replacement Year 3 ("Butte Waterline") – Butte-Silver Bow City County Government

Butte-Silver Bow City County proposes to replace approximately 17,000 feet of inadequate water distribution lines in the City of Butte for a total cost of $1,742,401, including $1,188,905 requested in Restoration funds. This is the third year in which Butte-Silver Bow has requested funding for water line replacement, with $2,334,637 approved in the past two years. The amount requested is $20,063 more than last year's approved funding request.

Butte's bedrock aquifer is contaminated throughout a seven square mile area of the City and these distribution lines overlay that aquifer. This aquifer is so severely injured that natural recovery will not occur for thousands of years, as concluded by the State's 1995 Restoration Determination Plan and by the U.S. Environmental Protection Agency's 1994 Record of Decision. Restoration of the bedrock aquifer is infeasible, thus the aquifer's drinking water and

its storage capacity and transport services have been lost for thousands of years. By fixing leaking and corroded water lines, this project will enhance the water supply from an uncontaminated source. Thus, it constitutes replacement of lost services to thousands of property owners and other members of the public in Butte that could utilize the aquifer if it was not injured.

East Fourth Street Water Main Improvements ("Anaconda Waterline") – Anaconda-Deer Lodge City County Government

Anaconda-Deer Lodge County is replacing a leaking, 104-year-old, 14-inch waterline along Fourth Street. Approximately 1.75 million gallons of water per day leak through the City of Anaconda's water distribution system. Repairing these leaks is an alternative that will provide the City of Anaconda with additional water resources instead of developing a new source of water. The total project costs are $1,282,318, with $287,318 in matching funds and $995,000 requested in Restoration funds.

The City of Anaconda is located adjacent or partially within the 40 square miles of groundwater contamination associated with the Anaconda Regional Water, Waste, and Soils Operable Unit. Groundwater resources are somewhat limited because the upper portion of the alluvial groundwater aquifer east of Anaconda is contaminated with metals associated with past mining activities at levels above water quality standards. The 1995 State of Montana Anaconda Groundwater Injury Assessment Report supports this claim of groundwater contamination east of Anaconda. Also, the 1998 Anaconda Regional Water, Waste, and Soils Operable Unit Record of Decision indicates some 30 square miles of contaminated bedrock groundwater to the north and south of the City.

The Fourth Street waterline project is considered a replacement project. This request is the second year of what Anaconda Deer Lodge County has indicated will be a multi-year funding request to replace the waterline system. The Governor approved the 2002 Main Street and Bowman Field waterline replacement and installation projects for $749,942.

East Valley Watershed ("East Valley") – Watershed Coalition of the Upper Clark Fork and the Deer Lodge Valley Conservation District

This replacement project seeks to improve water quality, riparian and upland wildlife habitat, aquatic habitat and fisheries and enhance existing recreational opportunities primarily by applying off-stream water, prescribed grazing, and selected road improvements. The project area encompasses seven Clark Fork River tributary drainages located between Warm Springs Ponds and Deer Lodge. Off-stream water projects involve implementation of prescribed grazing plans and installation of stock tanks, pipelines, spring developments and cross fencing. Other proposed project activities include project coordination, integrated weed management, monitoring, education, and assessment activities in a few targeted areas.

The seven tributary streams (Caribou Creek, Orofino Creek, Sand Hollow, Dry Cottonwood Creek, Sand Creek, Perkins Gulch, and Girard Gulch) are relatively small and none connect with the Clark Fork River except during extreme storm events. Three of the seven streams (Perkins

Gulch, Dry Cottonwood Creek, and Orofino Creek) support small, resident trout fisheries; two of these three support genetically pure populations of westslope cutthroat trout (Perkins Gulch and Orofino Creek). A 2002 watershed assessment identified impaired aquatic and riparian habitat conditions on the lower reaches of the seven streams. Excessive grazing pressure and, to a lesser degree, road conditions near streams, were indicated as the major causes of these impaired conditions.

The total project area encompasses about 55,000 acres, with about 35,000 acres of private lands (64%), 16,500 acres of National Forest System Lands (30%), and 3,200 acres of state lands (6%). The eight participating private landowners own about 30,000 of the 35,000 acres of private lands. Combined, the proposed projects on state, federal, and private lands cover 92% of the 55,000 acre project area.

Total project costs are $840,373, with $539,458 requested in Restoration funds and $300,915 proposed as future matching funds. An additional $311,500 has already been invested by project partners in the past 2-3 years on assessment, education, planning and coordination activities in the project area. Project expenses would occur over a 5-year period, with the majority of the Restoration funds to be spent in 2004 and 2005.

Thompson Park and Blacktail Creek Rehabilitation and Restoration Project ("Thompson Park") – Butte-Silver Bow City and County Government

Butte-Silver Bow City County, in cooperation with the U.S. Forest Service, requests $1,282,529 in Restoration funds for a project that is designed to improve natural resources and recreational opportunities in Blacktail Creek Watershed, a tributary watershed to Silver Bow Creek. The total project costs are estimated at $1,861,616. The entire Blacktail Creek watershed is 24,618 acres. The proposal has project components throughout the watershed. However, the majority of projects are located in Thompson Park, a 3,454-acre municipal park in the watershed, located about 10 miles south of Butte in the Beaverhead-Deerlodge National Forest. Butte-Silver Bow and the U.S. Forest Service jointly manage the park. The Works Progress Administration built the majority of the park roads and recreation sites in the 1930's and 1950's, respectively. The park historically was a popular recreational area for the community of Butte and area visitors. However, over time the park's infrastructure has greatly deteriorated and the poor condition of the Park's roads, trails, and bridges causes sedimentation to Blacktail Creek.

The major components of the Restoration Fund request involve improving ten dilapidated recreation sites, such as adding toilets and picnic tables (16% of costs); improving 33 miles of hiking trails (29% of costs); replacing three road access bridges and other access components (24% of costs); improving aquatic, riparian, and upland habitat in the Blacktail Creek Watershed (18% of costs); and conducting initial environmental analysis of project (11% of costs). The applicant proposes to contribute an additional $579,088 to the project for management plans, oversight and design, railroad trestle and tunnel repair, and a pavilion. At this time the applicant has secured $220,000 of in-kind funding for these components. Approximately 75% of the proposed components costs are for projects located in Thompson Park itself. The remaining 25% of projects costs are for project components that are located on U.S. Forest Service lands outside of the Park. The U.S. Forest Service plans on completing an environmental analysis for

some of the project components by late 2004. Most of the construction efforts are scheduled to occur in 2005.

Upper Willow Creek Restoration Project Implementation ("Upper Willow Creek") – Montana Fish, Wildlife and Parks

Montana Fish, Wildlife and Parks requests $307,758 to restore about three miles of Upper Willow Creek, a tributary of Rock Creek. The project area starts about 4 miles upstream of the confluence of Upper Willow Creek and Rock Creek, which is about 15 miles west of Philipsburg. The total project cost is estimated at $916,983 with the desired funding sources from seven other entities in addition to NRDP. The project mainly involves construction of a new stream channel and banks along a 13,700-foot reach of Upper Willow Creek, revegetation, and grazing management. The present condition of this reach of Upper Willow Creek has degraded riparian habitat and contributes sediment to downstream reaches of Upper Willow Creek and to Rock Creek, degrading its water quality. Montana Fish, Wildlife and Parks also requests $50,000 to develop conceptual design plans for two other degraded sections of Upper Willow Creek.

The project would create and enhance fish, wildlife and water quality resources in Upper Willow Creek, including native bull trout and westslope cutthroat trout populations. The project would increase trout recruitment to Rock Creek, as Upper Willow Creek is an important spawning tributary for Rock Creek. Increased trout populations would enhance recreational fishing opportunities on both Upper Willow Creek and Rock Creek, assuming existing public access is maintained. Thus, the project constitutes replacement of injured natural resources and lost public use of natural resources.

Table 1
2003 Restoration Projects

APPLICANT	PROJECT	BUDGET	Total Amount Requested in Restoration Funds
Butte-Silver Bow Local Government	Drinking Water Infrastructure Replacement Year 3	NRDP - $1,188,905 Other - $553,496 Total - $1,742,401	$1,188,905
Anaconda-Deer Lodge City County	East Fourth Street Distribution Upgrades	NRDP - $995,000 Other - $287,318 Total - $1,282,318	$995,000
Butte-Silver Bow Local Government	Basin Creek Dams Rehabilitation	NRDP - $503,006 Other - $303,006 Total - $806,012	$503,006
Butte-Silver Bow Local Government	Thompson Park and Blacktail Creek Rehabilitation and Restoration	NRDP - $1,282,529 Other - $579,087 Total - $1,861,616	$1,282,529
Watershed Restoration Coalition and Deer Lodge Conservation Dist.	East Valley Watershed	NRDP - $539,458 Other - $300,915 Total - $840,373	$539,458
Montana Fish, Wildlife and Parks	Upper Willow Creek Restoration Project Implementation	NRDP - $307,758 Other - $606,340 Total - $914,098	$307,758
TOTAL			$4,816,656

4.0 PROJECT CRITERIA EVALUATIONS AND COMPARISONS

4.1 Project Comparison Methodology

The State has evaluated the six 2003 Restoration grant projects according to the criteria specified in the *RPPC*. These evaluations are set forth in the Project Criteria Narratives (Appendix B). In the *RPPC*, the State established a non-quantitative process in which the projects are ranked against each other. The criteria are not rated in terms of importance or assigned numeric values. Each criterion, as applied to individual projects, will vary in its importance depending on the nature of the project and unique issues it raises. There are nine Stage 1 criteria reflecting legal requirements that apply to all projects; nine Stage 2 criteria reflecting State of Montana policies that apply to all projects; two criteria that apply only to land acquisition projects; and two criteria that apply only 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. To help in these evaluations, the NRDP developed Application Review Guidelines (Appendix D) 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. Reviewers should note that it is the explanatory text provided in the detailed Project Criteria Narrative for each criterion, not the titles provided in this guidance to characterize projects, which forms the basis of judging how well a project addresses a particular criterion. The titles/headers should not be misconstrued to denote a certain level of ranking or adequacy in meeting the *RPPC* criteria.

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. None of the six projects proposed have research components. A few of the projects have monitoring activities that are a component of project implementation activities rather than the focus of the project. Therefore, the monitoring and research criteria were not evaluated.

4.2.1 Stage 1 Criteria Required by Legal Considerations

<u>#1 Technical Feasibility</u>

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. It considers both the technology and management aspects of the project in judging whether each of the proposed project elements have a reasonable chance of successful completion in an

acceptable period of time. The State will not fund projects considered technologically infeasible or insufficiently planned.

All six projects employ well-known and accepted technologies. The Basin Dams, Butte Waterline, Anaconda Waterline, and Upper Willow Creek projects are considered to be reasonably feasible and likely to achieve the stated objectives. Of them, the Butte and the Anaconda Waterline projects have the highest certainty of technical and administrative feasibility. Since 1992, Butte-Silver Bow (B-SB) has replaced 225,870 feet of water main and Anaconda-Deer Lodge County (ADLC) has completed 34,500 feet total of waterline replacement. The Basin Dam project involves some technically difficult, less routine construction methods than the waterline projects.

The Upper Willow Creek project is also reasonably feasible. FWP has completed many similar projects in the past. The success of the proposed stream restoration methods is more dependent on "outside" factors, such as weather conditions (drought or floods) and landowner cooperation, than the Basin Dams or two waterline projects. Insufficient information is available to evaluate the $50,000 proposed design effort for the two reaches adjacent to the Windlass reach, which is the main focus of the Upper Willow Creek project.

Both the East Valley and Thompson Park projects have some components considered to be reasonably feasible and other components of uncertain feasibility. In terms of the proposed budget for Restoration funds, less uncertainty exists for a greater proportion of the components of the East Valley project than the Thompson Park project.

#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. Because this criterion involves a weighting of all public benefits expected to be derived from a project against all costs associated with the project, it is essentially a summation of results of all other criteria.

The NRDP believes the Basin Dams project offers high net benefits. This project will increase the reliability and quality of its cheapest water supply, which provides 35% of Butte's annual water supply. Another main benefit will be a reduction of the downstream safety hazards posed by the Dams.

The Butte Waterline project is considered to have net benefits. It will cost-effectively benefit and compensate a large segment of the public for some of the lost use of groundwater that Butte has suffered due to its inability to use groundwater in much of the City. Conservation of leaking water from Anaconda's water lines offers net benefits to Anaconda residents and compensates for past lost use and existence values.

The Upper Willow Creek project will improve aquatic resources and riparian habitat in a stream that has high resource values since it provides spawning and rearing habitat for native trout. The project will enhance fishery populations and fishing opportunities in Upper Willow Creek and the downstream Rock Creek. Given these benefits, the high percentage of matching funds of 67%, and the reasonable costs, this project is judged as having net benefits.

The NRDP considers that the combined recreational and resource benefits outweigh the costs of the revised Thompson Park project with the proposed NRDP reductions. The recreation site rehabilitation/construction at Thompson Park will significantly increase the recreation visitor-days per season, thereby replacing lost recreation uses for Butte and Montana residences as a whole. Replacing the three access bridges and repairing two miles of road in the recreation areas will reduce sediment loading to Blacktail Creek and provide reliable access for recreation users.

The East Valley project, with proposed NRDP reductions and funding conditions, will improve water quality, riparian habitat, aquatic habitat, and upland range conditions over a large project area and thereby indirectly benefit wildlife, fisheries, and recreation, primarily big game hunting. Other indirect benefits include increasing the likelihood of conservation practices on other grazing lands, sustaining agricultural uses and open space, and reducing the likelihood of potential detrimental development and reduced public access. Since some uncertainty remains about the magnitude of the resource benefits that depend greatly on the prescribed grazing plans and final design plans that remain to be completed, the NRDP considers the project benefits to be at least commensurate with the project costs and of potential net benefit.

#3 Cost-Effectiveness

This criterion examines whether a particular project accomplishes its goals 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.

The Anaconda Waterline is considered a cost-effective, economical way for ADLC to address its future water supply needs given the significant documented leakage from the system. ADLC provided a more detailed analysis of alternatives than B-SB provided for its waterline project, which was judged as likely to be cost-effective. The Basin Dams project is also considered as a likely cost effective and economical way to replace lost services from injured groundwater resources. Although the application lacked detailed costs of some of the project components, the contingencies are likely to address any shortcomings in the budget.

The Upper Willow Creek project is also likely to be cost-effective. FWP solicited competitive bids for the conceptual design and had a team of stream restoration experts select the best design. FWP has indicated its willingness to consider the NRDP's consultant's suggestions for cost-savings as the design for the Windlass reach is finalized.

Insufficient information was provided to judge the cost-effectiveness of the design efforts on the two other reaches.

The East Valley off-stream water projects and associated monitoring, education, and coordination activities are considered as likely to be cost-effective, subject to a proviso of NRDP approval of all final design plans. The assessment and road improvement activities, which constitute 20% of the proposed project costs, are of questionable cost-effectiveness.

For the Thompson Park project, the recreational site and access improvements are considered as likely to be cost-effective. Insufficient information was provided in the application to judge the cost-effectiveness of the habitat and trail improvement proposals, which constitute 50% of the proposed project budget.

#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 six projects are anticipated to benefit natural resources to varying degrees, as highlighted in analyses of other criteria.

All the projects have potential short-term adverse impacts associated with construction that can be mitigated through industry standard practices. The applicants have appropriately planned for necessary mitigation. The projects will provide long-term benefits that outweigh the short-term adverse impacts. For the East Valley project, the redistribution of livestock grazing, if not properly designed, can be detrimental to fish and wildlife. With the condition of the NRDP's review and approval of final design plans, the NRDP can likely assure that Restoration funds will be used for activities that will result in a net improvement to natural resources.

#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. The Anaconda Waterline, Butte Waterline, and Basin Dams projects have potential impacts related to construction or field activities, but none are deemed significant and mitigative efforts are appropriately planned. The Basin Dams project will benefit human health and safety by improving the quality and reliability of one of Butte's major drinking water supplies and by providing for safe operator access. The Butte and Anaconda Waterline projects can have beneficial impacts to human health and safety by improving fire protection and flows, reducing road hazards caused by leaking water and ice, and increasing the availability of water otherwise lost to leakage. The existing hazards associated with the trestle at the Thompson Park project should be adequately mitigated

with the proposed project if they are addressed properly. The East Valley and Upper Willow Creek projects present no adverse impacts to human health and safety.

#6 Results of Superfund Response Actions

This criterion examines the relationship between projects 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 an effective response action.

All six projects are considered consistent with Superfund 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. 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.

All six projects are replacement projects that will not affect the timeframe for recovery of injured resources.

#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 NRDP concludes that all six projects can be implemented in compliance with applicable laws and rules. All applications identify the needed permits and plans for obtaining them. All of the applicants have conducted the needed coordination with local entities or appropriately planned for this coordination.

There are pending Safe Drinking Water Act requirements that may stipulate additional requirements to allow the Basin Dams system to remain an unfiltered water supply. These new rules would require B-SB to perform a 12-month baseline monitoring to assess the levels of the parasite Cryptosporidium. If the organism is found in an unacceptable quantity, the treatment of Basin Dams water may be needed. Even if treatment is required, the proposed improvements are needed.

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

Pursuant to a Memorandum of Agreement (MOA), the State is to address natural resources of special interest to the Confederated Salish and Kootenai Tribes (Tribes) and the Department of Interior (DOI) in its restoration planning process. Projects that may cause potential negative impacts to resources of special interest require special consideration according to provisions of the MOA.

The NRDP solicited information from both the Tribes and the DOI regarding these resources or sites that are relevant to proposals. The DOI and Tribes have provided specific comments on all six projects (see Appendix E).

The Upper Willow Creek project will benefit native bull trout and westslope cutthroat trout, which are species of special interest to the DOI and the Tribes. The DOI strongly supports the proposal. The Tribes have noted the possibility of impacts to cultural resources at Upper Willow Creek depending on the final design. FWP indicates that cultural resource evaluations will be conducted prior to construction activity, and appropriate steps would be taken if cultural resources were identified.

The East Valley Watershed project may benefit these resources of special interest in a minor way. The DOI supports this project. The Tribes commented that the project is unlikely to negatively impact tribal cultural and/or religious sites if project activities are confined to previously disturbed zones to the extent possible. The applicant also provides for conducting any needed cultural resource surveys and making necessary adjustments to protect these resources of special interest.

Both agencies indicated the Basin Dams, Anaconda Waterline and Butte Waterline projects would have no negative impacts on resources of special interest to the Tribes or DOI. The DOI indicated its support for the Basin Dams project and its conditional support of the two waterline projects.

DOI does not support funding of the full Thompson Park project as proposed due to many outstanding questions. The Tribes do not anticipate impacts to cultural sites from this project as long as the proposed activities occur within previously disturbed corridors. The applicant has appropriately planned for any needed cultural resource evaluation.

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.

All six projects are within the UCFRB. The Butte Waterline project overlies the injured Butte Hill groundwater resource. The Anaconda Waterline project is adjacent to the injured Anaconda-area groundwater resource. The Basin Dam and the Thompson Park projects are considered proximate to injured resources, as both are within 10 miles of the injured resources areas in Butte and along Silver Bow Creek. The East Valley project is located within five miles of the injured Clark Fork River between Warm Springs Ponds and Deer Lodge and therefore considered proximate. The Upper Willow Creek project is the most distant project from injured resources, with its location about 30 stream miles from the Clark Fork River.

#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.

All six projects are replacement projects that will not act directly on injured resources. The Basin Dams, Butte Waterline, and Anaconda Waterline projects will not restore or contribute to the restoration of injured resources; however, these projects replace services of injured groundwater resources that cannot be restored and constitute compensatory restoration.

The Thompson Park project will reduce sediment loading in Blacktail Creek, which may result in less sediment reaching Silver Bow Creek. The East Valley project and Upper Willow Creek projects are not likely to significantly contribute to restoration of the injured aquatic resources of the Clark Fork River given their lack of hydrologic connection to, or distance from, the Clark Fork River, respectively.

#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. Projects that focus on providing the same or similar services as those lost or impaired will be favored over projects that focus on providing dissimilar services.

All of the proposed projects have a focus of providing services that are the same or similar to those services that were lost. The Basin Dam, Butte Waterline and Anaconda Waterline projects will provide replacement drinking water services that are closely linked to the injured groundwater resources of the Butte and Anaconda areas. All three projects will enhance the water supply and transport system from an unaffected source.

The Upper Willow Creek project will replace lost services by increasing fish and wildlife populations and providing attendant recreational services such as fishing and wildlife viewing. These services are equivalent to some of those covered under Montana v. ARCO. The East Valley project will improve aquatic and terrestrial resources considered similar to, but not the same as, injured resources. The Thompson Park project will provide some of the same recreational services that were lost such as hiking, picnicking and open space enjoyment. The proposed natural resource improvements can also indirectly enhance recreational services such as wildlife viewing and hunting.

#13 Public Support

This criterion assesses the level of public support based on information provided between application submittal in March 2003 and the close of the public comment period on the *Draft Work Plan* in October 2003. The December 2003 *State of Montana's Responses to Comments on the Draft 2003 UCFRB Restoration Work Plan* includes copies of the public comments received before, during, and after the public comment period and the State's response to comments submitted during the public comment period.

The Thompson Park project has the most demonstrated public support of all the six projects, but it also has the most demonstrated opposition. The NRDP received a total of 59 comments in support of funding the project, a petition in support of the project signed by 96 individuals, and 12 comments in opposition to the project. Most of the supporting comments were specific to the revised project as proposed by the NRDP. Generally, there is broad support for the project primarily from the Butte area and moderate opposition from others.

The Upper Willow Creek project has broad public support, with a total of 25 comments in support, 1 comment in opposition, and 7 supporting entities providing matching funds.

The Butte Waterline and Basin Dams projects have moderate demonstrated public support, with a total of 23 and 22 comments, respectively, in support of each project.

The East Valley project has moderate demonstrated public support with a total of 18 comments received in favor of the project and one comment in opposition.

The Anaconda Waterline has limited demonstrated public support with a total of 7 comments received in favor of the project.

#14 Matching Funds

This criterion evaluates the extent to which a project entails cost sharing.

The Upper Willow Creek project has the highest matching funds of 67%.

As proposed, the East Valley project has matching funds of 36%. With the recommended reductions in funding, this match increases to 43%. As proposed, the Thompson Park project has matching funds of 31%. With the suggested NRDP budget reductions, the percentage of matching funds increases to 42%.

B-SB will provide matching funds of 38% for the Basin Dam project and 32% for the Butte Waterline project. The total matching funds for the Anaconda Waterline project are 22%.

#15 Public Access

This criterion evaluates whether a project will affect public access and the positive or negative aspects of any increased or decreased public access associated with the project. Public access is not required for every project, nor is it relevant to all projects.

The Thompson Park proposal will significantly improve public access through rehabilitation of the recreation sites and acquisition of about 25 acres of additional public land. None of the other projects will increase public access.

The Upper Willow Creek project does not involve increased public access. Existing access is already available from bridges upstream and downstream of the project. The landowners allow public access for fishing on a permission basis and also participate in the Montana Fish, Wildlife and Parks (FWP) Block Management Program, which provides for hunting access. The project will also increase fishing opportunities at existing fishing access sites by increasing fish densities in Upper Willow Creek and Rock Creek.

The East Valley project will help maintain existing access but does not involve increasing public access. About 60% of the private land areas in the WRC project area are open to public access by landowner permission or through the FWP Block Management Program. All of the state and federal lands are open to the public. The primary recreational use in the project area is big game hunting.

Public access is not a component of, nor is it relevant to, the Basin Dams, Butte Waterline, or Anaconda Waterline projects.

#16 Ecosystem Considerations

This criterion examines the relationship between the project and the overall resource conditions of the UCFRB. The State will favor projects that fit within a broad ecosystem

concept in that they improve a natural resource problem(s) when viewed on a large scale, are sequenced properly from a watershed management approach, and are likely to address multiple resource problems.

The Upper Willow Creek project will improve multiple resources and is sequenced properly from a watershed perspective. It will improve the tributary of highest restoration priority within the Rock Creek drainage and the reach of Upper Willow Creek that is the highest priority of restoration.

The East Valley project, with the NRDP's funding reductions and conditions, fits within a broad ecosystem concept in that it is designed to improve multiple natural resources on a broad watershed scale. The Thompson Park project will reduce sediment sources to and improve the aquatic resources of Blacktail Creek, the headwaters of Silver Bow Creek.

By improving a water supply or replacing leaking waterlines, the Basin Dams, Butte Waterline, and Anaconda Waterline projects will provide opportunities for the conservation of water resources.

#17 Coordination and Integration

This criterion examines whether, how, and to what extent a restoration project is coordinated and integrated with other on-going or planned actions in the UCFRB, besides the coordination with Superfund remedial actions addressed under Criterion #6. Restoration projects that can be efficiently coordinated with other actions may achieve cost savings.

The Thompson Park project will coordinate grant work with other recreational and road improvement activities near the Park that are on-going or planned by the USFS. The East Valley project coordinates with the implementation of other past and on-going agricultural best management practices in the East Deer Lodge Valley funded by various agencies. The Upper Willow Creek project will be complemented by the completed, on-going, or planned restoration projects by multiple agencies on nearby Rock Creek. It will also support the needed TMDL activities. The Anaconda Waterline project will occur before the planned Montana Department of Transportation's (MDT) repaving of Fourth Street, thus allowing the optimal sequence of utility work before repaving.

The Butte Waterline and the Basin Dams projects are not coordinated or integrated with other ongoing or planned actions in the UCFRB.

#18 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.

The Upper Willow Creek project does not involve activities that a governmental entity is obligated by law to conduct or would normally conduct. The project involves stream rehabilitation activities primarily on private lands for which landowners or local, state and federal resource management agencies would normally seek grant funding.

Similarly, the off-site water development projects of the East Valley project that are proposed on private lands, and the related activities that support these projects (e.g. education, monitoring, project coordination and administration), are considered outside of normal government functions. The proposed water development and road improvement projects on state and federal lands are considered as activities that would augment normal government operations. The NRDP has not recommended most of the road projects for funding given uncertainties regarding their effectiveness.

Upgrading the Basin Dam reservoir water supplies and Anaconda and Butte's drinking water lines is a normal responsibility of local government and is typically funded by a combination of user fees, loans, and grants. Due to the pervasive groundwater contamination underlying the Butte area, its reservoir and waterline upgrades costs are greater than the typical costs of communities that can use nearby groundwater resources. B-SB will contribute 38% in matching funds on the Basin Dams project and 32% in matching funds to the Butte Waterline project, which is aimed at bringing annual maintenance costs within reason for a utility system of Butte's size.

The large area of groundwater contamination has limited Anaconda-Deer Lodge City County's access to clean groundwater resources. The County is contributing 22% in matching funds to the Anaconda Waterline project and has indicated the county is financially unable to fund the project due to the Water Department's outstanding bond obligation.

The NRDP considers the Basin Dams, Butte Waterline, and Anaconda Waterline projects as ones that will augment normal government function. Although the projects involve activities that are considered as normal government function, the NRDP does not believe that this should be a reason to reject them for funding consideration. All three projects constitute compensatory restoration for extensive injuries to the bedrock aquifer underlying Butte Hill and the shallow alluvial aquifer in areas surrounding Anaconda that were covered under Montana v. ARCO. Restoration of these injured groundwater resources is technically infeasible, which is one reason these communities sought to augment their existing supplies from uncontaminated sources.

The activities proposed under the Thompson Park proposal are also ones that NRDP considers as augmenting normal government functions. By funding these projects, the State would not be replacing funding that is already available for such activities. It is unlikely that without supplemental grants funds these activities would be conducted in

the near future due to funding constraints at the county level and other priorities that dictate funding at the federal level.

4.2.3 **Stage 2 Land Acquisition Criteria**

Since the East Valley and Thompson Park projects involve acquiring public lands or interest in public lands, they were evaluated for the two land acquisition criteria.

#19 Desirability of Public Ownership

This criterion assesses the potential benefits and detriments associated with putting privately owned land, or interests in land, under public ownership. Acquisition projects that benefit injured natural resources or provide lost services are favored over those that do not.

For the Thompson Park project, acquisition of the two 10-acre private in-holdings and a right-of-way easement on 2.5 acres are considered beneficial to the public and will enhance the Park's recreational services. No detrimental impacts from this conversion to public ownership are expected.

For the East Valley project, insufficient information is provided to assess the benefits or detriments associated with the potential Vanisko Ranch easement.

#20 Price

This criterion evaluates whether the proposed land, easements, or other property interests are being offered for sale at fair market value. The prices for the acquisitions and easements considered in the Thompson Park and East Deer Lodge proposals are both uncertain.

The price for the Thompson Park acquisitions and right-of-way easement has not been finalized. The NRDP considers the $1000 per acre used to budget the acquisitions to be a reasonable basis for estimation. Funding for this project should be contingent upon NRDP review and approval of land acquisitions and appraisals.

The East Valley proposal requests monies to conduct an appraisal of the Vanisko Ranch for consideration of an easement in the future. If this easement assessment request is recommended for funding, a provision of the NRDP's review and approval of the appraisal should be a condition for funding.

SECTION 5.0 PROJECT RANKING and FUNDING RECOMMENDATIONS

This section provides the Trustee Restoration Council's (TRC) final funding recommendations and any specific funding conditions. The NRDP's *Pre-Draft Work Plan* funding recommendations and Advisory Council final funding recommendations are also provided.

This section also provides the NRDP's overall ranking of projects. The project ranking is based on the comparative analysis provided in the previous section of how well the projects meet the *RPPC* criteria. 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 or multiple criteria.

Based on the NRDP's assessment of how the projects compared for the Stage 1 and 2 *RPPC* criteria, which focus on the project's anticipated benefits to the restoration or replacement of injured resources and or/lost services, the NRDP ranked the six projects in the following order of preference. In determining its funding recommendations, the TRC did not rank the projects.

Table 2. NRDP Project Ranking

Rank	Project
1	Basin Dams
2	Butte Waterline
3	Anaconda Waterline
4	Upper Willow Creek
5	Thompson Park
6	East Valley

Two funding conditions apply to all projects. First, as required by the *RPPC*, funding should be contingent on the NRDP's approval of the final design for various components of the projects. Second, the proportionate share of matching funds proposed by the applicants should be maintained during project implementation.

