FUNDING GUIDE

Major Dam and Canal Infrastructure Projects

June 2021

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INTRODUCTION

This guide is intended to provide several examples of and information to dam owners, irrigators, and other interested parties of the funding mechanisms available for larger scale dam and canal projects within the State of Montana.

The starting point for getting a new potential project off the ground is to ensure a sound understanding of what will be accomplished. Here are the steps of what needs to be completed:

- An engineering or feasibility analysis is required to determine the necessary repairs or rehabilitations;
- Have solid background information and preliminary engineering (if necessary) to define the size and scope of the project;
- Rigorous project background work and cost estimation prior to funding being secured to ensure a realistic scope of work and costs associated with the work. It is very challenging to obtain additional funding from the grant or loan agency after initial funding is secured.

Regardless of the project, agency or funding office staff are generally available for assistance and it is advisable to contact and coordinate during preparation of any funding applications. Contacting the appropriate funding representative can be helpful to those unfamiliar with the process. See the Funding Sources Section of this document for a list of contact information. The DNRC also has a pre-qualified list of consultant engineers specializing in dam and irrigation projects who are knowledgeable in a wide variety of improvements, repairs and rehabilitations.

Once a solid preliminary plan has been developed, investigations into the vast array of funding sources can occur. Assistance in probing the multitude of funding sources can be obtained from several entities: engineering consultant, conservation district, DNRC or a non-profit. Often, if the dam owner/irrigator is a private company or individual, a conservation district may apply for certain grants on their behalf. Knowledgeable individuals familiar with funding sources, applications, and management of grants/loans are crucial to project success, as many of these funding sources have significant coordination, documentation and audits involved. A comprehensive list of available funding agencies and specific contacts for dam and canal improvements in Montana is shown in the Funding Spreadsheet and the Funding Sources Section of this document.

To illustrate the use of funding for a variety of dam and irrigation projects throughout Montana, numerous case studies have been prepared to give readers “real world” examples of the creative ways funding is secured for specific project and ownership types.

Public/Non-Profit Canal and Dams Operators

Purpose: Funding available for publically owned dam and canal infrastructure projects

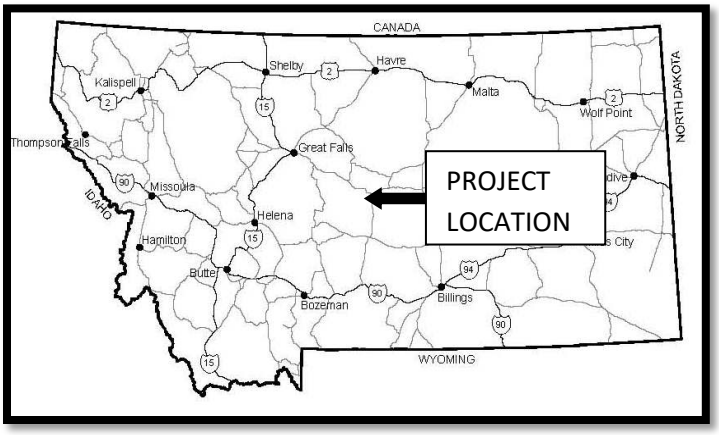
Grants	Funding	Description	Funding Amount	Interest Rate	Contact	Information on Funding	Examples of Funded Projects
DNRC RRGL Planning Grant	DNRC Renewable Resource Project Planning Grants	Grant that can be used for funding Preliminary Engineering Reports, surveys, studies, etc.	Maximum $15,000	NA	Lindsay Volpe 406.444.9766 lmvolpe@mt.gov	Page 47	
DNRC RRGL Grant	DNRC Renewable Resource Grant Program	Grant that can be used for construction of a dam or irrigation project.	Maximum $125,000	NA	Lindsay Volpe 406.444.9766 lmvolpe@mt.gov	Page 48	Page 5, 7, 9, 11, 19, 21, 26, 28, 30, 32, 34, 38, 40, 44
DNRC Emergency Grant	DNRC Renewable Resource Emergency Grant Program	Grant that provides funding assistance to emergencies that pose an immediate threat to the beneficial management of a renewable resource.	Maximum $30,000	NA	David Larson 406.444.2951 dclarson@mt.gov	Page 52	Page 15
DNRC Irrigation Grant	DNRC Irrigation Development Grant	Grant that provides funding assistance for the development of new irrigation and to sustain and increase the value of existing irrigation.	Maximum Construction Grant $20,000 Maximum Planning Grant $5,000	NA	Ann Kulczyk 406.228.4129 akulczyk@mt.gov	Page 53	Page 40
Conservation District Grant	DNRC Conservation Districts HB223 Grant	Grant that provides funding assistance to Conservation Districts to carry out any project including planning, feasibility studies, equipment and construction.	$20,000 no match Above $20K 1:1 match	NA	Laurie Zeller 406.444.6669 lzeller@mt.gov	Page 54	Page 28
MT FWP Future Fisheries Grant	Montana Fish Wildlife and Parks Future Fisheries Improvement Program	Grant that can be used to protect the growth and population of wild and native fish species.	Average grant s between $30,000 - $75,000.	NA	Michelle McGree 406.444.2432 mmcgree@mt.gov	Page 56	Page 7, 21, 23, 28, 32, 36, 38, 42
USBR WaterSMART Grant	USBR WaterSMART and Energy Efficienty Grant	Grant funding for water conservation, energy efficiency, and faciliation of water markets.	Maximum $1 Million	NA	Josh German 303.445.2839 jgerman@usbr.gov	Page 57	Page 30, 34
US FWS Wetlands Grant	US Fish Wildlife Service North American Wetlands Conservation Act Grants	Grant funding for long-term protection, restoration, and/or enhancement to wetlands and associated uplands habitat.	Maximum $1 Million	NA	Stacy Sanchez 703.358.2017 stacy_sanchez@fws.gov	Page 59	Page 7
Western Native Trout Initiative	Western Native Trout Initiative - Small Grants Initiative	Grant funding for conservation of western native trout to include riparian or in-stream restoration, barrier removal or construction, population or watershed assessments, and water leases.	Maximum $5,000	NA	Therese Thompson 303.236.4402 tthompson@westernnativetrout.org	Page 61	Page 38
Northwestern Energy	Northwestern Energy Community Works Charitable Giving Program	Grant funding to promote environmental preservation including habitat, fish, and wildlife protection.	Small grant program call to see if funding is a good fit.	NA	Heather Bellamy 406.570.2092 heather.bellamy@northwestern.com	Page 62	Formerly PPL Fund Page 36
Montana DEQ	Montana DEQ - Section 319 Contract	Grant funding to restore quality waterbodies whose beneficial uses are impaired by nonpoint source pollution (NPS) and whose water quality does not meet state standards.	Average grant between $50,000 - $300,000	NA	Kristy Fortman 406.444.7425 kristy.fortman@mt.gov	Page 63	Page 38
National Fish and Wildlife Foundation	Columbia Basin Water Transaction Programs	Grant funding to provide assistance in the form of water rights allocation, to increase tibutary flows for the primary benefit of ESA listed fish and other depressed fish stock within the Columbia River Basin.	Must partner with Trout Unlimited or Clark Fork Coalition	NA	David@montanatu.org 406.522.7291 andy@clarkfork.org 406.542.0539	Page 65	Page 23
Montana Department of Commerce	MDOC Montana Coal Endowment Program	Grant funding to provide assistance with irrigation or dam construction projects that are associated with drinking water systems.	Maximum depending on Target Rate	NA	Becky Anseth 406.841.2865 banseth@mt.gov	Page 67	Page 11
Montana Department of Commerce	MDOC Community Development Block Grant Program	Grant funding to provide assistance with irrigation or dam construction projects that are associated with drinking water systems that are at or above 51% low-to-moderate income.	Maximum $450,000	NA	Gus Byrom 406.841.2770 DocCDBG@mt.gov	Page 68	Page 11
FEMA	Building Resilient Infrastructure and Communities (BRIC)	Grant funding to provide assistance for dam projects that have serious deficiencies that could lead to dam failure.	No Maximum Identified	NA	Sara Hartley 406.324.4794 Sara.Hartley@mt.gov	Page 70	
Montana Department of Natural Resources	Drinking Water State Revolving Loan Fund	Loan and possibly loan forgiveness for dam projects that provide drinkin water.	Loan amount based on applicant's debt capacity	varies	Anna Miller 406.444.6689 annam@mt.gov	Page 71	

Loans	Funding	Description	Funding Amount	Interest Rate	Contact	Information on Funding	Examples of Funded Projects
DNRC RRGL Loan	DNRC Renewable Resource Loan Program	Grant that can be used for construction of a dam or irrigation project.	Loan amount based on applicant's debt capacity	varies	Lindsay Volpe 406.444.9766 lmvolpe@mt.gov	Page 48	Page 5, 9, 11, 19, 32
DNRC Emergency Loan	DNRC Renewable Resource Emergency Loan Program	Loan that provides funding assistance to emergencies that pose an immediate threat to the beneficial management of a renewable resource.	Maximum $10 Million	varies	David Larson 406.444.2951 dclarson@mt.gov	Page 52	
USDA Rural Development Loan	USDA Rural Development Loan/Grant Program	Loan funding that may provide a percentage as a grant to construct, repair, and improve water distribution systems, waste collections, and waste treatment systems in rural towns under 10,000 population.	Dependent on state funding allocation	varies	Staff for each region 406.585.2580	Page 69	Page 11, 26

Private Canal and Dams Operators							
Purpose:	Funding available for privately owned dam and canal infrastructure projects						
Grants	**Funding**	**Description**	**Funding Amount**	**Interest Rate**	**Contact**	**Information on Funding**	**Examples of Funded Projects**
MT FWP Future Fisheries Grant	Montana Fish Wildlife and Parks Future Fisheries Improvement Program	Grant that can be used to protect the growth and population of wild and native fish species.	No maximum listed but average grant size ranges between $30K - $75K.	NA	Michelle McGree 406.444.2432 mmcgree@mt.gov	Page 56	Page 7, 21, 23, 28, 32, 36, 38, 42
DNRC Private Water Grant	DNRC Renewable Resource Private Water Grant Program	Provides funding assistance to projects that benefit or develop a water resource.	Maximum $5,000	NA	Sonja Hoeglund 406.444.0552 shoeglund@mt.gov	Page 51	Page 13
DNRC Irrigation Grant	DNRC Irrigation Development Grant	Grant that provides funding assistance for the development of new irrigation and to sustain and increase the value of existing irrigation.	Maximum Construction Grant $20,000 Maximum PER Grant	NA	Ann Kulczyk 406.228.4129 akulczyk@mt.gov	Page 53	Page 40
USBR WaterSMART Grant	USBR WaterSMART and Energy Efficienty Grant	Grant funding for water conservation, energy efficiency, and faciliation of water markets.	Maximum $1 Million	NA	Josh German 303.445.2839 jgerman@usbr.gov	Page 57	Page 30, 34
USDA EQIP Grant	USDA NRCS Environmental Quality Incentives Program	Grand funding to promote agricultural production and environmental quality as compatible goals.	Variable depending on the allocation to the region.	NA	Kelley Barkell 406.587.6849 kelley.barkell@mt.usda.gov	Page 58	Page 7, 26, 36
US FWS Wetlands Grant	US Fish Wildlife Service North American Wetlands Conservation Act Grants	Grant funding for long-term protection, restoration, and/or enhancement to wetlands and associated uplands habitat.	Maximum $1 Million	NA	Stacy Sanchez 703.358.2017 stacy_sanchez@fws.gov	Page 59	Page 7
Western Native Trout Initiative	Western Native Trout Initiative - Small Grants Initiative	Grant funding for conservation of western native trout to include riparian or in-stream restoration, barrier removal or construction, population or watershed assessments, and water leases.	Maximum $5,000	NA	Therese Thompson 303.236.4402 tthompson@westernnativetrout.org	Page 61	Page 38
FEMA	Rehabilitation of High Hazard Potential Dams (HHPD)	Cost share grants available to repair high hazard dams with serious deficiencies. Many requirements will need to be considered to determine eligibility.	Maximum varies depending on appropriation	NA	Sara Hartley 406.324.4794 Sara.Hartley@mt.gov	Page 71	
Loans	**Funding**	**Description**	**Funding Amount**	**Interest Rate**	**Contact**	**Information on Funding**	**Examples of Funded Projects**
DNRC Private Loan Program	DNRC Renewable Resource Private Loan Program	Provides funding assistance to projects that benefit or develop a water resource.	Loan amount based on applicant's debt capacity	Varies	Bill Herbolich 406.444.6668 wherbolich@mt.gov	Page 50	Page 17, 40
Montana Department of Natural Resources	Drinking Water State Revolving Loan Fund	Loan and possibly loan forgiveness for dam projects that provide drinkin water.	Loan amount based on applicant's debt capacity	varies	Anna Miller 406.444.6689 annam@mt.gov	Page 71	
Private Loans	Local Banking Institutions	Local banks can provide many different kinds of private loans to private entities. Meeting with a local banking institution can provide an applicant with different options.	Loan amount based on affordability	Varies	Local community	NA	NA

CASE STUDIES: DAMS

ACKLEY LAKE DAM REHABILITATION (2009)
DNRC



Ackley Lake Dam History

- Earthen dam constructed in 1938
- Off-stream reservoir with canal from Judith River
- Dam owned by DNRC, operated/maintained by Ackley Lake Water Users Association since 1938
- Primary purpose(s): Irrigation, recreation, Ackley Lake State Park – northern half of reservoir
- Dam Height: 51 feet
- Dam Storage: 6,722 acre-feet
- Dam Classification: High Hazard

Project History

View of reservoir drawdown and cofferdam.
Photo courtesy of DNRC.

After initial construction of the dam, a slide developed on the left side of the outlet near the toe of the dam. The outlet conduit was extended 120 feet and additional drainage was installed in an attempt to stabilize the slide. Investigative drilling in 1999 revealed high artesian pressures at the toe of the dam and in 2004 a seepage exit was observed to be transporting small quantities of fine grained material. Further analysis revealed that the dam did not meet stabiity requirements. A rehabilitation project was initiated to address the high uplift pressures, improve spillway performance and to line the aged, corrugated metal pipe outlet.

