Butte Area One Restoration Small Project Grant Program

Moulton Reservoir:
Reclamation, Restoration, and Recreation Project

Project Sponsor:
City and County of Butte-Silver Bow
155 W. Granite Street
Butte, MT 59701

Project Contact: Julia Crain
406.497.6264
jcrain@bsb.mt.gov

November 28, 2014

Project Summary
Butte-Silver Bow is committed to improving recreational opportunities for Butte and Silver Bow County residents through the development of a public fishery and recreation area at the Moulton Reservoir. This project will provide an unprecedented opportunity for locals and visitors to fish West Slope Cutthroat Trout in a water resource fed by Yankee Doodle Creek, the western tributary of Silver Bow Creek. This investment would make possible fishing and recreation opportunities very similar to those offered by Silver Bow Creek prior to injury from historic mining and smelting. In addition to public fishing, the area would be enhanced to provide for year round recreation at the Moulton Reservoir and the trails throughout the area. Recreational amenities will complement Butte-Silver Bow's goal to reclaim the Moulton Reservoir to ensure its long-term viability as a drinking water source for the people of Butte.

The project area is located approximately 6 miles north of Butte on Butte-Silver Bow (BSB) property at the Moulton Reservoir **(Please see Appendix A: Project Area Maps, Figure 1, Project Site Location)**. BSB acquired the property in 1992 as part of the acquisition of the Butte Water Company. The Moulton Reservoir is a part of a complex of water-related infrastructure built by the former Anaconda Minerals Company to replace groundwater sources contaminated by mining. The impetus for this project is the erosion of upland slopes around the perimeter of the Reservoir which contribute to sediment loading to the water.

The goals of this project are to minimize sediment loading into the reservoir, and to improve public access to the reservoir for recreational use. Reclamation will involve the stabilization of eroding uplands slope, eliminate sources of sediment delivery, and assess and repair the shoreline where needed. Through the installation of culverts, improvements to the road way and parking area, access to the site will be improved. Installation of a boardwalk, footbridges, fencing, signage, and other amenities will provide for an enjoyable outdoor experience in Butte's natural lands.

The proposed 18-month project is necessary to improve the long term viability of the Moulton Reservoir resource and will also provide much-needed water-based recreation in Butte to replace opportunities in Butte Area One damaged by historic mining and smelting.

Project Goals and Objectives
Although reclamation of the Moulton Reservoir area is necessary to ensure the longevity of the Moulton Reservoir, the primary objective for this application is improving access to the area and enhancing the visitor's experience through design, installation and construction of amenities that support fishing, hiking and recreate in a popular, but difficult to access, area. These goals will be achieved through the following objectives **(Please see Appendix A: Project Area Maps, Figure 3, Project Scope)**:

1. Improve approximately 1600 linear feet of road surface and parking area and install culverts as needed;
2. Improve approximately 3,150 feet of trail around the perimeter of the Reservoir;
3. Install boardwalk and three foot bridges;
4. Install fencing, signage, fire rings and picnic tables;
5. Stock the Moulton Reservoir & Yankee Doodle Creek with West Slope Cutthroat Trout.

Road surface improvements will allow better access for recreational users as well as BSB maintenance personnel. The road design will utilize an 'in sloped' direction to minimize water and sediment movement across the road and into the water body. Culverts will be placed across the road to aid drainage and help eliminate erosion.

The area will be upgraded with new fencing and recreation amenities. Improved fencing will have two benefits – prevent motorized traffic from damaging vegetation thus preventing erosion as well as limit cattle grazing to protect the riparian area and water quality. The area has evidence of campfires, and the upgrades

will incorporate picnic facilities such as tables, grills, and fire rings to mitigate impacts from unmanaged fires and recreation in the area. A boardwalk and footbridges will be incorporated to help users of all ages and abilities navigate the perimeter of the Reservoir, and access the water source for swimming or fishing during the summer or locate trailheads for cross country skiing in the winter. Finally, signage will complement these elements, providing wayfinding and information on the trails in the area.