#1 Basin Creek Dams Rehabilitation

The TRC recommends the Basin Dams project be funded at the requested amount of $503,000. The NRDP and the Advisory Council also recommended this amount.

Restoration of the bedrock aquifer beneath the City of Butte is infeasible, thus the City's drinking water storage capacity and transport services associated with this aquifer have been lost for thousands of years. This proposal enhances an uncontaminated drinking

water supply for Butte water users. Thus, it constitutes replacement of lost services to some of the thousands of property owners and to other members of the public in Butte that could use the bedrock aquifer if it was not injured. The project will allow Butte to maintain the viability of a critical water source that provides 35% of Butte's total water use. The ability to maintain the present filtration waiver results in significant savings to water users in Butte. If this waiver was removed, a filtration plant would need to be installed and operated at an approximate cost of $14 million. Another important benefit will be a reduction of the downstream safety hazards posed by the dam.

The State's 1995 Restoration Determination Plan considered expanding existing reservoirs as a viable restoration alternative for the bedrock injuries in Butte. This proposal, which is of similar nature, will compensate the public for some of the lost use of groundwater. The project is likely cost-effective and has high net benefits with matching funds of 38%.

#2 Butte Drinking Water Infrastructure Replacement – Year 3

The TRC recommends the Butte Waterline project be funded at the requested amount of $1,188,905. The NRDP and the Advisory Council also recommended this amount.

Restoration of Butte's bedrock aquifer that is contaminated throughout a six-mile area of the city is infeasible. By fixing leaking and corroded water lines, this proposal will enhance the water supply from an uncontaminated source. This project will replace lost services to thousands of property owners and other members of the public in Butte that could utilize the aquifer if it was not injured. This project is cost-effective and highly feasible due to the successful water main replacement that has been ongoing in Butte since 1992. It has reasonable matching funds of 32%.

The NRDP ranked the Basin Dams project higher than the Butte Waterline project because the dam rehabilitation will benefit a more significant portion of Butte's water supply and transportation. If the use of the Basin reservoirs were to be lost because the proposed upgrades were not performed, the resulting impacts in terms of costs and public health would be of a greater magnitude than if the proposed leaking lines were not repaired. The Basin Dams project also had slightly higher matching funds.

#3 East Fourth Street Water Distribution

The TRC recommends the Anaconda Waterline project be funded at the requested amount of $995,000. The NRDP and the Advisory Council also recommended this amount.

Conservation of leaking water from the East Fourth Street water main is considered to have net benefits to the City of Anaconda and its residents. The Fourth Street project is expected to reduce water loss from the entire system by approximately 6% (100,000 gallons/day or 31.5 million gallons/year). It will reduce the need to seek additional water supplies and will lower water distribution costs since water that is pumped from wells

and then treated will not be lost through leaking pipes. Fixing the leaks will also reduce property damage and repair costs, offer greater fire protection, and offer the opportunity to conserve more water during drought conditions. The Anaconda Waterline project is reasonably feasible, since ADLC has performed similar work in the past. The project has matching funds of 22%.

The Butte Waterline and Anaconda Waterline projects are very comparable for many of the *RPPC* criteria since they involve the same activities and constitute replacement of lost services. The NRDP ranked the Butte Waterline project higher than the Anaconda Waterline project because of the Butte project's greater matching funds (32% vs. 22%).

The Basin Dams and two waterline projects do not do well for the criteria that focus on injured resource benefits, but the NRDP does not consider the projects to be deficient based on these lower rankings for these particular criteria because these projects both provide services linked to injured resources that cannot be restored. All six projects proposed are replacement projects. These three water projects, however, have a greater connection to injured areas than the other three replacement projects. Although all three water projects involve activities that are normal government function, the NRDP does not believe that this should be a reason to reject them for funding considerations as explained under criterion #18.

#4 Upper Willow Creek Restoration Project Implementation

The TRC recommends the Upper Willow Creek project be funded at $282,758, which is $25,000 less than the requested amount of $307,758. The NRDP and the Advisory Council also recommended this amount.

The project would create and enhance fish, wildlife and water quality resources in Upper Willow Creek, including native bull trout and westslope cutthroat trout populations. The project would increase trout recruitment to Rock Creek, as Upper Willow Creek is an important spawning tributary for Rock Creek. Increased trout populations would enhance the existing recreational fishing opportunities for both resident and non-resident anglers on Upper Willow Creek and Rock Creek, which is as a blue ribbon trout stream. The project has reasonable project costs, broad public support, and high matching funds of 67%.

The Windlass-Lower stream reach to be restored is the highest priority reach for restoration in Upper Willow Creek, which is the Rock Creek tributary of highest priority for restoration. The NRDP recommends the requested funding of the Windlass-Lower restoration effort with an additional $25,000 devoted to monitoring. The NRDP did not recommend funding of the proposed $50,000 in design efforts on other two nearby degraded reaches due to insufficient information provided in the application. These design efforts would also more appropriately be submitted as a separate planning request(s). Increasing the budgeted monitoring effort by $25,000, but subtracting out the budgeted design effort of $50,000, results in proposed funding of $282,758.

Any project funding is contingent on the NRDP's review and approval of the pending grazing, riparian management, monitoring plans, and the pending conservation easement.

Of the six projects, the Upper Willow Creek project will provide the greatest fishery resource benefits and has the highest matching funds. The water projects are ranked higher than Upper Willow Creek because of their greater connection to injured areas and their service benefits to a greater public.

#5 Thompson Park and Blacktail Creek Rehabilitation and Restoration Project

The TRC does not recommend the Thompson Park and Blacktail Creek Rehabilitation and Restoration project for funding. The Advisory Council also did not recommend the funding of this project. In its *Pre-Draft Work Plan*, the NRDP recommended funding this project at $525,000, which is $757,530 less than the requested amount of $1,282,530.

The two major components of the project that the NRDP recommended for funding in its *Pre-Draft Work Plan* were the rehabilitation of recreation sites and access components within Thompson Park. With the proposed reductions in the project's scope and budget, the NRDP considered the revised project to be one with reasonable matching funds of 42% that would significantly enhance public access to and use of Thompson Park and reduce sediment loading to Blacktail Creek.

The NRDP ranked the project below Upper Willow Creek because of the greater resource values and matching funds of the Upper Willow Creek proposal than the Thompson Park proposal. The Thompson Park proposal, as revised, offers recreational services of greater magnitude closer to the location of injured resources that will benefit more people than Upper Willow Creek given the Park's proximity to Butte. However, the Upper Willow Creek application, as submitted, had much less uncertainty than the Thompson Park proposal, as submitted, mainly due to the supporting baseline information and alternatives analysis that was provided for the Upper Willow Creek project but not for the Thompson Park project. In addition, the long-term effectiveness of Thompson Park proposal is more reliant on the ability of the government agencies to obtain future maintenance funds than the Upper Willow Creek project.

The Thompson Park project had the most demonstrated public support of all the six 2003 projects considered, but it also had the most demonstrated opposition. The NRDP received a total of 59 comments in support of funding the project, a petition in support of the project signed by 96 individuals, and 12 comments in opposition to the project. After considering this substantial public comment and NRDP's justification for its partial funding recommendation, the TRC decided not to recommend this project for funding due to certain overriding concerns. Those concerns include the lack of past funding commitments to the Park, uncertainties tied to the lack of an updated management and maintenance agreement, uncertainties associated with funding of needed maintenance/replacement in the long-term, and setting a precedent of funding park maintenance activities. The majority of Advisory Council members that did not support project funding (see Appendix E) and most of the 12 public comments that opposed

project funding indicated similar concerns about funding park maintenance or activities that should be funded by the USFS.

#6 East Valley Watershed Project

The TRC recommends the East Valley Watershed project for funding at $408,810, which is $130,648 less than the requested $539,458. The NRDP and Advisory Council also recommended this amount.

The East Valley project, with the NRDP's proposed reductions and conditions, will improve water quality, riparian habitat, aquatic habitat, and upland range conditions over a large project area and thereby indirectly benefit wildlife, fisheries, and recreation. Other indirect benefits include increasing the likelihood of conservation practices on other grazing lands, sustaining agricultural uses and open space, and reducing the likelihood of potential detrimental development and reduced public access.

The greatest resource benefits derived from this project are from the improvements to riparian habitat, which are generally of great ecological importance and considered the single most productive wildlife habitat. The project area supports deer, elk, and antelope populations and provides winter range for these species. Improved range and riparian habitat should support current wildlife populations and may increase populations. Benefits to fisheries are limited since only three of the streams support small, resident fisheries. The indirect recreational benefits would primarily be for big game hunting, but not fishing, given the limited fisheries in the project area. Although the project does not involve increased public access, the project will help maintain existing access by helping to sustain existing agricultural uses and open spaces. The high landowner participation rate and the project's holistic ecosystem approach of improving multiple resources in connected watersheds are positive aspects of the project.

The proposed work related to agricultural best management practices is recommended for funding, except for a project proposed on USFS lands for $15,658. These recommended projects involve $263,810 for 28 miles of off-stream water pipelines, 35 water storage tanks, 6 spring developments, and construction-related weed management. Also recommended is $142,220 for the needed project support activities of monitoring, education, coordination, and administration.

Only $2,780 of the requested $52,910 in road improvements is recommended for funding due to their questionable effectiveness. The proposed assessment activities for $52,000 are also not recommended for funding due to the lack of sufficient supporting information in the application. These assessment activities can be proposed as separate planning grants should the applicant wish to pursue them once more supporting information to justify them is obtained.

Matching funds would be 43% with the proposed reductions. Some uncertainty remains about the magnitude of the resource benefits that depend greatly on the prescribed grazing and monitoring plans and final design plans which remain to be completed.

Funding for the East Valley project is contingent on the NRDP's review and approval of the final project designs and supporting plans, including the prescribed grazing and monitoring plans. All projects should follow NRCS protocols even if they are not part of the NRCS Environmental Quality Incentives Program (EQIP). Restoration funds should only be expended on project coordination activities for the implementation projects approved for Restoration funding. And finally, the WRC should seek additional federal matching funds for the five off-stream water development projects that do not have NRCS EQIP funding but may be eligible for that funding.

The NRDP ranked the East Valley project below the Thompson Park project primarily because of the remaining uncertainty regarding the magnitude of benefits the East Valley project will have on replacement of natural resources and associated recreational services given that final project designs and supporting plans remain to be developed. Also, the Thompson Park recreational improvements will benefit a larger public than the East Valley recreational improvements.

Summary of TRC Final Funding Recommendations

Table 3 provides a summary of the TRC's final funding recommendations. The funding conditions specified in the previous section apply to these recommendations.

Table 3. Summary of TRC Funding Recommendations

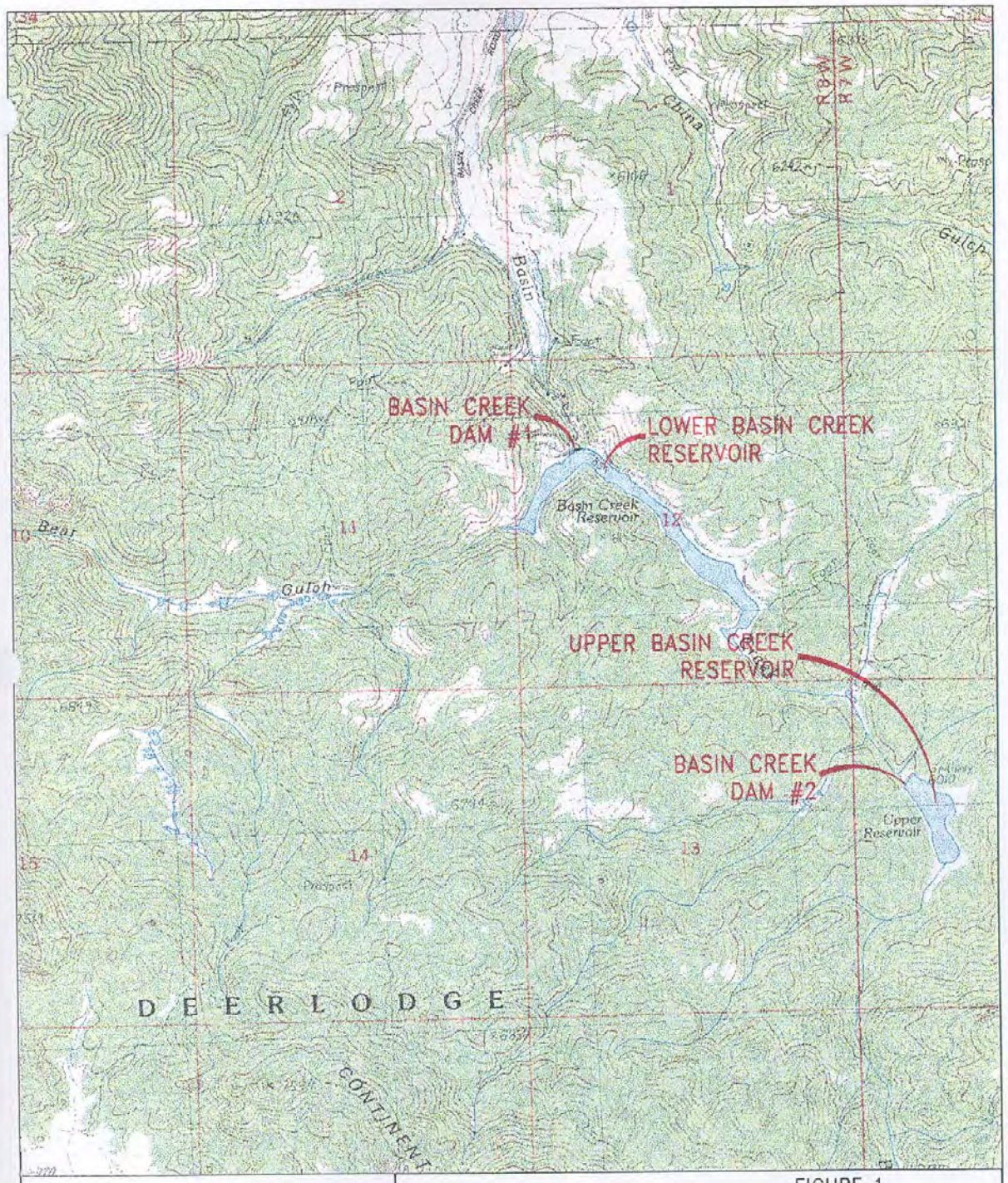
Project	Requested Restoration Funds	Recommended Restoration Funds
Basin Dams	$ 503,006	$ 503,006
Butte Waterline	$ 1,188,905	$ 1,188,905
Anaconda Waterline	$ 995,000	$ 995,000
Upper Willow Creek	$ 307,758	$ 282,758
East Valley	$ 539,458	$ 408,810
Thompson Park	$ 1,282,529	$ 0
TOTAL	**$ 4,816,656**	**$ 3,378,479**

Funding Cap Considerations

In November 2002, the Trustee Restoration Council (TRC) set the funding cap for the 2003 Restoration Grant Cycle at $5.5 million. The TRC's final funding recommendations total $3,378,479, which is about $2.1 million below the TRC's funding cap.

APPENDIX A

PROJECT MAPS

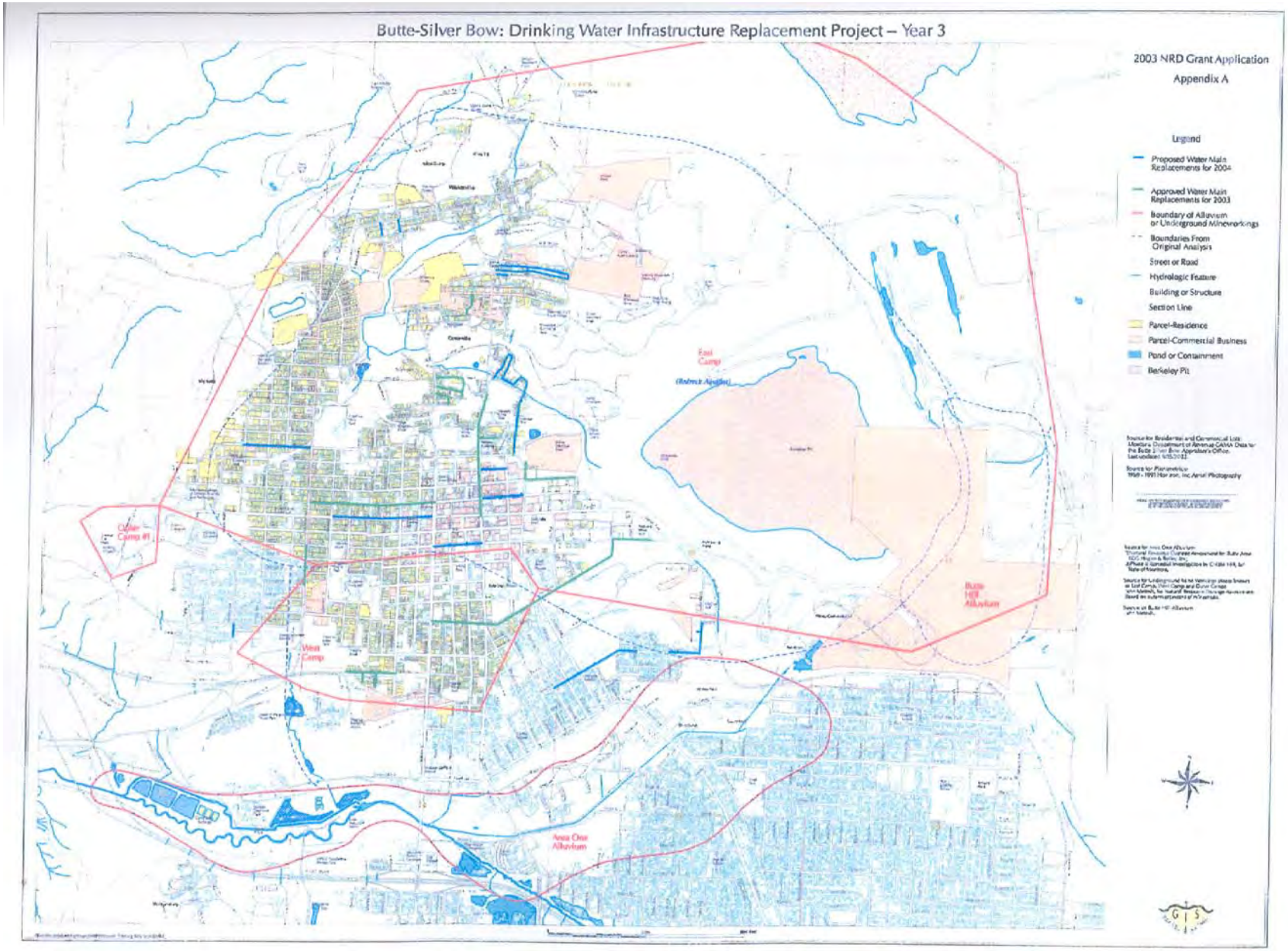


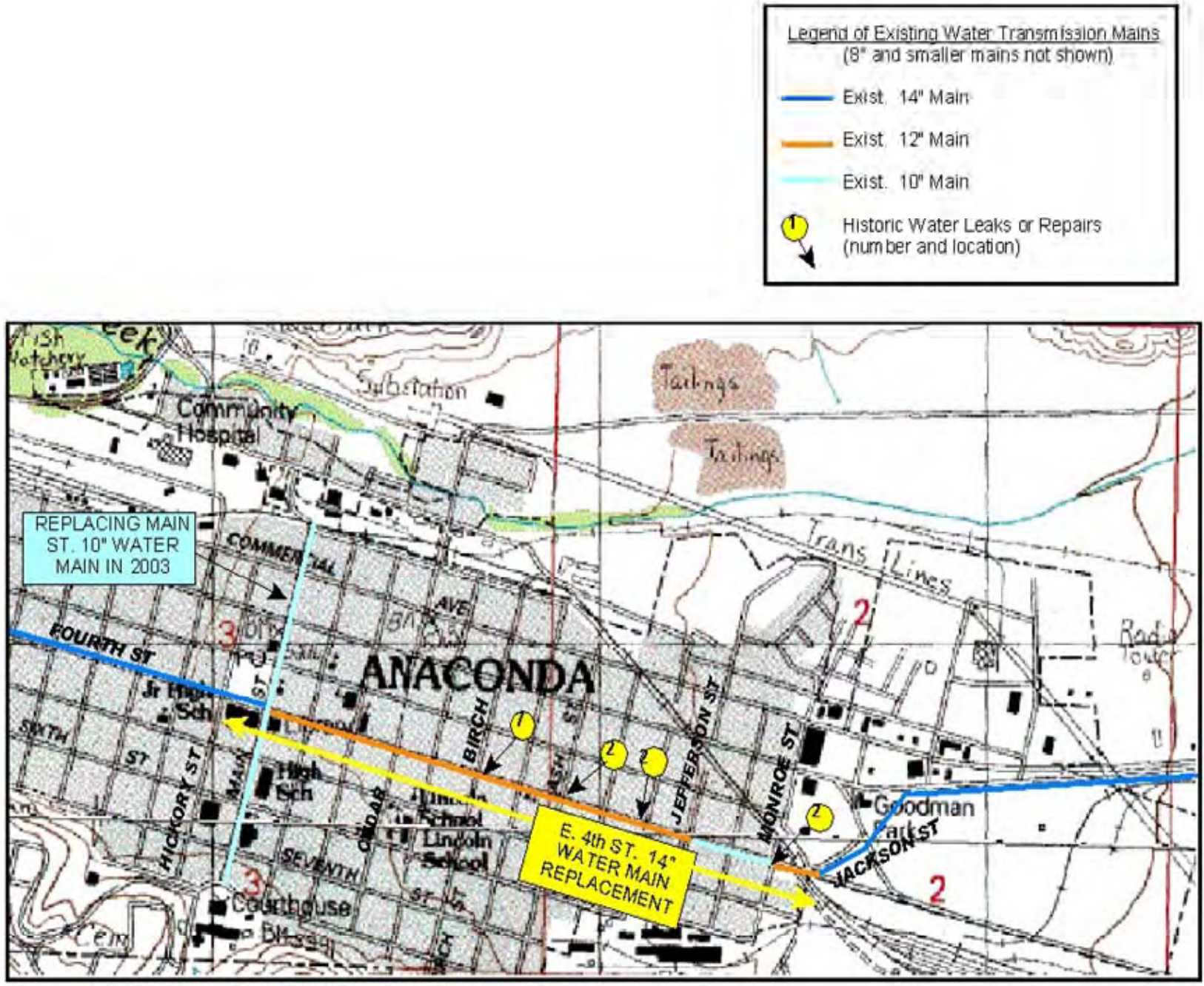
PIONEER
TECHNICAL SERVICES, INC.

FIGURE 1
BASIN CREEK DAM #1
AND DAM #2
SITE LOCATION

SCALE: 1"=2000'~
DATE: 4/30/02

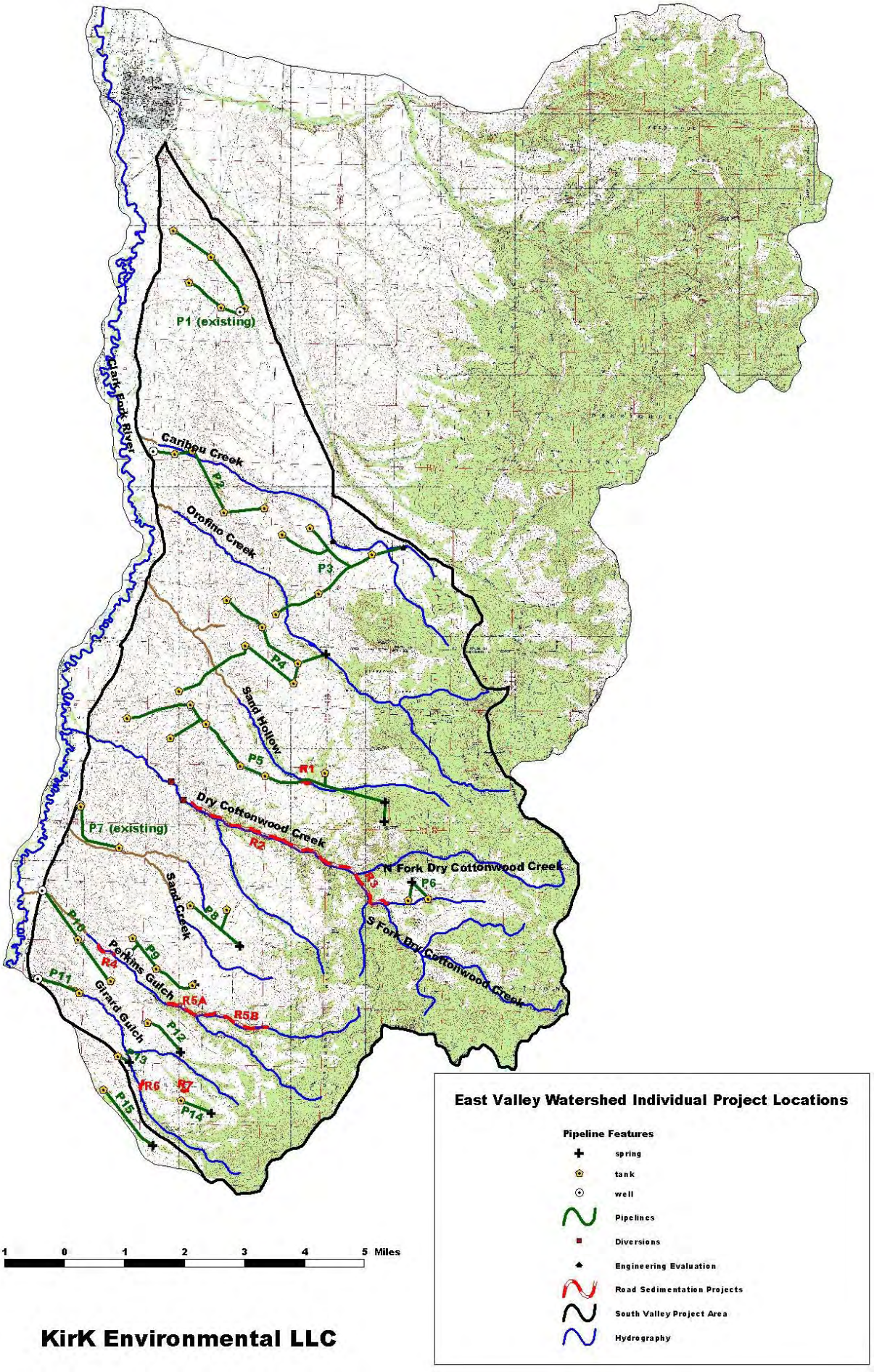
BASINFIG1


Butte-Silver Bow: Drinking Water Infrastructure Replacement Project – Year 3
2003 NRD Grant Application
Appendix A
Legend
Proposed Water Main Replacements for 2004
Approved Water Main Replacements for 2003
Boundary of Alluvium or Underground Mineworkings
Boundaries From Original Analysis
Street or Road
Hydrologic Feature
Building or Structure
Section Line
Parcel-Residence
Parcel-Commercial Business
Pond or Containment
Berkeley Pit
East Camp
(Redmix Aquifer)
Outer Camp #1
West Camp
Butte Hill Alluvium
Area One Alluvium