Work Breakdown

- Installation of toe drains
- Construction of a toe berm to protect against high artesian pressure
- Outlet conduit lining and extension to accommodate stability berm
- Installation of articulated concrete block primary spillway crest structure
- Leveling of dam crest
- Construction of auxiliary spillway
- New Gatehouse

ACKLEY LAKE DAM REHABILITATION (2009)
DNRC

Project Funding

The total cost of the project was **$1.6 Million.** To finance the project, the DNRC used the following grant and loan programs:

- DNRC RRGL Grant: $100,000
- DNRC RRGL Loan: $200,000
  - 20 years @ 4.5%
  - To be repaid by WUA
- State funds: $1.3 Million
  - Only utilized on SWP owned projects
- Ackley Lake Water Users Association:
  - Increase in water users fees due to loans

View of new RCP installation at outlet.
Photo courtesy of DNRC

Project Status & Results

- Construction began in 2008 and was completed in 2009

Project Partners

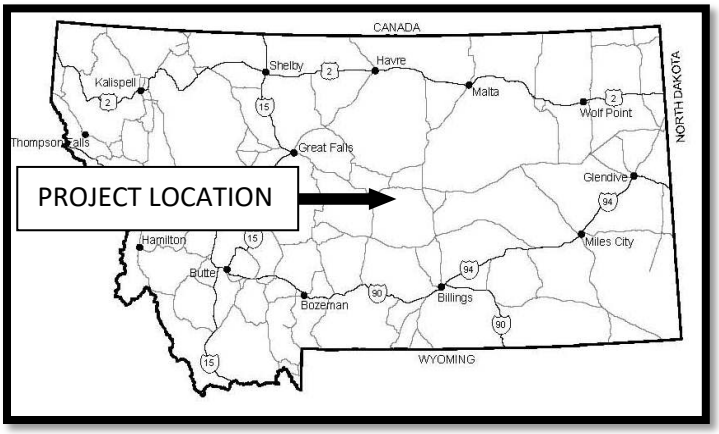
Owner: DNRC

Lead Design Engineer: DOWL

Prime Contractor: Mungas Company Inc.

View of completed terminal outlet & gatehouse.
Photo courtesy of DNRC

CARTER PONDS REHABILITATION (2008)
TOM CARTER



Carters Pond History

- 2 ponds (Upper and Lower) constructed in 1938
- Original purpose was for irrigation/agriculture use
- Primary current purposes: Recreation, fishing, wildlife habitat, agricultural use, MFWP access site
- Dam Height: 22 feet (Lower), 17 feet (Upper)
- Dam Storage (acre-feet): 176 (Lower), 119(Upper)
- Dam Classification: Not High Hazard

Project History

Aerial of upper Carter Pond (2004).
Photo courtesy of MFWP

The Carter Ponds have been rebuilt several times over their history due to the short lifespan of metal conduit. In 2001, DNRC completed an assessment of the Carter Ponds and a hazard classification was established as “not high hazard”. However, in 2004, the trickle tube at the lower Carter Pond collapsed and the conduit in the upper Carter Pond exhibited a slow failure due to conduit pipe corrosion. DNRC recommended that the dams either be repaired or breached. In 2006, it was determined to look for funding implementation for the project. After analysis and alternatives exploration, it was determined that a full rebuild of both dams was the preferred alternative.

Work Breakdown

- Replace principle spillway and operating conduits
- Rebuild dam crest
- Provide slope protection with riprap installation at dam face
- Provide toe drain for dam

View of trickle tube failure in lower pond.
Photo courtesy of MFWP

CARTER PONDS REHABILITATION (2008)
TOM CARTER

Project Funding

The total cost of both projects was **$430,635.** To finance the project, Tom Carter and the project partners used the following grant programs and in-kind work:

Construction of lower pond crest (2008).
Photo courtesy of MFWP

- Montana FWP-Future Fisheries Grant - $106,000
  - Utilized future fisheries monies based on the preservation of a fishing resource
- DNRC RRGL Grant: $100,000
- NRCS, USFWS: $25,200
- North American Wetlands Conservation Act (NAWCA) Small Grant: $75,000
  - Provided funding based on use of ponds by migratory birds for habitat management
- Ducks Unlimited: $85,000
  - Provided engineering for the project
- USFWS: $36,435 in-kind
  - Utilized for rock sourcing and placement
- Fergus Conservation District provided in-kind assistance consisting of grant writing

Project Status & Results

- Both projects were successfully completed in 2008 and the ponds were completely filled in 2010.

Project Partners

Owner: Tom Carter, with assistance from MFWP

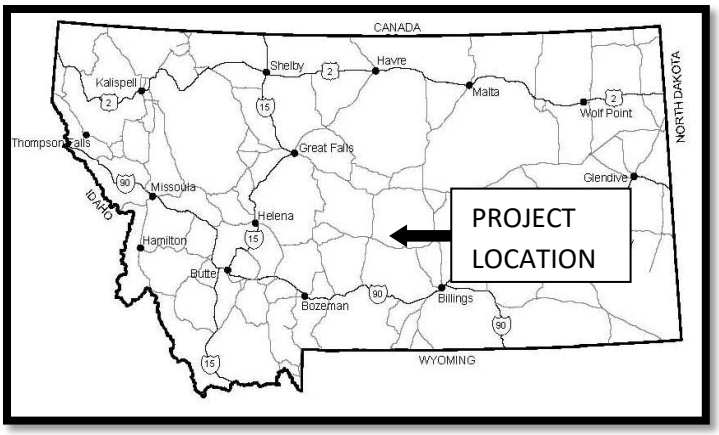
Engineer: Ducks Unlimited

Contractor: Martin Excavating LLC.

View of lower pond (2010).
Photo courtesy of MFWP

View of completed upper pond (2009).
Photo courtesy of MFWP

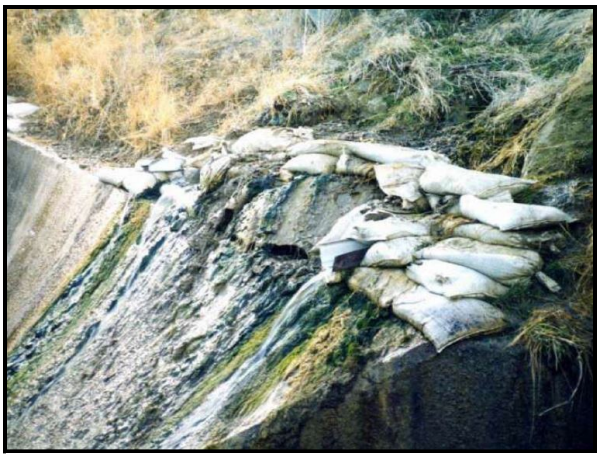
DEADMAN'S BASIN TERMINAL OUTLET REPLACEMENT (2010)
DNRC



Deadman's Basin Dam History

- Earthen dam constructed in 1941, raised in 1958
- Off-stream reservoir with canal from the Musselshell River
- Dam owned by DNRC, operated/maintained by Deadman's Basin Water Users Association
- Primary purpose: Irrigation, municipal & recreation.
- Dam Height: 60 feet
- Dam Storage: 72,218 acre-feet
- Dam Classification: High Hazard

Project History



View of dam seepage.
Photo courtesy of DNRC

Annual inspections reported numerous issues with the dam and outlet structure including: seepage, erosion behind the outlet structure and outlet structure deterioration. In 2003, the DNRC performed seepage modeling on the dam and found that high uplift pressures existed at the dam toe and the exit gradient of seepage did not meet Montana Dam Safety Act Standards. Additional analysis completed by the engineering consultant found that a toe berm and filter significantly increased the factor of safety, rendering the dam compliant to Montana Dam Safety Act Standards. It was decided to move forward with improvements and investigate funding sources for the project.

Work Breakdown

- Extending the terminal outlet
- Installation of a filtration and drainage system
- Construction of a toe berm
- Canal armoring, articulated concrete blocks
- Reclamation and erosion control

Demolition of existing outlet structure (2009).
Photo courtesy of DNRC

DEADMAN'S BASIN TERMINAL OUTLET REPLACEMENT (2010)
DNRC

Project Funding

The total cost of the project was **$780,000.** To finance the project, the DNRC used the following grant and loan programs:

- DNRC RRGL Grant: $100,000
- DNRC RRGL Loan: $400,000
  - 20 years @ 4.5%
  - To be repaid by WUA
- State Funds: $280,000
  - Only utilized on SWP owned projects
- DNRC In-kind work

View of precast conduit placement (2009).
Photo courtesy of DNRC

Project Status & Results

- Construction began in October 2009 and was completed in May 2010
- Articulated concrete block failure in October 2010. Was replaced with AJAX system, which is working well.

Project Partners

Owner: DNRC

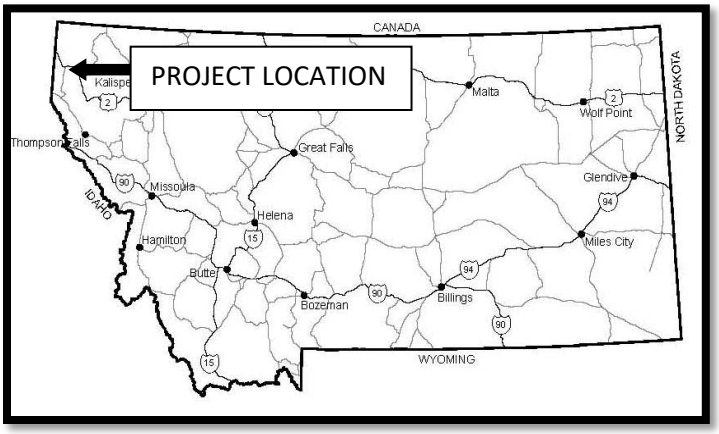
Lead Design Engineer: WWC Engineering

Prime Contractor: Montana Civil Contractors, Inc.

Construction Oversight: DNRC

View of completed terminal outlet structure (2012).
Photo courtesy of DNRC.

FLOWERS CREEK DAM IMPROVEMENTS (ONGOING)
CITY OF LIBBY



Flowers Creek Dam History

- Concrete dam constructed in 1946 for Pacific Power & Light Company. City of Libby purchased dam in 1986.
- Primary purpose: City of Libby Municipal water
- Dam Height: 59 feet
- Dam Storage: 285 acre-feet
- Dam Classification: High Hazard

Project History

Flowers Creek Dam prior to replacement.
Photo courtesy of Morrison-Maierle

Since originally constructed, the dam has exhibited significant leakage on the dam face through numerous construction joints, resulting in considerable carbonation and iron leachate buildup. This was likely from substandard original concrete with high water-to-cement ratio. The dam was repaired in 1966 in areas of the upstream and downstream face with higher quality concrete. In 1995, a synthetic liner was installed on the upstream face to reduce the seepage. In 2009, an inspection revealed seepage was becoming more of a problem. The DNRC recommended that the City perform core drilling to determine concrete strength. Numerous core samples were taken in 2010 and the results of the sampling showed that the effective strength of the concrete was less than 1000 psi which resulted in a risk of failure during seismic events or if the reservoir level is cycled or drained. As a result of the findings, the City of Libby began a substantial effort to analyze the existing dam, and looked at numerous alternatives for water sources and water storage for the City. Over a several year effort, it was decided to replace the existing dam with a new concrete gravity structure downstream of the existing dam.

Work Breakdown

- Lower reservoir
- Downstream cofferdam construction
- Existing dam demolition
- Construction of new mass-concrete gravity dam

Flowers Creek Dam Removal (March 2015).
Photo courtesy of Morrison-Maierle

FLOWERS CREEK DAM IMPROVEMENTS (ONGOING)
CITY OF LIBBY

Project Funding

The total cost of the project is **$11,511,000.** To finance the project, the City of Libby used numerous grant and loan programs. Acquisition of grants and loans were obtained with assistance by the lead engineering consultant:

Rock excavation at abutment (April 2015)
Photo Courtesy of Morrison-Maierle

- USDA RD Loan: $3,690,000
- USDA RD Grant: $5,140,000
    - RD Loan/Grants are project dependent and are proportional largely based on population and median household income. The terms of the loan included a 40 year repayment at a 3.25% interest rate.
- Department of Commerce - TSEP Construction Grant: $750,000
    - Required 100% Match (Cash, Loan, Other Grants)
- Department of Commerce – CDBG Grant: $450,000
    - Requires 25% Match (Cash, Loan, Grants, In-Kind Work)
- DNRC RRGL Grant: $100,000
- DNRC RRGL Loan: $800,000
    - The terms of the loan included a 20 year repayment at a 3.00% interest rate.
- City of Libby: $581,000
    - In-kind (administration), preliminary engineering and design engineering fees.

Project Status & Results

- Construction began in December 2014 with drawdown of reservoir
- Project is anticipated to be substantially complete in November 2015
- Due to size and scale of project, numerous permits, authorizations, licenses and acts needed to be acquired and/or met prior to construction occurring
- Public outreach and involvement has been crucial for support of the project

Dewatered reservoir (May 2015)
Photo courtesy of Morrison-Maierle

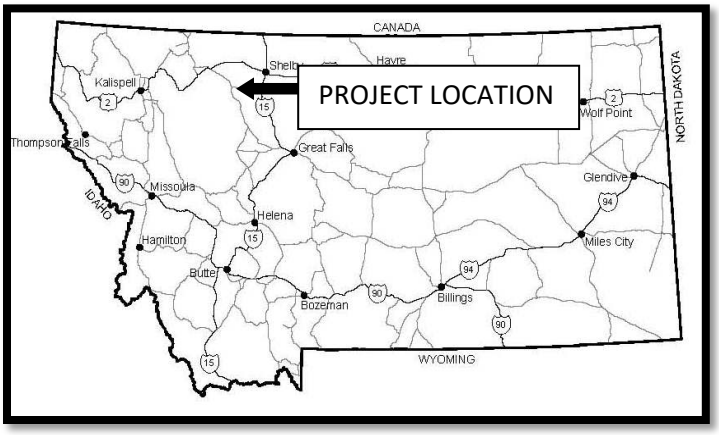
Project Partners

Owner: City of Libby

Lead Design Engineer: Morrison-Maierle

Prime Contractor: Johnson-Wilson Constructors, Inc.

LAKE FRANCES EAST DAM REHABILITATION – PHASE I & II (2008)
PONDERA COUNTY CANAL AND RESERVOIR COMPANY (PCCRC)



Lake Frances East Dam History

- Earth embankment dam constructed 1908-1910
- Primary purposes: Irrigation, municipal water for City of Conrad, recreation, fishing
- Dam Height: 57 feet
- Dam Storage: 105,000 acre-feet (approx.)
- Dam Classification: High Hazard

Project History

Since initial construction in 1910, the Lake Frances East Dam has had an interesting history. During initial filling in 1908, the outlet works experienced significant settlement. A repair plan was developed consisting of a new tower and grouting outlet cracks and improvements that were completed in 1913. In 1922, seepage at the left abutment caused a large hole in the downstream toe. Drains and a berm were installed, but it is unknown if grouting was conducted.

The dam was inspected in 1998 and had subsequent stability analyses completed. Results of this investigation found that the discharge at the outlet works was limited to 400-500 cfs, or about half the design capacity, due to the outlet conduit deterioration. Additionally, the outlet works did not meet current dam safety criteria. In 2002, extensive grouting was completed to seal voids in the earth embankment. In 2003, the outlet conduit and gate tower's concrete condition was evaluated and deemed that the outlet could be rehabilitated. A two phase rehabilitation approach was utilized for the project.

Work Breakdown

Phase I

- Earth berm on downstream face removed to allow installation of filter sand around conduit
- Internal chimney drain constructed of filter sand was installed over entire embankment length

Phase II

- Removal of outlet conduit upstream of cutoff wall and removal of free standing lake tower
- New control tower on upstream face of cutoff wall
- New conduit from new tower to upstream toe of dam
- More extensive grouting program along length of cutoff wall

View of upstream portion of dam excavated to concrete corewall (Phase II).
Photo courtesy of DNRC

LAKE FRANCES EAST DAM REHABILITATION – PHASE I & II (2008)
PONDERA COUNTY CANAL AND RESERVOIR COMPANY (PCCRC)

Project Funding

The total cost of the project was **$3,430,000.** To finance the project, PCCRC used the following loan programs and completed most of the construction with their own crews and heavy equipment.