Project Benefits

The primary benefit of this project is to provide fishing and recreation opportunities very similar to those that Silver Bow Creek through Butte Area One could have provided prior to injuries caused by mining and smelting. As we know, depositions of wastes in Butte have not only injured Butte's groundwater resources, but also the surface water of Silver Bow Creek. The development of recreational resources in the Moulton Reservoir area would replace the recreation opportunities lost due to the impacts of mining on surface waters of Silver Bow Creek while also providing recreation opportunities on a tributary of Silver Bow Creek.

This project will allow Butte and its residents to take advantage of our region's unparalleled recreational opportunities through the creation of a recreation area at the Moulton Reservoir. Rivers, lakes, and streams are plentiful across our region, but many of these resources are located beyond the borders of what is described as the "urban area," where population is concentrated. Although the Moulton area had once been inaccessible by vehicles until road upgrades were installed in the mid-1990s, today the area sees recreational use regardless of season. The area is a cross-country skiing area in the winter and a popular mountain biking and hiking area in the summer. With a few investments, the area could emerge as a year-round destination recreation area for residents within the region and provide an opportunity to enjoy the experience of fishing the headwaters of the Upper Clark Fork River within just a few minutes of town.

Much of the Moulton Area's popularity is attributed to extensive national forest land to the north of the Reservoir. A public fishery would complement hiking and recreation opportunities in the region. The Moulton Reservoir's viability of the resource as a fishery is relatively unknown at this time, although preliminary analysis by Fisheries Biologist for Fish, Wildlife and Parks Jason Lindstrom indicates that both Yankee Doodle Creek and the Moulton Reservoir contain cutthroat trout and a small number of nonnative brook trout, and that "it appears that the reservoir would provide a public fishery." For a region renown for its fishing opportunities, cultivating a public fishery and hiking and recreation opportunities at the headwaters of Silver Bow Creek will directly replace the opportunities Silver Bow Creek at Butte Area One may have provided prior to injury from historic mining and smelting.

Proposed upgrades will provide for accessibility and public enjoyment that is sensitive to the environment and promotes the longevity of the Moulton Reservoir and Butte's water resources. Currently, two boat launches are located within the Reservoir to facilitate boat access for reservoir maintenance. One launch is rock and gravel, and the other is made of native dirt. These two launches are in close proximity to one another and considered redundant. Therefore, the native material boat launch will be removed due to the direct delivery of sediment to the reservoir.

The development of a boardwalk, perimeter trail, and foot bridges will enable users of all ages and abilities to explore the area, access national forest service lands, and incorporation of culverts, road upgrades, and fences and footbridges will mitigate user impacts on the riparian area, including preserving vegetation essential for erosion control and promote access to the resource for fishing. Further riparian protection will be provided through the placement of fencing to keep grazing cattle from damaging the sensitive environment. The presence of fire rings and user defined trails indicates investments in amenities such as fire pits, picnic tables and directional signage will vastly improve the public's enjoyment of this resource. The placement of signage will provide users with information about the array

of trails and areas where recreation is possible from this point and to the north, but also define the trail system, levels of difficulty and distances to enable users to plan their experience and come to the recreation area prepared.

Project Implementation

The Moulton Reservoir Reclamation Project will be implemented in phases and will be achieved through the accomplishment of four individual tasks which include design and bid specifications, contractor selection, reclamation, and recreation improvements.

Task 1: Prepare Final Engineering Design and Bid Specifications

Butte-Silver Bow has done the preliminary engineering required to prepare this grant application. However, to prepare a bid package with precise specifications to recruit and select a qualified general contractor to perform the project, Butte-Silver Bow will be compelled to review all preliminary calculations and prepare a final design. This task will be completed by a qualified consultant retained to provide input and support on the final design (i.e., survey work).

Work under Task 1 will take place in the third and fourth quarter of 2015 to contract with an engineering firm and prepare design submittals. The engineer and BSB will start working with Regulatory Agencies at project inception. Activities associated with this task will include:

a) Site inspection to identify any potential safety hazards;
b) Final surveying of the site and preparation of construction drawings;
c) Determination of permit requirements; and Secure permits as discussed previously. Determine disturbance in wetland areas;
d) Meet with regulatory agencies for proposed work; and
e) Prepare bid package with final specifications for level of effort, including labor/equipment estimates for grade work, storm water construction control devices, and material quantities, and other design details.