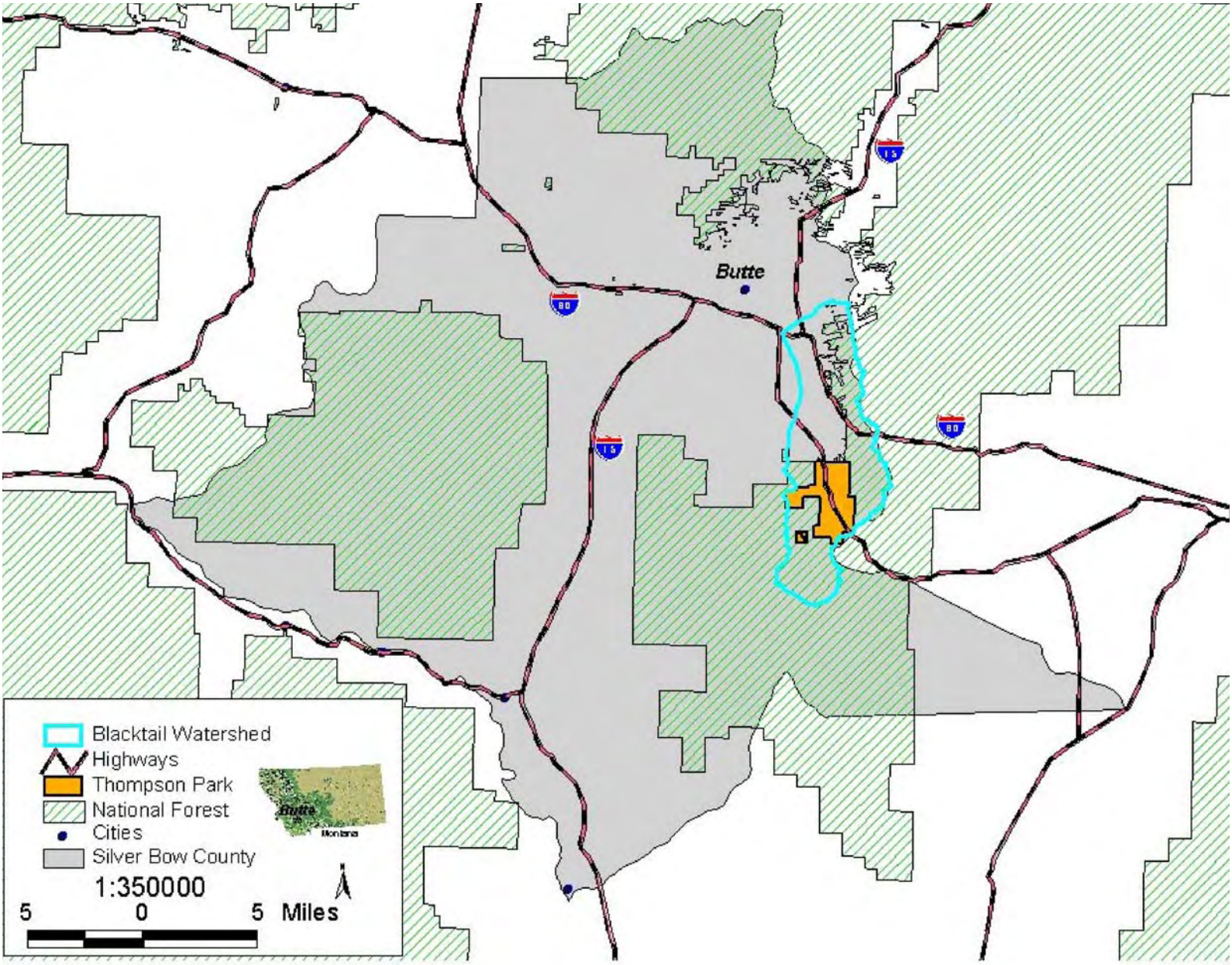


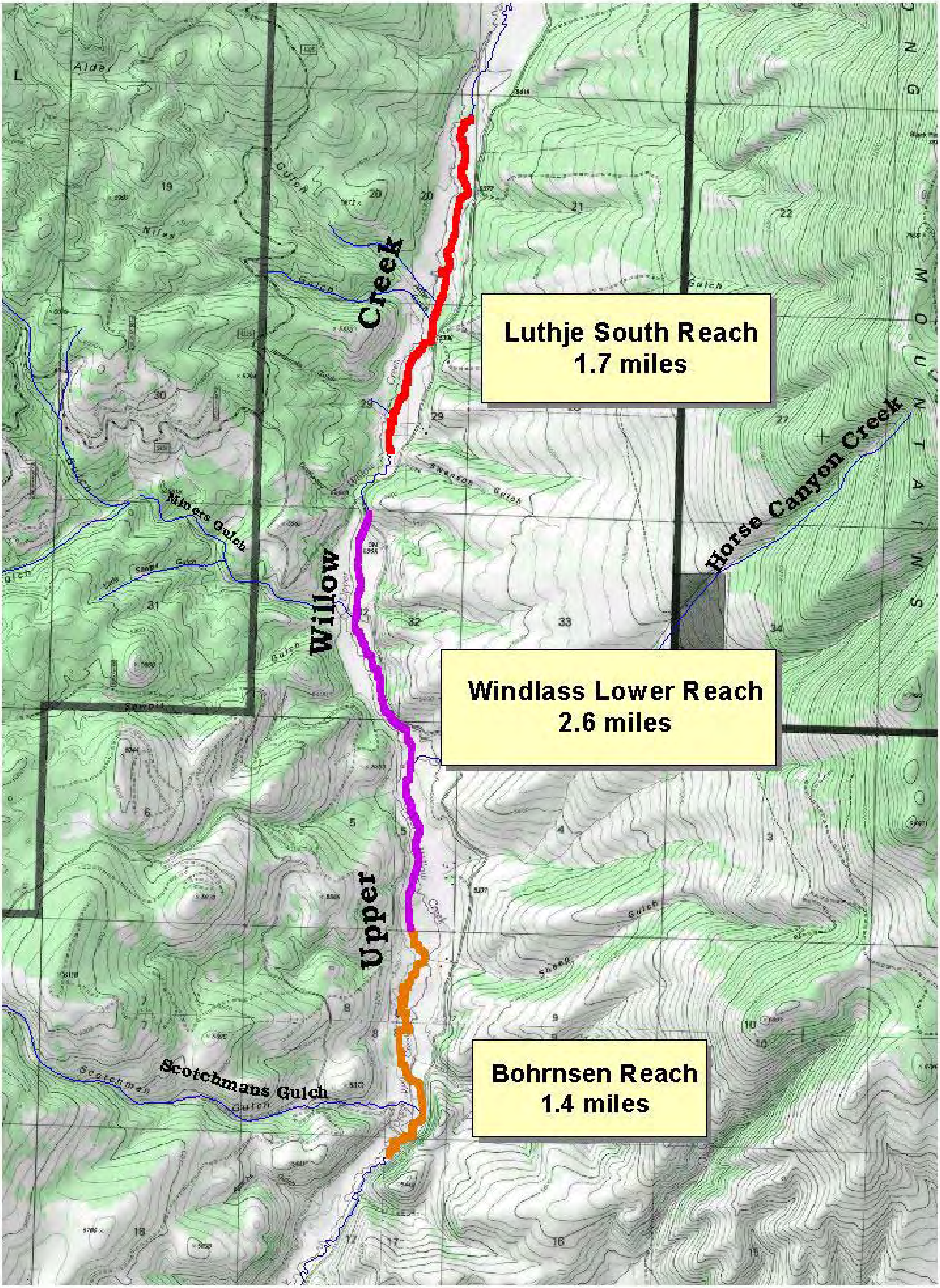
ADLC East 4th St. Water Main Improvements

FIGURE 2 – PROJECT CORRIDOR & CONNECTING TRANSMISSION MAINS



KirK Environmental LLC


Butte
Blacktail Watershed
Highways
Thompson Park
National Forest
Cities
Silver Bow County
1:350000
5 0 5 Miles
Butte
Montana


Luthje South Reach
1.7 miles
Windlass Lower Reach
2.6 miles
Bohrnsen Reach
1.4 miles
Upper Willow Creek
Horse Canyon Creek
Scotchmans Gulch
Miners Gulch

APPENDIX B

PROJECT CRITERIA NARRATIVES

Butte-Silver Bow Local Government
Basin Creek Dams Rehabilitation

Project Summary

Butte-Silver Bow City County proposes to upgrade the two Basin Creek Dams for a cost of $806,012 with $503,006 requested in Restoration funds. The Basin Creek Reservoir system comprises about 35% of Butte's annual water supply. No water treatment is presently required because of high water quality from the reservoirs. The focus of this grant is to make improvements needed to maintain the filtration waiver and to supply the citizens of Butte with an economic, reliable, and safe drinking water supply.

The dams are located six and seven miles south of Butte. The initial construction of the dams was completed in 1895. The upper dam (#2) and reservoir serve primarily to remove sediment. The lower reservoir (#1) serves as the primary storage reservoir with a capacity of 363 million gallons (1,115 acre-feet). Dam #1 consists of mortared granite blocks and is 77 feet high and 247 feet long.

A large portion of Butte's bedrock aquifer is so severely injured that natural recovery will not occur for thousands of years, as concluded by State's 1995 Restoration Determination Plan and by EPA's 1994 Record of Decision. Restoration of the bedrock aquifer is infeasible, thus the aquifer's drinking water storage capacity and transport services have been lost for thousands of years. This proposal enhances an uncontaminated drinking water supply for Butte water users. Thus, it constitutes replacement of lost services to some of the thousands of property owners and to other members of the public in Butte that could use the aquifer if it was not injured.

Stage 1 Criteria:

1. Technical Feasibility – Reasonably Feasible

   Proposed upgrades at Dam #1 include: walkway and parapet restoration, installation of access stairs, installation of inlet valves, replacement of the 100-year old inoperable outlet valves, replacement of a structure to house the compressor, spillway rehabilitation, and installation of level indication and telemetry equipment. At Dam #2, a modification of the spillway breach is proposed.

   The implementation phases of the project include: 1) select the consulting engineering firm to design the project; 2) design the improvements; 3) select the general contractor or contractors through a competitive public bidding process; 4) oversee the contractor during construction; 5) startup and test the newly installed components; and 6) prepare new operations manuals and emergency response manuals.

   In May of 2002, Pioneer Technical Services prepared a Preliminary Engineering Report (PER) for Butte-Silver Bow (B-SB) as part of a grant application to the State's Department of Natural Resources and Conservation (DNRC) Renewable Resource Grant and Loan Program. A grant was not awarded because the Basin dam system is relatively safe from failure and therefore judged as not as critical as other water projects, which compete for the

limited funds statewide. The PER, which is an attachment to the NRDP grant application, outlines the existing problems with the dams. The major problems are:

- The existing concrete spillway for Dam #1 is in poor condition and cannot pass flood events greater than the 100-year flood event. Also, presently there is no way to regulate the flow of water through the spillway during a flood.

- The concrete parapet wall and adjacent walkway on Dam #1 are in poor condition and need repair.

- On Dam #1, the only means for shutting the 20-inch diameter cast iron outlet pipes on the upstream ends is to lower plugs into the inlet openings using an existing crane on the top of the dam. This is a time consuming procedure that may not provide a complete watertight closure. If the outlet piping were to fail inside the dam, pipe openings are blocked and serious damage could occur.

- The control valves on the downstream side of the outlet piping on Dam #1 are over 100-years old and cannot be safely operated. The valves on the two main outlet pipes have been left in the open position, due to the poor condition. This defeats the ability to withdraw water from the reservoir at different elevations to improve the quality of the water delivered to users. Different water levels in the reservoir may have better water quality, such as less turbidity; therefore, it would be advantageous to capture water at various depths.[2] Also, the valve on the drain outlet has been left in the closed position. Without an operational valve on the drain, the reservoir cannot be completely emptied.

The project proposes to improve the existing conditions by implementing the following:

- A new concrete spillway on Dam #1 that will pass the 500-year flood event without overtopping the dam will be constructed ($282,750). The new spillway will not pass the probable maximum flood. Flood events with flows higher than the 500-year flood will cause the dam to be overtopped. However, due to the granite block and concrete construction of the dam, it can be overtopped without failing.

- A new concrete parapet wall and new access walkway on Dam #1 will be constructed ($155,250). The proposed parapet wall will be constructed one foot higher than the existing wall to meet the freeboard requirements of the Dam Safety Act.

[2] Turbidity must always be below 5 ntu; otherwise, the filtration waiver could be jeopardized. When a sample is above 1 ntu, it triggers additional bacteria tests. B-SB has never had a sample with a turbidity level over 5 ntu.

- New pneumatic valves and intake screens will be installed on the upstream side of the outlet piping ($80,600) on Dam #1. This will allow the outlet pipes to be shut off which, in turn, will allow repairs to be made to the outlet piping and control valves on the inside and downstream side of the dam. The valves will have to be installed under water by divers. There are a number of underwater inspection and construction companies that can provide this service. The divers will attach the pneumatically-actuated inlet valves onto the existing inlet pipelines. They will cut the existing bell-shaped structures from the top of each pipe and will then use mechanical couplings to attach the valves to the vertical pipe sections. B-SB has noted that a possibility exists that the reservoir may have to be drained in order to accomplish these installations. The work will be conducted in the fall when the reservoir will be at its lowest. Then, if draining is needed, it can be accomplished quicker.

- New control valves will be installed on the downstream side of Dam #1 ($73,900). The proposed valves will allow B-SB personnel to withdraw water at two different vertical locations, thereby optimizing water quality. This ability is important for helping B-SB to maintain its filtration waiver for the Basin Creek Source.[3]

- A new level monitoring and telemetry system will be installed to allow Dam #1 levels to be monitored at remote locations ($3,750). It will allow alarm conditions to be transmitted to other locations such as the existing Big Hole water treatment plant where an operator is on call full time. The system will provide system operators with advance warning of conditions that may result in flooding or increased turbidity.

- Three new control gates with electric actuators will be used to control the water surface elevation behind Dam #1 ($128,250). The proposed gates will allow dam operators to respond quickly to flooding conditions.

- The only improvement proposed for Dam #2 is to widen the existing breach in the dam to increase the available freeboard during a flood ($26,600).

Overall Technical Feasibility

The NRDP has a reasonable degree of confidence that technologies proposed for rehabilitating the Basin Creek dams can be achieved. All of the proposed improvements are technically feasible. The improvements will employ routine construction methods that can be successfully be carried out by an experienced contractor(s). The proposed improvements are like those that other dams would need when approaching the end of their design life. B-SB appears to have an adequate staff and previous experience to manage this type of project. Successful completion of the Basin Creek Dams rehabilitation project will require careful monitoring by the B-SB staff. An experienced construction contractor should be able to carry out the proposed improvements. The most difficult technical improvement will likely be the replacement of the intake valves.

[3] The present Montana Department of Environmental Quality (DEQ) filtration exemption water monitoring requirements call for 1) monitoring of raw water fecal or total coliform bacteria (the water must have less than 20 coliform forming units/100ml); 2) continuous turbidity; 3) chlorine monitoring (chlorine concentrations as well as the time that the chlorine is in contact with the water must be sufficient to assure that 99.9% of giardia cysts have been inactivated); 4) watershed control monitoring; and 5) monthly reports.

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

Costs proposed for implementing the dam improvements total $806,012 with $503,006 (62%) requested in Restoration funds. B-SB's share for all costs is $303,006 (38%). Restoration funds would cover 66% of the engineering and construction costs, or $100,602 and $402,404 respectively. B-SB is funding the remaining 33% of the engineering and construction costs which are estimated to cost $50,526 and $202,104 respectively. B-SB is also funding all County salaries and wages, which are estimated at $50,376. All construction cost estimates include an added 20% contingency cost. Also, the construction costs include a 30% mark-up to cover engineering, oversight, and administrative costs.

The NRDP agrees with the applicant that this project represents an important step in replacing services lost due to injured groundwater resources of the Butte bedrock aquifer. The State's 1995 Restoration Determination Plan also affirmed that upgrading the existing water system as a viable replacement alternative for the injured bedrock aquifer.

The benefits to the Butte residents include the following:

- The new spillway will have an increased capacity, thus reducing the probability of the dam overtopping which, in turn, will reduce the downstream safety hazards posed by the dam[4].

- Repairing the parapet wall will increase the dam's freeboard, thus meeting dam safety requirements and increasing the dam's overall safety.

- Repairing the concrete walkway and providing a new walkway to the dam crest will increase worker safety and increase accessibility for the required daily operation and maintenance.

- Installing new valves on the upstream and downstream side of the outlet piping will allow the withdrawal of water from the dam at three different elevations.[5] This will allow operators to select the best water quality benefiting consumers and will help maintain the filtration waiver for the source. The ability to maintain the present filtration waiver results in significant savings to the water users of Butte.[6] If the filtration waiver was removed, a filtration plant would need to be installed and operated at an approximate cost of $14 million.

[4] DNRC Dam Safety Bureau has required B-SB to rehabilitate the deteriorated concrete spillway to significantly reduce the risk of the dam overtopping in a flood event. Overtopping could cause erosion of the soil fill, which was historically placed on the concrete dam, which would result in substantial debris in the flow, increasing the risk of loss of life to downstream residents.

[5] Current dam safety procedures require that valve systems be maintained in an operable condition at all times. For this dam, it must be done at least every five years.

[6] It costs $236 per million gallons to supply water from the Big Hole River and South Fork Reservoir via the Big Hole Water treatment Plant (64% of Butte's water supply), $140 per million gallons from the Moulton Reservoir via the Moulton Treatment Plant (1% of Butte's water supply) and only $8 per million gallons to supply water from Basin Creek (35% of Butte's water supply).

This project will allow B-SB to increase the reliability of its cheapest water source. Even if a filtration plant must be constructed in the future, the proposed improvements are necessary to maintain this water supply. The NRDP's consulting engineer estimated that the mechanical components such as electrically actuated gates and the telemetry system are expected to have a life span of 20 years.[7] The gates themselves should last 30 to 50 years. The concrete components, valves and piping should last 50 years. The key to longevity is proper maintenance. If the mechanical components are not maintained properly, they will have to be replaced prematurely. If they are maintained properly, they will exceed their expected life.

3. Cost Effectiveness – Likely Cost Effective

B-SB considers the proposed project an effective, economical way to replace lost services from injured groundwater resources. The NRDP's engineering consultant's analysis of the proposal indicated that the selected improvements will allow for operator flexibility, meet dam safety requirements and help insure that Basin Creek remains a reliable source. The NRDP's consultant expressed a concern that some of the proposed improvements, such as spillway excavation and concrete costs, are lacking in detail.[8] However, the consultant notes that any shortcomings in the budget should be covered by the 20% contingency, which is reasonable for this type of project. Also, no costs for contractor mobilization, bonding and insurance were given. However, since the engineering, oversight and administration are 30%, which is on the high side, then the mobilization, bonding and insurance costs should be covered.

An alternative analysis in the PER evaluated: 1) the no action alternative, 2) the repair and upgrade Basin Creek dam and, 3) the provision of an alternative water source. The no action alternative was ruled out because repairs are needed to insure the dam will remain operational and meet current state and federal regulations. The PER gives an example that failure of the dam outlet works could result in revocation of the filtration waiver. As mentioned, if the filtration waiver was removed, a filtration plant would need to be installed and operated at an approximate cost of $14 million. The PER states that Butte is already paying one of the highest rates for water in Montana and increased costs are undesirable.

The alternate water source alternative was ruled out because it would not address the dam safety issues and because a cost effective alternative source is not available. It would be unrealistic to rely on the Big Hole River water source due to the common occurrence of extremely low flows in the Big Hole River. The Big Hole River is already stressed by irrigation withdrawals and the need to maintain enough water to sustain the fishery. Also, B-SB has an agreement with Big Hole Water Users Association and Drought Committee to place water restrictions on Butte users during drought years. Water restrictions have been required over the last three years.

The PER discussed that using water from the Silver Lake system is not an option because the system is supplied and contracted specifically for certain industrial uses. The Silver Lake water supply is currently not available for use by the B-SB Water Utility Division for the

[7] Information provided in a 5/8/03 letter from Gary Swanson of Peccia to Greg Mullen of the NRDP.
[8] Ibid

municipal water system. The PER notes how option of using groundwater sources has been eliminated throughout a large area within Butte due to past mining activities.

The Montana Department of Commerce comments on the PER questioned why certain alternatives were not evaluated such as lowering the breach spillway by 3 feet on Dam #2 or discontinued use of stop logs on Dam #1. B-SB gave adequate responses to these concerns in a letter to Montana Department of Commerce.[9]

Due to the alternatives analysis done by the applicant and review comments of the NRDP's engineer, the NRDP feels that the selected alternative of dam improvements proposed by the B-SB is likely to be cost effective.

4. Environmental Impacts – No Significant Adverse Impacts

The proposed improvements to the Basin Creek water system do not present significant adverse impacts to the environment. There will be some short-term impacts associated with construction activities, but they can be mitigated with good construction practices and following permit requirements. The applicant notes that permits for the proposed work are needed by both the DNRC and the DEQ. The project should also conserve energy that would be used for pumping and filtration. By maintaining the viability of the Basin Creek supply that does not require filtration or pumping, energy for pumping and filtrating of an alternate source will be avoided.

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

No significant adverse impacts to the human environment are expected from the proposed improvements to the Basin Creek system. The proposed improvements will enhance human health and safety by: 1) better assuring the passage of storm events through the spillway structures, 2) improving water quality to the consumers due to the ability to real-time monitor the operation and control water intake valves to obtain water from a water level that has the best quality, 3) alerting operators of unusual and unsafe conditions, 4) providing safe operator access, and 5) helping assure that the reservoir can be managed to maintain the water quality within the guidelines required by the filtration exemption. Also, the proposed project will help to assure that the Basin Creek water supply, which comprises 35% of Butte's water supply, remains available to the community. Loss of the supply, through a failure of the outlet valves or the spillway, would adversely affect Butte residents.

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

This project will not affect the timeframe for recovery of injured resources.

[9] Letter addressed to Jim Edgcomb, Treasure State Endowment Program Manager, MT Department of Commerce from David Schultz, B-SB Assistant Director of Public Works. August 15, 2002.

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

The applicant has provided information on the applicable requirements needed to complete this project. NRDP is assured that the applicant can comply with the applicable laws and rules since B-SB has successfully rehabilitated the dams in the Silver Lake Water System. The following standard procedures will be implemented:

- B-SB will submit all design drawings for the work to the DNRC, NRDP and DEQ for review and approval prior to performing the work.

- B-SB will follow the Montana Standard Specification and Montana Public Works Specifications in the implementation of the project.

There are pending Safe Drinking Act requirements that may stipulate additional requirements to allow the system to remain an unfiltered water supply. These new rules, called the Long Term 2 Surface Water Treatment Rule and Stage 2 of the Disinfectant/Disinfection Byproducts Rule, may be final in late 2003 or early 2004. The Long Term 2 Surface Water Treatment Rule, which would be enforced by DEQ, would require B-SB to perform a 12-month baseline monitoring to assess the levels of the parasite Cryptosporidium. If the organism is found in an unacceptable quantity, then treatment of the Basin Creek water may be needed.

The Stage 2 Rule may require unfiltered systems like the Basin system to upgrade their watershed protection plan. Presently, a watershed protection plan is required by DEQ for the Basin Creek water source. The components of this protection plan requires: 1) designation of an A-1 closed watershed, 2) identification of watershed characteristics and activities which may have an adverse effect on source water quality, 3) monitoring of the occurrence of activities, which may have an adverse effect on source water quality, 4) identification of any waterborne disease outbreaks, and 5) submittal of annual reports to DEQ.

The DNRC Water Operations Bureau monitors and enforces the State's dam safety requirements. The Bureau requires existing dam operators to maintain and operate dams safely. As mentioned, the Bureau has requested B-SB to make Basin Dam #1 safer by such measures as rehabilitation of the deteriorated concrete spillway, and developing a means to allow inspection of the outlet works on a five-year frequency.

DEQ and DNRC representatives have indicated their support of B-SB's proposed Basin Dam improvements.[10] Both agree that even if the new Safe Drinking Act rules go into effect and Butte was required to treat the water, the requested Basin dam improvements will still be needed.

[10] Input from these entities is primarily contained in a 5/13/03 e-mail memorandum from John Camden of DEQ to Greg Mullen of NRDP and a 5/12/03 e-mail memorandum from Michele Lemieux of DNRC to Greg Mullen of NRDP.

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

Appendix E of the *2003 UCFRB Restoration Work Plan* contains the comment letters from the Tribes and DOI. There are no known resources of special interest to the Tribes or DOI in the vicinity of the project area. The Tribes provided comments indicating any adverse impacts to Tribal resources are unlikely since construction will be confined to already disturbed areas. It is not anticipated that this project will have adverse impacts on resources related to the Department of Interior (DOI), nor did the DOI note the potential for such impacts in their comments to the NRDP on this project. DOI also indicated its support of this project.

Stage 2 Criteria

10. Project Location – Within Basin and Proximate

Basin Creek Dams #1 and #2 are located approximately 6 miles and 7 miles, respectively, south of the City of Butte. The water supply from the Dams directly benefits Butte residents. Thus the project is considered proximate to the injured groundwater areas in Butte, which this project replaces.

11. Actual Restoration of Injured Resources – No Restoration

This is a replacement project; actual restoration of the bedrock aquifer in Butte is infeasible. The State recognized this infeasibility in its 1995 Restoration Determination Plan that selected a replacement alternative for this groundwater injury. This Plan considered expanding existing reservoirs as a viable restoration alternative for the bedrock injuries in Butte.

12. Relationship Between Service Loss and Service Restoration – Same

Restoration of the bedrock aquifer in Butte is infeasible, thus the aquifer's drinking water and its storage capacity and transport services have been lost for thousands of years. This proposal constitutes replacement of lost services to thousands of property owners and other members of the public in Butte who could utilize the aquifer if it was not injured. By repairing the antiquated components of the Basin Dams, this proposal will enhance the water supply from an unaffected source. Thus, there is a direct connection between lost services and services this project will replace.

13. Public Support – Moderate

The NRDP received a total of 22 comments in support of funding the Basin Dams project, including a letter of support from the B-SB Council of Commissioners in the application.

14. Matching Funds and Cost Sharing – Reasonable (38%)

B-SB has matching funds of $303,000 or 38% of the total project costs for this year's proposal. The matching funds consist of $202,100 for construction, $50,500 for engineering and $57,000 for in-kind labor. Although not considered as a cost-share contribution, the

applicant noted that $40 million dollars has been invested by Butte municipal drinking water system ratepayers over the past decade. These monies were used for constructing a treatment plant for the Big Hole water supply ($20 million), water line replacement ($10 million) and for other surface water improvements ($10 million).

15. Public Access – No Access Beneficial

Public access is not allowed at the dam site in order to protect the water supply. This will not change as a result of the proposed project.

16. Ecosystem Considerations – Positive

This project will improve and maintain the existing water supply for many of the Butte residences. By doing this, the need to obtain water elsewhere, in or out of the Basin, is reduced.

17. Coordination and Integration – None

This project is not coordinated or integrated with other ongoing or planned actions in the UCFRB.

18. Normal Government Functions – Within but Augments Government Functions

Repairing the antiquated Basin Creek Dam water system is a normal responsibility of local governments that is typically accomplished via funding from grants and ratepayers. But the costs B-SB faces to upgrade their system are greater than typical community costs due to pervasive groundwater contamination underlying Butte. In the absence of that injury, Butte would have been able to construct a much simpler and less expensive nearby groundwater system than the existing system that relies on more distant uncontaminated surface water sources, as further documented in the State's 1995 NRD assessment report.[11] B-SB ratepayer's cost is significantly higher than other similar communities. For example, the Butte water rates are twice the rates in Great Falls and Billings, and approximately 20% more than Missoula's and Helena's rates.[12] B-SB is contributing 38% in matching funds to the project.

[11] *Revised Report and Rebuttal: Assessment of Damages to Groundwater and Literature review of Water Use Values in the Upper Clark Fork River Drainage,* Duffield, October, 1995.

[12] Water Rate Survey, City of Great Falls, April 2001

Butte-Silver Bow Local Government

Drinking Water Infrastructure Replacement – Year Three

Project Summary

Butte-Silver Bow City County proposes to replace approximately 17,000 feet of inadequate water distribution lines in the City of Butte for a total cost of $1,742,401, including $1,188,905 requested in Restoration funds. This is the third year in which Butte-Silver Bow has requested funding for water line replacement, with $2,334,637 approved in the past two years. The amount requested is $20,063 more than last year's approved funding request.

Butte's bedrock aquifer is contaminated throughout a seven square mile area of the City and these distribution lines overlay that aquifer. This aquifer is so severely injured that natural recovery will not occur for thousands of years, as concluded by the State's 1995 Restoration Determination Plan and by EPA's 1994 Record of Decision. Restoration of the bedrock aquifer is infeasible, thus the aquifer's drinking water and its storage capacity and transport services have been lost for thousands of years. By fixing leaking and corroded water lines, this project will enhance the water supply from an uncontaminated source. Thus, it constitutes replacement of lost services to thousands of property owners and other members of the public in Butte that could utilize the aquifer if it was not injured.

In its application, Butte-Silver Bow also provides a 20-year plan that indicates the County's intent to continue water main replacement for a total of 15 years and seek an estimated $17.5 million total in Restoration funds for this effort.[13] This evaluation, however, does not specifically address that plan and, if Butte-Silver Bow seeks further funding of projects contemplated by the plan, it will have to do so through a separate application(s).

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

This project involves the replacement of leaking, old (early 1900's) and, in many cases, undersized water distribution mains within the City of Butte. Major project tasks include: 1) selecting a consulting engineer to oversee the project for the upcoming construction season, 2) confirming which water mains to replace, 3) producing designs for water main replacements, 4) preparing and releasing bid packages for selection of a general contractor for the project, 5) implementing water main construction and performing oversight, 6) preparing record drawings for work completed during the construction season, and 7) updating Butte-Silver Bow City County Government (B-SB) records and database.

The NRDP has a reasonable degree of confidence that technologies proposed for water distribution main replacement can be achieved. The B-SB Department of Public Works, Water Utility Division, has extensive experience with the replacement of water mains in the community. Deteriorated conditions of the water distribution system led B-SB to create procedures for water main replacement when B-SB acquired the water system in 1992. Since

[13] Approximately $2.33 million has already been approved for water main replacement; therefore, the total remaining for future requests, including this year's request of $1.19 million is estimated to be $16.61 million.

1992, B-SB has replaced about 225,870 feet of water mains total, or an average of 22,500 feet annually. B-SB successfully implemented the 2001 waterline replacement project funded by the NRDP and is currently implementing the 2002 project. The County has gained valuable insight as to the appropriate volume of replacement that can be accommodated by the water system and by the citizens of the community.

The primary logistical problems to deal with are: 1) the provision of temporary water to affected homes during the construction phase; and 2) traffic congestion and confusion due to street closures. The affected homes must be provided with an alternate source of water during the approximate two-week construction period. This temporary water comes from active water mains in adjacent blocks. Due to the difficulty in providing temporary water service in a large area at once, the County has proposed to replace water mains in small areas throughout Butte. The applicant has provided a map that depicts 18 areas in the City scheduled for replacement. The County will replace an average of 955 feet of water main pipe in each area. The areas selected are based upon locations with the highest current water leakage rates. Field conditions, such as an unexpected increase in chronic leaks elsewhere, could cause a modification to this schedule. The other logistical concern is that the water main renewal process will disrupt traffic patterns in the community since water mains underlie the city streets. Construction activities will require street closures during the approximate two-week construction period. Taking into account any inconvenience and annoyance to residents, 17,000 feet of water main replacement has been determined by the applicant as a reasonable quantity of lines for replacement per year.

Overall Technical Feasibility

Successful completion of the main renewal project will require careful monitoring by the B-SB staff. Standard construction procedures for water main replacement are being planned for this work and the project team has successfully conducted similar efforts. Water main replacement has been ongoing in Butte since 1992 on a large scale with minimal problems. This project is technically feasible based on the information provided.

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

Costs proposed for implementing this year's water line replacement total $1,742,401 with $1,188,905 (68%) requested in Restoration funds. B-SB's share for all costs is $553,496 (32%). Restoration funds would cover 70% of the engineering and construction costs, which total $137,000 and $1,561,036, respectively. B-SB is paying all the county salaries and wages on the project, which are estimated to be $43,966 (2%). To estimate costs for 2003, B-SB added a 10% contingency to the average costs in the last three years of water line replacement of $82 per foot, resulting in an estimate of about $90 per foot for construction. Based on this last three years of expenses, engineering costs are estimated at $8.00/foot. The estimated total cost per foot is $98.89 for water main replacement.

The applicant has outlined a 15-year project schedule starting in 2002 for replacing water lines system-wide to address the long-term maintenance problems of the system. Butte's system consists of approximately 1,170,000 feet of distribution mains. B-SB plans to request about $1.2 million per year in Restoration funds, and provide a direct match of about $0.5 million annually to replace 17,000 feet of line per year. The costs to the Restoration Fund

would be approximately $17.5[14] million over 15 years and B-SB would match $8.1 million. This effort would result in 255,000 feet of water line replacement over the 15-year time period which, combined with improvements made between 1992 and 2002, total 39% of the entire water distribution system and about half of the sections in most need of replacement. Although this effort will lag behind the accepted rule-of-thumb for a water line replacement of 1% each year, the project would achieve substantial progress toward getting the community's water infrastructure needs met. B-SB indicates that all major leak problems will have been addressed and annual maintenance costs will be within reason for the size of the utility system based upon successful implementation of this 15-year replacement project.