- Private loan: $3,425,000
    - Used water rights as collateral
- PCCRC-In Kind Work
- Private Grant: $5,000

Dewatering and work at upstream face (Phase II).
Photo courtesy of DNRC

Project Status & Results

- Phase I construction was completed in fall 2006
- Phase II construction was completed in 2008
- Dewatering was a challenge for Phase II work and required the use of pump consultant (unforeseen)

Project Partners

Owner: PCCRC

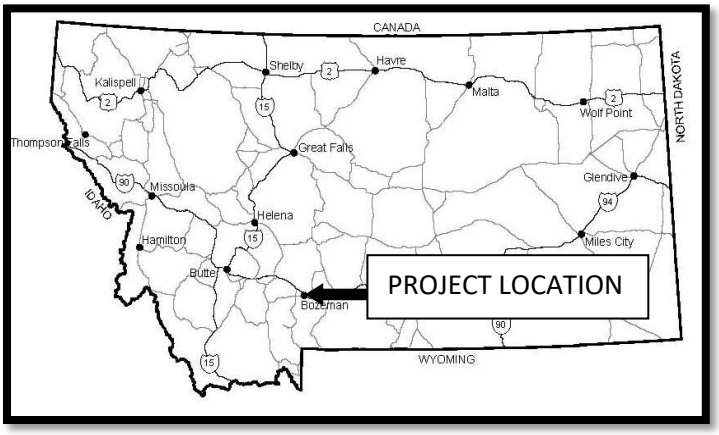
Engineer: DOWL

Contractor: Construction largely completed by PCCRC employees. Construction of the control tower was completed by a contractor.

Construction Inspection: DOWL

View of new control tower (Phase II).
Photo courtesy of DNRC

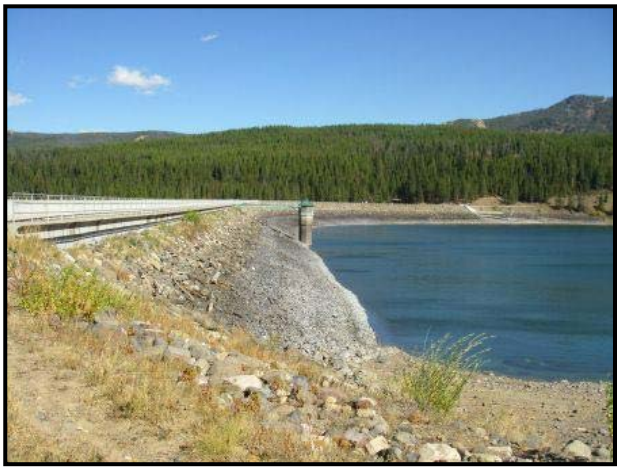
MIDDLE CREEK DAM SINKHOLE REPAIR – (2006)
DNRC



Middle Creek Dam History

- Middle Creek Dam (aka Hyalite) constructed in 1951
- Owned by DNRC, Managed by SWPB under USFS Special Use Permit, operated by Middle Creek Water Users Association
- Primary purpose: Irrigation, downstream municipal water for City of Bozeman, recreation, fishing
- Dam Height: 125 feet
- Dam Storage: 10,184 acre-feet
- Dam Classification: High Hazard

Project History



View of Middle Creek Dam.
Photo courtesy of DNRC

The Middle Creek Dam was originally constructed in 1951 and had relatively minor improvements until a significant project was completed in 1992. This project consisted of raising the dam embankment and gate tower 10 feet, constructing a new spillway and making improvements to the drainage and seepage monitoring system. Funding for this project was through a federal loan.

In August of 2006, a seepage entry location was discovered in the upstream left abutment near the auxiliary spillway. A repair plan was immediately identified and construction occurred immediately.

Work Breakdown

- Test excavations
- Sinkhole excavation
- Extension of protective liner

Earthwork surface preparations for protective liner.
Photo courtesy of DNRC

MIDDLE CREEK DAM SINKHOLE REPAIR – (2006)
DNRC

Project Funding

The total cost of the project was **$88,000.** To finance the emergency repairs, the following funding was utilized:

- RRGL Emergency Grant: $30,000
  - Allocated based on the emergency condition of the sinkhole
- Middle Creek Water Users: $20,000
  - Paid using cash reserves
- State Funds: $38,000
  - Only utilized on DNRC owned projects

Installation of protective liner.
Photo courtesy of DNRC

Project Status & Results

- Emergency repairs were complete in October 2006.

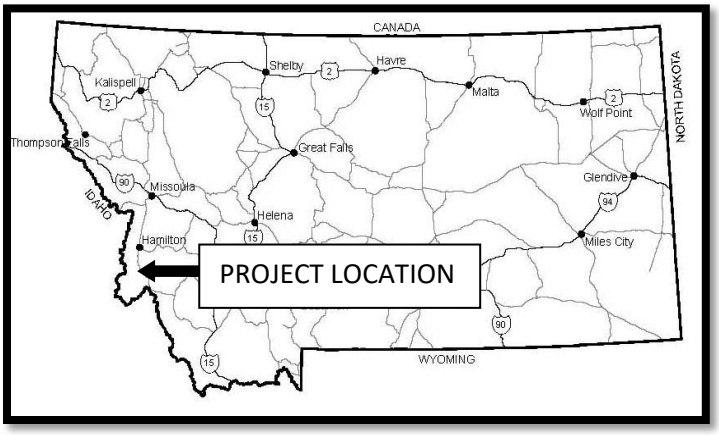
Project Partners

Owner: DNRC

Engineer: DNRC

Contractor: Martin Excavating

MILL LAKE DAM REHABILITATION (2009)
MILL CREEK IRRIGATION DISTRICT (MCID)



Mill Lake Dam History

- Earthfill dam with rock shell, originally constructed in 1912.
- Dam located in the Selway-Bitterroot Wilderness
- Primary purposes: Irrigation, fishing
- Dam Height: 25 feet (approx.)
- Dam Storage: 780 acre-feet
- Dam Classification: High Hazard

Mill Lake Dam (1930).
Photo courtesy of MCID

Project History

Since construction, the dam has had numerous rehabilitation projects, including major rehabilation in 1922, 1944, 1959, 1960, 1961, 1964, 1991 and 1992. Recently, the dam has had some serious concerns and in 2001, an emergency repair was completed and funded by a DNRC grant. In 2002, temporary slip lining of the outlet pipe occurred. In 2005, permanent slip lining was completed on the outlet pipe, funded by a DNRC grant. In 2007, a rehabilitation project (Phase I) was completed which consisted of rock berm construction, downstream dam crest edge stability construction, and AMCi® satellite alarm system. This rehabilitation was paid for by the Mill Creek Irrigation District. To complete the final phase of rehabilitation, the District looked for assistance from loans.

Work Breakdown

- Rock removal & stockpile
- Slope stabilization
- Impermeable liner installation
- Rock installation
- Downstream seepage filter
- Spillway rehabilitation

Installation of liner and rock (2009).
Photo courtesy of Hydrometrics

MILL LAKE DAM REHABILITATION (2009)
MILL CREEK IRRIGATION DISTRICT (MCID)

Project Funding

The total cost of the project was **$603,726.** To finance the project, the Mill Creek Irrigation District used the following loan program:

- DNRC WDL: $600,000
  - Terms were at 3.5% interest for 20 years.
  - Rates were raised in preparation for the loan
  - Irrigators within the district have been satisfied with the project; lots of smaller irrigators, therefore, cost increases haven't been impractical
  - Temporary loan was needed due to allowing contractor to purchase materials because of the tight construction window

Installation of rock on dam face, note conveyor (2009).
Photo courtesy of Hydrometrics

Project Status & Results

- The final phase was completed in 2009
- No water storage occurred in 2009 due to drawdown
- 90 day work schedule
- Working inside the wilderness required close coordination with the USFS, additional permitting and environmental analysis
- Have a well thought out plan-of-attack prior to construction to demonstrate project knowledge and means and methods of construction at a remote work site.

View of completed work.
Photo courtesy of Hydrometrics

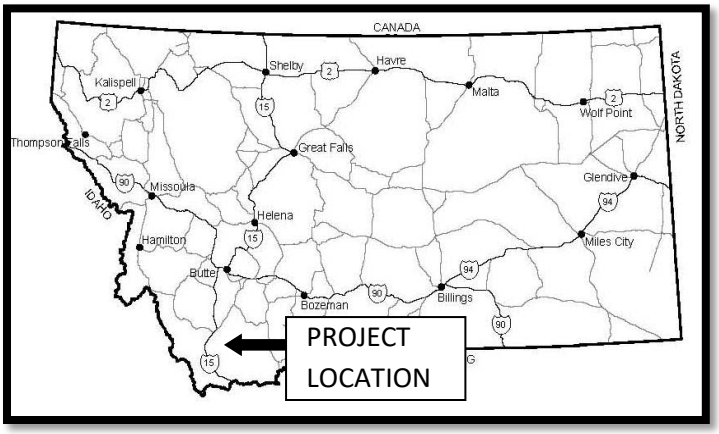
Project Partners

Owner: Mill Creek Irrigation District

Lead Design Engineer: Hydrometrics

Prime Contractor: Land Tech Montana Inc.

RUBY DAM REHABILITATION PHASE 1 & 2 (2011 & 2014)
DNRC



Ruby Dam History

- Earthen embankment dam built in 1938, by State Water Conservation Board
- Dam owned by DNRC, operated and maintained by Ruby Water Users Association since 1938
- Primary purpose(s): Irrigation, recreation, stream flow regulation
- Dam Height: 113 feet
- Dam Storage: 37,642 acre-feet
- Dam Classification: High Hazard

Project History

Past dam inspections noted significant concrete deterioration in the spillway floors, joints and walls. There was the potential for both erosion of the spillway foundation and uplift of the spillway slabs due to seepage. Additionally, the operating gate was prone to cavitation damage and incapable of meeting reservoir evacuation critieria.

A feasibility study to evaluate rehabilitation alternatives was completed in 2007 and funded by the DNRC. After this study and other analyses, specific rehabiltiation efforts were determined. Rehabilitation was accomplished in two phases, due to the large size of the project.

View of Ruby Dam spillway prior to rehabilitation.
Photo courtesy of DNRC

Work Breakdown

Phase 1

- Replacing spillway
- Development of maintenance access road

Phase 2

- New outlet works conduit
- New operating and guard gates
- New gate house

"Roostertails" caused by concrete deterioration.
Photo courtesy of DNRC

RUBY DAM REHABILITATION PHASE 1 & 2 (2011 & 2014)
DNRC

Project Funding

The total cost of the project was **$17.1 Million.** To finance the project, the DNRC used the following programs:

View of completed labyrinth weir spillway & bridge.
Photo courtesy of DNRC

- DNRC RRGL Grant: $100,000
- DNRC RRGL Loans:
  - $4 Million, 15 years @ 4.5%
    - To be repaid by SWP
  - $2 Million, 15 years @ 3.5%
- DNRC RRGL Loan: $2 Million
  - 20 years @ 4.5%
  - To be repaid by Ruby Water Users Association
    - Rate increases were necessary for water users which roughly quadrupled previous rates.
    - Overall, the water users association was pleased with the end result of the project.
- State Funds: $9 Million
  - Only available to SWP owned facilities

Project Status & Results

- Phase 1 of the project began in August of 2010 and was complete in December 2011.
- Phase 2 of the project began in 2013 and was substantially complete in summer of 2014.

View of completed outlet works.
Photo courtesy of DNRC

Project Partners

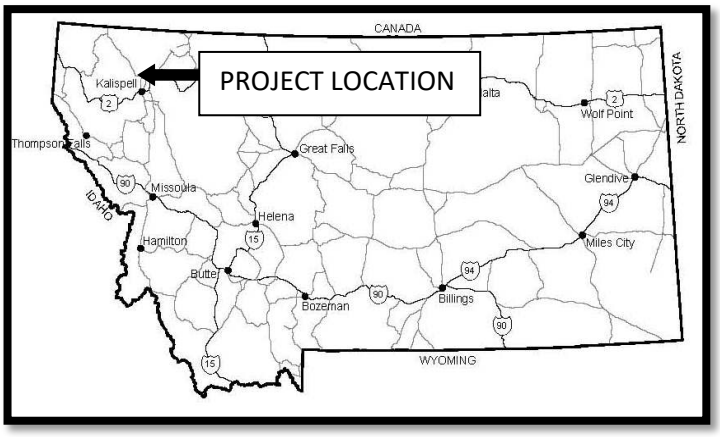
Owner: DNRC

Lead Design Engineer: AECOM (URS)

Prime Contractor: Johnson-Wilson Constructors

Construction Oversight: AECOM (URS), DNRC

SMITH LAKE DAM RECONSTRUCTION (2012)
DNRC



Smith Lake Dam History

- Constructed in 1937 on a natural lake
- FWP rebuilt dam in 1940's, fish were reared for research and stocking programs until late 1960's
- Primary purposes: Recreation, fishing
- Dam Height: 12 feet
- Dam Storage: 125 acre-feet
- Dam Classification: High Hazard

Project History

In 2000, the DNRC classified the Smith Lake dam as "high-hazard" and in 2001, the DNRC completed recommendations of actions to reduce the risk of dam failure. In 2005, the DNRC took action to lower the dam's risk until full rehabilitation could be completed, which included: tree removal, debris removal, cover installation over spillway structure and flashboard removal to lower lake level. In the fall of 2011, the DNRC was awarded two grants that would reconstruct the Smith Lake Dam.

Work Breakdown

- Dewatering of Smith Lake
- Removal of concrete spillway
- Construction of new embankment
- Construction of new rock lined spillway
- Removal of stream diversion structure
- Hydroseeding
- Log boom (debris containment)

Spillway with stop logs (2000).
Photo courtesy of DNRC

SMITH LAKE DAM RECONSTRUCTION (2012)
DNRC

Project Funding

The total cost of the project was **$145,449.** To finance the project, the DNRC used the following grant programs and in-kind work:

- DNRC RRGL Grant: $100,000
  - Grant secured through the RRGL program
- DNRC In-Kind: $22,769
  - DNRC provided in-kind services, largely consisting of rock talus borrow site for spillway construction and construction of the log boom
- Montana FWP Future Fisheries Program: $22,680
  - Future Fisheries participated in this project because it allowed the lake to return to full pool, which assisted in the cutthroat trout fishery habitat
- Trout Unlimited assisted in trout stocking efforts after construction was complete

Drawdown of Smith Lake (2012).
Photo courtesy of DNRC

Project Status & Results

- Project successfully completed in 2012.