Task 2: Select General Contractor Through Competitive Public Bidding Process

After preparing the bid package that contains plans, specifications, general conditions, and a contract, the project is advertised in the legal notices of the newspaper and sealed bids are received and opened at a meeting of the Council of Commissioners. Butte-Silver Bow staff (Planning and Public Works Department personnel), in conjunction with the consulting engineer, will review all bids submitted. The staff prepares a recommendation for award of a contract for construction and presents this recommendation to the Council of Commissioners. The Council awards the project and a contract is executed between the general contractor and Butte-Silver Bow. The contract specifies that all necessary permitting, regulatory approvals and access agreements are the responsibility of the contractor.

The bidding process under Task 2 will take place predominately in the first quarter of 2016. Specific Activities will include:

a) Engineering consultant prepares bid package;
b) Advertise bid for the project;
c) Conduct pre-bid conference, as necessary; and
d) Select general contractor to perform the construction.

Task 3: Perform Reclamation Work

As part of the surface erosion mitigation, approximately 4.2 acres of the northwest corner of the Moulton Reservoir will be re-contoured, covered in topsoil and seeded. Appropriate best management practices will be implemented to retain the top soil until roots take hold, including surface roughening. Dead trees will be removed in the general area; sediment depressions and deadfall will be appropriately placed to retain sediment. Upon inspection of the available soil, amended topsoil may be recommended. Barren – and now re-sloped and reclaimed areas - will be seeded with native grasses developed to survive in

Butte's climate – short growing season with little water. Butte-Silver Bow has substantial experience in this area, and will select species that meet the rigorous vegetation standards.

The road from the parking lot to the boat launch will be improved with a gravel surface cover and in-sloped design to minimize sediment delivery. Culverts will be installed at the entrance and in spring/seep locations as shown in Photographs 4 and 5. The dirt-surfaced and redundant boat launch will be removed as well as the gravel pile near the gravel-covered boat launch. The gravel will be redistributed to provide bedding for the improved road. The shoreline will be sloped and possibly rip-rapped to promote vegetation and stability.

The east face of the dam will be inspected in low water – proposed for Fall 2015 for inspection and Fall 2016 for construction work. The liner will be inspected and new geotextile fabric will be keyed into the face below the typical water level. Large angular rock will be placed above the geotextile to protect the liner from UV degradation and from wave action.

The reclamation activities under Task 3 will take place in 2016. Specific Activities will include:

a) Finalize permits;
b) Re-slope 4.2 acres of eroding upland area, spread and grade topsoil, and seed reclaimed area;
c) Rework road from parking lot to gravel boat launch and install culverts as specified;
d) Remove gravel pile and re-distribute over improved road surface;
e) Remove dirt-surfaced boat launch;
f) Re-slope bank where features were removed to promote vegetative growth and picnicking areas and seed or riprap shoreline as needed;
g) Re-install fences or install new site management features;
h) Prepare final report, including as-built drawings of completed work.

Task 4: Improve Park Amenities and Access

Picnic areas will be installed near the removal of the boat launch as shown in Figure 3. The trail around the Reservoir will be upgraded and maintained to allow for boardwalk passage over wetland areas and bridges across the spillway and Yankee Doodle Creek crossings. Work under Task 4 will take place in 2016 after completion of road improvements. Activities will include:

a) Rework grade of trail and connections as needed, install boardwalk and two stream crossings;
b) Install bridge over spillway;
c) Install two picnic sites;
d) Re-install fences and/or install new site management features;
e) Install signage;
f) Prepare final report, including as-built drawings of completed work.