The NRDP agrees with the applicant that this project represents an important step in replacing services lost due to injured groundwater resources. The State's 1995 Restoration Determination Plan[15] affirmed upgrading Butte's antiquated water system as a viable replacement alternative for the injured bedrock aquifer. The benefits to the Butte residents who lost the use of groundwater include the following:

- reduced rate of leakage which will reduce pumping and treatment costs;
- reduction in the potential for the distribution system becoming contaminated through leaking and failing pipes;
- improved fire protection;
- cost savings due to the reduction in the number of leaks per year that have to be repaired;
- reduction in the potential for property damage and reduction in associated insurance claims from leaky pipes;
- assurance of B-SB's continued provision of a reliable source of potable water to its residents meeting current federal and state regulations; and
- the opportunity to conserve more water during drought conditions as a result of reduced leakage.

Because this proposal will cost-effectively benefit and compensate the public for some of the lost use of groundwater that Butte has suffered due to inability to use groundwater in much of the City, the NRDP believes the benefits gained from this replacement proposal outweigh its costs.

[14] The $17.5 estimate is stated in the application; however, if the annual requests continue at $1.3M then the 15-year cost would be on the order of $19M.

[15] *Restoration Determination Plan Upper Clark Fork River Basin*, NRDP, October, 1995.

3. Cost Effectiveness – Likely Cost Effective

B-SB considers that the proposed project is the most economical way to replace lost services from injured groundwater resources. B-SB indicates the no action alternative would eliminate one of the few viable means to replace the lost services that groundwater provides. Another alternative considered by the applicant was to vary the level of effort to replace the distribution system. For example, the proposed project could replace the distribution lines at a higher or lower level of effort per year. B-SB states that the proposed level of replacement, 17,000 feet of line per year, is optimum based on B-SB's experience over the last 11 years.

The NRDP's engineering consultant's analysis of the 2001 proposal indicated both the proposed replacement schedule and cost estimates to be reasonable based on previous water line replacement costs in Butte and other similar municipal projects.[16] Based on the low bid for the approved 2002 project of about $1.6 million, the estimate in this proposal is considered reasonable.

If groundwater of acceptable quality were available from wells, the cost of operating and maintaining the water system would be significantly less. Under current state and federal regulations, most ground water supplies require little or no treatment other than disinfection with chlorine or ultraviolet light. Groundwater systems typically do not have to be manned on a full-time basis. This alternative is not available due to the extensive groundwater contamination underlying Butte.

Another alternative, which would save water, would be placing meters on the 7,500 un-metered connections presently existing in Butte. B-SB has expressed a strong desire to place meters throughout the City. Presently all new connections require water meters, however, due to the severity of the present water problems facing the B-SB water system, such as leaking pipes, metering is not a high priority at this time. B-SB credits the existing high debt of B-SB water users as a reason to wait for requiring extensive metering. The NRDP believes that B-SB should continue to expand the use of meters in the near future in order to save water.[17] Water restrictions have been in place during the last three summers to limit lawn watering, primarily due to continuing low stream flow volumes in the Big Hole River.

Leakage from distribution lines has been predicted to be about 14% of the water pumped into the distribution system, at an estimated cost of $55,000 per year. Another annual cost that would be eventually saved by replacing water lines would be the cost of repairing water main leaks. These leaks, in excess of 300 per year, cost B-SB about $1000 per leak to fix, or some $300,000 per year. At some point in time, without the proposed water main replacement, the distribution system would become totally unmanageable and unusable due to the excessive leakage and age of piping.

[16] Evaluation of B-SB Drinking Water Infrastructure Replacement, Phase I Grant Application, prepared by Gary Swanson of Robert Peccia and Associates, dated March 16, 2001

[17] B-SB estimates in an 5/18/03 e-mail from Dave Shultz that the cost to put in meters for the remaining unmetered residents would cost $1.9 million. The estimated savings from metering is expected to be two million gallons per day.

Due to these savings and the analysis done by the applicant and NRDP's engineer, the NRDP believes that the selected alternative of replacing pipe and the level of pipe replacement proposed by the B-SB of 17,000 feet is cost effective.

4. Environmental Impacts – No Significant Adverse Impacts

   Replacing Butte's water mains presents no significant adverse impacts to the environment. The project will have potentially adverse impacts to aesthetics from the short-term excavation within the city streets for the installation of the mains. This impact will be mitigated, to the extent possible, by limiting public access to the disturbed areas. Actual construction activity will last about two weeks for each renewal segment. The project will have a potentially beneficial impact on conservation of water, by reducing the estimated 14% water loss from leaking pipes.

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

   Potentially, adverse impacts to the human environment during construction activities include workers' safety, dust, noise, temporary loss of water service, restricted access to commercial facilities and disruption of traffic flow. The applicant has planned effective mitigation measures to alleviate these adverse impacts to the greatest extent possible, such as limiting construction to daytime hours. Although this section does not directly address the workers' safety, the section on applicable laws indicates that B-SB will follow safety guidelines of the Montana Public Works and Standard Specifications. Also, the 2002 bid package for last year's approved project indicates that worker safety measures will be required.

   In addition to bringing clean water to residences, replacing water mains will also benefit the community by reducing impacts on human health and safety that are caused by water leaks. These include road hazards from leaking water and ice, health hazards due to possible contamination of the water system via leaks, and safety hazards caused by inadequate pressure and flow for fire fighting purposes.

6. Results of Superfund Response Actions – Consistent

   The 1994 Record of Decision[18] for the Butte Mine Flooding Operable Unit declared that the bedrock aquifer and parts of the alluvial aquifer on the Butte Hill could never be used for drinking water. B-SB has adequately planned to replace water lines in areas where impacts from mine flooding decisions are applicable. This is consistent with remedy in that contaminated groundwater cannot be accessed for residential use.

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

   This replacement project will not affect the bedrock aquifer's recovery period, which will not occur for thousands to tens of thousands of years.

[18] *Record of Decision, Butte Mine Flooding Operable Unit*, U.S. Environmental Protection Agency, September 1994.

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

   The applicant has provided sufficient information on the applicable requirements needed to complete this project. The following three standard procedures will be implemented:

   - B-SB will submit all design drawings for water main segment replacements to DEQ for review and approval prior to performing the work.

   - B-SB will coordinate all replacement activities with the U.S. EPA to ensure any excavated materials that contain heavy metals in excess of remedial action levels are disposed at the mine waste repository and clean back fill materials are used.

   - B-SB will follow Montana Public Works Specifications in the implementation of the project, including those for ditch width, pipe bury depths, safety measures, and related specifications.

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

   Appendix E contains the comment letters from the Tribes and DOI. There are no known tribal cultural resources of special interest to the Tribes or DOI in the vicinity of the project area. The Tribes provided comments indicating there will not be any adverse impacts to Tribal resources since the waterline will be installed in the existing waterline trench. It is not anticipated that this project will have adverse impacts on resources related to the DOI, nor did the DOI note the potential for such impacts in their comments to the NRDP on this project. DOI indicated its conditional support of this project.

Stage 2 Criteria

10. Project Location – Within Basin and Proximate

    The project will be conducted above the injured Butte Hill bedrock aquifer area.

11. Actual Restoration of Injured Resources – No Restoration

    This is a replacement project; actual restoration of the bedrock aquifer is infeasible. The State recognized this infeasibility in its 1995 Restoration Determination Plan that selected a replacement alternative for this groundwater injury.

12. Relationship Between Service Loss and Service Restoration – Same

    Restoration of the bedrock aquifer is infeasible, thus the aquifer's drinking water and its storage capacity and transport services have been lost for thousands of years. This proposal constitutes replacement of lost services to thousands of property owners and other members of the public in Butte that could utilize the aquifer if it was not injured. By fixing leaking and corroded water lines, this proposal will enhance the water supply from an unaffected source. Thus, there is a direct connection between lost services and services this project will replace.

13. Public Support – Moderate

The NRDP received a total of 23 comments in support of funding the Butte waterline project, including a letter of support from the B-SB Council of Commissioners in the application.

14. Matching Funds and Cost Sharing – Reasonable (32%)

B-SB has matching funds of $553,500 or 32% of the total project costs for this year's proposal. The matching funds consist of $509,500 for construction costs and $44,600 for in-kind labor. B-SB indicates its intent to continue this match for the project's 15-year length, for a total match of $8 million.

Although not considered a cost share, the applicant has noted the $40 million dollars already invested by Butte municipal drinking water system ratepayers over the past ten years. These monies were used for constructing a treatment plant for the Big Hole water supply ($20 million), water line replacement over the last nine years ($10 million) and for other surface water improvements ($10 million).

15. Public Access – Not applicable

Public access is not a component of this project, nor is it relevant to the project.

16. Ecosystem Considerations – Positive

The project will conserve water and reduce power requirements for pumping and treating water.

17. Coordination and Integration - None

This project is not coordinated or integrated with other ongoing or planned actions in the UCFRB besides the remedial actions addressed under Criterion 6.

18. Normal Government Functions – Within but Augments Normal Government Functions

Upgrading drinking water lines is a normal responsibility of local governments that is typically accomplished via funding from grants and ratepayers. But the costs B-SB faces to upgrade their system are greater than typical community costs due in part, to pervasive groundwater contamination underlying Butte. In the absence of that injury, Butte may have been able to construct a simpler and less expensive nearby groundwater system than the existing system that relies on more distant uncontaminated surface water sources, as further documented in the State's 1995 NRD assessment report.[19] B-SB ratepayer's costs are significantly higher than other similar communities. For example, the Butte water rates are twice the rates in Great Falls and Anaconda, approximately 25% more than Missoula's, and

[19] *Revised Report and Rebuttal: Assessment of Damages to Groundwater and Literature Review of Water Use Values in the Upper Clark Fork River Drainage*, Duffield, October, 1995. Note: this report estimates lost use values for Butte's bedrock and alluvial aquifers.

20% more than Helena's rates.[20] Another consideration of this criterion is that B-SB is contributing 32% of this project that seeks to address the water main leak problems over a 15-year period to bring annual maintenance costs within reason for this size of a utility system. After that, B-SB would be funding the routine maintenance costs.

[20] Water Rate Survey, City of Great Falls, April 2001

Anaconda-Deer Lodge County
Fourth Street Water Distribution Upgrade

Project Summary

Anaconda-Deer Lodge City County is replacing a leaking, 104-year-old, 14-inch waterline along Fourth Street. Approximately 1.75 million gallons of water per day leak through the City of Anaconda's water distribution system. Repairing these leaks is an alternative that will provide the City of Anaconda with additional water resources instead of developing a new source of water. The total project costs are $1,282,318, with $287,318 in matching funds and $995,000 requested in Restoration funds.

The City of Anaconda is located adjacent or partially within the 40 square miles of groundwater contamination associated with the Anaconda Regional Water, Waste, and Soils Operable Unit. Groundwater resources are somewhat limited because the upper portion of the alluvial groundwater aquifer east of Anaconda is contaminated with metals associated with past mining activities at levels above water quality standards. The 1995 State of Montana Anaconda Groundwater Injury Assessment Report supports this claim of groundwater contamination east of Anaconda. Also, the 1998 Anaconda Regional Water, Waste, and Soils Operable Unit Record of Decision indicates some 30 square miles of contaminated bedrock groundwater to the north and south of the City.

The Fourth Street waterline project is considered a replacement project. This request is the second year of what Anaconda Deer Lodge County has indicated will be a multi-year funding request to replace the waterline system. The Governor approved the 2002 Main Street and Bowman Field waterline replacement and installation projects for $749,942.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

This project involves the replacement of approximately 5,325 feet of 14-inch waterline and 535 feet of smaller waterlines within the City of Anaconda. The Fourth Street waterline replacement project will be completed prior to the Montana Department of Transportation (MDT) Fourth Street repaving project estimated to be completed within four years.

Anaconda-Deer Lodge City County (ADLC) has completed 34,500 feet of waterline replacement along Commercial and Park Avenue, installed a waterline to the Warms Springs Campus, constructed a new well field and water storage tank, and contracted for engineering services for the design and planning of these projects. In addition, ADLC is currently implementing a Main Street waterline replacement project approved for funding in 2002. The same level of effort and approach is proposed by ADLC for the Fourth Street project. ADLC has spent approximately $13.8 million dollars on these improvements since 1994.

The current Fourth Street waterline is Kalimane pipe that is 104-years old and a "critical link in the ADLC water system that services over half the community."[21] ADLC proposes to

[21] ADLC, "East Fourth Street Water Main Improvements," UCFRB grant application; March, 2003.

manage and be responsible for the design, project bidding and contracting, construction oversight, and waterline maintenance. The Restoration funds will be used for waterline project design, installation of the new waterline, connection to existing water service, and construction oversight.

The NRDP has a reasonable degree of confidence that the technologies proposed to complete this project within this application can be achieved. Standard design and construction techniques that conform to the Montana Public Works Standards Specifications for Construction, and the Department of Environmental Quality (DEQ) specifications will be used for the Fourth Street waterline replacement project.

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

Total cost for the proposed project is projected to be $1,282,318. ADLC proposes to provide $287,318 (22%) in matching funds, including $60,221 of in-kind services. The proposed Restoration grant is for $995,000 to cover the Fourth Street waterline replacement, or 78% of the total project costs.

The leaking waterlines in Anaconda lose approximately 1.75 million gallons of water per day. An assessment by Peccia and Associates in 2000 completed for ADLC calculated this loss by subtracting the volume of water pumped from the City wells by the volume of water treated at the wastewater plant (water in minus water out). This assessment was completed during winter months to eliminate uses such as yard watering that would normally not be treated at the wastewater treatment plant. The difference represents the estimated amount of water loss through leaking pipes. The assessment concluded that the best alternative to develop a water supply would be to conserve the water already being treated and piped out through the water distribution system. The Fourth Street project is expected to reduce water loss from the entire system by approximately 6% (100,000 gallons/day or 31.5 million gallons/year).

Conservation of the leaking water from the Fourth Street waterline will be a direct benefit to the City of Anaconda by reducing the need to seek additional water supplies and lowering water distribution costs since water pumped from the wells will not be lost through leaking pipes. In addition, other benefits include:

- increased water pressure for fire protection and users;
- cost savings associated with reduction in repairs;
- reduction in potential for property damage and reduction in associated insurance claims for leaky pipes; and
- opportunity to conserve more water during drought conditions as a result of reduced leakage.

Restoration funds are needed to help defer costs of replacing waterlines and to conserve water. The project offers substantial benefits to the Anaconda public. It constitutes cost effective compensatory restoration for extensive injuries to the shallow and bedrock aquifers

surrounding the City of Anaconda. Thus, NRDP believes the benefits gained from this replacement proposal exceed its costs.

3. Cost-Effectiveness –Cost Effective

The Fourth Street waterline replacement project involves replacing 5,325 feet of waterline for $1,282,318. The costs for this project were estimated using bids from the 2002 Main Street waterline project and ADLC's consulting engineer's knowledge and experience. The applicant used three of the six lower bids, out of 11 bids received for the 2002 Main Street waterline, to calculate estimated costs for the Fourth Street project. ADLC's consulting engineer made some necessary adjustments to account for individual bid item pricing. ADLC believes the large number of bids received for the Main Street waterline was due to the timing of the bid release, which also contributed to the competitive bid pricing. The NRDP believes the use of this approach to estimate costs is appropriate.

The application compares three methods for completing this project. The applicant evaluated using trenchless technology and installing a new waterline in a different corridor. As presented in the application, neither of the alternative methods of installation was as cost effective as standard waterline installation within the existing waterline corridor.

ADLC has water development limitations because of the groundwater contamination associated with the Anaconda Water, Waste, and Soils Operable Unit and the restrictions on installation of new well fields in some areas inside and outside the contamination. The groundwater contamination east of Anaconda in the upper portion of the aquifer has limited, to some degree, the number of sources for Anaconda's additional water resources. Conservation of the existing water supply is an efficient and effective alternative to increase the supply of water to the current and future users. Development of additional water resources and reserves would utilize the existing water distribution system, resulting in continued losses of treated water. The materials proposed should provide the City of Anaconda with a quality waterline serving Fourth Street users for many years. Drilling through the contaminated aquifers (alluvial and bedrock) is not practical since some bedrock groundwater is contaminated and may be of poor quality (high mineralization) and installation and maintenance of water wells installed through the contaminated alluvial zones may be expensive and difficult. ADLC does hold the water rights to Hearst Lake/Fifer Gulch (7.63 cubic feet per second), although ADLC indicates a new pipeline and treatment system would be required to integrate this water into the current system. Additional wells at the current well field may not be possible due to an agreement between ADLC and the West Valley Water Users. This agreement was negotiated to protect the water rights of the West Valley Water Users.

Metering water use is another mechanism to conserve water. In response to inquires from the Advisory Council and NRDP, ADLC reported that currently 6% of the connections within Anaconda are metered.[22] Metering was required for all new connections in the past but this requirement has been dropped. ADLC indicated in their responses that they are considering re-establishing this requirement, and citywide metering is discussed in the July 2002 Capital

[22] Information provided in two memorandums dated 5/19/03 from Alden Beard of BETA, consultant for ADLC to Carol Fox of the NRDP and Doug Martin of the NRDP.

Improvements Plan. However, the current loss of water through leaks appears greater than the estimated possible water savings from installation of meters.[23] While the NRDP encourages ADLC to proceed with more intensive efforts to increase use of water meters, replacing waterlines is likely a more cost-effective method to conserve water in the short-term.

In conclusion, the alternative of replacing the leaking Fourth Street waterline appears to be a cost effective alternative compared to other water development alternatives and waterline replacement methods, and the estimated costs are reasonable since actual contractor bids were used to estimate the potential costs for this project.

4. Environmental Impacts – No Significant Adverse Impacts

Replacing Anaconda's Fourth Street waterline presents no significant adverse impacts to the environment. The project will have potentially adverse impacts to aesthetics from the short-term excavation during the installation of the new waterline. The Fourth Street project will use erosion control to protect stormwater runoff. The applicant states that, if required, the contractors will obtain a construction site stormwater management permit from DEQ.

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

Potentially adverse impacts to the human environment during construction activities include dust, noise, temporary loss of water service, restricted access to commercial facilities, worker safety, and disruption of traffic flow. The applicant has proposed mitigation measures to alleviate these adverse impacts to the greatest extent possible. Temporary waterlines and construction site safety measures are proposed for the Fourth Street waterline replacement. Bringing clean water to residences and businesses by replacement of water mains will also benefit the community by reducing impacts on human health and safety due to enhanced reliability of the water service and distribution, and by increasing availability of water otherwise lost to leakage. In addition to bringing clean water to the City of Anaconda, the services will also improve fire protection pressure and flows. ADLC indicated in the supplemental information provided to NRDP that standard work place safety practices will be followed during the completion of this project to insure worker and public health and safety.[24]

6. Results of Superfund Response Actions – Consistent

This project is consistent with remedy in that contaminated groundwater is not being accessed for use. The project will not conflict or coordinate with any known EPA Superfund actions.

[23] In a letter dated May 18, 2003, Dave Shultz, of BSB, indicated that metering is estimated to save 1/3rd of the difference between winter base usage and summer peak usage; this reduction is also generally applicable to metering in Anaconda. This difference may not equal the current loss of 1.75 million gallons per day from the ADLC waterlines.

[24] Information provided in a 5/19/03 memorandum from Alden Beard of BETA, consultant for ADLC, to Doug Martin of the NRDP.

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

   This replacement project will not affect the groundwater recovery period, which will not occur for thousands to tens of thousands of years.

8. Applicable Policies, Rules and Laws – Consistent

   The applicant has provided sufficient information on the applicable requirements needed to complete these projects. The following standard procedures will be implemented:

   - ADLC will submit all design drawings for water main replacement to DEQ for review and approval prior to performing the work.

   - ADLC will coordinate with DEQ to ensure that contamination from other potential sources will be investigated prior to construction.

   - ADLC will follow Montana Public Works Specifications in the implementation of the projects, including those for ditch width, pipe burial depths, safety measures, and related specifications.

     If funded, ADLC would be required to evaluate the applicability of these requirements.

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

   Appendix E of the *2003 UCFRB Restoration Work Plan* contains the comment letters from the Tribes and DOI. The Tribes provided comments indicating there will not be any adverse impacts to Tribal resources since the waterline will be installed in the existing waterline trench. It is not anticipated that this project will have adverse impacts on resources related to the DOI, nor did the DOI note the potential for such impacts in their comments to the NRDP on this project. DOI indicated its conditional support of this project.

Stage 2 Criteria

10. Project Location – Within Basin and Proximate

    The Fourth Street waterline replacement project is located within the City of Anaconda, within the Upper Clark Fork River Basin (UCFRB) and within and adjacent to the injured groundwater resource boundary.

11. Actual Restoration of Injured Resources – No Restoration

    This is a replacement project; actual restoration of the injured portion of the Anaconda Area groundwater resource is infeasible as recognized in the State's 1995 Restoration Determination Plan. The Fourth Street waterline project constitutes replacement of lost services because it replaces drinking water lost in the area as a result of contamination.

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

Remediation and restoration of the injured groundwater in the upper portion of the aquifer associated with the Anaconda Regional Water, Waste, and Soils Operable Unit is infeasible as recognized in the State's 1995 Restoration Determination Plan. Use of the bedrock aquifer north and south of Anaconda is also prohibited due to contamination. Thus, ADLC has lost a potential source of water for future development and needs. Optimization and conservation of existing water resources from the current leaking water supply system is an effective means of protecting their water resources. Thus, there is a direct connection between the potential services lost and the services the Fourth Street waterline project will replace.

13. Public Support – Limited

The NRDP received a total of 7 comments in support of the funding the Anaconda waterline project, including three letters of recommendation from various city/county departments provided in the application.

14. Matching Funds and Cost Sharing – Limited (22%)

ADLC has proposed to provide matching funds of $287,318, or 22% for the Fourth Street waterline installation project. These matching funds from ADLC are for administration, project oversight, fiscal management, and construction coordination services. ADLC is providing $227,097 in cash as well as $60,221 in staff in-kind services.

15. Public Access – Not Applicable

Public access is not a component of this project, nor is it relevant to the project.

16. Ecosystem Considerations – Positive Impacts

The applicant states that the grant project will provide a net benefit to the local ecosystem by conservation of water resources and reduced power requirements for pumping and treating water. These statements are correct; however, the overall effect of the requested grant funds is limited since the replacement of the Fourth Street waterline will conserve approximately 6% of the 1.75 million gallons of water loss per day in Anaconda.

17. Coordination and Integration – Integrates

The Fourth Street waterline replacement project is integrated with other ADLC plans. The Fourth Street waterline project will be completed prior to the MDT repaving Fourth Street. This process advocates the completion of utility work prior to highway resurfacing. MDT's Fourth Street repaving project is proposed for completion within four years.

18. Normal Government Functions – Within but Augments Normal Agency Function

The Fourth Street waterline replacement project proposed by ADLC in this grant application is the part of normal ADLC government functions. Waterline installations and repairs are

part of local government responsibilities as they are the owners of the water distribution systems. ADLC indicates they are financially unable to fund the Fourth Street waterline replacement because the Water Department currently has an outstanding $4.5 million bond with approximately $3.5 million remaining on this water utility debt. ADLC indicates that it has one of the higher mil levies in Montana, at a current 748 mils. Because of this debt and the stated impacts to the groundwater resource associated with the Anaconda Water, Waste, and Soils Operable Unit surrounding Anaconda, ADLC is seeking Restoration funds to assist with normal agency function. ADLC proposes to provide matching funds of $287,318, or 22% for this project. ADLC has not applied for other grants to assist with this waterline project because access to these funds is limited. ADLC is not eligible for Community Development Block Grants. Other grants were not pursued because of grant cycle timing and loan requirements.

In the response to NRDP and Advisory Council inquires, the applicant recalculated their current water rates and determined that several cities with populations greater than 5,000 people have lower water rates (Billings, Great Falls, and Kalispell).[25] The applicant states that the new water rates show the water rates have doubled in the last ten years for Anaconda residents, from $11.59 to $22.67 per month, a large increase from the "free water" days. In addition, these new calculations show that ADLC exceeds the Montana Department of Commerce Affordable Target Rates by 6%. These target rates are established by the Department of Commerce and used by multiple grant programs to help ensure that applicants are contributing their fair share towards a proposed project. The ratepayer's commitment is considered as contributing its fair share when it meets or exceeds the target rate.

Land Acquisition Criteria – Not Applicable

Monitoring and Research Criteria – Not Applicable

[25] Information provided in two memorandums dated 5/19/03 from Alden Beard of BETA, consultant for ADLC to Carol Fox of the NRDP and Doug Martin of the NRDP.

Watershed Restoration Coalition of the Upper Clark Fork
East Deer Lodge Valley Watershed Project

Project Summary

This replacement project seeks to improve water quality, riparian and upland wildlife habitat, aquatic habitat and fisheries and enhance existing recreational opportunities primarily by applying off-stream water, prescribed grazing, and selected road improvements. The project area encompasses seven Clark Fork River tributary drainages located between Warm Springs Ponds and Deer Lodge. Off-stream water projects involve implementation of prescribed grazing plans and installation of stock tanks, pipelines, spring developments and cross fencing. Other proposed project activities include project coordination, integrated weed management, monitoring, education, and assessment activities in a few targeted areas.

The seven tributary streams (Caribou Creek, Orofino Creek, Sand Hollow, Dry Cottonwood Creek, Sand Creek, Perkins Gulch, and Girard Gulch) are relatively small and none connect with the Clark Fork River except during extreme storm events. Three of the seven streams (Perkins Gulch, Dry Cottonwood Creek, and Orofino Creek) support small, resident trout fisheries; two of these three support genetically pure populations of westslope cutthroat trout (Perkins Gulch and Orofino Creek). A 2002 watershed assessment identified impaired aquatic and riparian habitat conditions on the lower reaches of the seven streams. Excessive grazing pressure and, to a lesser degree, road conditions near streams, were indicated as the major causes of these impaired conditions.

The total project area encompasses about 55,000 acres, with about 35,000 acres of private lands (64%), 16,500 acres of National Forest System Lands (30%), and 3200 acres of state lands (6%). The eight participating private landowners own about 30,000 of the 35,000 acres of private lands. Combined, the proposed projects on state, federal, and private lands cover 92% of the 55,000 acre project area.

Total project costs are $840,373, with $539,458 requested in Restoration funds and $300,915 proposed as future matching funds. An additional $311,500 has already been invested by project partners in the past 2-3 years on assessment, education, planning and coordination activities in the project area. Project expenses would occur over a 5-year period, with the majority of the Restoration funds to be spent in 2004 and 2005.

Detailed Project Description

This project involves multiple activities that the NRDP has categorized as follows for purposes of evaluating the project. The amounts indicated represent the amount requested for that activity in Restoration funds, with the percent of the total NRDP request also indicated.

A) Prescribed grazing and off-stream water development projects – $279,468 (52%)

The Watershed Restoration Coalition of the Upper Clark Fork (WRC) proposes several agricultural best management practices aimed at reducing the grazing pressure and associated adverse impacts in the riparian corridors of the project area. These include development of

off-stream water sources (springs or wells), storage tanks, conveyance pipelines from water sources to storage tanks or between tanks, cross-fencing and prescribed grazing. The majority of the $274,950 in Restoration funds would be spent on pipelines, with 28 miles of pipeline, 35 storage tanks, and 6 spring developments proposed. Also proposed is weed management over a 4-year period to reduce the potential for weed infestation in areas disturbed by construction activities to develop these off-stream water projects. The budget for this weed management is $41,559. For these activities, Restoration funds are further broken down into:

- Seven cost-share off-stream water projects on private lands totaling $58,875. These projects have significant matching funds from the Natural Resource Conservation Service (NRCS) Environmental Quality Incentive Program (EQIP), some of which also have a cost-share from the U.S. Environmental Protection Agency Watershed Initiative Program. Although the Restoration fund share for these projects varies, it is about 30% for the majority of them. A portion of the pipeline for two of these projects would be on state lands.

- Seven off-stream water projects totaling $191,216 on private lands that would be funded entirely with Restoration funds.

- Two off-stream water projects totaling $29,377 on federal land that would be funded entirely with Restoration funds.

B) Road improvements projects – $52,910 (10%)

The WRC proposes to improve 12,000 feet of existing roads to reduce erosion and sediment delivery to nearby streams from roads. All the road improvement projects would be entirely funded with Restoration funds, with the following breakdown of costs:

- $20,060 is requested for two road projects on federal lands (R3 and R5B).
- $3670 is requested for two road projects on state land (R1 and R4).
- $19,200 is requested for one road project on private land (R5A).
- $9,980 is requested for one road project on land of unknown ownership (R2).

Included as a component of these road projects is $3,360 for weed management of areas disturbed during construction.

C) Assessment activities – $52,000 (10%)

Vanisko Ranch easement development: The WRC requests $20,600 to conduct a natural resource inventory and appraisal of the Vanisko Ranch needed to develop a conservation easement under the NRCS Farmland Protection Program, which can provide up to a 50% cost-share of the appraised value. The easement would maintain the agricultural use of the land, prohibit development, and continue public access through the Block Management Program.

Caribou Creek impoundments feasibility study: The WRC requests $15,500 to assess the restoration potential and design needs for two small impoundments on Caribou Creek and alternatives for a fishery and fishing assess.

Perkins Gulch and Orofino Gulch assessments: The WRC requests $15,900 to assess the restoration potential on Perkins Gulch through a detailed channel survey and monitoring sediment delivery to the creek and evaluating potential issues associated with the Champion Mine on Orofino Gulch. For Perkins Gulch, this effort would involve evaluating the success of the proposed road repairs, identifying new conservation measures, and conducting a more detailed sediment source inventory to protect westslope cutthroat trout.

D) Monitoring activities – $25,000 (4%)

The WRC requests $22,000 for an additional riparian and rangeland transects beyond those to be funded by the NRCS and $3000 for monitoring of cross sections on state lands.