Project Partners

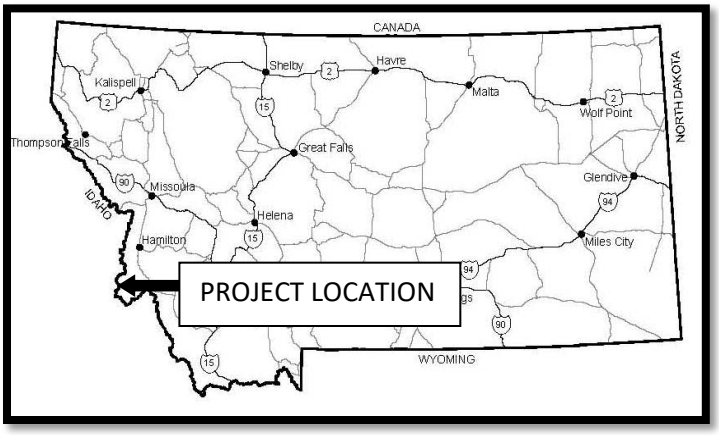
Owner: DNRC

Engineer: Allied Engineering Services, Inc.

Contractor: Glacier Excavating Inc.

View of rock lined spillway and new embankment (2012).
Photo courtesy of DNRC

TIN CUP DAM REPAIRS (2011)
TIN CUP COUNTY WATER AND SEWER DISTRICT (TCCWSD)



Tin Cup Dam History

- Earth and rock embankment dam built in 1906
- Dam located in Selway-Bitterroot Wilderness
- Primary purposes: Irrigation, fishing
- Dam Height: 25 feet
- Dam Storage: 911 acre-feet
- Dam Classification: High Hazard

Project History

View of Tin Cup Lake.
Photo courtesy of Clark Fork Coalition

Since original construction, the dam has had numerous rehabiliation and repair projects. In 1932, the dam was raised to 25 feet from the original 20 foot construction height. In 1998, excessive seepage near the outlet pipe prompted the County to declare a state of emergency, which resulted in dam crest and spillway modifications. In July of 2003, an overtopping event occurred in a notched section of the dam and a sinkhole developed. Analysis of the dam spillway indicated that the spillway was not able to evacuate water efficiently enough to prevent overtopping. In August of 2003, TCCWSD's decided to complete emergency stabilization, which consisted of breach repair. In 2009, a satellite control outlet gate was installed. In around 2006, TCCWSD made the decision to perform substantial repairs to the dam to restore storage capacity, increase spillway capacity, rehabilitate the earth embankment and bring the dam up to current safety standards. Through a period of 4 years, partnerships were acquired and funding sources were obtained. The Clark Fork Coalition was the primary project partner for securing funding resources for the dam imrpvoements.

Work Breakdown

- Rock removal & stockpile
- Slope stabilization
- Impermeable liner & geotextile fabric installation
- Rock installation
- Spillway modifications
    - Concrete footing, concrete wall and outlet works

TIN CUP DAM REPAIRS (2011)
TIN CUP COUNTY WATER AND SEWER DISTRICT (TCCWSD)

Project Funding

The total cost of the project was **$400,000.** To finance the project, the TCCWSD utilized the following funding programs:

- Columbia Basin Water Transactions Program (CBWTP): $300,000
    - CBWTP provides assistance to the Columbia Watershed basin for streams that harbor chronic low flows which limit fish survivability. They purchased 400–acre-feet of stored water in the lake for 99 years to ensure year round in-stream flow in Tin Cup Creek, which went towards the dam repairs.
- MT FWP Future Fisheries Grant: $100,000
    - Provided grant funding to assist in dam rehabilitation to ensure year round in-stream flow in Tin Cup Creek, as part of the FWP's long term plan of restoring and enhancing fisheries habitats that have been degraded.
- Clark Fork Coalition acted as agent on the project
- TCCWSD in-kind work included salaries

Project Status & Results

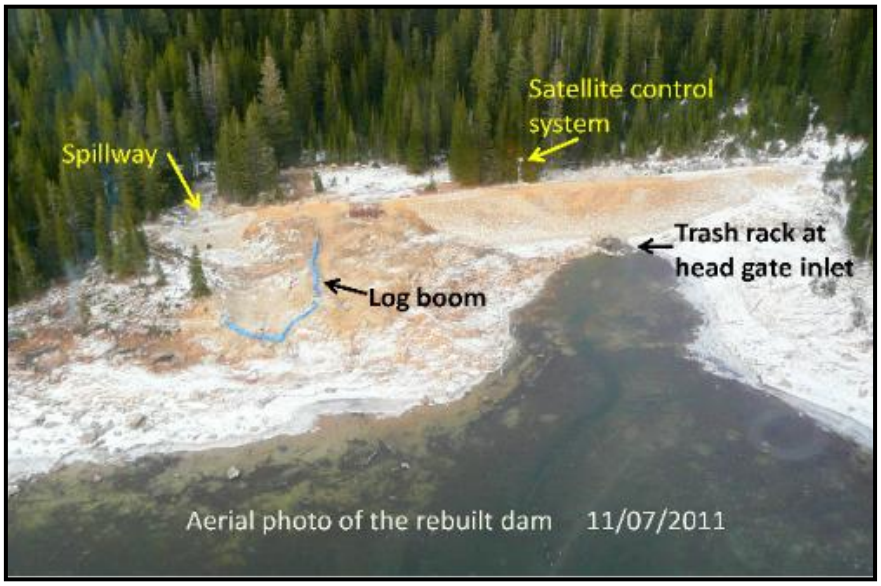
- Construction began in August of 2011 and was completed in November 2011.
- Accelerated work schedule due to extreme weather conditions
- Working inside the wilderness required close coordination with the USFS, additional permitting and environmental analysis, especially with proposed helicopter use
- All interests need to be on board and public support is very important
- Have a well thought out plan-of-attack prior to construction to demonstrate project knowledge and means and methods of construction at a remote work site

Project Partners

Owner: Tin Cup Water and Sewer District

Design Engineer: Hydrometrics

Prime Contractor: Patterson Enterprises

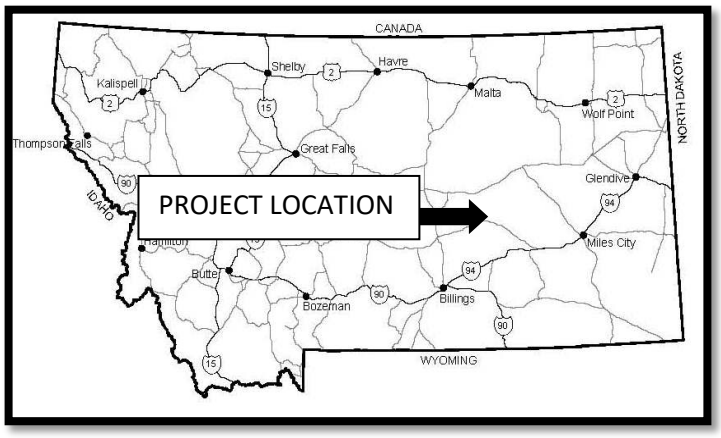


View of completed rebuild (2011).
Photo courtesy of TCCWSD

CASE STUDIES: CANALS

DELPHIA CANAL INVERTED SIPHON (2012)
DELPHIA-MELSTONE WATER USERS ASSOCIATION (DMWUA)

Delphia-Melstone Water Users Association History



- Infrastructure completed in 1952 and funded by the Montana State Water Conservation Board
- DMWUA formed in 1995 when ownership was transferred from DNRC
- Primary purpose: Irrigation
- Acres Irrigated: 6,085
- Number of users: 52
- Primary Diversion Point: Two diversions on the Musselshell River, with storage from Deadmans Basin Reservoir

Musselshell River flood event at aerial span (2011).
Photo courtesy of DMWUA

Project History

In 2011, the Musselshell River experienced a significant flooding event, which damaged numerous ditches and irrigation structures operated by the DMWUA. Of these damaged structures, the largest and most technically challenging, the Delphia Canal Long Span Pipe over the Musselshell River, was put on hold for repairs until 2012, so funding and proper design could be established. The damage to the Long-Span Pipe included pier damage, pipe failure and outlet transition structure loss.

The Long-Span Pipe was originally constructed in the 1950's and consisted of a 150 foot aerial pipe span with a 30-inch diameter pipe. The pipe was supported by numerous support piers. Prior to the 2011 flooding event, the aerial span had significant damage on numerous occasions, including damage that resulted in a full rebuild.

The preferred replacement structure was identified as an inverted siphon, due to the historic issues with an aerial span at the project location. Some challenges were present at the project site, including shallow bedrock and proximity to a private irrigation dam. The new siphon utilized an HDPE pipe with new concrete transition structures.

Work Breakdown

- Removal of existing aerial span
- New HDPE Siphon
- Associated concrete siphon transition structures

Aerial span damage during 2011 floods.
Photo courtesy of DOWL

DELPHIA CANAL INVERTED SIPHON (2012)
DELPHIA-MELSTONE WATER USERS ASSOCIATION (DMWUA)

Project Funding

The total cost of the project was **$299,151.** To finance the project, the DMWUA used the following grant and loan programs:

- DNRC RRGL Grant - $100,000
  - Redirected RRGL Grant that was utilized due to flooding damage and importance of critical irrigation infrastructure
- USDA Rural Development Loan - $150,936
- USDA NRCS Cost Share - $48,215
  - Cash contribution specifically dedicated to concrete and transition structures

Installation of fused HDPE Siphon under Musselshell River. Photo courtesy of DOWL

Project Status & Results

- Project successfully completed in 2012
- Replacement of the aerial span with a siphon has ensured irrigation system functionality, even in high flow events
- Project was a team effort; landowner allowed access for borrow source and upstream dam owner cooperated during construction

Project Partners

Owner: Delphia-Melstone Water Users Association

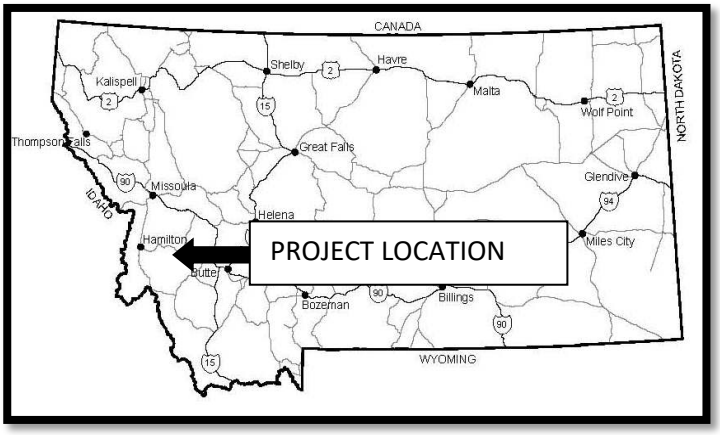
Engineer: DOWL

Contractor: Western Municipal Construction, Inc.

Construction Oversight: DOWL

Completed view of siphon location. Photo courtesy of DOWL

EAST FORK ROCK CREEK DIVERSION & FISH SCREEN (2014)
DNRC



Flint Creek Water Project (FCWP) History

- Infrastructure completed in 1939, owned by DNRC
- Services Flint Creek Water Users, 44 ranches
- Project consists of 16,000 acre reservoir and five canals, at 46.6 miles in length
- Reservoir & portion of canal built on federal lands, operate by means of special use permit
- Primary purpose: Irrigation, recreation, fishing
- Primary Diversion Point: East Fork Rock Creek

Project History

The construction of a fish screen at the canal intake on the East Fork of Rock Creek was a requirement of the US Forest Service as a condition of the original Special User Permit, which was issued in 1936. However, no fish screen was ever built at the site, and no documentation exists indicating why the structure was never built. Since then, the listing of Bull Trout as a threatened species has increased the urgency of the installation of a screen, as the USFS and USFWS have told the DNRC that they must comply with the special use permit. In 2003, the DNRC was again told of its obligation to provide a fish screen, which the DNRC agreed to. This siphon project was completed in 2009. Since completion, DNRC focused on taking action on the incorporation of the fish screen on the system, with preliminary engineering and alternatives analysis beginning in 2010.

Existing diversion prior to construction (2013).
Photo courtesy of DNRC

The purposes of the project are as follows:

- Prevent fish entrainment in canals
- Increase flows to dewatered section of East Fork of Rock Creek by ensuring minimum of 5 cfs of flow
- Develop more angling opportunities (by keeping fish in the system)
- Fullfill the obligation to the USFS (and consequently, ensure the special use permit stays validated)

Work Breakdown

- Construction of new concrete diversion
- New vertical panel fish screen
- Flow measuring device

EAST FORK ROCK CREEK DIVERSION & FISH SCREEN (2014)
DNRC

Project Funding

The total cost of the project was **$1,482,947.** To finance the project, the DNRC used the following sources:

- DNR RRGL Grant: $100,000
- DNRC –CRDD Grant: $15,000
- DNRC In-Kind: $91,447
  - DNRC staff salaries & benefits
  - DNRC contracted professional Services
- FWP Future Fisheries: $100,000
  - Provided funding assistance because project reduces fish entrainment, provides in-stream flow and better fishing opportunities
- MT DOJ NRDP Grants (1-2): $587,500
  - NRDP funding is only available for projects in "injured areas" within the Upper Clark Fork River Basin. No grant program currently exists, though funding assistance is still available.
- USFWS Fisheries Restoration and Irrigation Mitigation Act (FRIMA) Grants (1-2): $589,000
  - Provides funding for fish screen installation and diversion dam projects located in the Columbia Basin. Funding is no longer allocated through the grant program.

Installation of footing and wall for diversion (November 2013). Photo courtesy of DNRC

Diversion & fish screen (January 2014). Photo courtesy of DNRC

Project Status & Results

- Project began in September of 2013 and was substantially complete in 2014

Operational vertical panel fish screen (2014). Photo courtesy of DNRC

Project Partners

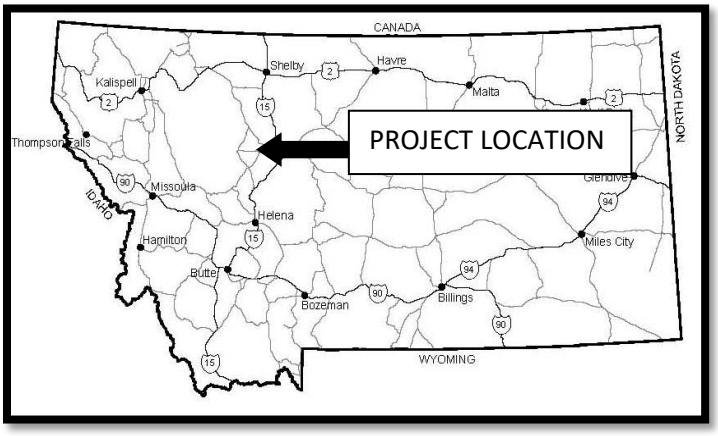
Owner: DNRC

Engineer: GHD, Inc.

Contractor: Patterson Enterprises, Inc.