Table 1: Tasks to Accomplish Primary Project Goals

GOALS	OBJECTIVES	TASKS/ACTIVITIES
1) Minimize sediment delivery to Moulton Reservoir	- Minimize sediment delivery from upland eroding slopes - Remove gravel piles and dirt-covered boat launch at the bank of Moulton Reservoir - Install culverts to eliminate road cutting and direct delivery of sediment to the Reservoir - Promote a vegetative buffer on the banks of the reservoir	- Retain engineer to inspect site and design erosion work - Request appropriate permits - Prepare bids and hire contractors to install devices - Monitor work completed and report monthly to Project Director - Quarterly Reports to DNRC - Final Report to DNRC
2) Protect the liner on the east face of the dam	- Address safety issues of liner in conjunction with increased public use - Prevent wear of liner from wave action - Prevent UV degradation of liner	- Retain engineer to inspect liner and design cover material - Prepare bids and hire contractors to construct structure - Monitor work completed and report monthly to Project Director - Quarterly Reports to DNRC - Final Report to DNRC
3) Promote public recreation	- Address safety issues of trail design, connectivity and safe crossings - Promote public recreation with signage, fencing and picnic areas	- Retain engineer to inspect trail and design wetland and stream crossings - Request appropriate permits - Prepare bids and hire contractors to install devices - Monitor work completed and report monthly to Project Director - Quarterly Reports to DNRC - Final Report to DNRC

Table 2: Project Schedule

Tasks	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16	Mar 16	Apr 16	May 16	Jun 16	Jul 16	Aug 16	Sep 16	Oct 16	Nov 16	Dec 16
Prepare and advertise for engineering RFQ	X	X																
Retain engineers to inspect and design improvements			X	X	X													
Obtain permits with final design				X	X													
Prepare and advertise for construction bids						X	X	X	X									
Initiate Construction (Tasks 3&4)										X	X	X	X	X	X	X	X	
Quarterly Report			X			X			X			X			X			
Final Report																X	X	X

Monitoring Activities
Results will be measured in a fairly traditional fashion -- on the basis of how well assigned personnel achieve the goals and objectives of the grant, as outlined in the 'Project Goals and Objectives.' Administratively, the project will be managed out of the Butte-Silver Bow Public Works Department, with David Schultz, Butte-Silver Bow Public Works Director serving as project director. Staffing will be a combination of in-house personnel and contracted services to handle more detailed engineering, construction, and electrical tasks. The duties of the assigned personnel will be well understood, and measuring performance in the conduct of those duties will be straightforward.

Project reporting will be the principal standard of evaluation, i.e., quarterly reports on all activities. Butte-Silver Bow staff have significant experience managing State of Montana grant funds. Staff will incorporate their knowledge and reporting efficiencies into project monitoring. These reports, generated by the BSB Public Works Department, will serve as the chief mechanism for information flow between and among all parties, including the Butte-Silver Bow Chief Executive, Council of Commissioners, and BNRC as the contracting agency. Once the project is underway and in-field construction begins, the coordinators will be meet regularly with all parties to facilitate coordination between and among contractors.

In the long term, the key gauge of the project's success will be the final product. At a minimum, Butte-Silver Bow intends to utilize infrastructure upgrades to make way for recreation opportunities at Moulton Reservoir while simultaneously continuing its work to deliver potable water to residents of Butte.

Project Budget & Cost Estimates
As reflected in **Appendix B, Budget Summary Table**, the total proposed project costs for this investment is $ 469,231. Butte-Silver Bow requests $100,000 through the Natural Resource Damage Program, Butte Natural Resource Damage Committee, to fund recreational enhancements at the Moulton Reservoir to replace the opportunities that could have been provided by an unimpaired Silver Bow Creek within Butte Area One.

Butte-Silver Bow is committed to matching BNRC's investment with a significant match of $244,48 of in kind services, materials, and labor as well as uncommitted DNRC RRGL grant funds of $125,000 from the State of Montana, Department of Natural Resource Conservation. The following narrative explains the line items as presented in the Budget Summary Table.