E) Project coordination/support activities – $130,080 (24%)

- Watershed workshops: — The WRC initially requested $19,800 for nine workshops over three years to outline conservation opportunities and measures that landowners can participate in to mitigate impacts in the UCFRB. After discussions with the NRDP, the applicant revised this proposal to four general workshops for $9000 and $10,800 devoted towards working one-on-one with each participating landowner on monitoring over 2 years (WRC 2003b).

- Project coordination/landowner agreements: — The WRC requests $56,000 to set up final landowner agreements and conduct project coordination services for 3 years.

- Coordination with NRDP on final design: — The WRC requests $18,280 to provide final design and project-by-project review information, similar to the review process established with the 2001 pilot projects.

- Project administration — The WRC requests $36,000 for the Deer Lodge Valley Conversation District's administrative services, which are calculated as 6% of the NRDP-funded project costs.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible for most project components; Uncertain Feasibility for some project components

This evaluation involves determining whether it is reasonably feasible that this project will accomplish its goals, or solve the problems the project intends to address. This evaluation of technical feasibility also analyzes how the proposed improvements on private, state, and federal lands will be maintained in the long-term to assure the long-term effectiveness.

Project Goals:

The WRC identifies the following project goals:

- Improve fisheries and aquatic resources
- Improve riparian habitat and upland wildlife habitat
- Improve recreational opportunities
- Develop long-term conservation plans for landowners
- Provide education opportunities
- Monitor practices and results
- Provide on-going coordination and planning.

The project would employ well known, commonly used agricultural and road best management practices (BMPs) to address resource problems. The project team has expertise in planning and implementing agricultural best management projects. Thus, this evaluation will focus on whether the WRC has: 1) sufficiently identified the current resource conditions, the underlying causes of the current condition, the desired future conditions; and 2) proposed effective solutions that will move resources from impaired conditions to the desired future conditions and thus accomplish the indicated project goals.

The WRC first applied to the NRDP for a similar project in 2001, which the NRDP did not recommend for funding due to the lack of sufficient information linking the resource problems, the causes of those problems, and the desired future conditions to the proposed projects. A sufficiently detailed description of assessment of resource problems, particularly for riparian resources, was lacking. A pilot project involving a small subset of the originally proposed projects and assessment activities was instead approved for funding. The WRC then conducted a baseline watershed evaluation that is summarized in the *Draft 2002 Baseline Watershed Report* provided in Appendix F of the 2003 application. The need for this project is demonstrated through baseline data collected for the drainages within the project area and presented in this report. The current conditions identified through baseline data include impaired riparian habitat, impaired aquatic habitat, erosion and sedimentation. Identified sources of impairment include excessive grazing pressure in riparian areas and poor road construction and maintenance. These problems should form the basis of the project goals and objectives.

The NRDP considers the WRC's goals of development of landowner conservation plans, educational workshops, monitoring, and project coordination to be objectives tied to the first three goals listed above. The development of conservation plans and education workshops are directly related to correcting identified key problems. Monitoring and on-going coordination and planning are integral components of project implementation.

The goals of improving water quality, riparian habitat, aquatic habitat, and upland range conditions are well supported by the watershed assessment and application. The WRC's other goals of improving wildlife, fisheries, and recreation are not as well supported by baseline data or descriptions of current condition or desired future conditions. For example, information provided in the application on wildlife habitat and populations is very general and limited. No information is presented on big-game wildlife populations and habitat, such as winter ranges, even though such information is currently available from FWP. The

generality of the proposed targets (Table 5 in Appendix F), such as an upland rangeland utilization target of 50% or an increase of 15% in the Hansen riparian habitat rating, coupled with applying the same targets equally to all drainages and impaired areas, makes the project less predictable in terms of its wildlife benefits.

Similarly, the appropriate data have not been collected to assess fish populations or critical habitats to justify a primary goal of fisheries improvement. The primary issue relating to fisheries documented in the *Baseline Assessment Report* is riparian habitat deterioration and sedimentation. Efforts to improve aquatic habitat through reduced sedimentation and improved water quality will help sustain the small local fisheries that exist in three of the seven streams covered in the project area.

Improved recreation is also more of an indirect result of, not the focus of, the proposed activities. The only recreational information in the application is the status of existing access to the public. No change in existing access is proposed. No details are provided on the level of recreational use within the project area and the landowner tolerances to increased recreational access or increased wildlife populations are uncertain.

In conclusion, based on the data provided in the application, the NRDP believes the project's goals are more accurately stated as improvements to water quality, riparian habitat, aquatic habitat, and upland range conditions that will have indirect benefits to wildlife, fisheries, and recreation in the project area.

Overall Technical Feasibility:

The NRDP believes that most of the proposed work related to agricultural best management practices of prescribed grazing plans and off-stream water developments has a reasonable likelihood of success with the provision of NRDP review and approval of the draft conservation plans. An exception is the proposed P6 project on USFS lands. Also considered of reasonable feasibility are the proposed monitoring, education, coordination, and administration activities.

The three proposed assessment projects and all but one of the proposed road projects are of uncertain feasibility. Excluding these projects from funding consideration would reduce the Restoration fund request by $130,648, which also includes a proportional reduction in the Deer Lodge Valley Conservation District's 6% administrative fee. Following is a more detailed breakdown on the technical feasibility of the major project components.

A) Prescribed grazing and off-stream water development projects – Reasonably Feasible: These efforts should facilitate recovery of upland, riparian, and aquatic habitats that will ultimately have general benefits to wildlife and existing fisheries in the project area. The baseline watershed assessment identifies where excessive grazing pressure is observed in riparian and stream corridors. Limiting factors are likely to be water, green forage at certain times, and shade. Studies have shown that providing off-stream water, riparian fencing, installing cross fences to regulate livestock movements, creating livestock pastures, decreasing stocking rate and duration in a pasture are all measures that can compensate for these limiting factors. Generally, improving range conditions and protecting riparian corridors can be beneficial to wildlife. A concern exists, however, that redistribution of

livestock from riparian to upland areas, if not properly planned, can negatively impact forage and cover on winter range. The effectiveness of these practices and their associated natural resource benefits greatly depends on management objectives and the effectiveness of off-stream water for luring livestock out of riparian areas will vary by location and by herd (Maxim 2003b). The details of the grazing management plans should influence the final designs for placement of watering tanks. The prescribed grazing plans are critical to the success of the proposed efforts, but these plans will not be prepared until after funding is secured. The plans also need to be flexible to allow for changes if monitoring indicates the need for change. Thus, the greatest uncertainty regarding these projects involves their final design.

The WRC has provided that the final project designs and supporting plans, such as the prescribed grazing plans, will be subject to review and final approval by NRDP and the project budget provides for the necessary coordination with the NRDP on these final design plans. The WRC is also committed to an adaptive management approach of changing grazing practices should monitoring indicate the need to do so. In reviewing the materials provided as part of this approval process on the 2001 pilot projects and considering the NRCS guidance on the development of prescribed grazing management plans and wildlife management plans (NRCS 1997), the NRDP believes that these plans will provide the site-specific conditions and targets, such as percentage residual cover and percentage species composition, and thus address the deficiency regarding the generality of targets. The review process will also allow for the NRDP, in consultation with FWP, to address potential impacts of redistribution of livestock on big game winter range. The proposed projects that are not being coordinated through the NRCS EQIP program since they have no EQIP funding component should also follow the NRCS prescribed grazing protocols.

The WRC will enter into an agreement that requires the landowner to monitor or maintain projects for up to 20 years for the off-stream water development projects on private lands that will be partially or fully funded with Restoration funds. The length of the landowner commitment would depend on the life span of the proposed improvements specified in NRCS guidance. The general agreement provided in the application has a provision that requires the landowners to reimburse any funding awards if the landowner does not meet the terms of the agreement or, if the property is transferred during the contract time, the subsequent landowner(s) does not meet these terms. The NRDP also suggests a provision be added to the standard agreement that would require a landowner to notify the WRC and NRDP of any landownership changes. With this minor addition to the agreement, and assuming the WRC and NRCS provide the indicated oversight of the landowner's implementation of the project, and if needed, enforcement of the agreement provisions, the NRDP has reasonable assurance that the improvements to be funded will be maintained over their anticipated life-span. Adding to this confidence is that seven of the eight participating landowners have demonstrated their knowledge of and consent for the proposed activities through their signing up with EQIP.

For the two pipeline projects that are, in part, on state lands or state-leased lands (P10 and P5), the Department of Natural Resources and Conservation (DNRC) is willing to require the grazing lessees to maintain improvements and adhere to prescribed grazing practices as part of their lease agreement (Staedler 2003a and 2003b). For the two pipeline projects (P6 and P14) that include spring developments and stock watering tanks proposed on federal lands,

the U.S. Forest Service (USFS) has indicated that if these improvements were to be implemented, the grazing permittee would be required to maintain the improvement as part of their permit (Gerdes 2003). The USFS does, however, have concerns about the suitability of the proposed pipeline in P6 ($15,658) that leads the NRDP to question the long-term effectiveness of this particular project. While the proposed spring development is likely to reduce livestock impacts to the low-slope areas, the proposed pipeline and stock tank to be placed near the bottom of the slope are not likely to reduce livestock impacts to those areas (Gerdes 2003).

B) Road improvements – Uncertain Feasibility: The NRDP questions the likelihood of the success of most of the road improvement projects for various reasons.

First, the mechanisms to assure the projects are maintained in the long-term are uncertain. The DNRC is willing to sign a contract with the WRC to maintain the road improvements on state lands (R1 – Sand Hollow and R4 – Perkins Gulch) for their expected life expectancy (Staedler 2003b). The USFS, however, is unlikely to commit to maintaining the proposed improvements on federal lands because that agency has been minimally involved in the conceptual design of the proposed improvements, has some concerns about their proposed methods (R3 – Dry Cottonwood) and has access constraints (R5B – Perkins Gulch) and funding constraints (Gerdes 2003).

Second, the NRDP questions whether the proposed road improvements in Perkins Gulch (R4, R5A, and R5B) would be effective based on input from NRDP consultants (Maxim 2003b). The reasons for this uncertainty are: 1) the lack of details on some of the proposed roadwork; 2) the subjectiveness and conflicting opinions of two project consultants about the proportionate contribution of roads to stream sediment load; 3) the difficulties in establishing meaningful targets related to reducing sediment loads; and 4) the level of disturbance from other sources and natural erosion in the drainage. The WRC also recognized the data gaps regarding sediment input from roads in Perkins Gulch with its request for additional assessment monies for Perkins Gulch.

Third, the NRDP likewise questions the long-term effectiveness of the two proposed road projects in Dry Cottonwood. Project R2 is questionable because the WRC is unclear at this time what entity (private or public) is responsible for maintaining this road segment. Project R3 is questionable based on the USFS's lack of commitment to the project described above and on input from NRDP consultants that proposed silt fence is likely to wash out during runoff events and would be a high-maintenance measure (Maxim 2003a).

Fourth, information provided on the road improvement projects in the application is very limited. Both the discussions of technical feasibility from the Technical Narrative in the application and the Restoration Strategy in Appendix F emphasize implementation of prescribed grazing and off-stream watering practices. Details on most of the road improvements are not provided, except for those in Perkins Gulch that are covered Appendix F-7.

With these concerns, the only road project the NRDP believes has a reasonable likelihood of success in the long-term based on information provided in the application is project R1 on state lands in Sand Hollow for $2,780. The DNRC provided supplemental information to the

application regarding the intended design that is consistent with NRDP consultant recommendations and the DNRC is committed to upkeep of these improvements (Staedler 2003a and 2003b).

C) Assessment activities – Uncertain Feasibility: The NRDP does not question the proposed assessment activities in terms of their need or the WRC's ability to conduct them. The three proposed assessments, the Vanisko easement development, the Caribou Creek feasibility study, and the Perkins Gulch assessment activities, however, have such limited supporting information that it is unclear exactly what activities will be performed, and thus, difficult to predict the likelihood of success or evaluate the cost-effectiveness of selected approach. These proposals can be resubmitted as separate project development grant applications for funding should the WRC wish to pursue them, with greater details and consideration of other alternatives such as those suggested by NRDP consultants.

1) Vanisko easement development: Based on input provided by FWP on wildlife populations for the 2001 WRC pilot projects (FWP 2001a and 2001b), the NRDP believes the project area may be a good candidate for an easement to protect wildlife habitat from potentially detrimental development as it contains big game winter habitat. Basic supporting information for this proposal, however, is lacking in the application. The area to be considered includes both the main parcel of the Vanisko Ranch east of the interstate (7,040 acres) for which some information on riparian habitat is provided in the application and three parcels west of the interstate (1,162 acres) for which no information is provided in the application. The available information on the upland range condition of the area was not provided. The eligibility of this property to qualify for the Farmland Protection Program is questionable due to a requirement that at least 50% of the land contain prime, unique, or statewide and locally important soils for crop production. This eligibility should be established before requesting funds. Given these deficiencies, there is great uncertainty whether the requested $20,600 would result in development of a conservation easement.

2) Caribou Creek Feasibility Study: The Baseline Watershed Report attributes the current lack of a fishery in Caribou Creek as probably related to the breaching of the upper impoundment and the associated loss of habitat and impact to the resident fish. The WRC proposes to assess reestablishing the upper impoundment, protecting the lower impoundment from catastrophic failure, reestablishing native cutthroat trout, and exploring the associated potential recreational opportunities. Based on site visits, NRDP staff and its consultants question the value of reestablishing an artificial fishery in the upper and lower impoundment. Other alternatives should be considered including removal of the impoundments or limiting livestock access to help further establishment and development of woody vegetation (Maxim 2003b). Input from FWP also indicates a preference for removing the dams to restore a naturally functioning floodplain and stream channel. The WRC has indicated its willingness to consider these other alternatives, but this would be best done via a separate project development grant request. An opportunity exists to coordinate this effort with the easement development effort since the projects involve the same landowner.

3) Perkins Gulch and Orofino Gulch Assessment Activities: The NRDP agrees with the WRC that more assessment activities are needed to determine causes of sedimentation to Perkins Gulch and the best measures to curb that sedimentation. The application only indicates a detailed channel survey and a more detailed sediment source inventory

monitoring sediment delivery to the creek fish species would be conducted, as well as monitoring to determine the success of the proposed road improvement projects. The methodology proposed is not specified and the NRDP consultants have indicated that use of the total suspended solids sampling used for the baseline assessment may not assist much in refining sediment allocations or monitoring progress in reducing sedimentation (Maxim 2003a). They offer several alternatives and suggest that given the difficulty in measuring erosion and determining the cause, the focus be placed on parameters associated with the vegetative recovery and reducing livestock use in riparian areas. The NRDP recommends that this assessment work be proposed with the USFS as an active project partner to address the indicated concerns about sedimentation generated on federally-managed roads.

The proposed assessment of the Champion Mine on Orofino Gulch involves conducting additional visual inspection and a review of existing MDEQ data to "evaluate potential issues with MDEQ priority listing." The application does not specify how much of the $15,900 is for Perkins Gulch vs. Orofino Gulch. The Champion Mine site is priority #134 out of 380 sites on the DEQ Abandoned Mine Priority List. The NRDP believes the DEQ file review and an analysis as to why work should not wait until the DEQ Abandoned Mine Program can address the site should be conducted before further pursuing NRDP funding consideration of work related to the Champion Mine.

D) Monitoring activities – Reasonably Feasible Monitoring of the project is an integral component as monitoring results can indicate the need to change management strategies. Monitoring needs to be tied to specific measurable objectives. Without the final conservation and grazing management plans and the specific objectives contained therein, it is difficult to evaluate the appropriateness of the proposed monitoring efforts. The application indicates that monitoring will consist of 20 rangeland and riparian transects to be funded by NRDP in addition to those funded by the NRCS as well as a continuation of the 2001 baseline assessment parameters. Monitoring locations remain to be specified, and the NRDP believes motoring plans should be finalized in conjunction with finalizing the project designs. The WRC has indicated some flexibility exists with proposed monitoring (WRC 2003c). Thus, the NRDP review and approval of monitoring plans should be included as part of the NRDP's review and approval of final project design and supporting plans discussed previously. With this condition, monitoring activities are considered as likely to achieve their objectives.

E) Project coordination/support activities – Reasonably Feasible: The proposed project coordination activities are considered integral to the success of the project. The NRDP's only concern about these activities is that the applicant indicates that the coordination monies may be used for other projects in addition to those proposed in the application. Under Goal 7, Project Coordination, the WRC indicates an objective of these coordination efforts is to "further the WRC mission and work in other UCFRB project areas" and the application lists more UCFRB drainages under the coordination activities than just the seven drainages covered in this proposal. This approach is not acceptable since coordination activities need to be specific to the projects for which NRDP funds are approved and also because work in some UCFRB tributaries is ineligible for funding consideration due to the unresolved litigation for the Clark Fork River claim. Funding for coordination activities should be restricted to activities specific to projects approved for Restoration funding.

Given that the WRC revised its education workshop proposal to one that provides for less general workshops and more one-on-one time with the landowners participating in the project, the NRDP believes the workshop will help achieve the project goals. The Conservation District's 6% administrative overhead charge is considered a valid expense specific to the proposed project.

2. Relationship of Expected Costs to Expected Benefits – Commensurate, with NRDP Revisions

As requested, total project costs are $840,373[26], with $539,458 requested in Restoration Funds and $300,915 proposed in matching funds. However, with the NRDP suggested reductions under technical feasibility and cost effectiveness criteria, total project cost would be $709,725, with $408,810 in Restoration Funds and $300,915 in matching funds.

Through activities that primarily involve measures aimed at keeping livestock away from stream corridors and riparian habitat, this project will likely improve water quality, riparian habitat, aquatic habitat, and upland range conditions and indirectly benefit wildlife, fisheries, and recreation in the project area over a large area in the East Deer Lodge Valley. The project area supports deer, elk, and antelope populations and winter range for these species. Improved range and riparian forage should support current wildlife populations and may increase populations. Benefits to fisheries are limited since only three of the streams support small, resident fisheries. Facilitating the persistence of native westslope cutthroat trout populations in these streams, two of which have pure strains of this native trout, is of intrinsic value for species conservation.

The indirect recreational benefits would primarily be for big game hunting, but not fishing, given the limited fisheries in the project area. The project involves the majority of private landowners in the project area and about 60% of the private lands are open to public access either via the FWP Block Management Program or on landowner permission basis. Although the project does not involve increased public access, the project will help maintain existing access by helping to sustain existing agricultural uses and open spaces. Similarly, the project will more likely help to maintain existing big game hunting opportunities rather than increasing big game hunting opportunities. FWP's management objectives for elk in the project area are currently being met (FWP 2003).

The greatest natural resource benefits to be derived from this project stem from the improvements to riparian habitats, which are of great ecological importance. Riparian areas provide innumerable wildlife species with water, food, cover and travel routes and are considered the single most productive type of wildlife habitat (BLM 1998). For example, in Montana, although 99% of Montana's acreage is dryland, riparian lands support 90% of the State's 235 bird species (MBDC 1996). The high landowner participation rate and the project's holistic ecosystem approach of improving multiple resources in connected watersheds are positive aspects of the project.

[26] This budget is from a 6/2/03 revised budget submitted by the WRC in response to an award of EPA grant funds for two off-stream watering projects in the project area. These additional matching funds resulted in a reduced request of Restoration Funds by $56,356. This budget does not include the $311,500 in past matching funds that the WRC included in its total project budget.

The applicant also identifies indirect benefits that include ongoing public awareness; enhanced landowner coordination and cooperation in future endeavors; increased financial wherewithal and long-term viability of large ranching operations; reduced chances of subdivision and loss of wildlife habitat; increased access opportunities in the future; and increased opportunities to use these funds to leverage funds from other sources. The proposed remediation of the Clark Fork River floodplain will rely, in part, on agricultural best management practices. Successful implementation of conservation practices in this project can increase the landowner cooperation with these remediation activities.

Given these indicated benefits and the significant matching funds of 43%, the NRDP would consider this project as one of potential net benefits. Since some uncertainty remains associated with the effectiveness of the final design plans, the NRDP considers the project benefits to be at least commensurate with project costs. With the suggested condition of seeking additional EQIP match for some of the off-stream water development projects proposed for 100% Restoration funds (see criterion #3), this benefit/cost relationship would be further improved. Increased public access and/or a more binding commitment to maintain the existing public access would also improve this relationship. Such a commitment could be made via the WRC contracts with the landowners.

3. Cost-Effectiveness – Likely Cost-Effective for some components; Uncertain Cost-Effectiveness

The applicant evaluates two alternatives to the proposed alternative: the no action and selected action. The no action alternative would reduce the contract time frame for project maintenance and resource protection from 20 years to 5 to 10 years; reduce the number of EQIP projects (the WRC estimates a 50% reduction); and eliminate the projects proposed to be funded entirely with Restoration funds. This would result in reduced improvements to water quality, aquatic impact, riparian habitat, and upland range habitat. The NRDP agrees that the no- action alternative will not accomplish project goals.

Partial funding involves some projects being funded and others being excluded from the list of approved projects. The WRC does not recommend this alternative because "it takes away from the character of the watershed effort" and provides less resource enhancement (WRC 2003a). The NRDP, however, favors a partial funding alternative.

The NRDP's partial funding proposal includes the activities that will derive the greatest resource benefits and excludes the projects of questionable resource benefits. As indicated under the technical feasibility criterion, the majority of the road projects and the proposed assessment activities are of questionable benefits due to the lack of supporting information. These activities are not considered cost-effective for the same reasons provided under criterion #1 for uncertainty as to the likelihood that the projects would help accomplish the desired goals.

A phased approach that first focuses on reducing impacts of grazing to riparian areas does not diminish the watershed approach taken by the applicant. The baseline watershed assessment provides allocations for the causes of impairment conditions in each drainage; these allocations were based on professional judgment in the field in conjunction with baseline data. With the exception of Perkins Gulch, riparian grazing pressure was the major

contributor to impaired conditions. In Perkins Gulch, roads and riparian grazing pressure allocations were the same, however, the road allocation is questionable, as noted under criterion #1. Thus, under the NRDP's partial funding option, the worst causes of impairment will be addressed first and the success of these projects can be evaluated before proceeding with other efforts. The road and assessment efforts are not recommended for 100% NRDP-funding and do not involve time-dependent matching funds, so deferring their consideration until sufficient information is provided to evaluate the merits of funding does not eliminate a cost-sharing opportunity.

Another approach that the WRC could have taken would be to propose projects in a single drainage or hydrologic unit basis, rather than covering a large area of seven drainages, or the WRC could have focused on the three drainages supporting fish. These approaches would still be "watershed" approaches, but on a much smaller scale. This would have allowed for better problem definition, goals, and more detailed project proposals. The WRC responded that their approach can offer greater benefits on a "landscape" scale, accomplishing more holistic ecosystem goals by addressing multiple, connected watersheds (WRC, 2003b). The NRDP believes that a sequential, prioritized drainage approach can also accomplish these holistic ecosystem goals. The WRC's multiple drainage approach does offer greater opportunities for matching funds for projects that qualified for EQIP funding under the priority area designation. It also builds on the significant investments already made by the NRCS and WRC and other entities on agricultural best management practices in the project area.

Following are aspects of cost effectiveness for the various project components requested.

A) Prescribed grazing and off-site water development projects – Likely Cost Effective
The uncertainty about the cost-effectiveness of the selected alternative is due mainly to the lack of the detailed prescribed grazing plans and final design plans at this stage of the project. The WRC offers good justification as to why the gravity-fed spring pipeline system is more economical than the well systems. The NRDP's consultant offers other alternatives such as riparian fencing, drift fences, cattle curbs, and hardened stream access, that the WRC should consider as final designs are determined (Maxim 2003b). The NRDP believes that its involvement in project review and approval will help ensure the appropriate alternatives are considered in developing the selected final design.

An alternative not pursued by the applicant is seeking greater matching funds through the consideration of EQIP funding for some of the off-site water development projects proposed for 100% Restoration funds. Five projects totaling $164,298 fall into this category (P2, P3, P10, P12, and P13). The EQIP process changed with the enactment of the 2002 Farm Bill, which has resulted in a different funding determination process than the previous EQIP Priority Area process under which some of the EQIP matching funds already committed to the proposed projects were secured. Funding allocations are currently determined for each county annually and then that amount is divided up amongst potential projects within a county based on a new ranking process. A possibility exists that some of the five projects would rank high enough for 2004 EQIP funding and timing allows consideration of these projects for that funding. Projects approved for EQIP funding would generally have 66% in matching funds, with the NRDP funded portion at 34% instead of 100%. If all five projects were successful, the cost-savings from this additional match would be $108,437. It is

unlikely that all will qualify. A condition of grant funding should be that all projects that are eligible for EQIP funding be submitted for funding consideration and the Restoration funds be proportionately reduced on any projects approved for EQIP funding.

B) Road improvement projects – Uncertain Cost Effectiveness or Not Cost Effective
The NRDP considers the majority of these projects as unlikely to be cost-effective in the long-term or of questionable cost-effectiveness for reasons provided under the technical feasibility analysis (criterion #1). Except for the Perkins Gulch road projects, no alternatives analysis was presented for the road improvements and details on the proposed actions was lacking. NRDP consultants question the effectiveness of the proposed silt fences and the cost-effectiveness of implementing road rehabilitation in Perkins Gulch (Maxim 2003a and 2003b) and the USFS input also indicates uncertainty regarding the long-term effectiveness of this project (Gerdes 2003).

C) Assessment activities – Uncertain Cost Effectiveness
The cost-effectiveness of these proposed activities cannot be judged due to the lack of information provided on these activities as summarized under the technical feasibility analysis (criterion #1).

D) Monitoring activities – Likely Cost Effective
An effective monitoring program is critical to successful project implementation. The cost-effectiveness of the proposed riparian and rangeland monitoring, however, cannot be fully judged until the site-specific conservation plans are developed. With the WRC's indicated flexibility on monitoring plans and a condition of NRDP review and approval of monitoring plans, these activities are likely to be cost-effectiveness.

E) Project coordination/support activities – Likely Cost Effective
The proposed project coordination activities are critical to effective project implementation. The proposed educational workshops, as revised, are likely to increase the effectiveness of project implementation. Without the road and assessment projects, the costs of these coordination activities will decrease, but to determine how much would require further consultation with the WRC, which can occur between the pre-draft and draft work plan stages.

4. Environmental Impacts – No Significant Adverse Impacts

A possibility exists that some of the proposed spring developments and upland water developments, if not properly designed, could be detrimental to fish and wildlife. Since the project seeks to reduce the time spent by livestock in riparian zones, the impact of increased grazing in upland areas on wildlife needs to be carefully considered (BLM 1998). For example, spring development could decrease instream flows for fisheries or degrade other wildlife habitat. Upland water development could increase the physical disturbance of upland big game and decrease the quantity and quality of available forage for wildlife. Of particular concern are potential impacts to big game winter range from livestock redistribution. With the proviso of the NRDP's review and approval of final design plans, the NRDP can likely assure the Restoration funds will be used for activities that will result in a net improvement to fish and wildlife resources.

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

   This project will not cause any significant adverse impacts to human health and safety. Short-term noise impacts related to some construction activities should not be significant, given the remoteness of the project sites.

6. Results of Superfund Response Actions – Consistent

   None of the projects will occur within the 100-year floodplain of the Clark Fork River. EPA did not comment on the 2003 application, however, EPA's comments on the 2001 proposal indicated that project would not interfere with EPA's planned remedial actions along the Clark Fork River or in its 100-year floodplain. EPA also commented that the project could augment the water quality improvement that will be obtained through remediation of the Clark Fork River floodplain.

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

   This is a replacement project on tributaries to the Clark Fork River that are only hydrologically connected to the river during extreme runoff events. The project has a potential to indirectly benefit water quality of the Clark Fork River, but it will have no effect on the recovery of the injured Clark Fork River fisheries.

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

   The applicant identified all the permits that may be necessary and appropriate steps associated with obtaining those permits, such as conducting the necessary environmental assessments. The applicant provides for the necessary coordination with local governmental entities and landowners and the necessary cultural resource consultations. The project team consists of local, state, and federal personnel who have conducted numerous similar projects and thus have expertise in assuring the projects will comply with all applicable, policies, rules, and laws.

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

   This project may benefit these resources of special interest in a minor way. Perkins Gulch and Orofino Gulch support genetically pure populations of native westslope cutthroat trout. The biological assessment for the Clark Fork River recognized bull trout, bald eagle, grey wolf, and grizzly bear as threatened or endangered species in the vicinity of the project area (EPA 2002).

   Appendix E contains input from the Tribes and DOI. The DOI supports this project because of its potential to improve water quality of the Clark Fork River. The Tribes commented that the project is unlikely to negatively impact tribal cultural and/or religious sites if all the earthwork such as work on the roads or impoundments is isolated to previously disturbed zones to the greatest extent possible. The Tribes also noted a potential concern if the project involved disturbance of stream banks through construction. The majority of the proposed projects will be located off-stream. The applicant indicates cultural resource field assessments will be conducted prior to all construction activity and provides for the

necessary consultation with state historical preservation officers and tribal representatives. The applicant also provides for making necessary adjustments to protect these resources of special interest.

Stage 2 Criteria

10. Project Location – Within Basin and Proximate

The project is located in the Upper Clark Fork River Basin between Warm Springs Ponds and Deer Lodge. It is considered proximate to injured natural resources due to the physical connection between the project area and the Clark Fork River and tributaries of the Clark Fork River, as well as the relatively short distance to injured upland resources in the Anaconda area (as well as injured riparian areas of the Opportunity Ponds). Soil sampling indicates that slightly elevated levels of metal compounds in project area soils are attributable to aerial deposition from the Anaconda smelter (Keck 2000). While these levels have not impacted vegetation as has occurred in areas closer to the smelter, the resiliency of the plants to withstand other impacts such as overgrazing is reduced because of this deposition.

11. Actual Restoration of Injured Resources – No Restoration

The project is a replacement project on tributaries that lack a hydrologic connection to the Clark Fork River except during periodic high runoff events. Of the seven tributary streams, only three support localized, resident fisheries. Given their lack of connection to the Clark Fork River, these tributary streams do not currently provide spawning or rearing habitat for fluvial populations of trout, nor are they likely to do so in the future due to insufficient flows. If this project accomplishes its objectives, there may be secondary, minor benefits to the Clark Fork River from improved water quality in these tributary streams.