IMPROVING FORT SHAW IRRIGATION DISTRICT WATER EFFICIENCY (2014)

FORT SHAW IRRIGATION DISTRICT (FSID)



Fort Shaw Irrigation District History

- Infrastructure largely built in 1907-1908 as a component of the Fort Shaw Division of the Sun River Project, Bureau of Reclamation (USBR)
- Primary purpose: Irrigation
- Acres Irrigated: 10,000 (approx.)
- Number of users: 177 (approx.)
- Total Diversion: 225 cfs (approx.) from Fort Shaw Diversion Dam
- Primary Diversion Point: Sun River

Project History

In 1982, the USBR reviewed the FSID's infrastructure status and determined many areas of repair that were necessary to increase efficiencies. In particular, the USBR report explained, seepage loss and project inefficiencies have rendered the canal in the district to have 46% efficiency. This loss was apparent in the boggy areas and high salinity areas. However, due to size of district, low net crop return and limited funding, improvements to efficiencies and infrastructure had been minimal since the 1982 review.

This project upgraded the most antiquated and inefficient delivery systems while improving in-stream flows in the Sun River. The water savings resulted in an additional 12 cfs for summer Sun River flows. This project was accomplished by piping and canal lining.

Prepping canal for lining.
Photo courtesy of FSID

Work Breakdown

- Lining 2000 feet of canal
- Installing 2310 feet of PVC Pipe

IMPROVING FORT SHAW IRRIGATION DISTRICT WATER EFFICIENCY (2014)

FORT SHAW IRRIGATION DISTRICT (FSID)

Project Funding

The total cost of the project was **$781,000.** To finance the project, the FSID used the following grant and loan programs:

Installation of new pipe & infrastructure.
Photo courtesy of FSID

- USBR Watersmart Grant: $300,000
  - Competitive grant program with grants up to $300,000
- USBR In-Kind: $9,000
- DNRC RRGL Grant: $100,000
- Sun River Watershed Group In-Kind: $20,000
  - Sun River Watershed Group provided assistance with grants and management
- Coco-Cola Foundation Grant: $52,000
  - Grant due to water conservation from the project
- FSID In-kind and costs: $300,000
  - Rates to users were raised, not because of the project, but because of general needs

Project Status & Results

- Project completed in April 2014. Some weather delays and construction material delays.
- Project reduced burden of O&M on FSID due to time and resources to maintain old system and FSID is better able to utilize limited water to meet user needs.
- Grants were the only feasible way the project could be accomplished by the District

Project Partners

Owner: Fort Shaw Irrigation District

Engineer: TD&H Engineering

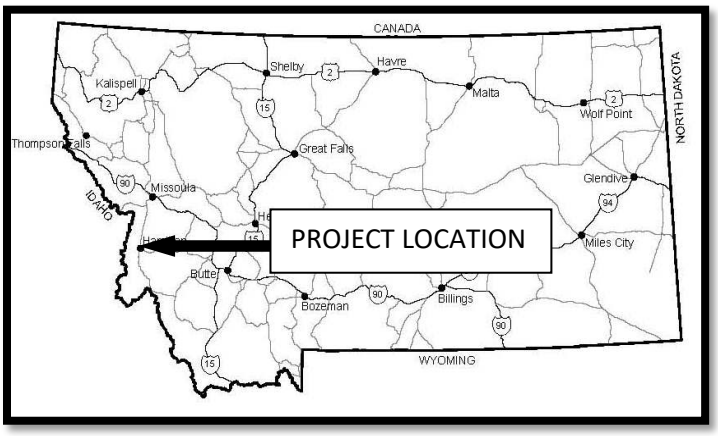
Contractor: Bolen Construction

Secondary: FSID Crews

Construction Oversight: TD&H Engineering, FSID

Installation of new pipe.
Photo courtesy of FSID

HEDGE CANAL DIVERSION DAM PROJECT, PHASE I & II (2011)
DALY DITCHES IRRIGATION DISTRICT



Daly Ditches Irrigation District History

- Infrastructure built in late 1880's by private entity
- Daly Ditches Irrigation District (DDID) founded in 1982
- Primary purpose: Irrigation
- Acres Irrigated: 6,108
- Number of users: 778
- Total Diversion (cfs): 140 from Hedge Dam
- Primary Diversion Point: Bitterroot River

Project History

The Hedge Canal Diversion Dam was originally constructed in 1908 and was a low head timber crib dam located on the Bitterroot River, 6 miles north of Darby. The structure was 320 feet long, 16 wide and has an estimated 3' drop. The structure had been exhibiting significant issues since the mid-1980's and had been shifting downstream significantly. Additional problems included weakening of the canal bank, river bank erosion and high turbidity. Replacement of the structure was identified as a priority project to secure water to users and mitigate fish entrainment. These issues resulted in constant maintenance by DDID crews over the past decade. This diversion dam provides water to 41% of district water users.

Pre-project photo of dam (2007).
Photo courtesy of DDID

Work Breakdown

Phase I

- Construction of a new low head dam (tightly grouted rock)
- Diversion apron
- Concrete abutment wall and grout cut-off wall
- Canal intake structure (with headgates and trash rack)

Phase II

- Boater notch
- Fish screen installation

Construction of grouted rock dam (2010).
Photo property of H. Janssen

HEDGE CANAL DIVERSION DAM PROJECT, PHASE I & II (2011)
DALY DITCHES IRRIGATION DISTRICT

Project Funding

The total cost of the project (both phases) was **$1,275,670.31.** To finance the project, the DDID used the following grant and loan programs:

Post Phase I: Hedge Canal Dam (2010)
Photo property of H. Janssen

- US Army Corps of Engineers: $431,500
  - Bi-annual appropriations from the Montana Legislature in the form of ACOE O&M Supplement
- American Reinvestment and Recovery Act (ARRA): $290,000
  - DDID secured a one-time allocation through the ARRA funding.
- DNRC RRGL Grant: $100,000
- Montana FWP Future Fisheries Program: $98,000
  - Future Fisheries participated in this project due to the incorporation of a fish screen to prevent fish entrainment in the ditch.
- DNRC RRGL Loan: $350,000
  - The remaining funding was secured through a loan from the DNRC. No DDID user rate increases were necessary to cover the cost of the loan repayment.
- DDID in-kind work: $6,170.30

Project Status & Results

- Project (Phase I) completed in 2010.
- Phase II completed in 2011 and was the construction of a boater passage notch and vertical plate fish screen

Project Partners

Owner: Daly Ditches Irrigation District

Engineer: Morrison-Maierle, Inc.

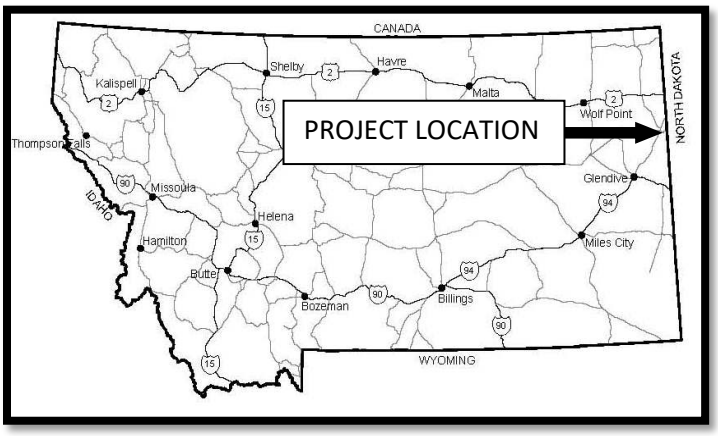
Contractor: Patterson Enterprises

Construction Oversight: DDID, Morrison-Maierle, USACE

Post Phase II: Hedge Canal Fish Screen.
Photo courtesy of Morrson-Maierle, Inc.

INCREASING IRRIGATION EFFICIENCY (2013)
SIDNEY WATER USERS IRRIGATION DISTRICT (SWUID)

Sidney Water Users Irrigation District History



- Infrastructure completed in 1938 as the Sidney Water Users Association Irrigation Project by the Montana Water Resources Board
- Sidney Water Users Irrigation District formed in 1995 after DNRC transferred ownership
- Primary purpose: Irrigation
- Acres Irrigated: 4,753
- Total Diversion (cfs): 133 (approx.)
- Primary Diversion Point: Yellowstone River

Project History

Since inception, repairs and replacements have been conducted within the system. In 1969, with assistance from the USDA Soil Conservation Service, improvements to intakes, expansion of canal systems and floodwater structures were completed over a five year period. Minimal large scale improvements were completed again until 2002, when the SWUID received a DNRC RRGL Grant, for Phase 1, which improved water delivery for Districts 1 and 2. The NRCS also assisted in development of alternatives and design. From 2006 to 2009 improvements were conducted, primarily with SWUID equipment. A second RRGL Grant was obtained to assist with Phase 2 improvements. In 2009, the SWUID determined to continue improvements to the system and Phase 3 was implemented, which largely had to do with inefficient earth lined canals and seepage issues.

This project upgraded many antiquated and inefficient delivery systems while improving in-stream flows in the Yellowstone River.

Work Breakdown

- Construction of two sections of PVC pipeline totaling 3.1 miles and the removal of inefficient earth lined canals.

Canal section prone to seepage prior to construction.
Photo courtesy of SWUID

INCREASING IRRIGATION EFFICIENCY (2013)
SIDNEY WATER USERS IRRIGATION DISTRICT (SWUID)

Project Funding

The total cost of the project was **$594,585.** To finance the project, the SWUID used the following grant and loan programs:

- USBR Watersmart & Energy Efficiency Grant: $297,292
  - Typically provides funding assistance up to $300,000
- DNRC RRGL: $200,000
  - Two grants at $100,000 secured for the project due to difference phases and components of projects
- SWUID Cash Match: $97,293
- NRCS: Technical Assistance
  - Engineering, drafting, and construction compliance
  - Not included in total project cost

Installation of PVC pipeline.
Photo courtesy of SWUID

Project Status & Results

- Project began in 2011 with final completion in spring of 2013
- Addressed significant canal leakage and water conservation issues

Project Partners

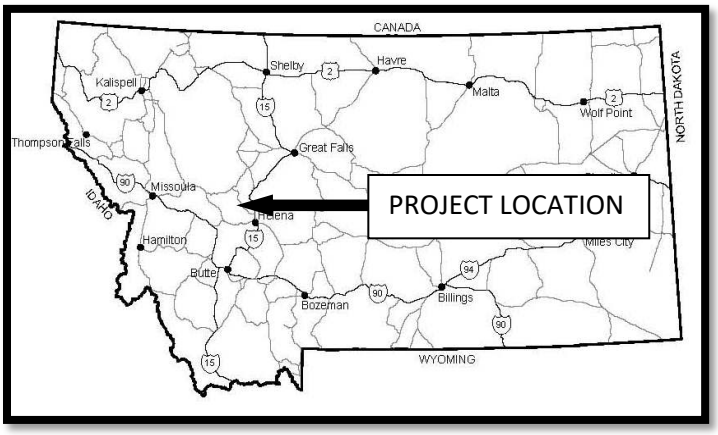
Owner: Sidney Water Users Irrigation District

Engineer: NRCS

Contractor: SWUID equipment and labor

View of completed pipeline location.
Photo courtesy of SWUID

LITTLE PRICKLY PEAR CREEK IRRIGATION IMROVEMENTS (2006)
WIRTH RANCH



Wirth Ranch History

- Five headgates located on property
- Acres Irrigated: 76 acres (hay)
- Current Diversion: 0.75 cfs from Little Prickly Pear Creek

Project History

The Wirth Ranch had been using flood irrigation to service their hayfield for the last 50 years, with typical use of 3-6 cfs from a diversion located on Little Prickly Pear Creek. The landowner realized that the existing flood irrigation to their hayfield was better serviced with sprinkler irrigation, from a conservation and longevity standpoint. The Wirth Ranch decided to approach numerous funding agencies for assistance. The result was successful grant funding and the reduction of the diversion of Little Prickly Pear Creek to 0.75 cfs.

Work Breakdown

- New pipe
- New reel sprinkler
- New pump, motor, fuel pump and fuel tank

View of installed sprinkler.
Photo courtesy of Zach Wirth

LITTLE PRICKLY PEAR CREEK IRRIGATION IMROVEMENTS (2006)
WIRTH RANCH

Project Funding

The total cost of the project was **$119,040.** To finance the project, the Wirth Ranch used the following grant and loan programs:

- NRCS EQIP Grant: $76,062
  - The EQIP Grant provides monies to agricultural producers in an effort to promote agricultural production and environmental quality.
- Montana FWP Future Fisheries Grant: $15,000
  - Future fisheries participated in this project due to the reduction in irrigation water utilized and elimination of fish entrainment into the irrigation system.
- PPL Montana Community Fund: $5,000
  - Provided due to the stewardship to the environment
- Wirth Ranch: $15,250
  - In-kind work for excavation, backfill and pump house
- Other: $7,728
  - Cash contribution from Wirth Ranch

Little Prickly Pear Creek in project vicinity.
Photo courtesy of Zach Wirth

Project Status & Results

- Project successfully completed in 2006.
- Project largely maintenance free and has been a success. Wirth Ranch has noticed an increase in stream water quality.
- Would have liked to use electric pump, but not feasible at the site. Started using diesel and switched to vegetable oil.

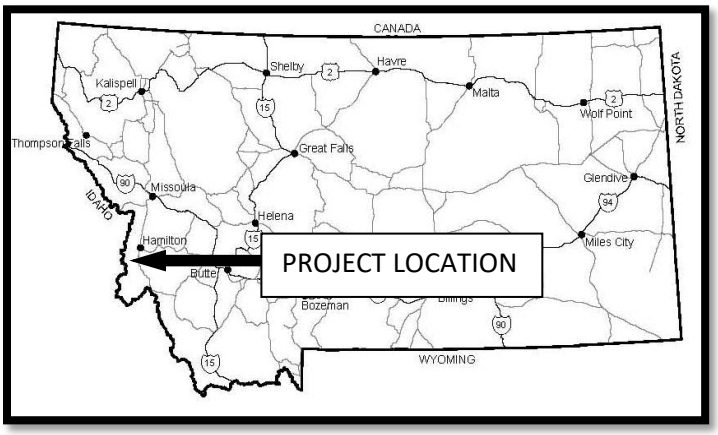
View of installed sprinkler.
Photo courtesy of Zach Wirth.

Project Partners

Owner/Contractor: Wirth Ranch

Engineering Assistance: NRCS

LOST HORSE CREEK SIPHON (2014)
WARD IRRIGATION DISTRICT



Ward Irrigation District History

- Construction began in 1903 with Ward Ditch
- Ward Irrigation District formed in 1938
- Primary purpose: Irrigation
- Acres Irrigated: 1000 (approx.)
- Number of users: 100 (approx.)
- Primary Diversion Points: Bitterroot River & Lost Horse Creek

Project History

The Ward Canal crossing of Lost Horse Creek has been a significant issue for decades. Every year, a gravel push up dam was installed by the District to allow Ward Ditch to cross Lost Horse Creek. This creates a significant disconnect from Lost Horse Creek to the Bitterroot River. Additionally, water between the canal and the creek would mix, creating issues with fish entrainment into the ditch, of which, one study reported approximately 7000 fish per year from Lost Horse Creek were entrained into Ward Canal. Other considerable issues related to the crossing included sedimentation and fish passage. After numerous preliminary alternatives were explored, it was determined that the most effective solution for the site was the installation of a siphon creating a low impact and effective crossing of Lost Horse Creek. This project improved irrigation efficiency, separated canal water from Lost Horse Creek, enhanced upstream fish passage and reduced fish entrainment into the ditch system.