	DNRC Grant	Project Sponsor	BNRC	Other	Total
Project Total	**$ 124,744**	**$ 244,487**	**$100,000**		**$ 469,231**

Despite unsecured funding, Butte-Silver Bow is confident DNRC grant funds will be awarded. These grant funds will ensure Butte-Silver Bow can sustain the longevity of the Moulton Water Treatment System in the long term without placing significant burden on the residential rate payer. Should funding for the reclamation improvements fall through, Butte Silver Bow remains committed to preserving the Moulton Reservoir and Water Treatment Plant's ability to deliver potable water to Butte-Silver Bow residents.

Butte Natural Resource Damage Committee's Butte Area One dollars are essential to the recreational component of this project. Unfortunately, recreation is not the primary objective of this project and these improvements are not considered more important than the delivery of potable water to residents. Without BNRC funding to subsidize the costs of recreation enhancements to replace those lost along Silver Bow Creek due to historic mining and smelting, the recreation components of this project will not be realized.

Project Administration
The project is intended to be managed by Project Sponsor Staff. The primary Butte-Silver Bow

employees working on the project will be David Schultz, Butte-Silver Bow's Public Works Director, Tom Loggins, DPW Road Division Supervisor, Mark Powers, DPW Water Division Supervisor, and Tom Malloy, Reclamation Manager. Chart A, Project Administration, outlines project management staff and time contributions, as well as indirect costs.

Staff will work according to the project schedule, concentrating their in-kind services and contribution to the project on an as-needed basis. In addition, a number of other Butte-Silver Bow professional and field staff will be involved, including public works personnel (laborers, operators, teamsters, technicians), who will be involved in the provision of materials and equipment support aspects of the project. Likewise, some Support Staff (e.g., GIS technicians, clerical workers, etc.) will contribute a total of 80 hours.

Chart A.

Moulton Reservoir Reclamation & Recreation Enhancement

Budget Summary Table

Project Aspect		Cost Share			Totals
	DNRC Grant	Project Sponsor	BNRC	Other	
Project Administration					
Project Manager (80 hours)		$ 3,176			$ 3,176
Other Professional Staff (40 hours)		$ 1,087			$ 1,087
Administrative Staff (80 hours)		$ 1,440			$ 1,440
Subtotal		$ 5,703			$ 5,703
Benefits @ 50% of Wages		$ 2,852			$ 2,852
Subtotal		$ 8,555			$ 8,555
Communications		$ 900			$ 900
Supplies (Gravel Delivered)		$ 24,000			$ 24,000
Equipment		$ 7,500			$ 7,500
Travel		$ 1,000			$ 1,000
Subtotal		$ 33,400			$ 33,400
Administration Total		**$ 41,955**			**$ 41,955**

An average rate of 50% is used to account for fringe benefits, reflecting the average salary of the personnel working on the project, given that the majority of the personnel will be Public Works staff who have a higher fringe rate.

It is expected that routine office supplies (e.g., paper, pens, computer accessories) will be necessary to conduct work under the grant, all of which would be included in the Indirect Costs. As for construction materials, Butte-Silver Bow would contribute 3,000 yards of gravel, estimated at $8.00/yd delivered to the project site, as an in-kind match to the project.

As with any project of this complexity, phone, fax and e-mail communications will be needed, particularly in the bidding of contracts and coordination with contractors. Costs are estimated at $900 based on an average of $50 per month for 18 months, and all are included entirely as an in-kind match the project by the Sponsor.

A minimum amount of travel will be necessary in town to deal with site monitoring and construction oversight. Projections are to expend approximately $1,000 on fuel and vehicles over the 18 months. Again, Butte-Silver Bow proposes to cover these costs in-kind to the Project.

As part of the cost of doing business on this project and included in the "Indirect Costs" account and as an in-kind match.

Professional and Technical Assistance
As reflected on Chart B, Professional and Technical Costs, an engineering firm will be contracted to design improvements based on an estimate fee for services of 10% of construction costs and conduct construction oversight based on 8% of construction costs.

Construction work proposed in this application will be completed by professional engineering consultants and contractors specializing in general construction and excavation, and in-kind labor and services provided by Butte-Silver Bow.