12. Relationship between Service Loss and Service Restoration – Similar

The project intends to replace lost aquatic and terrestrial resources and services they provide (wildlife habitat and associated recreational services, such as hunting and wildlife viewing, by improving riparian habitat along, and water quality and fisheries in, tributaries to the Upper Clark Fork River. The aquatic and terrestrial resources addressed by this project are similar to, but not the same as, those of the injured resources. The project involves enhancing existing recreational opportunities, particularly big game hunting. (See criterion #15.)

13. Public Support – Moderate

The NRDP received a total of 18 comments in support of funding the East Valley project and one comment in opposition to funding the project. The WRC is comprised of four local conservation district members, three weed board members, and one county commissioner, all residing in the UCFRB. Through the WRC, this project is a cooperative effort among conservation districts, weed boards, counties in the UCFRB and numerous other entities. Two landowners from the project area also serve on the WRC Board. Also, of the eight participating private landowners, seven have signed contracts with the NRCS to participate in the EQIP program, which is indicative of landowner support. The application included 18

letters of support for the 2001 WRC proposal, which is similar in scope to the 2003 application.

14. Matching Funds – Reasonable (47%)

A) Project as proposed by applicant – Reasonable (36%)
The WRC presents total project costs as $840,373, with $539,458 (64%) requested in Restoration Funds and $300,915 (36%) proposed as future matching funds.

The breakdown for the proposed future matching funds is as follows:

NRCS EQIP and EPA grants:	$148,915 (cash)
NRCS monitoring costs	$ 65,000 (cash)
NRCS project support	$ 55,000 (in-kind)
Landowner Operation & Maintenance	$ 32,000 (in-kind over 5 years)

An additional $311,500 has already been invested in past assessment and project coordination activities in the project area. The WRC also includes these past matching funds as a match. The $311,500 was primarily for assessment, planning, and coordination activities spent in the East Deer Lodge watershed area over the past 3 – 4 years and consisted of $162,500 in-kind match for the NRCS for project support and $149,500 in past grant funds for planning and assessment activities. The proposed Restoration funds are for design, coordination, and implementation of some specific projects, however, and the past efforts expended to reach this phase of the project are not specific to the current Restoration fund request. Excluding past activities from the project budget, the total of future project activities is $840,373, with $539,458, or 64%, to be provided in Restoration Funds and $300,915, or 36% to be provided either as cash or in-kind matching funds. If the full project is awarded funding, it is this latter percentage that would be applied as the required project match and thus the NRDP has categorized the project match as reasonable.

B. Revised project as proposed by NRDP – Reasonable (43%)

With the reductions of $130,648 recommended by NRDP, the total project costs would be $709,725, with $408,810 in Restoration Funds (57%) and $300,915 (43%) in matching funds. Of the $300,915 in matching funds, $213,915 (71%) is a cash match and $87,000 (29%) is an in-kind match.

15. Public Access – No Change

No additional public access beyond the existing access would result from this project. Appendix A of the application provides a map indicating existing public access. About 60% of the private lands in the project area are open to public access either via the FWP Block Management Program or on landowner permission basis. This figure includes the state lands parcels that are embedded within private lands. Of the eight participating private landowners, two participate in the FWP Block Management Program on about 10,600 acres, three allow access on a permission basis on about 9,500 acres, and three do not allow public access on

about 17,200 acres.[27] Adding in the federal lands covered in the project area, a total of about 40,700 acres, or 74% of the 55,000-acre project area is open to public access.

In general, the primary recreational use in the project area is big game hunting. While the applicant did not provide data on big game populations and hunter statistics, supplemental data provided by FWP indicates the area supports big game hunting and includes big game winter range (FWP 2001a and 2001b). Elk numbers are currently at FWP management objective levels in the project area (FWP 2003). Fishing opportunities are limited and available on Dry Cottonwood Creek and, to a lesser degree Orofino Gulch and Perkins Gulch due to small size of fish these streams support. As part of the proposed evaluation of the two earthen dams on Caribou Creek, the WRC would evaluate the possible benefits of re-establishing local pond fisheries.

While the existing public access in the project area is good, it must be recognized that the project as proposed does not contain any mechanisms to assure that the existing access is maintained. Access provisions would not be contained in the WRC grant agreement with the landowners. The Program contracts with landowners on an annual basis and does give previous enrollees preference over new subscribers. Currently, the program is undersubscribed, meaning that more funding is available for additional participating landowners in the project area on top of the existing funding to current program participants (Uchytil 2003).

The applicant maintains that existing access and associated existing public recreational opportunities have a much better chance of staying that way as a result of this project because the project will help sustain agricultural land uses and open spaces in the project area and thereby make the lands less susceptible to subdivision, development, and reduced access opportunities. In principle, the NRDP agrees with this observation. In judging the recreational benefits, however, the NRDP must recognize any uncertainties associated with existing access being maintained.

16. Ecosystem Considerations - Positive

This project, with the condition of NRDP's approval of final plans, fits within a broad ecosystem concept in that it is designed to improve multiple natural resources on a broad watershed scale. It proposes activities in multiple, connected small watersheds in a comprehensive manner. General targets have been set for multiple resources – range condition, riparian, water quality, aquatic insects, fisheries, and riparian habitats. More specific targets for range condition (e.g. ultilization, species composition and coverage) will be generated as prescribed grazing plans are developed. The areas in the project area that are not covered in the proposal are not considered as areas that would require mitigation efforts to improve impaired conditions. They are mostly areas in the headwaters that are in good condition already or small in-holdings not believed to substantially contribute to impaired conditions.

[27] Written access permission is required for the two Block management parcels.

17. Coordination and Integration – Coordinates/Integrates

This project coordinates with the implementation of other agricultural best management practices in the East Deer Lodge Valley that have been conducted or funded by the WRC, NRCS, EPA, and the Deer Lodge Valley Conservation District. In addition, the WRC is coordinating this project with MDEQ is in preparation for the likely development of Total Maximum Daily Loads (TMDLs) for Dry Cottonwood Creek, Perkins Gulch, and Orofino Gulch.

18. Normal Government Functions – Most project components are outside normal government functions; some project components are within but augment normal government functions.

A) Proposed work on private land – Outside of Normal Government Functions

This project mostly involves agricultural best management practices on private lands for which Conservation Districts, NRCS, FWP, conservation organizations, or the landowner might normally seek grant funding. Implementation of these practices is currently voluntary on private lands. If a particular activity can be shown to cause a violation of state water quality standards, then enforcement measures can be taken. The DEQ, via its Nonpoint Source Water Quality Program, is currently focusing its efforts to obtain voluntary compliance, primarily through outreach and financial assistance such as that proposed by this project. Although weed control is a landowner responsibility, the weed control activities for this project are restricted to areas where soils are disturbed to implement other project activities. Thus, no governmental entity is specifically responsible for the proposed project activities on private lands, nor does any governmental entity receive funding for such activities in the normal course of events.

The project coordination and monitoring activities are also considered outside of government function as they are the support activities to help assure the effectiveness of the conservation practices on private lands. The Deer Lodge Valley Conservation District routinely assesses a 6% administrative charge on grant funds the District administers. The assessment activities proposed for the Champion Mine that is on private lands may be activities that could be conducted under the DEQ Abandoned Mine Program, but not until higher priorities are addressed.

The proposed road improvement on private land (project #R5 - $19,200) is not recommended for funding as explained under criteria #1 and #2.

B) Proposed work on state and federal lands – Augments Normal Government Functions

Four projects totaling $49,426 are proposed on federal lands and three projects totaling $6,670 are proposed on state lands.

The NRDP does not recommend the two road projects on USFS lands for funding due to uncertainties regarding their effectiveness in the long-term as addressed under criteria #1 and #3. The two grazing projects involve installing stock water tanks, pipelines, prescribed grazing, and lineal weed management on two grazing allotments in USFS lands for $29,376 – Project #P6 in Dry Cottonwood Creek drainage ($15,658) and Project #P14 in Girard Gulch

($13,718.80). West of the Continental Divide, the USFS's watershed efforts are focused on streams that support bull trout. The USFS has indicated that project #P6 may be eligible for USFS Range Betterment Funds in the near future if the water source proves sufficient but that project #P14 would be unlikely to be implemented in the near future without an outside funding source (Gerdes, 2003).

The activities on State lands include: installation of a portion of pipelines #P10 and #P5, which are off-stream watering projects that are primarily on private lands but cross through state lands and involve the same landowner. DNRC grazing leases address livestock carrying capacity and weed control. Improvements such as riparian fencing and off-stream water development are typically not required of the lessee and are typically conducted at the lessee's expense. If such improvements are needed, the DNRC will try to assist the landowners in obtaining funding.

The two proposed road improvements on state lands are installation of rolling drain dips on the Perkins Gulch Rd, (#R4 - $890) and installation of drain dips, a slash filter windrow and slash plug near a road stream crossing on Sand Hollow (#R1 - $2780). Project #R4 is not recommended for funding for reasons provided under criteria #1 and #3. The proposed R1 road improvements are tied to project #P5, which is aimed at improving the upland range and riparian habitat in the Sand Hollow drainage and the adjacent Dry Cottonwood drainage. Although these proposed road improvements involve activities that can be conducted by DNRC, it augments the DNRC activity beyond a level required by law and for which funding is presently insufficient to implement. Funding will allow implementation that would not otherwise occur through normal agency function. Most of the DNRC's budget of $5000 for road improvements in the southwest region goes to the purchase and other expenses associated with obtaining and maintaining permanent easements into State Trust lands. In addition, since the source of funding for road maintenance is generated from forest sales, the priority for maintenance funding goes to forest tracts that get more recreational use (Staedler 2003a). Since the Project #R1 road improvements are connected to other proposed improvements and funding for such improvements is unavailable at this time and is not expected, this proposed work augments normal government functions. This is a minor aspect of the entire project--less than 1% of the proposed Restoration funds.

Additional work proposed on state lands is $3,000 for establishing permanent cross sections and monitoring them once a year for a period of 5 years for stream and riparian condition parameters. This work would be contracted out. The DNRC is unable to provide funding for these monitoring projects because funding is not available for monitoring studies on classified grazing sections (Hanna, 2003).

Based on the scope of the proposed activities on state lands and supplemental information provided by DNRC personnel, the NRDP considers the proposed activities to be ones that augment but do not replace normal government functions.

One project is proposed to improve a road segment on what may be a county road (#R2-$9,980). This project is not recommended for funding due to uncertainties identified under criteria #1 and #3.

State 2 Land Acquisition Criteria

The proposal requests $20,600 to develop a conservation easement on the Vanisko ranch property. The development activities entail conducting a natural resource inventory ($10,600) and an appraisal ($10,000). The NRDP does not recommend this project for funding given the insufficient information provided as discussed under criterion #1.

19. Desirability of Public Ownership – Unknown

The application does not provide sufficient information to determine the potential benefits or detriments associated with the proposed Vanisko Ranch conservation easement. The WRC could have provided preliminary information on the parcel's fish, wildlife, and recreational values to help judge the merits of proceeding with these assessment activities. Based on information provided by FWP, the east side of the Vanisko parcel supports winter big game populations and may have critical winter range habitat (MWF 2001a and 2001b).

20. Price – Uncertain

The applicant proposes to conduct a Yellow Book appraisal that is required for the parcel to be considered for a conservation easement under the Farmland Protection Program. The eligibility of this parcel, however, is questionable (see criterion #1). If this easement assessment request is recommended for funding, a provision of the NRDP's review and approval of the appraisal should be a condition for funding.

Stage 2 Monitoring and Research Criteria – Not Applicable

The project requests $25,000 in Restoration funds, or 5% of the total Restoration Fund request, for monitoring and assessment activities that the NRDP considers are a component of the project implementation activities rather than the focus of the project. Thus, monitoring and research criteria were not evaluated.

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Butte-Silver Bow Local Government
Thompson Park and Blacktail Creek
Rehabilitation and Restoration Project

Project Summary

Butte-Silver Bow City County, in cooperation with the U.S. Forest Service, requests $1,282,529 in Restoration funds for a project that is designed to improve natural resources and recreational opportunities in Blacktail Creek watershed, a tributary watershed to Silver Bow Creek. The total project costs are estimated at $1,861,616. The entire Blacktail Creek Watershed is 24,618 acres. The proposal has project components throughout the watershed. However, the majority of projects are located in Thompson Park, a 3,454-acre municipal park in the watershed, located about 10 miles south of Butte in the Beaverhead and Deerlodge National Forest. Butte-Silver Bow and the U.S. Forest Service jointly manage the park. The Works Progress Administration built the majority of the park roads and recreation sites in the 1930's and 1960's, respectively. The park historically was a popular recreational area for the community of Butte and area visitors. However, over time the park's infrastructure has greatly deteriorated and the poor condition of the Park's roads, trails, and bridges causes sedimentation to Blacktail Creek.

The major components of the Restoration fund request involve improving 10 dilapidated recreation sites, such as adding toilets and picnic tables (16% of costs); improving 33 miles of hiking trails (29% of costs); replacing three road access bridges and other access components (24% of costs); improving aquatic, riparian, and upland habitat in the Blacktail Creek watershed (18% of costs); and conducting an initial environmental analysis of project (11% of costs). The applicant proposes to contribute an additional $579,088 to the project for management plans, oversight and design, railroad trestle and tunnel repair, and a pavilion. At this time the applicant has secured $220,000 of in-kind funding for these components. Approximately 75% of the proposed components costs are for projects located in Thompson Park itself. The remaining 25% of projects costs are for project components that are located on U.S. Forest Service lands outside of the Park. The U.S. Forest Service plans on completing an environmental analysis for some of the project components by late 2004. Most of the construction efforts are scheduled to occur in 2005.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible for some components/Uncertain Feasibility for other components

   Since Butte-Silver Bow (B-SB) has prepared this application and subsequent addendums with the cooperation of the U.S. Forest Service (USFS), the term "applicant" used in this document refers to both entities. The following discussion focuses on how the major components of the plan attempt to accomplish the following goals of the project identified by the applicant.

   - Restore aquatic, riparian/wetland and uplands habitat within the Blacktail Creek Watershed including, but not limited, to the Blacktail Creek drainage;

- Restore resource-based recreation opportunities balanced with the health of the watershed; and

- Effectively manage natural resources and resource-based recreation within the Blacktail Creek watershed.

There are five major components of this project:

A) Habitat improvements to aquatic and terrestrial resources;
B) Recreational site construction;
C) Access improvements such as bridge replacement on access roads, road rehabilitation and land acquisition;
D) Trail improvements such as repairing old trails and creating new trails; and
E) Management of Thompson Park, which includes an agreement between the B-SB and USFS and a National Environmental Policy Act (NEPA) review.

These components will be discussed in the order listed above. The amounts listed are the proposed Restoration funds for the indicated component.

A) Habitat improvements to aquatic and terrestrial resources ($242,000) – Uncertain Feasibility

The applicant requests $242,000 for habitat improvements to aquatic and terrestrial resources. Due to the lack of specifics provided in the application, the likelihood of achieving the proposed goals of restoring aquatic, riparian/wetland and uplands habitat and the magnitude of the benefits to be derived from these improvements by implementing these tasks is uncertain at this time. The major tasks proposed for this component are:

1) Improve 6 miles of westslope cutthroat trout habitat in Blacktail Creek and adjacent tributaries with instream placement of woody debris. ($38,500)

2) Rehabilitate 114 acres of willow-dominant riparian areas with fencing to protect willows from browsing wild ungulates and domestic animals. Rehabilitate 15 acres of aspen areas by removing encroaching conifers and building fence to keep browsing animals out of areas. ($121,000)

3) Improve 320 acres of open sagebrush/grassland habitats by removal of conifers and prescribed burning in these areas to stimulate grass and sagebrush growth. ($14,400)

4) Install four water tanks and replace four miles of fence along Canyon Pasture, which is close to but outside of Thompson Park, to keep cows out of riparian areas and developed recreation sites in the Park. ($25,000)

5) Treat over 300 acres within the Blacktail Watershed with herbicides and biological controls to reduce infestation of noxious weeds. ($40,000)

The applicant proposes, for approximately $38,500, to improve aquatic habitat in Blacktail Creek by installing woody debris. Blacktail Creek supports a genetically pure population of westslope cutthroat trout in its headwaters; brook trout increase in abundance downstream through Thompson Park. It is recognized that woody debris can have a positive effect by increasing habitat complexity, however, recent research suggests that woody debris may be detrimental to westslope cutthroat trout when brook trout are also present (Shepard et al. 1998). Consequently, placement of woody debris may be counter to the goal of preserving and enhancing westslope cutthroat trout populations. The applicant has responded to this matter by stating they share the concern that placing wood may favor brook trout over westslope cutthroat trout, however, they believe the long-term benefits of placing the wood in Blacktail Creek outweigh the possibility of favoring brook trout because eradication of brook trout is possible in the future (B-SB/USFS 2003). They note that the placement of woody debris would not preclude brook trout eradication in the future if eradication were deemed a priority.

Also of concern is the lack of available data to evaluate the existing woody debris amounts in Blacktail Creek. Removal of the main sediment sources seems prudent before placement of woody debris in the Creek, which could simply become sediment traps and impair fish spawning in the area. Some of the wood placement efforts (about 60%) will not require a NEPA analysis because they are on B-SB lands, however, about 40% of the wood placement projects will require NEPA analysis since they are located outside of B-SB lands. A NEPA analysis would likely address some of the uncertainties noted regarding the effectiveness of wood placement compared to other alternatives.

The applicant requests approximately $121,000 to protect 129 acres of riparian and aspen groves from moose and elk impacts with a 7.5 foot high fence. The purpose of the fencing is to allow these areas to regenerate by controlling browsing and grazing pressure. Heavy browsing is thought to have subsequently prevented these stands from fully recovering. It is unclear if this effort will improve the willow and aspen stands. No browse surveys or scientific studies have been conducted specifically in the Blacktail Watershed to evaluate the existing condition and trend of woody plant species in riparian areas. The applicant has responded to this concern by expressing that the effects of ungulate browsing on woody vegetation and the response or regrowth after fencing out animals has been extensively studied in other locations and will also be further evaluated in-depth during the NEPA process (B-SB/USFS 2003).

A concern exists that if the 129 acres of willow and aspen are fenced at the same time, it will decrease the amount of forage available for moose. In turn, pressure could result in an increase on the remaining browse in Blacktail Creek and other drainages. This scenario could result in moose moving closer to Highway 2 or into town where they can cause public safety problems. Moose will continue to be a limiting factor on deciduous communities in this area until fires go through the area (FWP 2003). In a supplemental response, the applicant indicates that the entire 129 acres will not be fenced at once (B-SB/USFS 2003b).

Insufficient data is provided to assess the present vegetation conditions of the 320 acres proposed for controlled burning for $14,400. Without this data, it is difficult to assess the benefits of the proposed control burning. However, the NRDP does agree with the applicant that controlled burning is an important management tool.

The applicant is requesting approximately $25,000 to repair/install fencing around grazing allotments and to install four water tanks to provide off-channel watering for livestock. No data is provided that documents what specific impacts the cattle are causing to resources at this time. If cattle are adversely affecting the area, then the numbers of cattle can be limited, which the applicant recognizes as an alternative (B-SB/USFS 2003b).

The applicant requests $40,000 to implement three methods of noxious weed control, aerial herbicide, ground application of herbicide and biological controls. The benefits of controlling weeds on the 300 acres proposed is difficult to evaluate due to lack of data as to specifics on the locations of the proposed weed control areas and on the extent of the problem. The major weed species of concern is spotted knapweed. A detailed map will be prepared to identify locations to be sprayed during the NEPA analysis.

B) Recreation Site Construction ($210,000) – Reasonably Feasible

The construction and/or rehabilitation of recreation sites are reasonably feasible. The major components, which are estimated to cost $210,000, are:

1) Rehabilitate the Eagle's Nest recreation site: Proposed improvements at four sites include the construction of parking areas at three of the sites; two large group sites and three single site areas; a pavilion at one site, and two toilets.

2) Rehabilitate the Lion's Den recreation site: Proposed improvements at three sites include creating 4 single units and a group site; and two toilets.

3) Install a toilet at the archery range.

4) Build two single recreation sites and a toilet at the Blacktail pullout.

5) Construct two single sites, a parking area and a toilet at the Thompson Park Trailhead.

All recreational site work would include stump removal, grading and leveling, surfacing, and installation of amenities. Amenities at the recreation sites would vary but most sites would include tables, fire rings, group fire rings, benches and garbage cans. Parking areas would have wheel stops. The original recreation site facilities (tables, fire rings, toilets, tables etc.) had a service life of 20 years or less and most no longer exist except for the few unserviceable remaining toilets that would be removed.

All site designs and contract administration work is proposed to be completed by USFS staff including a landscape architect, district recreation staff, a contract officer, and engineers. The applicant anticipates that all recreational work would be covered in one bid contract. The applicant indicated that an attempt will be made to make the various amenities vandal-proof by using materials such as concrete instead of wood. Given the history of the site, a vandal-proof design is warranted. Most of the recreation site work would occur on placer claims owned by B-SB; therefore, NEPA is not required to construct the proposed facilities. The USFS would, however, analyze effects of the proposed work on USFS lands during a NEPA analysis.

C) Access Improvements: Bridge Replacement, Road Rehabilitation and Land Acquisition ($315,000) – Reasonably Feasible

The applicant proposed to meet a goal of reducing sediment loading to Blacktail Creek by improving access features. There are no significant uncertainties associated with the technical feasibility of these access projects. Three access bridges that connect Highway 2 to the Eagle's Nest and Lion's Den recreation sites will be replaced for $73,000 each. The bridges are single lane, the guardrails are falling off and the underlying culverts are in poor repair. The bridges do not meet current standards. There are no drainage controls around the bridges, allowing sediment to enter the creek. The NRDP's consulting engineer notes that the access road approaches between the bridges and highway will need to be designed to meet Montana Department of Transportation (MDT) requirements (Peccia 2003). Also noted by NRDP's reviewer is that a floodplain/flood routing analysis should be performed to make sure the bridges are sized correctly. The applicant predicts that the proposed bridges will reduce sediment loading because they provide a hard surface over the waterway, as opposed to native soil fill over the present culverts, which are also too short. The three bridges are located on B-SB lands within the Park and therefore do not require a NEPA analysis.

An estimated 1.8 miles of primary and secondary access roads, most of which are located on B-SB lands, are proposed to be rehabilitated to provide adequate drainage and road surfacing such as paving. Rehabilitation may include the installation of culverts, grade dips, and/or erosion control devices, and gravelling, as determined at a later date. The applicant states that the roads, trails and recreation sites within Thompson Park itself are larger contributors to sediments to Blacktail Creek than areas outside of the Park. They exist on erosive native material, have poor drainage features, and are poorly located. The surfacing of Roosevelt Drive, obliteration of select roads within the Park, and sediment reduction measures on Road 8492 and the Archery Range access road have been successful in reducing sediment loading to Blacktail Creek. The NRDP's engineer reviewer notes that the general approach for erosion control measures provided in the application and on site tours appears reasonable. The applicant notes that NEPA will not be required for this road work (B-SB/USFS 2003b).

There are two private land in-holdings in Thompson Park. The applicant proposes to acquire two 10-acre mining claim in-holdings to improve management of the Park and acquire another 2.5 acres for a right-of-way on another private parcel to provide continuous access to the Continental Divide and other trails accessing Thompson Park. Purchasing land or easement right-of-ways is reasonably feasible.

D) Trail Improvements ($383,000) – Reasonably Feasible

There are no significant uncertainties associated with the technical feasibility of the trail improvement components of this proposal. The proposed $383,000 of trail construction is for: 1) construction and relocation of six miles of trails; 2) reconstruction of 5 miles of trails, which will include the installation of three bridge crossings on the Beaverpond trail; 3) heavy maintenance on 20 miles of existing trails which may include installation of culverts, water bars, grade dips, and/or erosion control devices; 4) construction of two miles of new trail to complete loop trail opportunities for non-motorized users; and 5) obliteration of several miles

of trail. In the application, the applicant states that during the NEPA process, more specific data will be collected to determine the specific trails to be rehabilitated.

The applicant indicates that USFS standards will be used for trail design. Trail construction is proposed to meet Trail Class 3 (developed or improved) and Class 4 (highly developed) standards. Some of the trails extend on steep slopes and near riparian areas that increase erosion and sedimentation to Blacktail Creek and its tributaries. The applicant proposes that repairing and maintaining these trails will aid in reducing erosion, however, no detail was given as to which trails and how many feet of these trails are causing erosion. Consideration has been given to looping the trails and connecting to adjacent trail systems, specifically the connection between the Milwaukee trail alignment and the Continental Divide National Scenic Trail. The applicant provides conflicting information on the need for NEPA analysis on proposed trail improvements. In the application it is made clear that trail work will require a NEPA review, however, in the applicant's response to NRDP questions, the statement is made that the trails do not need a NEPA review because the trails are already in place.

The applicant proposes to incorporate a railroad trestle to the trail system in the park. Approximately $160,000 in matching funds would be needed to install fencing along both sides of the Milwaukee trestle to provide safe passage. The applicant proposes to fund this effort through other grant programs such as the MFWP Recreational Trail Grant Program. Presently, the current condition of the trestle is extremely unsafe because it is 100' above Roosevelt Drive and there is no protective fencing in place and the top decking has failed in places. The NRDP's consulting engineer notes that, overall, the structural condition of the trestle appears to be in good shape and it is feasible to install the needed fencing (Peccia 2003). However, he recommends that a structural engineer specializing in railroad trestles should perform an in-depth inspection of the trestle to determine if it is safe and if there are any additional repairs that must be made to meet current safety standards.

The applicant also proposes to spend matching monies ($50,000) to incorporate two old railroad tunnels into the trail system. The tunnels are dark and lighting is necessary for safe access through the tunnels. The NRDP's review engineer also recommends that a structural engineer specializing in railroad structures should perform a current inspection of the tunnels to determine if they are still safe, as reported in a 1988 USFS inspection report (Peccia 2003). It appears that it will be feasible to use the railroad tunnels and trestle in the trail system pending the outcome of a current and detailed engineering evaluation. If it is not feasible, USFS and B-SB personnel indicated that the trails would be routed around the tunnels.

E) Watershed Management and NEPA Analysis ($150,000) – Reasonably Feasible

There is no significant uncertainty as to the technical feasibility of the USFS completing a NEPA analysis for the project. The applicant states that the USFS has committed to begin the NEPA process in 2003 by identifying the project purpose and need; collecting additional baseline data such as trail, road and stream location; conducting trail, road, riparian and stream condition surveys; and beginning the public scoping process that will identify internal and public issues that will be used to develop alternatives. The applicant has provided a generic outline with costs of the approximately 35 tasks (BSS/USFS 2003b), and a generic checklist of approximately of ten steps (B-SB 2003a), that will occur to perform the analysis.

The applicant has secured approximately $28,000 to initiate the NEPA process. The applicant states that some of the tasks, such as roads and recreation site construction, will not require NEPA review.

The applicant has assured the NRDP that B-SB and the USFS will update the 1922 cooperative agreement (BSB/USFS 2003a) to reflect specific roles and responsibilities to jointly manage the Park. Management plans will be developed to address specific management activities for resources and recreation related to the project. A maintenance plan will be prepared to ensure that the capital investment to recreation sites is sustained and maintained. The applicant has already secured funds (approximately $56,600) for this effort and has assured the NRDP that the management plan and the maintenance plan should be completed and in effect by the end of 2003 (BSB/USFS 2003a and 2003b).[28]

Overall Technical Feasibility

Some of the components proposed in the application are reasonably feasible and other components are of uncertain feasibility due to the lack of data and other supporting information. Also, a NEPA analysis is needed to assess the fisheries, vegetation, wildlife and most of the trail projects; therefore, it is difficult to fully assess the feasibility of these projects before that analysis is complete. The applicant has provided the most detail for the recreation site projects, which are reasonably feasible. The goal of effectively managing the resource-based recreation within the watershed is contingent on the cooperative agreement between the USFS and B-SB, which is being drafted to define the roles of the agencies in maintaining Thompson Park. A joint management agreement and maintenance plan between the USFS and B-SB, which is acceptable to the State, should be drafted by the applicant and reviewed by the NRDP and made effective before any NRDP funds are paid.[27]

2) Relationship of Expected Costs to Expected Benefits – Net Benefits for some components/Uncertain for some components

Costs proposed for the entire project are $1,861,616. The request from the Restoration Fund is $1,282,529. The approximate cost breakdown for these components are as follows:

A) Habitat improvements to aquatic and terrestrial resources – $242,000

B) Recreation site construction – $210,000

C) Access components – $315,000

D) Trail improvements – $383,000

E) Management/NEPA – $150,000

It was difficult to judge the benefits of the entire project as a whole since some of project components lacked enough detail, as explained under criterion #1. However, the applicant

[28] On November 12, 2003, B-SB provided the NRDP with copies of a draft *Memorandum of Understanding* for management of Thompson Park and a draft *Annual Financial and Operation Plan* for calendar year 2004.

sufficiently developed certain components of the proposal. The NRDP evaluated the benefits of the project in the following manner:

A) The benefits are uncertain as to the proposed habitat improvements because of the lack of information of any expected benefits. Further analysis and data collection is necessary in order to better evaluate potential benefits from these project components.

B) and C) Net benefits are anticipated for the Recreation site components and the access components. The benefits gained from creating the estimated 15,000 recreation visitor-days by revamping the Thompson Park recreation sites are worth the $210,000 estimated for this effort.[29] Thompson Park is one of the primary, natural resource-based recreational opportunities in the Butte area that is still available to local residents. The benefits include an increase in recreational opportunities for both B-SB residents and area visitors. The recreational sites will provide opportunities for picnicking, biking, hiking and open-space enjoyment. The area is close to Butte, and Highway 2 passes through the Park. It will be readily accessible to a large group of people. Sediment inputs to Blacktail Creek are expected to be reduced by proper siting of and erosion controls at the recreation sites.

Funding $315,000 for replacing the three antiquated bridge crossings and improving the 1.8 miles of road in these recreation sites also produces net benefits by reducing sediment inputs to Blacktail Creek in this area that is expected to have future high use. Purchasing land in holdings in Thompson Park will also be beneficial in order to efficiently manage the public in the Park. These items are estimated to cost $525,000.