Work Breakdown

- Construction of a new HDPE siphon
- New railway undercrossing
- Concrete inlet and outlet siphon structures
- Canal improvements
- Monitoring wells

View of site demolition (October 2014).
Photo courtesy of Clark Fork Coalition

View of siphon installation (October 2014).
Photo courtesy of Clark Fork Coalition

LOST HORSE CREEK SIPHON (2014)
WARD IRRIGATION DISTRICT

Project Funding

The total cost of the project was **$313,500.** To finance the project, the WID used numerous funding agencies. The WID and the engineering consultant secured the RRGL Grant. The other funding mechanisms were largely secured with assistance from the Clark Fork Coalition.

- MT DEQ 319 Contract: $106,000
    - Provides funding assistance for projects who are impacted by non-point source pollution, which in this project, was from the high turbidity from the push up dam.
- MT DNRC RRGL Grant: $100,000
- Montana FWP Future Fisheries: $93,500
    - Future Fisheries participated in the project because it would eliminate the presence of a seasonal migration barrier, reduce fish entrainment and increase return flows to the Bitterroot River
- Western Native Trout Initiative Grant: $10,000
    - Provided funding because the project assisted Westslope Cutthroat and Bull Trout by increasing connectivity of the watershed, restoring habitat and removing the existing barrier and providing upstream passage
- Clark Fork Coalition (CFC) In-Kind: $4,000
    - Included writing grants, construction oversight.

View of canal bank improvements (March 2015).
Photo courtesy of Clark Fork Coalition

Project Status & Results

- Project successfully completed in 2014
- Low project bid was higher than available funding. CFC secured additional funding.

View of siphon post-installation (April 2015).
Photo courtesy of Clark Fork Coalition

Project Partners

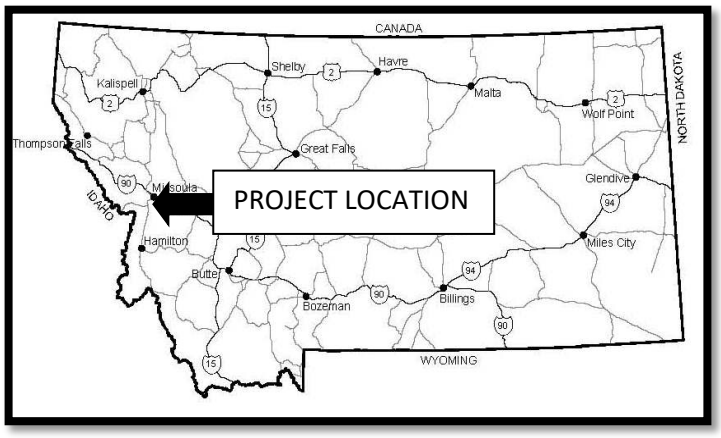
Owner: Ward Irrigation District

Engineer: Morrison-Maierle

Contractor: Specialty Excavating

Construction Oversight: Morrison-Maierle, CFC

ORCHARD HOMES DITCH INTAKE IMPROVEMENTS (2012)
ORCHARD HOMES DITCH COMPANY (OHDC)



Orchard Homes Ditch Company History

- Infrastructure largely completed in early 1900's
- Primary purpose: Irrigation
- Acres Irrigated: 200
- Total Diversion: 7 cfs
- Primary Diversion Point: Clark Fork River

Project History

Since its initial construction almost a century ago, the Orchard Home Ditch Company infrastructure has serviced several hundred users within the Missoula Valley, primarily urban irrigators growing produce. The OHDC also provides water to the Missoula Parks and Recreation Department for use in City Parks and Silvers Lagoon.

The existing intake structure located on the Clark Fork River was over 60 years old and in dire need of numerous improvements, to ensure adequate water delivery to its users. The intake structure exhibited poor slide gate functionality and sealing, debris and sediment issues (requiring constant maintenance), poor concrete quality and return channel weir initial design problems.

After looking at project alternatives, it was decided that numerous improvements were necessary to the intake. These improvements will ensure water delivery to users and will increase the quality management of the infrastructure.

Work Breakdown

- Headgate replacement (slide gates)
- Flow gage
- Intake diversion
- Log grate

View of completed slide gates (2014).
Photo courtesy of Morrison-Maierle

ORCHARD HOMES DITCH INTAKE IMPROVEMENTS (2012)
ORCHARD HOMES DITCH COMPANY (OHDC)

Project Funding

The total cost of the project was **$119,000.** To finance the project, Orchard Homes Ditch Company used the following funding sources:

- DNRC RRGL Grant: $100,000
    - Missoula Conservation District applied on behalf of the Company for the RRG grant, due to their status as a company.
- DNRC IDG Grant: $12,000
    - Grant available to private infrastructure work
- Private Irrigation Grant: $5,000
- Orchard Homes Ditch Company:
    - $2,000 cash
    - Project management (not quantified)

Project Status & Results

- Project successfully completed in 2014
- The diversion is adjustable and requires maintenance to account for flow variation and log placement
- Project ensures water delivery and subsequent benefits including access to local produce, urban agricultural and natural resource benefits from recreation in city parks and lagoons.

Project Partners

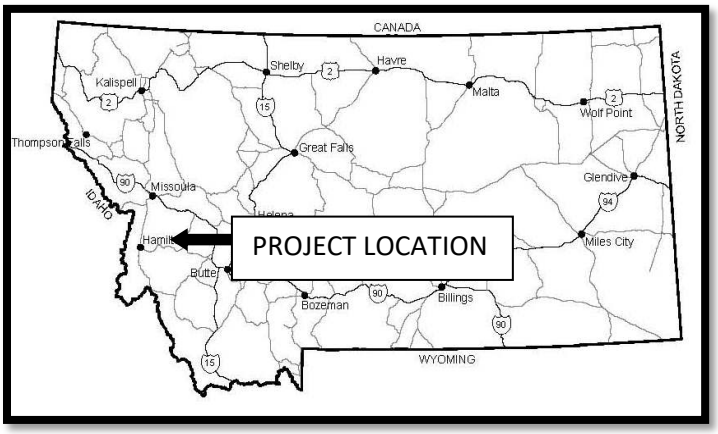
Owner: Orchard Homes Ditch Company

Engineer: Morrison-Maierle, Inc.

Contractor: Patterson Enterprises, Inc.

View of completed intake project (2014).
Photo courtesy of Morrison-Maierle

STONY CREEK DIVERSION & FISH SCREEN (2014)
TROUT UNLIMITED (ON BEHALF OF TONY MARLETTO)



Project History

The Marletto Ranch had been using flood irrigation to service their hayfields adjacent to Rock Creek, with maximum use of 6 cfs from a diversion located on Stony Creek servicing their canal. The landowner had been having to perform yearly in-stream maintenance with the concrete eco-block diversion to ensure water deliverability to the canal and was also concerned with fish getting stranded in his canal system. A study in 2009 found significant numbers of cutthroat trout and brown trout entrained in the ditch downstream of the headgate. Trout Unlimited became involved in the project and spearheaded coordination efforts between participating agencies and facilitated grant administration. As the actual diversion point is located on Forest Service lands, significant coordination occurred with the Forest Service. After soliciting an engineer and going through the conceptual design process, the recommended alternative was the incorporation of a new fish-friendly rock diversion, new fish screen and outlet return and headgate improvements.

Work Breakdown

- New rock irrigation diversion
- Remove and reset culvert & headgate
- New timber headwall
- New fish screen, approach flume and return flume installation
- New fish return pipe

Diversion/headgate prior to replacement (May 2014). Photo courtesy of Great West Engineering, Inc.

New rock diversion construction (Fall 2014). Photo courtesy of Farmers Conservation Alliance

STONY CREEK DIVERSION & FISH SCREEN (2014)
TROUT UNLIMITED (ON BEHALF OF TONY MARLETTO)

Project Funding

The total cost of the project was **$48,813.** To finance the project, the landowner and Trout Unlimited used the following grants and funding sources:

Fish screen and return installation (Fall 2014).
Photo courtesy of Farmers Conservation Alliance

- Montana FWP Future Fisheries: $23,774
  - Future fisheries participated in this project due to the elimination of fish entrainment into the irrigation system and to promote upstream fish passage
- Trout Unlimited In-kind & cash: $5,039
  - Facilitated grant coordination, permitting, engineer coordination, bidding and construction CM
- USFWS FRIMA Grant: $10,000
  - FRIMA provided funding due to the location (west of the Continental Divide), the reduction in native fish entrainment, because the project demonstrates at least 35% of total cost is from funding sources other than FRIMA and that the Stony Creek watershed is part of a basin recovery plan. FRIMA Grant funding no longer available to new grant applications.
- Private Landowner: $10,000
  - Cash contribution from Tony Marletto

Project Status & Results

- Project successfully completed in November of 2014.
- Project has been low maintenance and provided landowner with dependable means of water conveyance.

Operational fish screen (Fall 2014).
Photo courtesy of Farmers Conservation Alliance

Project Partners

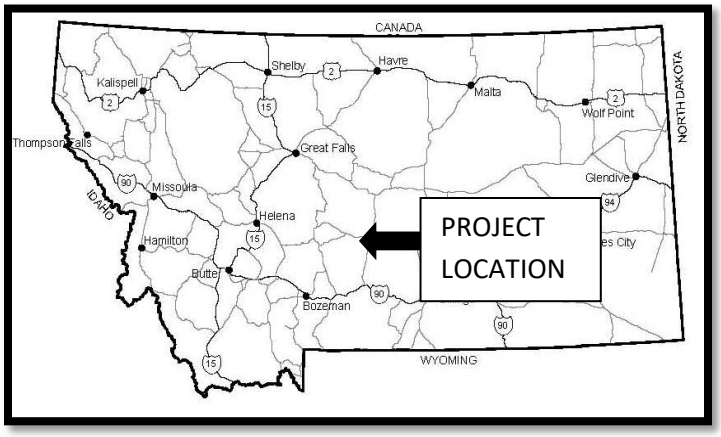
Owner: Tony Marletto

Engineering: Great West Engineering, Inc.

Contractor: Groomes Excavating, Inc.

TWO DOT CANAL REHABILITATION PROJECT (2010)
DNRC

Upper Musselshell Water Project (UMWP) History



- Infrastructure completed in 1939 by federal WPA And State of Montana Water Conservation Board
- Currently owned by DNRC and operated by Upper Musselshell Water Users Association (UMWUA)
- Project consists of three dams, two reservoirs with total of 30,134 acre-feet of storage and five canals at 52 miles in total length
- Primary purpose: Irrigation
- Number of users: 22 ranches
- Acres Irrigated: 30,658
- Primary Diversion Point: Musselshell River

Project History

The 32-mile long Two Dot Canal located west of Two Dot has had significant deterioration issues related to original design and substandard repairs and has required significant rehabilitation. The UMWU have also noted that considerable amounts of seepage loss existed through many sections of the canal and water shortages were problematic. In 2007, a highway patrolman observed sloughing on a hillside below the canal, in the vicinity of Highway 12 near Two Dot. This sloughing was likely propagated by the excessive canal seepage. Failure of this canal section could cause damage to US Highway 12, private property and created a significant risk to the traveling public. The DNRC and the UMWUA understood that this unstable section of canal and associated seepage areas create a significant hazard and should be remedied. The DNRC investigated numerous alternatives for liners and concluded that an EPDM liner was the most effective solution.

Sloughing near Highway 12 (2007).
Photo courtesy of DNRC

Work Breakdown

- Approximately 1800 linear feet of EPDM canal liner was installed in the Two Dot canal prism above US Highway 12

TWO DOT CANAL REHABILITATION PROJECT (2010)
DNRC

Project Funding

The total cost of the project was **$118,511.** To finance the project, the DNRC used the following sources:

- DNR RRGL Grant: $100,000
  - Grant secured through the RRGL program.
- DNRC In-Kind: $18,511
  - DNRC staff salaries & benefits

Project Status & Results

- Project was completed in 2010

View of regrading work (April 2010).
Photo courtesy of DNRC

Project Partners

Owner: DNRC

Engineer: DNRC staff

Contractor: Glacier Excavating, Inc.

View of liner installation (April 2010).
Photo courtesy of DNRC

FUNDING SOURCES

A wide variety of funding sources are utilized for major dam and canal improvements throughout the state including grants, loans and contracts. Other sources of funding for large projects often include in-kind work by the applicant and standard loans through banks. There are also a few funding opportunities that are restricted to DNRC owned dams, which include: Montana Water Storage Special Revenue Account and Hydropower Account funds. The following list, while comprehensive, is not all-inclusive, as new or lightly publicized funding entities appear frequently.

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Renewable Resource Project Planning Grants

History
This grant and loan program was established by the Montana Legislature to enhance renewable resources in the State.

Purpose & Applicant Type
The intent of the program is to provide funding to governmental entities for professional and technical services necessary to produce a high quality RRGL grant application which leads to a project that conserves, manages, develops, or protects Montana's renewable resources.

Eligible applicants include any division of state government, tribal government, or other county, city, or local political subdivision. These governmental entities include cities, towns, counties, conservation districts, irrigation districts, water and sewer districts, joint boards of control, and state agencies.

Funding Usage & Match Requirements
Funds may be used, according to the Montana Code Annotated, for:

- feasibility, design, research, and resource assessment studies

No funding match is required for governmental entities.

Project Eligibility
Project types eligible for funding:

- Contracted technical services necessary to produce or update a preliminary engineering report (PER) that meets the requirements of the Uniform Application or meets the requirements of Step 4 Technical Narrative of the RRGL application.
- Other resource contracted services such as capital improvement plans (CIP), growth plans, sample collections, surveys, studies, and other activities that lead to an RRGL application.

Applications & Ranking Procedure
The legislature decides on the total amount of funds available each biennium. Application funding is dependent upon revenue received. The first funding cycle typically opens in July of odd numbered years. Subsequent funding cycles will be decided and awarded at the programs discretion.

Applications will be reviewed and competitively ranked based on the renewable resource benefits of the proposed project. The proposed project must conserve, manage, develop or preserve/protect Montana's renewable resources.

Grant & Loan Administration
Upon award, the applicant is required to enter into a grant agreement with DNRC which stipulates funding requirements. No funding will be approved for costs incurred prior to agreement.

Contact Information:
Lindsay Volpe – DNRC Program Manager
1539 Eleventh Avenue
Helena, MT 59620
Telephone: (406) 444-9766
Email: lmvolpe@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/renewable-resource-grant-program

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Renewable Resource Grant and Loans Program (RRGL)

History
This grant and loan program was established by the Montana Legislature to enhance renewable resources in the State. The program is primarily funded by natural resource based taxes.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to enhance the well being of Montanans through the conservation, management of preservation of a targeted renewable resource. Typical projects include water conservation, water for public, domestic, stock or other beneficial uses, water quality, forestry, air quality, resource education and waste management.

The funding is available for governmental entities. These entities include cities, towns, counties, county conservation districts, water and sewer districts, irrigation districts, joint boards of control and state agencies.