Chart B:

Project Aspect	**Cost Share**				
Professional & Technical Costs	DNRC Grant	Project Sponsor	BNRC	Other	Total
Personnel					
Tom Loggins, DPW Road Division Supt. (80 hours with 50% benefits)		$ 3,834			$ 3,834
Mark Powers, DPW Water Division Supt. (80 hours with 50% benefits)		$ 3,009			$ 3,009
Tom Malloy, Reclamation Manager (40 hours with 50% benefits)		$ 1,785			$ 1,785
Operators, Teamsters, Laborers		$ 6,017			$ 6,017
Subtotal		$ 14,645			$ 14,645
Profesional/Technical					
Engineering - Design (10% of Construction)	$ 14,576	$ 20,000			$ 34,576
Construction Oversight (8% of Construction)	$ 12,660	$ 15,000			$ 27,660
Subtotal	$ 27,236	$ 35,000			$ 62,236
Indirect Costs @20% of Salaries & Benefits		$ 4,640			$ 4,640
Subtotal		$ 4,640			$ 4,640
Professional/Technical Services Total	**$ 27,236**	**$ 54,285**			**$ 81,521**

The City-County will use its standard procurement and contract selection processes to secure the most cost-effective contractor for the work outlined. For specific projects greater than $80,000, such as this proposed work, bidding procedures will be required.

Construction
Construction costs are listed in Chart C, and are based on preliminary estimates for similar construction projects recently completed by the project sponsor. It is anticipated that the project will commence in July 2015 with contract administration and then design steps. Construction is anticipated in 2016 and given that schedule a compounded 3% per annum inflation contingency was factored into the contracted services.

No equipment purchases are planned using grant funds. Grant dollars will be utilized for purchase of Rip Rap, Geotextile materials, and recreation investments. Butte-Silver Bow proposes to use

existing City-County equipment, as needed, to construct road and parking lot improvements. BSB will also use Silver Bow equipment to improve the gravel covered boat launch and create a turn-around for maintenance vehicles, as well as haul gravel to the project site. Construction contractors will provide their own equipment

Chart C:

Project Aspect	Cost Share				
Construction	DNRC Grant	Project Sponsor	BNRC	Other	Total
Reclamation					
Recontouring Eroded Areas	$ 13,433	$ 20,318			$ 33,751
Labor	$ 13,433	$ 20,318			$ 33,751
Top Soil - delivered	$ 23,004	$ 34,796			$ 57,800
Spreading & Grading Top Soil	$ 8,119	$ 12,281			$ 20,400
Seeding Reclaimed Area	$ 501	$ 759			$ 1,260
Seed	$ 507	$ 766			$ 1,273
Rip Rap for Shorline - delivered	$ 1,970	$ 2,980			$ 4,950
Rip Rap Installation	$ 5,373	$ 8,127			$ 13,500
Subtotal Reclamation	$ 66,340	$ 100,345			$ 166,685
Repairing Dam					
Rip Rap for Dam Face - delivered	$ 8,239	$ 12,461			$ 20,700
Rip Rap Installation	$ 8,955	$ 13,545			$ 22,500
Labor	$ 4,478	$ 6,773			$ 11,251
Geotextile - material and installation	$ 632	$ 955			$ 1,587
Subtotal Dam Repair	$ 22,304	$ 33,734			$ 56,038
Recreational Improvements					
Trail Improvements - 3,200 linear feet @ $2.00/ft			$ 6,400		$ 6,400
Boardwalk Installation - 750 Linear Feet@ $80/ft			$ 60,000		$ 60,000
Walking Bridges - creek crossings (2 at $5,400/bridge)			$ 10,800		$ 10,800
Walking Bridge - dam spillway (1 at $12,000/bridge)			$ 12,000		$ 12,000
Picnic Tables (2 @ $1,200/table)			$ 2,400		$ 2,400
Subtotal Recreation			$ 91,600		$ 91,600
Contingency (10%)	$ 8,864	$ 14,168	$ 8,400		$ 31,432
Construction Total	**$ 97,508**	**$ 148,247**	**$ 100,000**		**$ 345,755**

Appendix A:
Project Area Maps