D) The trail improvement would benefit hikers and bikers. It is uncertain, however, which trails may benefit the most users and how many users will use the trails if they are repaired and the application lacks detailed cost information and justification for this trail proposal. The NRDP questions the cost-effectiveness of addressing all 33 miles of trail compared to a prioritized phased approach, as further detailed under criterion #3.

E) Completing a NEPA would provide benefits such as ascertaining which trails would provide the most use and are in the greatest need of repair, and more details for the proposed habitat enhancements. However, since the NRDP only recommends funding of the recreational site improvements and access improvements and the NEPA process is not required to perform most of these improvements, spending Restoration funds on the NEPA is not justified.

3) Cost-Effectiveness – Likely Cost Effective for Some Components/Uncertain Cost Effectiveness for other Components

The applicant considered two alternatives to the selected proposal: the no-action alternative and an alternative of delaying the project for the USFS and B-SB to identify and obtain

[29] Current use data for Thompson Park is lacking. The applicant estimates that if the proposed recreation sites were rehabilitated, the estimated capacity use of the recreation sites, including trailheads, at Thompson Park would be approximately 15,000 recreation visitor days per season (BSB/USFS 2003b). Another recreation area 20 miles north of Butte, the Sheepshead Recreation Area, receives 5000-6000 visitors per season and has a shorter season (June – through mid-September) than the use season of Thompson Park (mid-April to mid-October) (USFS 2003).

sufficient resources to make improvements. They mention the no-action alternative would ignore the fact that Thompson Park is one of the primary natural resource-based recreational opportunities in the Butte area that is still available and readily accessible to local residents. They note delaying the project until the USFS and B-SB has identified and obtained sufficient funds to make the improvements is tenuous since neither public entity has had any success for several decades to making capital improvements to rehabilitate the Park.

A. Alternatives to Habitat Improvements – Uncertain Cost Effectiveness

It is difficult to assess the cost-effectiveness of the habitat improvement components due to the lack of specific data provided on the baseline conditions, proposed actions, and desired future conditions of these habitat improvements. The NEPA process is designed to collect and evaluate that data and consider those alternatives and the NRDP believes that process should be completed before making decisions on funding. Another reason to wait to fund the habitat improvement projects is that waiting would allow NRDP to evaluate how the proposed improvements fit in priorities identified under the SBC planning process, which will be completed in late 2003.

B. Alternatives to Recreation Site Construction – Likely Cost Effective

The $210,000 in the proposal for building the recreation facilities is considered cost effective given the proximity to Butte and the high estimate of user days that will utilize the Park. The applicant estimates that 15,000 recreation visitor-days per season are possible if the proposed recreation sites, including trailheads, were rehabilitated (BSB/USFS 2003b). The proposed alternative is logical given that recreation site areas in Thompson Park are already in place and the area is dedicated as a municipal recreation area. The costs for recreational site development were adequately detailed and have reasonable unit costs.

C. Alternatives to Road and Bridge Improvements – Likely Cost Effective

The applicant maintains that the road and recreation site development areas within Thompson Park are the largest contributors of sediments to Blacktail Creek. The sediment contribution from these areas was evident during site visits by the NRDP and its review consultants. The roads in the Lion's Den and Eagle's Nest areas exhibit soil characteristics that lend to high erosion and sedimentation. They exist on erosive native material with no gravel or other surfacing, and have poor drainage features. It is also apparent that the three present bridges contribute to sedimentation of Thomson Park. The proposed alternative provides is a logical and cost-effective approach for reducing sediment loading into the Blacktail Creek.

Land acquisition of two 10-acre private in-holdings and a 2.5 acres right-of-way is a cost effective way to secure complete public access to the entire Park area.

D. Alternatives to Trail Improvements – Uncertain Cost Effectiveness

The applicant did not provide an alternative analysis for the $383,000 requested for 33 miles of trail improvements, nor are detailed costs for this proposal provided as were provided with the recreational components. It would be helpful to have a "trail priority list" to ascertain which trails are in greatest need of work, which trails need no work, and what type of use is

expected on each trail before and after the proposed improvements. The applicant states that during the NEPA process, more specific information will be gathered to identify relocation routes for trails and heavy maintenance needs for each segment of trail and site-specific condition surveys will be completed. Also, the applicant notes that more specific data will be collected to affirm the proposal to obliterate specific roads/trails. This lack of information about the present condition and specific improvements needed on the 33 miles of trails makes it difficult to analyze cost effectiveness.

A phased approach that was prioritized based on expected trail use or sediment contribution would have been another possible alternative for the applicant to consider. For example, it is recommended that the applicant secure matching funds for fencing needed on the Milwaukee trestle before other trail improvements are made. It would be unfortunate if the trails leading to the trestle were reconstructed to a proper condition if the present dangers continue to exist at the trestle. Another example for a phased approach to trail efforts may be to prioritize trail work in Thompson Park itself and then repair trails outside of the Park. It appears from the map in the application that about a fifth of the trails that need repair are in Thompson Park; the remaining 80% of trails are located in USFS lands outside of the Park.

The NRDP is not questioning that recreation use on trails is a lost service covered under Montana v. ARCO. However, the applicant simply has not developed the trail requests sufficiently enough to evaluate them under the NRDP guidelines. The NRDP suggests that the applicant complete the NEPA analysis before requesting further funding from the program for the extensive trail work that is proposed in this application.

E. Alternatives to NEPA – Uncertain Cost Effectiveness

Since only generic information has been provided on the NEPA tasks and costs, the NRDP cannot judge the reasonableness of the costs proposed for this effort. It is a required analysis by law, however, and the USFS has extensive experience in conducting NEPA analyses. So there may be a good basis for the proposed $150,000 for the NEPA but that basis is not provided in the application or supplemental responses. In addition, the cost-effectiveness of the NEPA action is uncertain because the NRDP mostly recommends activities that appear not to require NEPA based on a supplemental response provided by B-SB and the USFS.

Overall Cost Effectiveness

Due to the lack of sufficient information and a detailed alternatives analysis, the NRDP believes only the recreation site and access improvement components, which cost $525,000, are likely to be cost effective. The Thompson Park recreation site infrastructure replacement components are considered cost effective because of the detailed costs given and the large number of recreational users expected from revamping the Park will significantly replace lost use in the UCFRB. The access components are also likely to be cost effective due to the expected decrease in sediment to Blacktail Creek and because sediment control will be essential if an increased number of visitors come to the Park.

4. Environmental Impacts – No Significant Adverse Impacts

   The project does not appear to pose any significant adverse environmental impacts. The applicant identified all potential environmental impacts and acknowledged the necessary permits. Some short-term adverse impacts may potentially occur due to construction such as sedimentation in the Creek, however, the applicant notes these impacts will be mitigated through best management practices during construction. The planned NEPA analysis will provide an in-depth analysis of potential environmental impacts and alternatives.

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

   The applicant indicates that short-term impacts to human health and safety will be addressed by implementing standard worker safety plans and traffic control plans during construction. The NRDP's engineer consultant expressed that the existing hazards associated with the trestle should be adequately mitigated with the proposed project if they are addressed properly (Peccia 2003).

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

   This project will not affect the timeframe for recovery of injured resources. Preliminary findings of the NRDP's Silver Bow Creek watershed planning effort currently underway indicates that the benefits to water quality to Silver Bow Creek would be minimal because too many other water quality limiting factors, such as nutrients, exist downstream (DTM 2003).

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

   The applicant's technical narrative identifies the necessary permits and intent to acquire them for the construction components of the project.

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

   Input from the Tribes and DOI is contained in Appendix E. The Tribes have expressed that two aspects of this project have the most potential for impacts to cultural resources--the nine miles of road obliteration and the road reconstruction component. The Tribes do not anticipate impacts to cultural sites as long as these activities are focused within previously disturbed corridors. However, if these activities involve expansive impact well outside the existing road berms, there may be a need to have a cultural resource survey conducted prior to the project initiation. The Tribes suggest that the USFS cultural resource staff conduct a review of this project and to determine whether a survey is needed.

   DOI does not support funding this project due to many outstanding questions. They question whether the infrastructure components of the project represent a direct replacement of lost services on Silver Bow Creek. They also question the ability to successfully fence browsing

animals out of the riparian areas, and they question funding the project before a management plan has been developed.

Stage 2 Criteria:

10. Project Location – Within Basin and Proximate

    The project is mostly inside the 3454-acre Thompson Park, however, some of the components (about 25% of the project from a cost basis) are proposed in the adjoining USFS lands. Thompson Park is located about 10 miles south of Butte where the injured areas along Silver Bow Creek and in Butte exist.

11. Actual Restoration of Injured Resources – No Restoration

    This project does not involve the direct restoration of injured resources addressed by Montana v. ARCO. Reducing sediment loading in Blacktail Creek may result in less sediment reaching Silver Bow Creek, however, data is not available to support or refute this.

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

    This project will provide some of the same recreational services that were lost as a result of natural resource injuries such as hiking, picnicking, and open space enjoyment. The applicant states that the project will enhance recovery of natural habitat to support fish, wildlife and plants and, therefore, provide lost services such as fishing and wildlife viewing. However, these benefits from the habitat improvements are uncertain due to reasons explained in criterion #1. Proposed actions should reduce sediment inputs to Blacktail Creek, thereby enhance water quality.

13. Public Support – Broad support; Moderate opposition

    The NRDP received a total of 59 comments in support of funding the project, a petition in support of the project signed by 96 individuals, and 12 comments in opposition to funding the Thompson Park project. Most of the supporting comments were specific to the revised project as proposed by the NRDP. Generally, there is broad support for the project primarily from the Butte area and moderate opposition from others.

    Two letters of support from the B-SB Council of Commissioners and the USFS were submitted in the application. Subsequent to issuing the *Pre-Draft Work Plan*, the NRDP received 31 additional letters of support and a petition signed by 96 individuals signed in support of project funding. After issuance of the *Draft Work Plan*, the NRDP received an additional 28 comments in support of the project and 12 comments in opposition to it.

14. Matching Funds – High - 51%

    A) Project as proposed by applicant – Reasonable (31%)

    The applicant presents total project costs as $1,861,616, with $1,282,529 requested in Restoration Funds and $579,000 (31%) proposed as matching funds. Some of these

matching funds are in-kind funds and the remaining funds will be sought in the future. The applicant also provided a list of past matching tasks recently completed for $161,125.

The breakdown for the proposed matching funds is as follows:

Future contributions - $579,000: These costs are considered as part of this project's matching funds.

Pavilion	$156,000 (not secured)
Trestle Fencing	$152,000 (not secured)
Railroad tunnel rehabilitation	$ 50,000 (not secured
In-kind funds for design, oversight, plans, NEPA, contract administration	$188,000 (in-kind)
Contingency	$ 33,000 (in-kind)
	$579,000

Contributions to date, or ongoing - $161,125: These past and on-going efforts are not specific to the current Restoration Fund request and therefore are not part of the grant's matching funds. Attachment 1 provides further explanation of past contributions by B-SB and the USFS to improvements in Thompson Park.

Thompson Park Hazard Tree Removal	$60,000
Fence Building	$ 4,000
Permittee Allotment Contribution	$16,000
Lime Kiln Road Sediment Control	$26,000
Thompson Park Road Rehab	$10,000
Thompson Park Cleanup	$ 4,400
Road maintenance	$10,358
Roosevelt Drive – Chip and Seal in 2002	$22,947
Other	$ 7,420
	$161,125

B-SB also intends to donate its historic water right (76G-92289, 5/1/30) of one cubic foot/second within the Blacktail Creek Watershed for in-stream flows, and contribute a conservation easement on all of B-SB land holdings within the project boundary.

B) Revised project as proposed by NRDP – Reasonable (42%)

With the reductions of $757,529 recommended by NRDP, the total project cost would be $902,500, with $525,000 in Restoration Funds (58%) and $377,500 (42%) in matching funds for improvements for roads, bridges, and the recreational sites. While the percentage contribution of matching funds is higher than under the full proposal (42% vs. 31%), the total matching funds are less under the revised proposal than the full proposal ($377,500 vs. $579,000) as a result of the recommended reduction in the project's scope. The breakdown for the $377,500 in matching funds is as follows: $156,000 for a pavilion; $188,000 for in-kind contributions by the USFS for design, oversight, plans, and contract administration activities; and $33,000 for contingency. Most of the in-kind matching funds are slated for a match for the recreation site improvements.

15. Public Access – Increased Access Beneficial

Substantial public benefits will occur via the new and enhanced public access created by this project. The applicant has predicted that if the proposed recreation sites and trailheads were rehabilitated, the estimated capacity of use in the recreation sites at Thompson Park would be approximately 15,000 recreation visitor-days per season (BSB/USFS 2003b).[30] The present amount of use was not provided, however, it is most likely far less than 15,000 visitor-days per season.

16. Ecosystem Considerations – Positive

By removing sediment sources to Blacktail Creek, this project should benefit aquatic resources in the Creek, which are the headwaters of Silver Bow Creek.

17. Coordination and Integration – Coordinates/Integrates

The project will coordinate with the USFS work on the Continental Divide National Scenic Trail. The Silver Bow Creek Planning Effort is expected to be complete in early 2004. During initial public input in the planning process, the public identified the Thompson Park area as an area of recreational value needing rehabilitation.

18. Normal Government Functions – Within But Augments Government Functions

The proposed projects are a normal responsibility of local government and the USFS. The applicant has provided reasons for why grant funds are needed to implement this project (B-SB/USFS 2003b, 2003c). Some of the points made are:

- The service life of the current facilities (tables, fire rings, toilets, roads, etc.) is 20 years or less. The facilities in the Park have gone well beyond their service life and were not replaced as they should have been when they wore out decades ago due to lack of funding.

- The USFS and B-SB regularly utilize grants as a way to supplement Congressional and local appropriations when those funds are inadequate to meet the needs to manage the resources and meet the increasing public demands for utilization of public lands. The USFS relies on grants for recreation, range, wildlife and fish projects from a variety of sources to fulfill obligations that the public would consider 'normal' government functions.

- The applicant notes "The USFS can request funding through the capital investment program, but given the level of competition and amount of funds available it could take 10 years or more to get the funding. The Beaverhead-Deer Lodge National Forest

[30] Another recreation area 20 miles north of Butte, the Sheepshead Recreation Area, receives 5000-6000 visitors per season and has a shorter season (June – through mid-September) than the use season of Thompson Park (mid-April to mid-October) (USFS 2003).

competes with every other National Forest for limited dollars and historically receives funding for one recreation project and three trail projects annually." On the Beaverhead-Deerlodge National Forest, there are 111 recreation sites, which compete for these limited funds.

- It is not uncommon for the USFS to seek outside funding for the completion of NEPA. Federal appropriations are not sufficient to meet the expanding demands of using public lands.

- The USFS typically proposes rehabilitation projects one to two years out through the capital investment program prior to the completion of NEPA. There is no requirement that NEPA be completed prior to requests for monies.

- Both agencies have committed to maintaining Thompson Park as an important component of the community and national forest system. The signed updated cooperative agreement will specifically define roles and responsibilities between the USFS and B-SB to assure that projects implemented with Restoration funds will be maintained by B-SB and/or the USFS in the long-term. The cooperative agreement will also include an annual operation plan that is reviewed and signed each year. This is a change to the past cooperative agreement that did not require annual operation plans be signed by each agency.

The NRDP believes the applicant has provided sufficient justification as to why this project augments normal government activities beyond a level required by law and for which funding is presently insufficient to implement the project. While a NEPA analysis is required is by law for proposals on USFS lands such as the Thompson Park proposal, but for this Restoration proposal, no NEPA analysis would be triggered. The restoration funding will result in implementation of a restoration project that would not otherwise occur through normal agency function. Therefore, NRDP believes the NEPA requirements for implementation of this proposal augments the activities beyond a level required by law.

Land Acquisition Criteria

19. Desirability of Public Ownership – Replacement Beneficial

Public ownership of or an easement interest in all lands within Thompson Park provides benefits for recreational opportunities for Butte and other communities that were impacted by natural resource injuries. No negative impacts are anticipated with the conversion of the two 10-acre private in-holdings and 2.5 acres for a right-of-way for public ownership.

20. Price – Uncertain

The actual price for land parcels or easements has not been determined; therefore, it is uncertain how they compare to fair market value. The project applicant has based land acquisition costs of $20,000 on a $1,000/acre market value for similar properties in the area and within other national forests. The easement/acquisition costs are for $5,000 total for the acquisition conveyance and time needed to accomplish the task. The applicant needs to

coordinate all land acquisition activities with the NRDP. Appraisals will be necessary, and the NRDP's approval of all land acquisitions and appraisals before they are completed should be a condition of funding and can be required in the grant agreement.

REFERENCES

B-SB, 2003a. Thompson Park and Blacktail Creek Rehabilitation and Restoration Project, submitted by B-SB, in cooperation with the USFS Beaverhead National Forest, 2003 UCFRB Restoration Grant application.

B-SB/USFS, 2003b. Information provided in a 6/6/03 memorandum and attachments from B-SB/USFS to Gregory Mullen and Carol Fox of the NRDP entitled "Responses to Questions and comments from the NRDP staff."

B-SB/USFS, 2003c. Information provided in a 6/6/03 memorandum and attachment from B-SB/USFS to the Advisory Council and Carol Fox of NRDP entitled "Responses to Questions and Comments from the NRDP Staff."

DTM, 2003. Information provided in a 2/20/03 memorandum from Dave Marshall of DTM Consulting to Carol Fox of the NRDP entitled "Preliminary Findings for Upper Blacktail Creek".

FWP, 2003. Information provided in memorandum dated 4/30/03 from Craig Fager of FWP and Gregory Mullen of NRDP.

Peccia, 2003. Information provided in a 5/4/03 memorandum from Gary Swanson of Peccia and Associates to Gregory Mullen (NRDP).

Shepard et al, 1998. Shepard, B.B., M. Taper, R. G. White, and S. C. Ireland. Influence of abiotic and biotic factors in abundance of stream-resident westslope cutthroat trout in Montana streams. Final Report to: USDA Forest Service, Rocky Mountain Research Station, Boise, Idaho. Contract: INT-92682-RJVA.

USFS, 2003. Information provided in a 9/4/03 e-mail memorandum from Jocelyn Dodge of the USFS to Greg Mullen (NRDP).

Attachment 1
Thompson Park and Blacktail Rehabilitation and Restoration Project
Past and Current Project Contributions Update[31]

USFS FY03	
Thompson Park Hazard Tree Removal	$60,000
Noxious Weed Program	1,000
Thompson Park Cleanup	600
Fence Building (District Work Project)	4,000
Law Enforcement Patrols (annual)	1,000
Permittee Allotment Contribution*	16,430
	$83,030

*This would be implemented as part of grant.

Past Contributions to Thompson Park and Blacktail Watershed

USFS	
Lime Kiln Road Sediment Control*	$26,000
Thompson Park Road Obliteration/Rehab*	10,000
OHV Signing	500
Thompson Park Cleanup	4,400
Tunnel/Trestle Closure	500
GPS Trails Mapping	1,100
	$42,500

* Special Appropriation above normal funding

FY2002 B-SB

Annual Maintenance Activities	
Annual Weed Spraying (along county roads/hillsides)	$ 290
(Ongoing for the last 12 years)	
Road Grading, Plowing and Sanding	
Includes annual grading of Eagles Nest, Lions Den and Archery Range Roads, and Grading, Plowing and Sanding of Roosevelt Drive	$10,358
Other Incidental Activities in Thompson Park	
Garbage pickup, vandal repair	$ 2,000
	$12,648

[31] Information provided in a 10/15/03 Errata Sheet provided by B-SB and the USFS and follow-up e-mail to Greg Mullen of NRDP dated 9/3/03.

The annual maintenance activities listed for FY2002 reflect those activities conducted by the Butte-Silver Bow Local Government on an annual basis. On an average, an annual expenditure of $12,000 is a reasonable estimate.

Special Projects

Roosevelt Drive - Chip and Seal in 2002 **$22,947**

USFS – Project Specific Information

Limekiln Road #8492: **$26,000**

Over approximately 1 mile:

- Replaced 1 culvert and installed 2 new
- Graveled road with 1500 yards of gravel,
- Includes grading the road
- Cleaned ditches
- Obliterated one road and removed one bridge
- Installed waterbars on road
- 5 days spent by road crew (3) and 2 district staff

Thompson Park Road Obliteration/Rehab: **$10,000**

Oblitered (bermed, graded, and seeded)
Several roads within the Park including Eagle's Nest and along Highway 2.

OHV Signing: **$ 500**

Installed signs and vegetative barricades on several user created trails off Eagle's Nest road

Thompson Park Cleanup **$ 6,000****

Seasonal recreation maintenance staff would go to recreation sites to pick up garbage and remove fire rings in dispersed areas.

****Updated costs:**

Staff costs are approximately $100/day – generally staff would spend approximately 2 hours per week (one trip per week) over a 10 week period per year for the past 12 years, patrolling the recreation sites and picking up garbage.

Tunnel/Trestle Closure **$ 500**

FS periodically has to close off trestle and tunnel over the past 12 years as barricades are moved by the public. Closure order on the trestle.

GPS Trails Mapping **$1,100**

FS staff GPS'd all trails that appeared to be utilized by the public. (10 days @$100/day)

Limekiln Road:

Objective: Reduce and/or eliminate all visible sedimentation into Blacktail Creek from the Limekiln Road and auxillary roads.

Task: Identify all point sources of sedimentation from Limekiln Road (FS. road #8492) from the Continental Divide, north to the forest boundary that is contributing sediment to Blacktail Creek.

Work completed: Main road was widened and gravelled for primary portion of road with problems, spot gravelled in other places; sediment traps and water bars installed; road obliteration of auxillary roads (included removal of bridges and water bar installation).

This work was done ahead of the Lime Kiln Timber Sale proposal as it was known there were sedimentation issues on Blacktail Creek that needed to be corrected before any timber harvest/hauling activity could be proposed. The work was funded through special funding from watershed restoration earmark dollars to the Forest Service.

Location: The Lime Kiln project was a 2-mile project located outside of Thompson Park about 3 miles from the Park (by road).

Roosevelt Drive:

Objective: Reduce maintenance costs on the road by covering the native road surface with recycled millings from a highway project.

Task: Cover native surface with recycled millings from a local highway project. This included chip sealing the millings afterwards. The project had an added benefit of significantly reducing sediment going into Blacktail Creek due to the elimination of annual road grading and subsequent runoff from the road surface. This was an issue for the FS during the proposal for the Lime Kiln Timber Sale.

Location: 2/3 of this project was located in Thompson Park and 1/3 was outside the park.

Montana Department of Fish Wildlife and Parks
Upper Willow Creek Restoration Project Implementation

Project Summary

Montana Fish, Wildlife and Parks requests $307,758 to restore about three miles of Upper Willow Creek, a tributary of Rock Creek. The project area starts about 4 miles upstream of the confluence of Upper Willow Creek and Rock Creek, which is about 15 miles west of Philipsburg. The total project cost is estimated at $916,983 with the desired funding sources from seven other entities in addition to NRDP. The project mainly involves construction of a new stream channel and banks along a 13,700-foot reach of Upper Willow Creek, revegetation, and grazing management. The present condition of this reach of Upper Willow Creek has degraded riparian habitat and contributes sediment to downstream reaches of Upper Willow Creek and to Rock Creek, degrading its water quality. Montana Fish, Wildlife and Parks also requests $50,000 to develop conceptual design plans for two other degraded sections of Upper Willow Creek.

The project would create and enhance fish, wildlife and water quality resources in Upper Willow Creek, including native bull trout and westslope cutthroat trout populations. The project would increase trout recruitment to Rock Creek, as Upper Willow Creek is an important spawning tributary for Rock Creek. Increased trout populations would enhance recreational fishing opportunities on both Upper Willow Creek and Rock Creek, assuming existing public access is maintained. Thus, the project constitutes replacement of injured natural resources and lost public use of natural resources.

Stage 1 Criteria

1. Technical Feasibility – Reasonably Feasible

A. Restoration of Windlass-Lower Reach

A baseline study[32] completed for the entire 21-mile length of Upper Willow Creek in the summer of 2001 documented riparian vegetation, in-stream habitat, fish populations, surface water temperatures, morphology, substrate composition and water quality conditions. This study divided the Creek into three major sections based on channel and riparian conditions. The upper 10 miles and lower 6 miles had generally acceptable stream conditions. The middle section has numerous habitat and channel alterations, resulting in poor riparian and in-stream conditions that limit fisheries habitat and caused high sediment inputs. The poorest conditions are found on a 13,700' stretch of this middle section (Section II) of the Creek, which is the area proposed for restoration under this grant. This reach, called the Windlass-Lower reach, also ranked highest priority for restoration of all the reaches of Upper Willow Creek. Major problems found in this reach are:

[32] Sanctuary, Mike, 2002. *Baseline Physical, Chemical, and Biological Characteristics of Upper Willow Creek, Granite County, MT*. M.S. Thesis, University of Montana. August 2002.

- Historic channelization causes high stream velocities that in turn cause incised channels (up to 8 feet in some areas) and sediment loading downstream.

- Approximately 90% of the stream banks are lacking woody vegetation, which contributes to bank instability, poor fish habitat, and elevated water temperatures due to lack of thermal cover.

- Fish populations are about four times less than populations found in the upper sections of Upper Willow Creek. Populations are also depressed below the project area, which is most likely due to sediment impacts from the project reach.

- Fine sediments are depositing in pools and riffles in the project reach and reaches downstream, which are deteriorating habitat for both spawning salmonids and macroinvertebrates.

The overall goal of the project is to improve fish and wildlife habitat in Upper Willow Creek through sediment reductions, habitat improvement, increased spawning opportunities, and improved water quality. The project will relocate the stream channel in the existing floodplain. Habitat improvement structures will be placed to increase pool density, cover and spawning beds. The riparian corridor will be replanted with a mix of shrubs, forbs and grasses to stabilize banks. The project's riparian area will be fenced and livestock excluded until the channel recovers. Natural materials and native vegetation will be used to stabilize streambanks and improve habitat. All structures would be installed to withstand at least the 10-year event, would rely on soft-engineering techniques, and would be placed for optimal function at the stream's bankfull discharge. Specifically, the entire project includes:

- revegetation using 300 mature willow plants and 35,000 willow plants
- establishment of at least 50 structures for fisheries habitat
- establishment of overhead cover in at least 40 pools
- establishment of streambanks in areas of high erosion potential using natural materials
- creation of wetland/ponds habitat in old channel reaches where possible
- revegetation of disturbed areas using approved seed mixtures
- removal of four dilapidated bridges and construction with two new stream crossings
- removal of three dilapidated headgates and construction of two new headgates

Restoration funds would be primarily for the stream channel and bank reconstruction and revegetation in the Windlass-Lower reach ($257,758). Montana Fish Wildlife and Parks (FWP) has designed and implemented over 80 restoration projects in Montana since 1996 and successfully improved fish habitat and populations using the techniques proposed in this project. The NRDP's project reviewer and the NRDP agree that overall the work proposed for this reach is technically feasible based on the information provided. The return of a stable geomorphic condition should result from the proposed channel reconstruction as well as vegetation efforts in the project reach and changes in grazing practices.

Uncertainty does exist regarding the long-term effectiveness of the project implementation since the work will be conducted on private land. Successful completion of the project will

require landowner cooperation to prevent the area from being grazed until the willow community has a chance to establish, which will likely take a decade. After that point landowner cooperation will still be needed to insure a proper grazing plan is implemented. FWP proposes three mechanisms to assure protection of restored areas in the long-term:

1. FWP is working with the Natural Resources Conservation Service (NRCS) on a grazing management plan for the project area. The proposed project will be initially protected through the NRCS's Riparian Conservation Reserve Program with a 10-15 year riparian grazing exclosure.

2. FWP indicates a 30-year riparian management plan will be in place prior to project initiation to ensure protection of this reach.

3. FWP is working with Five Valleys Land Trust and the landowner to negotiate a conservation easement of the valley floor and riparian areas on the property. This easement will be in place prior to project initiation and will protect the project reach from development in perpetuity.

The NRDP believes these three mechanisms will adequately provide for protection of the restored areas in the Windlass-Lower reach in the long-term. Since these measures are works in progress, the NRDP recommends that any project funding would be conditioned on the NRDP's review and approval of the two plans and the easement.

The NRDP's review consultant expressed concern about the incomprehensive nature of the proposed monitoring plan, which would be implemented following the completion of the project. The proposed monitoring plan in the application calls for fish population estimates to be taken at three locations in years 2 and 4 following project completions. Vegetation monitoring is also planned in years 2 and 4 only. The review consultant suggested the monitoring plan should be further developed to include additional variables such as macroinvertebrates, peripyton, bed sediment, temperature and public use surveys at an additional cost of $25,000.[33] Developing a more robust monitoring plan will better allow the applicant and NRDP to evaluate the effectiveness of the project.

B. Conceptual Designs- $50,000

FWP initially requested $50,000 in Restoration funds for developing conceptual restoration designs for two other reaches in Section II of Upper Willow Creek. One Reach is immediately upstream and the other immediately downstream of the Windlass Project. However, insufficient information was provided in the application on these design efforts to evaluate their technical feasibility. In response to NRDP questions about these designs and the adequacy of the original monitoring budget, FWP provided supplemental information regarding the upstream design and requested that the $25,000 for the design of lower reach be switched to cover the additional monitoring suggested by the NRDP's consultant on the

[33] Information provided by Jim Lovell of Confluence Consulting Inc. to Gregory Mullen of NRDP in a memorandum dated 4/27/03 and e-mail dated June 27, 2003.

Windlass reach.[34] While the supplemental information on the upstream design project was useful and this design effort appears to be worthwhile, the NRDP believes the proposed design work on both of other reaches should be subject of a separate funding request(s).

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

Total project costs are $916,983 with $307,758, or 33%, requested in Restoration funds. Most of the requested Restoration funds will be used for contracted services. The project is further divided into the restoration of the Windlass-Lower reach and development of a conceptual design plans for two reaches ($50,000).