Funding Usage & Match Requirements
Funds may be used, according to the Montana Code Annotated, for:

- feasibility, design, research, and resource assessment studies
- preparation of construction, rehabilitation, or production plans
- construction, rehabilitation, production, education or other implementation efforts

No funding match is required for governmental entities. However, if the applicant is applying on behalf of a private entity, a 25% match of the grant will be required.

Project Eligibility
Projects must meet the following requirements:

- Result in resource and citizen benefits
- Be financially and technically feasible
- Have no significant environmental impacts
- Have an adequate project management plan

Applications & Ranking Procedure
There is one biannual application period, with applications typically being due in mid-May in even numbered years. The total yearly allocation of funding to the program is variable and subject to Montana legislature allocations. For grant requests, no more than $125,000 is available for any project. For loan request, no specific limits exists, but are limited by applicants debt capacity. The loan is essentially a bond, comprised of a revenue bond or tax-backed bonds.

This is a competitive program with grants and loans competing against each other on a biannual basis, throughout the entire State. The DNRC provides final rankings and recommendations to the governor. Typically in January, of odd numbered years, recommendations are finalized and submitted to the Montana Legislature. Legislative authorization is typically complete by the end of April and contracts with DNRC typically occur in early July, of odd numbered years.

Grant & Loan Administration
Upon award, the applicant is required to enter into a grant agreement with DNRC which stipulates funding requirements. No funding will be approved for costs incurred prior to agreement.

Contact Information:
Lindsay Volpe – DNRC Program Manager
1539 Eleventh Avenue
Helena, MT 59620
Telephone: (406) 444-9766
Email: lmvolpe@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/renewable-resource-grant-program

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Renewable Resource Private Loan Program (WDL)

History
This loan program was established by the Montana Legislature in 1981 to promote beneficial use of water.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to enhance the well being of Montanans through the conservation, management and preservation of a targeted renewable resource. Typical projects include conversion from flood to sprinkler irrigation, irrigation dams, lining ditches, automation of irrigation systems and developing rural water supplies.

Loans are available to individuals, partnerships, associations and corporations.

Funding Usage & Match Requirements
Funds may be used for costs of design engineering, construction and project management.

No funding match is required.

Project Eligibility
Preliminary planning must be complete before construction funds are requested by the applicant.

Loan funds may be used for water related projects, which must conserve, distribute, develop, store and use water for beneficial uses and promote the efficient use, management and protection of water.

Applications & Ranking Procedure
Applications may be submitted at any time. The DNRC reviews applications for completeness and will be evaluated to determine if they are technically and financially feasible. Recommendations are submitted to the director of DNRC for final funding decision. Loans may not exceed $400,000 and are funded from general obligation bonds. Repayment periods may not exceed 30 years and loan rates are same rates as state bond. Loans are secured by a lien on the Applicant's real estate.

Loan Administration
Expenses incurred prior to the loan approval are not reimbursable. Standard reporting requirements are required. All contracting for professional services procedures must be approved by DNRC.

Contact Information:
Bill Herbolich – DNRC
1539 Eleventh Avenue
Helena, MT 59620
Telephone: (406) 444-6668
Email: wherbolich@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/renewable-resource-grant-program/renewable-resource-loans-to-private-entities

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Renewable Resource Private Water Grant (PVG) Program

History
This grant program was established by the Montana Legislature to support water projects by non-government entities.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to projects that benefit or develop a water resource.

Grants are available to non-governmental entities including individuals, associations, partnerships and corporations (profit and non-profit).

Funding Usage & Match Requirements
Funds may be used for costs of construction and project management. Funds may not be used for feasibility studies, research and/or public information. Project examples include:

- Projects that promote water conservation, water quality, or beneficial use
- Dam inspections and repair
- Irrigation system improvements
- Septic tank replacement
- Emergency water system improvements
- Watershed improvements

No funding match is required.

Project Eligibility
Grant funds may be used for projects that benefit or develop a water resource.

Applications & Ranking Procedure
Applications may be submitted at any time. Grants are available up to $5,000 or 25% of the project cost, whichever is least. The DNRC reviews applications for completeness and will be evaluated to determine if they are technically and financially feasible.

Grant Administration
Reimbursement is based on actual provided receipts and will be done on a one-time only basis. Project costs can only be incurred after grant agreement is signed. A project report must also be completed to accompany the payment request.

Contact Information:
Sonja Hoeglund – Private Grants & Loans Program Manager
1539 Eleventh Avenue
Helena, MT 59620
Telephone: (406) 444-0552
Email: shoeglund@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/renewable-resource-grant-program/renewable-resource-grants-to-private-entities

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Renewable Resource Emergency Grant and Loan Program

History
This grant and loan program was established by the Montana Legislature to support only serious emergencies that meet program requirements.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to emergencies that pose an immediate threat to the beneficial management of a renewable resource. Past projects have included dike failures, emergency dam repairs, and emergency repairs to municipal drinking water systems.

Grants and loans are available to counties, incorporated cities/towns, conservation districts, irrigation districts, and water and sewer districts.

Funding Usage & Match Requirements
Funds may be used for costs associated with emergency repairs.

No funding match is required.

Project Eligibility
Projects eligible include those that if delayed until legislative approval, will cause substantial damages or legal liability to the applicant.

Applications
Applications may be submitted at any time and DNRC Emergency Grant Program staff should be contacted immediately. A detailed problem description, proposed solution, financials and funding sources will be required. Following initial notification, DNRC engineer will arrange site investigation and determination will be made quickly. Typically grants can be executed within a matter of days, however loans may take up to 45 to 60 days.

Grants are limited to $30,000 per project. Loans may be up to $10 million dollars, however, loans are limited by the applicants bonded debt capacity. The term of the loan is variable, but generally limited to 20 years.

Grant and Loan Administration
Standard DNRC RRGL reporting methods are required.

Contact Information:
David Larson – DNRC
1539 Eleventh Avenue
Helena, MT 59620
Telephone: (406) 444-2951
Email: dclarson@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/renewable-resource-grant-program/renewable-resource-emergency-grants-and-loans

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

Irrigation Development Grants (IDG)

History
This grant program was established by the Montana Legislature to increase the value of irrigation crops while preserving natural resources.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to develop new irrigation and to sustain and increase the value of existing irrigation.

Grants are available to private for profit, private non-profit, governmental and Tribal entities, individuals and other groups within the State.

Funding Usage & Match Requirements
Funds from the grant must be used for:

- Preliminary engineering reports for new irrigation systems or repairs if new irrigation acres would result
- Complete environmental assessments, marketing studies, project coordination
- Hire professional consultants to address issues such as creation of a new irrigation district or water users association
- Projects involving Farm to School/Lunch Table Programs
- Other projects that increase the value of irrigation agriculture (on a case by case basis)

No funding match is required for governmental entities. However, if the applicant is a private entity, a 25% match of the grant will be required.

Project Eligibility
Projects must meet the required funding usage delineated above.

Applications & Ranking Procedure
Applications may be submitted at any time. Grant allocations are variable, depending on type. Irrigation projects (lining, headgates, and infrastructure) grant limit is $20,000. Preliminary engineering reports, studies and surveys grant limit is $5,000. Administrative grants for contracted administrative costs associated with irrigation development limit is $5,000. The total yearly allocation of funding to the program is variable and subject to legislature allocations, but typical amounts are around $100,000 per year. The DNRC reviews applications for completeness and will be evaluated to determine if they are technically and financially feasible.

Grant Administration
Upon award, the applicant is required to enter into a grant agreement with DNRC which stipulates funding requirements. Grant funds are dispensed on a reimbursement basis. No funding will be approved for costs incurred prior to agreement.

Contact Information:
Ann Kulczyk – DNRC
PO Box 231
Glasgow, MT 59230
Telephone: (406) 228-4129
Email: akulczyk@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/resource-development/loan-and-grant-programs-for-irrigation-development

DEPARTMENT OF NATURAL RESOURCES (DNRC)

Conservation Districts Grants Program – HB223 Grant

History
This grant program was established by the Montana Legislature in 1981 and is funded on coal severance tax monies.

Purpose & Applicant Type
The intent of the program is to provide funding assistance to conservation districts for standard conservation practices. Projects must demonstrate a public and conservation benefit. Projects with a private benefit are not eligible.

Grants are only available to conservation districts.

Funding Usage & Match Requirements
Funds may be used for any project a conservation district is authorized to carry out, including, but not limited to: planning, education, feasibility studies, demonstration projects, farm experiments, equipment, or construction of projects. Conservation Districts may receive funds as grants or loans as long as funding requested advances the purpose of conservation district programs.

Funds may not be used to purchase food, common items that can be easily borrowed, equipment for contractors, or items not considered essential to conducting a project or meeting a project goal.

See match requirements below.

Project Eligibility
Funds may be used for any project that a conservation district is authorized to carry out and must demonstrate a public and conservation benefit.

Applications & Ranking Procedure
Applications may be submitted at any time, with application review by the Resource Conservation Advisory Council (RCAC) typically occurring four times per year. Grant allocations are variable, depending on type. On the ground conservation projects grant limit is $20,000 with no match required. More than $20,000 may be requested, however, a 50:50 cash match is required. Education grant limits are $10,000 with no match required. The total yearly allocation of funding to the program is variable and subject to legislature allocations.

The RCAC reviews applications and makes recommendations to the DNRC. Projects are evaluated on the following criteria:

- Promotes or results in conservation
- Demonstrates a public benefit
- Demonstrates cost effectiveness outcome for the district
- Fills an immediate need
- Fits the district program's needs,
- Produces matching funds and/or in-kind services
- Impacts a large number of people or acres
- Produces a long-term benefit
- Requires funding only for a short-term to complete the project

Grant Administration
Upon award, the applicant is required to enter into a grant agreement with DNRC which stipulates funding requirements. No funding will be approved for costs incurred prior to agreement.

Contact Information:
Laurie Zeller, DNRC
Telephone: (406) 444-6669
Email: lzeller@mt.gov
Website: http://dnrc.mt.gov/grants-and-loans/grants/cardd/223guideline7.20.2018.pdf

MONTANA FISH, WILDLIFE & PARKS (FWP)

Future Fisheries Improvement Program (FFIP) Grants

History
This grant program, which is funded by the MFWP and began in 1995, is largely sourced from the sale of statewide fishing licenses.

Purpose & Applicant Type
The intent of the program is to provide assistance for the growth and propagation of wild and native fish species throughout lakes, rivers and streams in the state.

The funding is available for any applicant type; private company, non-profit, individual, governmental agencies, angling groups, etc.

Funding Usage & Match Requirements
Funds must be used for costs of design/build, construction and maintenance. Funding cannot be used for overhead, monitoring, watershed assessments, contingency or design fees alone.

No funding match is required, though projects with matches are strongly encouraged. Applicants may submit multiple grant requests during funding period (for separate projects).

Project Eligibility
Projects must have public benefits and accomplish one or more of the following items:

- Improve or maintain fish passage
- Restore or protect naturally functioning stream channels or riparian areas
- Prevent loss of fish into diversions (entrainment)
- Restore or protect spawning habit
- Enhance stream flow
- Restore or protect native fish populations
- Improve fishing in a lake or reservoir

Applications & Ranking Procedure
There are two application periods, with applications typically being due November 1st and May 31st of each year. The total allocation of funding to the program is between $350,000 and $650,000 per year. There is no monetary limit for individual grants; however, grants are strongly encouraged to provide cost-sharing. This is a competitive program with grants of all types competing against each other on a semi-yearly basis. Grants will be reviewed and evaluated by the FFIP Review Panel and will be evaluated on the following criteria: public benefit to wild fisheries, long term success, native fish benefits, in-kind services and cost-sharing, importance of lake or stream, local support and participation, addressing cause of primary problems, and sensitivity to other wildlife species.

Grant Administration
The applicant must enter written agreement with FWP. FFIP functions as a reimbursement program, where project sponsors submit invoices to FWP for payment. Itemized invoices of expenses and receipts approved by the sponsor are required.

Contact Information:
Michelle McGree – Montana FWP
Helena, MT 59620-0701
Telephone: (406) 444-2432
Email: mmcgree@mt.gov
Website: http://fwp.mt.gov/aboutfwp/grant-programs/future-fisheries-improvement

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION (USBR)

WaterSMART Water and Energy Efficiency Grant

History
This grant program, which is funded by the USBR, was created to provide Federal leadership and assistance on sustainable water management strategies.

Purpose & Applicant Type
The intent of the grant program, as it pertains to dam and irrigation projects, is largely water conservation, energy efficiency, and facilitation of water markets for the western United States.

The funding is available for many applicant types: states, Indian tribes, irrigation districts, water districts, and other organizations with water or power delivery. Applicants do not have to be on a USBR system.

Funding Usage & Cost Sharing
Funds can be used for costs associated with design, construction and construction management.

Applications must provide at least 50% match of total project costs from non-federal sources, either in cash or in-kind work. Multiple applications (for the same project) may be submitted utilizing separate funding groups (see funding group information below).

Project Eligibility
Projects should accomplish one or more of the following items:

- Conserve and use water more efficiently; increase the use of renewable energy and improve energy efficiency; protect endangered and threatened species; facilitate water markets; carry out other activities to address climate related impacts on water

Applications & Ranking Procedure
There is one yearly application period, with applications typically being due in mid-January. The total yearly allocation of funding to the program is variable and subject to Congress allocations, but typical amounts are between $10 million and $15 million. No more than $1,000,000 may be awarded to a single applicant. However, there are varying funding groups available which change on a yearly basis. Typically, most grant funding allocated is limited to $300,000 per applicant. This is a competitive program with grants competing against each other on a yearly basis, throughout the western United States.

Grant Administration
Generally, project completion should be within 2 to 3 years of project award. Standard grant practicing reporting is required.

Contact Information:
Josh German
Denver, CO
Telephone: (303) 445-2839
Email: jgerman@usbr.gov
Website:
http://www.usbr.gov/WaterSMART/weeg/index.html

USDA - NATURAL RESOURCES CONSERVATIONS SERVICE (NRCS)

Environmental Quality Incentives Program (EQIP) Grant

History
This grant program, which is funded by the USDA, and allocated through local NRCS offices, was created to provide financial and technical assistance to agricultural producers and is a component of the Farm Bill.

Purpose & Applicant Type
The intent of the program, as it pertains to dam and irrigation projects, is to provide grants to promote agricultural production and environmental quality as compatible goals.

The funding is available for agricultural producers and owners of non-industrial private forestland and Tribes. Eligible lands include cropland, rangeland, pastureland, forestland and other farm or ranch lands. This funding is typically not utilized on dam projects.

Funding Usage & Cost Sharing
Funds can be used for costs associated with design, construction and construction management. Occasionally, the NRCS outsources engineering to registered technical service providers.

Cost sharing requirements are variable depending on the project type. Generally, grants funds will equate to about 50-75% of total project cost, while the required match is 25-50% of the project cost.

Project Eligibility
The primary focus of the general EQIP funding pool is to address soil erosion and water quality resource concerns on croplands and adjacent areas. Though numerous, more specific funding pools are available and should be investigated during the application process.