A. Restoration of Windlass-Lower – $282,780

The restoration components costs are:

- channel excavation and streambank construction ($192,280)
- revegetation and wetland creation in the Windlass-Lower reach ($49,700)
- monitoring ($29,800) – includes $25,000 addition recommended by NRDP
- fisheries technician ($10,000)
- bridge replacements ($1,000)

Upper Willow Creek provides spawning and rearing habitat for fluvial and resident populations of bull trout and westslope cutthroat trout and supports genetically pure populations of these species. It also supports populations of non-native brook, brown, and rainbow trout. In the project area, aquatic habitat is severely degraded due to stream channelization, removal of riparian vegetation, overgrazing, and streambank instability. Upper Willow Creek is the largest total sediment contributor among all tributaries to Rock Creek, and is ranked as the highest priority stream for restoration in the Rock Creek drainage by FWP, the U. S. Forest Service and the U. S. Fish and Wildlife Service. The Windlass-Lower project reach is also the highest priority for restoration of all the reaches of Upper Willow Creek.

The project, if implemented, will result in improved water quality in Upper Willow Creek (reduced nutrient and sediment input); improved fish habitat; and enhanced trout spawning and resident habitat (salmonid spawning areas, bank stabilization, channel revegetation, and fish passage) to the benefit of trout populations and other aquatic resources of Upper Willow Creek and Rock Creek. The project should increase pool density and cover, benefiting fish by improving available spawning habitat and reducing stream temperature. Reduced sediment loads should improve spawning success and macroinvertebrate production.

Specific targets toward improving wildlife and vegetation are based on restoring a functional riparian corridor and stream channel throughout 2.6 miles of the Windlass property. The landowner is applying to the NRCS for a riparian conservation easement plan to protect a

[34] Memorandum from Mike Sanctuary of FWP to Greg Mullen of NRDP entitled "Attachment to Upper Willow Creek grant application," dated June 17, 2003.

minimum of 150 feet on each side of the stream channel. A riparian buffer zone of 300 feet across two miles of channel could provide 72 acres of protected riparian and wetland habitat. The revegetated riparian corridor will provide avian nesting and habitat, and quality cover and forage (sedge/forb) for ungulates. Wildlife such as elk, moose, deer, and a variety of bird species will benefit from the restored plant community.

In addition to these direct resource benefits, there are indirect recreational benefits from the project. Rock Creek's status as a blue ribbon trout stream provides a benefit to the local economy from both resident and out-of–state anglers. Butte and Anaconda residents are the primary users of upper Rock Creek as shown by a creel census in 1994. The project should build positive working relationships between landowner, conservation organizations, government agencies and the recreational publics. The restoration effort can be used as a demonstration project to other landowners in the Upper Willow Creek basin.

In summary, the benefits of this project are improvements in water quality, fish and wildlife habitat, and improved trout populations, including native species, and enhanced fishing opportunities in Upper Willow Creek and Rock Creek. Given these benefits, the reasonable project costs and high percentage of matching funds of 67%, the NRDP believes the Windlass-Lower restoration project has net benefits.

B. Conceptual Restoration Designs on Other Reaches

FWP believes the proposed design work will lead to the improvement of fish and wildlife resources and the recreation value of the two reaches above and below the Windlass-Lower reach. However, the NRDP believes the design work should be applied for via a separate process because the information necessary to fully evaluate the relationship between expected costs and benefits for the proposed $50,000 design effort is lacking in the application.

3. Cost Effectiveness

A. Restoration of Windlass-Lower – Likely Cost Effective

FWP offers good justification for why the no action alternative is unacceptable. FWP has documented that the project reach is in a state of geomorphic disequilibrium. Various stages of incision, channel widening and recovery are evident. The stream is unstable vertically and laterally. The natural channel recovery process is inhibited by the degraded riparian conditions. Vegetation removal has decreased the cohesive properties of bank sediments, hampering natural recovery processes. Relying on natural recovery processes could take several decades or even centuries to complete, during which time several thousand cubic yards of sediment would be deposited into Upper Willow Creek and Rock Creek. The NRDP agrees that the no action alternative is not considered viable because it is not capable of attaining the desired project goals within any reasonable period of time.

FWP issued a Request for Proposals for the Upper Willow Creek Restoration Project. There were three qualified vendors who offered proposals. A stream restoration committee

reviewed the proposals and selected Inter-Fluve's Inc. conceptual design based on their abilities to address channel relocation concerns (gravel substrates, lateral migration, gradient control and reconnection points), their revegetation efforts and their soft approach to stream restoration and habitat enhancement. The firm also provided the best approach to addressing questions asked by FWP in the form of a "Points of Clarification" report.

During the conceptual design phase of the Upper Willow Creek project, an alternative strategy was investigated. This strategy involved constructing an inset floodplain (80-120 feet wide and 3-4 feet deep) throughout the existing channelized reaches. Meander enhancement would have been accomplished by excavation within the inset floodplain. Vertical banks would be laid back and revegetated. Although this design was less expensive, FWP did not choose it mainly because: 1) the channel would have a low sinuosity and therefore laterally erode until a more natural sinuosity was established; and 2) turbidity created during construction would have been problematic. The chosen alternative design will be based on a reference reach with hydraulic analysis used to verify channel geometry, test the suitability of naturally occurring gravels and assure that stability criteria are met.

The NRDP's review consultant for this project expressed that the unit cost of channel construction of $35 per lineal foot is very reasonable given the construction methods proposed.[35] The reviewer suggested that the applicant consider some cost-saving measures (e.g. elimination of coir on banks; use of historic meanders and existing, stable channel segments; and varying slope and sinuosity to accommodate existing subsurface gravel elevations). FWP responded that the suggested changes might be instituted during the completion of the project design package, which is currently underway. However, FWP indicated that significant alterations of the original plans could violate the state's procurement procedures and cannot be changed without justification during the project's implementation.

B. Conceptual Designs – Uncertain

The applicant has not provided an alternative for the two design requests; therefore, the cost effectiveness for this component is uncertain. Decreasing the design request by $50,000 for the two reaches and increasing the monitoring budget by $25,000, as discussed under criterion #1, results in a revised proposed funding of $282,758.

4. Environmental Impacts – No Significant Adverse Impacts

The proposed restoration and design actions present no significant adverse impacts to the environment. In the long-term, benefits are expected to the surface water, wetlands, terrestrial, and aquatic environments. The applicant indicated that construction activities might cause short-term adverse impacts to water quality and proposed appropriate mitigation measures to minimize sediment input during construction.

[35] Information provided by Jim Lovell of Confluence Consulting Inc. to Gregory Mullen of NRDP in a memorandum dated 4/27/03.

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

   No significant adverse impacts to the human environment are expected from the proposed restoration and design actions. The applicant recognizes the potential for short-term human health and safety impacts (noise) during construction.

6. Results of Superfund Response Actions – Consistent

   Because the project location is removed from areas of existing and anticipated future Superfund response actions, the project will not interfere with or duplicate the results of such actions.

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

   Given the distance of the project site from the Clark Fork River itself (over 30 stream miles), it is unlikely that this project would have an effect on the recovery period for the injured aquatic resources of the River.

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

   The applicant has verified that all necessary state and federal permits to do the work on Upper Willow Creek will be acquired. These permits include: a) Montana Natural Streambed and Land Preservation Act 310 permits; b) Stream Preservation Act 124, Short Term Exemption from Montana's Surface Water Quality Standards 3A authorizations; c) Federal Clean Water Act 404 permits; and d) USFWS Endangered Species Act consultation. FWP will work with the NRCS to conduct a cultural resources evaluation prior to implementation of any construction activity.

   FWP intends to coordinate with project partners through project implementation, including the landowners, MDEQ, EPA, NRCS, U.S. Fish and Wildlife Service, BLM, FWP, NRDP, MDNRC, Granite County Conservation District, Northwestern Energy, Inc., Five Valleys Land Trust and Trout Unlimited.

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

   Appendix E contains comments from the Tribes and DOI on this project. This project will benefit native bull trout and westslope cutthroat trout, which are species of special interest to the DOI and Tribes. The DOI strongly supports the proposal, noting that it will assist in the recovery of these native species. The Tribes indicated that if channel excavation takes place within or on old stream channel beds without impacting intact terraces adjacent to the stream, then the work is not anticipated to impact intact cultural resources. While the final design for the Windlass-Lower section is not completed, the conceptual design indicates that most of the proposed work is planned outside of the terrace areas. FWP can consult further with the Tribes at the final design phase. Also, the applicant states that cultural resource evaluations will be conducted in all construction areas prior to construction activity, and appropriate steps would be taken if cultural resources were identified.

Stage 2 Criteria

10. Project Location – Within Basin

    This replacement project is located on a tributary to Rock Creek, and is approximately 30 miles from the Clark Fork River. This location is in the UCFRB but away from the site of natural resource injury on the Clark Fork River. The geographic extent of this project's service benefits would extend throughout much of the UCFRB, 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 – No Restoration

    Because of the project's distance from the Clark Fork River of 30 miles, it is unlikely that it will accomplish or contribute directly to the restoration of the River's injured resources. Projects such as this one that will improve the spawning habitat of tributary streams in the Basin, however, may augment remediation and restoration efforts aimed at improving the water quality and aquatic life of the Clark Fork River.

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

    The services replaced by this project include fish and wildlife habitat, and attendant recreational services such as fishing and wildlife viewing. These services are equivalent to some of those covered under Montana v. ARCO. The project is intended to increase trout populations in Upper Willow Creek, which would likely benefit trout populations in Rock Creek. This would enhance recreational fishing opportunities on both streams, assuming existing public access to both streams is maintained.

13. Public Support – Broad

    The NRDP received a total of 25 comments in support of funding the Upper Willow Creek project and 1 comment in opposition to funding it. The applicant provided five letters of support from the U.S. Fish and Wildlife Service, Granite County Conservation District, Five Valleys Land Trust, Granite County Commission, and Trout Unlimited. Support has also been indicated through the commitment of matching funds by DEQ, NRCS, NorthWestern Energy, the Bureau of Land Management and the landowners of the Windlass-Lower project area.

14. Matching Funds – High (67%)

    Total projects costs are $916,983, with $609,225, or 67%, either committed or requested in matching funds and $307,758, or 33%, requested in Restoration funds. Following is breakdown of the matching funds and the status of the funding commitment:

Entity	Total Requested	% of Project	Status
DEQ	$161,545	18	$100,000 awarded (cash)
USFWS	$10,000	1	Uncertain (cash)
BLM	$17,612	2	Likely (cash)
NRCS	$71,400	8	Likely (cash)
N.W.E.	$10,000	1	Secured (cash)
Landowner	$71,000	8	Secured (cash)
FWP	$240,928	26	Secured (cash)
Other[36]	$ 23,835	3	Secured (in-kind)

As indicated in the table, not all of the requested funds have been obtained. If this project is recommended for funding, a condition should be placed that the matching funds are obtained so that the proportionate share of Restoration Funds is maintained at the proposed 33%. Some of the contribution amounts are less than predicted when the application was submitted, while other amounts may go up according to the applicant. The applicant has noted that if the amount obtained does not total the 67% match expected, then FWP will most likely make up the difference with FWP grant funds.

Not considered in the above match but certainly of value to the project's long-term effectiveness is value of the donated conservation easement by the landowner.

15. Public Access – No Access Change

This project does not involve increased public access to Upper Willow Creek; however, existing access is available from a public bridge crossing at the upstream end of the project site (Miner's Gulch Bridge, which is on BLM land). Another bridge at Scotchman's Gulch provides access 1.5 miles up Upper Willow Creek Road, close to the lower end of the project reach. The landowners allow public access for fishing on a permission basis. For hunting access, the landowners participate in the FWP Block Management Program. One- thousand acres of the 5000-acre Windlass Ranch are part of a 10,000 acre Block Management Unit that provides for unlimited walk-in access from the nearby county road. This Block Management Unit receives approximately 600 user days of hunting.[37]
This project will also increase fishing opportunities in Rock Creek. Public access is available at several locations near the confluence of Upper Willow Creek with Rock Creek – at the Skalkaho Bridge (7 miles upstream of confluence), Gilles Bridge (250 meters upstream of confluence), and Windlass Bridge (5 miles downstream of confluence). These access points are often used by anglers for both wading and boat launches.

[36] $15,860 of the other funding is for in-kind funding from FWP and Five Valleys Land Trust for completing the conservation easement. The remaining $7,495 is for in-kind FWP matches for staff facilitation of the project.

[37] Information provided by Ron Uchytil of the FWP Region 2 to Greg Mullen of the NRDP in a 6/26/03 phone call.

16. Ecosystem Considerations – Positive

From an ecosystem perspective, this project would address natural resource degradation on Upper Willow Creek, which is a relatively significant tributary to a major tributary (Rock Creek) to the Clark Fork River. Upper Willow Creek contributes the greatest sediment loading to Rock Creek and is the tributary stream with the highest priority for restoration. FWP is proceeding with the Windlass-Lower reach first because of landowner willingness. Of all the Upper Willow Creek reaches, the Windlass-Lower has the most degraded conditions and is the highest priority reach for restoration.[38]

Geological conditions are conducive to proceeding with restoration of this project reach despite degraded conditions upgradient in the Luthje South reach. In most basin restoration plans, FWP works in a downstream direction; however, the problems are not nearly as severe in the Luthje reach as in the Windlass reach. Requesting funds for restoration on the Windlass reach makes sense because there is a large beaver complex immediately between the upstream Luthje and Windlass reach, which serves as a sediment trap. This sediment trap can accumulate any sediment that may deposit due to poor bank stability in the upstream reach.[39] FWP has indicated that most of the degraded conditions of Upper Willow Creek will be addressed by restoring the Windlass reach and the two other reaches in Section II.

17. Coordination and Integration – Coordinates/Integrates

Upper Willow Creek is on the Montana 303(d) list of "Waterbodies in Need of Total Maximum Daily Load (TMDL)." The Project Development Grant activities and implementation of the entire project support TMDL goals and address some of the causes of impairment to Upper Willow Creek. Given Rock Creek's blue ribbon fishery status, many restoration efforts have been completed, are on-going, or planned by multiple agencies (USFS, NRCS, Rock Creek Trust, FWP) that complement this proposed restoration work on Upper Willow Creek.

18. Normal Government Function – Outside Normal Agency Function

This project involves stream rehabilitation activities primarily on private lands for which FWP, conservation districts, the NRCS, conservation organizations or landowners would normally seek grant funding. No government entity is specifically responsible for these activities at this site, nor does it receive funding for such activities in the normal course of events.

[38] Sanctuary, Mike. 2002. *Baseline Physical, Chemical, and Biological Characteristics of Upper Willow Creek, Granite County, MT.* M.S. Thesis, University of Montana. August 2002.

[39] Memorandum from FWP, *Attachment to Upper Willow Creek Grant Application*, June 2003, 5 pages.

APPENDIX C

PROJECT SUMMARY TABLES AND ENVIRONMENTAL IMPACT CHECKLISTS

For copies of the above
Please contact the
Natural Resource Damage Program
Department of Justice
P.O. Box 201425
Helena, MT 59620
(406) 444-0205

APPENDIX D

APPLICATION REVIEW GUIDELINES

APPENDIX D

UCFRB RESTORATION GRANTS

APPLICATION REVIEW GUIDELINES

Introduction

The March 2002 *UCFRB Restoration Plan Procedures and Criteria* (*RPPC*) provides the framework for expending Restoration funds and describes the criteria to be used to evaluate Restoration Grant Projects. To help in these evaluations, the NRDP developed the following Application Review Guidelines 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. Reviewers should note that it is the explanatory text for each criterion provided in the detailed Project Criteria Narratives, not the titles provided in this guidance to categorize projects, that forms the basis of judging how well a project addresses a particular criterion. The titles/headers should not be misconstrued to denote a certain level of ranking or adequacy in meeting the *RPPC* criteria.

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 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."

- 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 public natural resource and service 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, reviewers should 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: The analysis of cost effectiveness evaluates whether a particular project accomplishes its goals the least costly way possible, or whether there is a better alternative. 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 analysis of alternatives, 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 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 usually, but not always, mean that the action is inappropriate or unjustifiable. As stated in the *RPPC*, 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 there 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 Information)

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 the State on Attachment B, 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 the MOA) and/or natural resources of special environmental, recreational, commercial, cultural, historical, or religious significance to the 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. <u>PROJECT LOCATION</u>

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 CTUAL 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 fall 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. 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). This evaluation will need to be updated at each stage in the funding selection process. 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.

14. 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%.

15. PUBLIC ACCESS

General Consideration: This criterion evaluates whether a project will affect public access and the positive or negative aspects of any increased or decreased public access associated with the project. Public access is not required of every project, nor is it relevant to all projects.

Increased Access Beneficial: The benefits from the new or enhanced public access created by the project outweigh the adverse impacts associated with this increased access.

Increased Access Detrimental: The adverse impacts associated with new or enhanced public access created by the project outweigh the benefits associated with increased access.

No Access Beneficial: While public access is relevant and could have been a project component, increased access would have been detrimental to the restoration of injured or replacement natural resources in the long-term.

No Access Change: The existing acreage and methods of public access would not change as a result of the project.

Not Relevant: Public access is not a component of the project, nor is it relevant to the project.

16. ECOSYSTEM CONSIDERATIONS

General Consideration: This criterion examines the relationship between the project and the overall resource conditions of the UCFRB. The State will favor projects that fit within a broad ecosystem concept in that they improve a natural resource problem(s) when viewed on a large

scale, are sequenced properly from a watershed management approach, and are likely to address multiple resource problems.

Positive: The project positively fits within a broad ecosystem concept in that it improves a natural resource problem when viewed on a large scale, and/or is sequenced properly from a watershed management approach, and/or addresses multiple resource problems.

Negative: The project does not fit within or is inconsistent with a broad ecosystem concept and this makes it less likely to be effective in the long-term. The project is one that should wait from an ecosystem standpoint until certain environmental conditions occur. For example, problems in the upper portion of a watershed may need to be corrected first before work is conducted downstream.

Not Relevant: The project is a service project for which ecosystem considerations are not relevant.

17. COORDINATION AND INTEGRATION

General Consideration: How well is the project planned to integrate with other ongoing or planned actions in the UCFRB? This criterion addresses coordination with other projects besides remedial actions, which is addressed under Criterion #6. Restoration projects that can be efficiently coordinated with other actions may achieve cost savings.

Coordinates/Integrates: The project coordinates and achieves efficiencies not otherwise possible through coordination with other actions (besides remedial actions).

None: The project does not coordinate/integrate with other actions.

Conflicts: Project may interfere with significant, beneficial on-going or planned actions or is one with missed coordination opportunities.

18. NORMAL GOVERNMENT FUNCTIONS

(Readily Available Information)

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: 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 Government Functions: 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.

Within but Augments Government Functions: The project involves activities that are normally conducted by governmental agencies, but it augments such activities beyond a level required by law and for which funding is presently insufficient to implement the project. This category would apply to activities for which government agencies typically seek funds outside of their normal operating funds, such as supplemental grant funds.

Replaces Normal Government Functions: The project involves activities that are typically funded through a government's normal operating funds or obligations of governmental entities under law.

STAGE 2 CRITERIA – LAND ACQUISITION PROPOSALS ONLY

19. DESIRABILITY OF PUBLIC OWNERSHIP

General Consideration: This criterion assesses the potential benefits and detriments associated with putting privately owned land, or interests in land, under public ownership. Although the State has established a policy that favors actions that actually improve the condition of injured resources and services, land acquisition may be an appropriate replacement alternative.

Restoration Beneficial: The benefits of the acquisition to restoration of injured natural resources and services are considered major and the detrimental aspects of public ownership, if any, are considered minor.

Replacement Beneficial: The benefits of the acquisition to replacement natural resources and services are considered major and the detrimental aspects of public ownership, if any, are considered minor.

Detrimental: The detrimental aspects of putting privately owned lands into public ownership outweigh the benefits derived to public natural resources and services derived from the project.

20. 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 apply to any research activity, whether or not it constitutes the entire project or a portion of the project. These criteria also apply to projects for which monitoring is a significant focus of the project, but not to projects that simply have a monitoring component tied to judging the project's effectiveness. 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.

21. 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, focussing 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.

22. 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 E

ADVISORY COUNCIL, DEPARTMENT OF INTERIOR, AND CONFEDERATED SALISH AND KOOTENAI TRIBES INPUT

(INPUT FROM THE ADVISORY COUNCIL WILL BE INCLUDED IN DRAFT)

UPPER CLARK FORK RIVER BASIN
REMEDIATION AND RESTORATION EDUCATION ADVISORY COUNCIL

TO: Trustee Restoration Council Members

FROM: Jim Flynn, Advisory Council Chairman

DATE: August 20, 2003

RE: Advisory Council Recommendations

The UCFRB Remediation and Restoration Education Advisory Council met on August 13, 2003 to review the applications for expenditure of Natural Resource Damage funds for the year 2003. The Council recommended funding levels for the following projects as indicated:

1. Basin Creek Dams - $ 503,006
2. Butte Waterline - $ 1,188,905
3. Anaconda Waterline - $ 995,000
4. Upper Willow Creek - $282,758
5. Thompson Park – Not recommended for funding
6. East Valley - $ 408,810

I am attaching a summary of the action taken by the Council on each project. I look forward to the discussion at our meeting on August 28, 2003.

ADVISORY COUNCIL ACTION ON 2003 GRANT PROJECTS
Summary of 8/13/03 Advisory Council Meeting

1. Basin Creek Project - Motion to approve NRDP staff recommendation passed unanimously. No discussion.

2. Butte Water Project - Motion to approve NRDP staff recommendation passed unanimously. No discussion.

3. Anaconda Water Project - Motion to approve NRDP staff recommendation passed unanimously. No discussion.

4. Upper Willow Creek Project – Motion to approve NRDP staff recommendation passed 7-3. No discussion.

5. Thompson Park Project – Motion to approve the NRDP staff recommendation failed 3-7. Discussion centered around whether or not this was a replacement project, whether NRD funds should be used for maintenance, whether the USFS should be maintaining the area, and whether NRD funds should only be used for direct mining impacts.

6. East Valley Project – Motion to approve the NRDP staff recommendation passed 6-4. The discussion centered around if NRD funds should be used only for direct mining impacts and whether this project only dealt with agriculture damage.

United States Department of the Interior

NATIONAL PARK SERVICE
Grant-Kohrs Ranch National Historic Site
266 Warren Lane
Deer Lodge, Montana 59722

June 3, 2003

Carol Fox, Director
Natural Resource Damage Litigation Program
State of Montana
Department of Justice
PO Box 201425
Helena, MT 59620-1425

RE: DOI comments on natural resource damage restoration fund proposals

Dear Ms. Fox,

The National Park Service and the US Fish and Wildlife Service have reviewed the applications submitted for funding under the 2003 Upper Clark Fork River Basin Restoration Fund Grant Program. The focus of our review was two-fold: (1) how the projects might impact DOI properties, trust resources, or legislative responsibilities; and (2) the overall appropriateness of each project given the funding guidelines. Our comments on the reviewed applications are as follows:

Basin Creek Dams Rehabilitation
This project will improve the provision of drinking water to residents of Butte, replacing the lost services of the Butte aquifer with an alternative water supply. DOI supports this proposal for NRD funding.

Thompson Park and Blacktail Creek Rehabilitation and Restoration Project
This project is presented as replacement of lost recreational services and improvement of fishery and water quality. Approximately 72% of the proposed budget will be spent on infrastructure such as toilets, picnic tables, hiking trails, and roads. Such categories do not appear to represent a direct replacement of lost services on Silver Bow Creek. Blacktail Creek "restoration" is roughly 14% of the proposed $2.2 million budget (of which $1.7 million would be NRD funds) and includes erosion control, riparian fencing, and in-stream woody debris. Other activities include prescribed burns and weed treatment, neither of which appears to be related to lost ecological services along Silver Bow Creek or the Upper Clark Fork River.

Prior to funding this project a Cooperative Agreement needs to be in place between the City/County of Butte-Silver Bow and the U.S. Forest Service for long term operations and maintenance of this area.

One other notable issue is the concept of building fences around riparian areas to "keep out browsing animals". The term "browser" typically refers to deer and other wild ungulates and the managers of Thompson Park will be hard pressed to find a fence that successfully excludes these animals. If, however, the intent of the project is to exclude cattle, then "browsers" should be replaced with "grazers". In that case, the project should consider alternatives to fencing that would require less expense, less maintenance, and reduced habitat disturbance along the riparian corridor.

Given the many questions associated with this proposal, DOI does not support its funding.

Drinking Water Infrastructure Replacement - Year 3
The objective of the project is to ensure the supply of potable water within the area of injured ground water resources. Assuming that the lines to be maintained are necessary to convey water from an alternative water supply, DOI supports the funding of this project. It should be made clear, however, that long-term, routine maintenance projects are not guaranteed funding through the Restoration program once litigation issues are settled and funding priorities are set.

East Valley Watershed Project
Improvements to water quality in UCFR tributaries will undoubtedly benefit water quality in the main stem. This project associates conservation planning, prescribed grazing, off-steam watering, road BMPs, dam rehabilitation, weed management, and water quality monitoring with recreational benefits. That connection should be clarified or removed from the proposal. If the intention of this project is to improve water quality in tributaries to the Upper Clark Fork River, with the likely enhancement of the Clark Fork River fishery, then that intention should stand on its own merits.

DOI supports this project because of its obvious positive impact on Clark Fork River water quality. In the future, the Restoration Program should consider identifying priority sub-watersheds to enable proposal writers and reviewers to understand how a given project fits into the overall restoration plan for the Upper Clark Fork River.

Upper Willow Creek Restoration Project Implementation
This project will result in improvements to fish, wildlife, and water quality in tributaries to the Clark Fork River. DOI supports this project for Restoration funding.

East Fourth Street Water Main Improvement
This project does not appear to differ significantly from Butte's "Drinking Water Infrastructure Replacement Project", except that the direct relationship between provision of an alternative drinking water source and the repair of water lines is not as clear in the Anaconda project. The aquifer east of Anaconda is contaminated, but are the project's water lines necessary because that ground water source is no longer available, or would this maintenance be necessary regardless?

A list of restoration priorities and their respective geographic areas would be helpful in assessing the appropriateness of these projects, particularly with regard to infrastructure proposals. Assuming that the Anaconda aquifer can no longer serve as a source of drinking water and that the water lines to be repaired are required because of the need for conveying water to Fourth Street residents from an alternative source, DOI supports the funding of this project.

Upper Little Blackfoot River Restoration Project
DOI supports this stream restoration project because of its obvious positive benefits to water quality and fisheries in the Clark Fork River. It is unclear, however, why the Little Blackfoot River qualifies for funding, but not Peterson or Cottonwood Creeks in Deer Lodge. All are primary tributaries to the Clark Fork River. DOI assumes the distinction is made for this project because of its geographic distance from the Deer Lodge Valley. Nevertheless, the project's positive benefit to the Upper Clark Fork River system is obvious and worthy of funding.

In summary, the USDOI would prioritize funding for these projects as follows:

1) Upper Willow Creek Restoration Project Implementation
2) Upper Little Blackfoot River Restoration Project
3) East Valley Watershed Project
4) Basin Creek Dams Rehabilitation
5) Drinking Water Infrastructure Replacement Year 3
6) East Fourth Street Water Main Improvements

Projects 4-6 are approximately equivalent in terms of priority. The "Thompson Park and Blacktail Creek Rehabilitation and Restoration Project" would not receive funding in its current form.

Thank you for the opportunity to review and comment on these proposals. If you have any questions, please contact me at 406/846-2070.

Sincerely,

Darlene M. Koontz

Darlene M. Koontz
Superintendent

CSKT Preservation Department Memorandum

To: Phil Tourangeau, Legal

CC: Joe Hovenkotter, Legal

From: Dave Schwab, Preservation

Date: 6/17/2003

Re: Natural Resource Damage Program reviews

Sorry I am a bit late with this but here are my comments on the project packet you sent to us several weeks back.

Thompson Park and Blacktail Creek Restoration: The two aspects of this projects that have the most potential for impacts to cultural resources are the 9 miles of road obliteration and the road reconstruction project. As long as these activities are focused within previously disturbed corridors, we do not anticipate impacts to cultural sites. On the other hand if these will involve expansive impact well outside the existing road berms, there may be a need to have a cultural resource survey conducted prior to the project initiation. The locations of staging areas should be considered to keep work activity within previously impacted areas. We note that this proposal was submitted in cooperation with the Beaverhead-Deerlodge NF. We suggest that the USFS cultural resource staff conduct a review of this project. They should conduct cultural resource survey if they believe the project warrants it. We would abide by their recommendations.

Upper Willow Creek Restoration Project: The aspect of this project that has the most potential for cultural resource impact is the proposed excavation of several miles of new stream channel. If the excavation takes place within or on old stream channel beds without impacting intact terraces adjacent to the stream, we do not anticipate impacts to intact cultural resources. If, however, they propose to excavate intact and undisturbed terrace zones along the creek, there is quite high potential for impacts to cultural resources. Also any staging areas associated with this activity should be limited to previously disturbed roads. We therefore recommend that all excavation be limited to existing channels and fluvial gravel beds and avoid intact terrace zones.

East Valley Watershed Project: The proposed activities under this submittal that have the greatest potential impacts to cultural resources are proposed roadwork improvements and the upgrade of earthen style diversions. As stated before, all earthwork should be isolated to previously disturbed zones to the extent possible. It seems that the proposed activities will concentrate on previously existing roads and diversion construction sites. If substantial impacts to undisturbed zones will occur, cultural resource survey should be conducted in the areas of impact prior to the initiation of project activities.

Butte and Anaconda Waterline Replacement Projects: All impacts will be to existing structures and facilities. Waterline excavations I assume will occur in previously existing waterline trenches and should not pose a threat to tribal heritage resources. There may be some interest or concern on the part of Historians or Historical archaeologists on this one, but we see not tribal concerns here.

Silverbow Creek Remedial Actions: Judging from existing maps it appears that all proposed activities for this season will be restricted to the existing tailings areas. There is always the possiblilty that cultural sites are located under these tailings but as we have discussed, there is no way to determine that through archaeological. Survey at this point and it is simply not an option. If major impacts are slated for areas currently outside the tailings piles, we would like an opportunity to review them more carefully. Under the current proposal we do not see any need for a cultural resource survey.

I hope this covers all of your project review needs. Let me know if you need more clarification or want Additional feedback.