Applications & Ranking Procedure
Applications are accepted on a continual basis; however the NRCS does have application cut-off dates for submission deadlines and are typically in early June. Project applicants are competing against each other on a regional basis, depending on the project's location within the state. The total allocation of funding to the program is variable and subject to Farm Bill legislation. Grant funding allocated is up to $450,000 per applicant, though allocations are considerably less.

Grant Administration
Signature of contract and agreement of implementation of planned conservation practices to NRCS standards is required.

Contact Information:
Local NRCS offices – Variable contacts
Primary EQIP Grant Information: Kelley Barkell
Telephone: (406) 587-6849
Email: Kelley.barkell@mt.usda.gov
Website: http://www.nrcs.usda.gov/wps/portal/nrcs/mt/programs/financial/eqip/

US FISH & WILDLIFE SERVICE

North Americans Wetlands Conservation Act Grants

History

This grant program was enacted by the North Americans Wetlands Conservation Acts (NAWCA) in 1989 and provides matching grants to carry out wetlands conservation projects for the benefits of wetlands associated migratory birds and other wildlife. Funding for the program comes from fines and penalties from the Migratory Bird Treaty act, federal fuel taxes on small gasoline engines, and interest accrued on the fund.

Purpose & Applicant Type

The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance for projects that involve long term protection, restoration, and/or enhancement to wetlands and associated uplands habitat. This funding is typically not utilized on irrigation projects.

The funding is available for any applicant type: non-profit, company, individual, governmental agencies, tribes, watershed groups, birding groups, etc.

Funding Usage & Match Requirements

Eligible funding usage includes; land acquisition, wetland restoration, wetland enhancement, wetland establishment, other direct long-term wetland conservation, indirect costs, and salary costs. Notable ineligible funding usage includes: mitigation activity required by Federal, state or local regulations, stewardship, monitoring, proposal planning and loan interests.

Applications must provide at least 50% of total project costs from non-federal sources, either in cash, in-kind or other grants.

Project Eligibility

Projects must involve long-term protection, restoration, and/or enhancements of wetlands and associated uplands habitats for all wetlands associated migratory birds.

Applications & Ranking Procedure

There are two application periods per year, with variable application due dates, typically in late February and early July. The application process for this grant is fairly lengthy and rigorous. The total allocation of funding to the program is variable, but generally around 50 million dollars for Standard Grants and 5 million dollars for Small Grants. If the grant request is $75,000 or less, it is considered an NAWCA Small Grant and between $75,000 and $1,000,000 is a NAWCA Standard Grant. Grant requests may exceed $1,000,000 but must be accompanied by justification of need. This is a competitive program with grants of all types across the United States competing against each other on a bi-yearly basis. The Council provides final rankings and recommendations. The most competitive applications: show clear connection between money spent and wetland benefits, are cost effective, are complementary among match and grant funded actions, can be completed in 2 years from funding award, and include minimal administrative costs.

Grant Administration

Standard grant practicing reporting is required with administrative guidelines available from NAWCA.

Contact Information:
Stacy Sanchez – Standard Grants Proposal Coordinator
Telephone: (703) 358-2017
Email: stacy_sanchez@fws.gov
Rodecia McKnight – Small Grants Proposal Coordinator
Telephone: (703) 358-2266
Email: rodecia_mcknight@fws.gov
Website: http://fws.gov/birds/grants/North-American-wetland-conservation-act.php

WESTERN NATIVE TROUT INITIATIVE (WNTI)

Small Grants Funding Program

History
This grant program is funded by the WNTI (with contributions from numerous sources) beginning in 2006, and was developed to restore and recover western native trout and char species across their historic range.

Purpose & Applicant Type
The intent of the program is to provide a source of funding for projects involved in the conservation of western native trout and char species. The funding is available for any applicant type; private company, non-profit, individual, governmental agencies, angling groups, etc.

Funding Usage & Match Requirements
Funds can be used for costs associated with design and construction. Funding cannot be used for projects already completed, refunding items purchased prior to grant award, monies towards purchase of private land, and staff salaries/benefits. No funding match is required, though projects that have secured matching funds or in-kind support are highly valued.

Project Eligibility
Projects considered for funding include: riparian or in-stream restoration, barrier removal or construction, population or watershed assessments and water leases or acquisitions to improve in-stream flows.

Applications & Ranking Procedure
There is one yearly application period, with applications typically due in mid-June of each year. Grants are limited to a maximum of $5,000. This is a competitive program with grants competing against each other on a yearly basis throughout the western United States. Grants will be reviewed and awarded by the WNTI steering committee. The most competitive applications will address the following: WNTI goals and objectives, measurable results, collaboration and leverage resources, project reporting and acknowledgement.

Grant Administration
The applicant must complete basic project reporting at the project conclusion.

Contact Information:
Therese Thompson
134 Union Blvd, Suite 665
Lakewood, CO 80228
Telephone: (303) 236-4402
Email: tthompson@westernnativetrout.org
Website: http://www.westernnativetrout.org/small-grants-program-rfp

NORTHWESTERN ENERGY COMMUNITY WORKS

History
Northwestern Energy Community Works Charitable Program was developed to fund projects that promote education, health and human services, civic and community, culture and the arts, and resource conservation.

Purpose & Applicant Type
The intent of the program, as it relates to dam and irrigation projects, is to promote environmental preservation including habitat, fish, and wildlife protection.

The funding is generally available to qualified 501c3 or 170c2 non-profit organizations that meet Northwestern Energy's guidelines.

Funding Usage & Match Requirements
Funds can be used for cost associated with design, construction and construction management.

No funding match is required, though larger projects that have secured matching funds or in-kind support are highly valued.

Project Eligibility
Projects eligibility is not well defined and any projects that include resource conservation are considered. The grant source was not developed specifically with dam and canal projects in mind.

Applications & Ranking Procedure
Applications can be submitted annually. The total yearly allocation of funding to the program is generally around $300,000. This is a competitive program with grants of all types competing against each other.

Grant Administration
Standard small grant practicing reporting is required.

Contact Information:
Heather Bellamy, Manager Community Relations
Telephone: (406) 570-2092
Email: heather.bellamy@northwestern.com
Website: https://www.northwesternenergy.com/community-works/community-works

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)

Section 319 Contract

History
This grant program, which is funded through DEQ under Section 319(h) of the Federal Clean Water Act (CWA), was created to provide funding assistance to restore quality in waterbodies whose beneficial uses are impaired by nonpoint source pollution (NPS) and whose water quality does not meet state standards.

Purpose & Applicant Type
The intent of the program, as it pertains to dam and irrigation projects, is to provide contracts to restore water quality, generally in Watershed Restoration Plan (WRP) areas, which have been impaired by NPS (which may include polluted runoff, streambank erosion, high turbidity, loss of streambed vegetation/shading, etc.)

The funding is only available for governmental entities or non-profit organizations.

Funding Usage & Cost Sharing
Funds can be used for costs of design, construction, monitoring, and education and outreach activities. Funding cannot be used for; activities that implement requirements of a point source discharge permit, USGS gate stations, WRP development, baseline water monitoring, pollution source assessment and watershed characterization studies.

Applications must provide at least 40% of total project costs from non-federal sources, either private, state, local, non-profit, cash or in-kind. Project sponsors cannot have more than two 319 active grant projects.

Project Eligibility
Eligible projects must address all of the following:

- Address nonpoint source pollution
- Address impairments identified on Montana List of Impaired Waters
- Implement goals and objectives from 2012 Nonpoint Source Management Plan
- Directly implement projects or activities identified in DEQ-accepted Watershed Restoration Plan

Applications & Ranking Procedure
Applications for the 319 program are a two step process, which consists of submittal and review of the project proposal form and submittal and review of the final project proposal form. The first submittal is typically due in late July, while the final project proposal is due in late September. Project applicants are competing against each other on a statewide basis. The total allocation of funding to the program is variable, but generally around $900,000. The recommend range of requested funds is between $50,000 and $300,000 for on-the-ground activities. If the applicant has completed past 319 projects, performance on those will be considered. All evaluations will be completed by standard scoring sheets by the agency review panel, with final authority by the EPA. Selection of projects typically occurs in late spring. If selected, all projects must be complete within 3 years of contract signature.

Contract Administration
This funding source is administered as a contract, which is a legally binding agreement and includes oversight and expectations funds will only be utilized for specified approved items. Basic reporting requirements are required.

Contact Information:
Kristy Fortman, MDEQ Water Quality Planning Bureau
Telephone: (406) 444-7425
Email: kristy.fortman@mt.gov
Website: http://deq.mt.gov/water/surfacewater/npspollution

COLUMBIA BASIN WATER TRANSACTIONS PROGRAM

History

This program was developed in 2002 to address diminished stream flows in tributaries of the Columbia River and acquires water rights from landowners to enhance in-stream flows. Funding for the program is largely provided by Bonneville Power Administration and the program is managed by the National Fish and Wildlife Foundation (NFWF).

Purpose & Applicant Type

The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance, in the form of water rights allocation, to increase tributary flows for the primary benefit of ESA listed fish and other depressed fish stocks within the Columbia River Basin.

Applications must be submitted by a qualified local entity (QLE). In Montana, QLE's are: Trout Unlimited and the Clark Fork Coalition. Projects must occur within the Columbia River Basin. Significant upfront project investigation and commitment must occur prior to application submittal.

Funding Usage & Cost Sharing

The purpose of the program is to purchase water rights to increase tributary flows. This may assist the applicant by providing additional funding, in the form of the money gained from water rights purchase, to complete their project.

No funding match is required, as the money received is for water rights purchase. However, project proposals that demonstrate collaborative efforts with entities and document cost sharing are highly valued. There is no maximum fund request; however, requests over $500,000 must have an individual evaluation. Total project allocation is approximately $2.2 million; with 70 percent allocated to anadromous fish species and 30 percent allocated to resident fish species.

Project Eligibility

Eligible projects must address all of the following:

- Water rights to be secured are valid and verifiable
- Landowner/irrigation districts agreements are in place
- Secures water for in-stream flow where low flows are a limiting factor to fish survival
- Provides benefit to ESA listed species or other depressed native or wild fish
- Fully explores innovative new concepts
- Provides long term monitoring components and provides a watershed context
- Implement goals and objectives from 2012 Nonpoint Source Management Plan
- Directly implement projects or activities identified in DEQ-accepted Watershed Restoration Plan

Applications & Ranking Procedure

There is a continuous application period, with application review deadlines typically three times a year, in early August, early November and early March. This is a competitive program with proposals completing against each other on a yearly basis. Proposals will be reviewed and awarded by the NWFW, with review by the technical advisory committee.

Program Administration

This funding source is administered as a contract, which is a legally binding agreement for the purchase of water rights, for the intent of increasing in-stream flows. Basic reporting requirements are required. Project funding occurs as reimbursement only.

Contact Information (Qualified Local Entities):

Trout Unlimited – Montana Water Project (Bozeman)
321 W. Main Street, Suite 411
Bozeman, MT 59715
Telephone: (406) 522-7291
Email: david@montanatu.org
Website: www.montanatu.org

Clark Fork Coalition (Missoula)
140 S. 4th Street West
Missoula, MT 59801
Telephone: (406) 542-0539
Email: andy@clarkfork.org
Website: www.clarkfork.org

MONTANA DEPARTMENT OF COMMERCE (MDOC)

Montana Coal Endowment Program (MCEP) Construction Grant

History
This grant program, which is funded by the MDOC with monies approved by the legislature, was created in 1992 to provide financial assistance to local infrastructure projects, including: drinking water, wastewater, sanitary and storm sewer, solid waste and bridge projects. The typical process is to first utilize the MCEP PER Grant, which is a $15,000 grant with a $15,000 match to prepare a PER for submittal along with the grant. This PER grant is not discussed further, utilize contact information below for more information.

Purpose & Applicant Type
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance with irrigation or dam projects associated with drinking water systems.

Applicants must be: incorporated cities, towns, counties, consolidated governments, tribes or county water/sewer/solid waste districts.

Funding Usage & Cost Sharing
Funds can be used for costs of engineering design, construction, project management and administration.

Applications must provide at least 50% of total project costs from public or private funds (other grants, loans, cash, in-kind, etc.)

Project Eligibility
The primary focus of the MCEP Grant program is to provide funding assistance to local infrastructure, which includes: drinking water, wastewater, sanitary and storm sewer, solid waste and bridge projects.

Applications & Ranking Procedure
Construction grant applications are accepted once every other year (in even years), typically in the first week of May. Project applicants are competing against similar types of infrastructure projects. The total allocation of funding to the program is variable and subject to legislature approval and allocation. The maximum grant allocation per application is $750,000. Applications are evaluated, scored and ranked by MCEP based upon seven statutory priorities, which include: solving urgent and serious public health and safety, financial need (community), PER completeness, planning, investigation of other funding sources, job creation and local support.

Grant Administration
Standard reporting practices are required as shown in the MCEP project administration manual.

Contact Information:
Becky Anseth – MCEP Manager
301 S Park Avenue
Helena, MT 59601
Telephone: (406) 841-2865
Email: banseth@mt.gov
Website: https://comdev.mt.gov/Programs-and-Boards/Montana-Coal-Endowment-Program/

MONTANA DEPARTMENT OF COMMERCE (MDOC)

Community Development Block Grant (CDBG)

History
This grant program, which is funded with federal monies from the U.S. Department of Housing and Urban Development (HUD), has been administered by the MDOC since 1982. It provides assistance to community development needs including housing, public facilities and economic development.

Purpose & Applicant Type
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance for irrigation or dam projects associated with drinking water systems, which fall under the CDBG Competitive Public Facilities category of assistance.

Applicants must be: incorporated cities, towns, counties, consolidated governments or county water/sewer/solid waste districts.

Funding Usage & Cost Sharing
Funds can be used for cost of engineering design, construction, project management and administration. Applications must provide at least 25% of total project costs (match) from public or private funds (other grants, loans, cash, in-kind, etc.)

Project Eligibility
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance associated with drinking water systems.

Applications & Ranking Procedure
Construction grant applications are accepted once every year, typical in late April. Project applicants are competing against all public facility grant applications within the state. The total allocation of funding to the program for public facilities is variable and generally between 3 and 5 million dollars. The maximum grant allocation per application is $450,000. Applications are evaluated, scored and ranked based upon seven primary ranking criteria, which include: community planning, project need, technical design, community efforts, need for financial assistance, benefits to low/moderate income persons and implementation/management.

Grant Administration
Standard reporting practices are required as shown in the CDBG grant administration manual.

Contact Information:
Gus Byrom – Program Manager
301 S Park Avenue
Helena, MT 59601
Telephone: (406) 841-2770
Email: DOCCDBG@mt.gov
Website: https://comdev.mt.gov/Programs-and-Boards/Community-Development-Block-Grant-Program/

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

Rural Development (RD) Grant & Loans for Community Facilities

History
This federal grant and loan program provides grant and loan assistance to construct, repair and improve water supply, water distribution systems, waste collections and waste treatment systems in rural areas and towns with populations up to 10,000 people.

Purpose & Applicant Type
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance associated with water supply and water distribution systems. Funding assistance may be in the form of long-term, low interest loans and, if funds are available, grants to keep user costs reasonable. Loans have up to a 40-year payback period with a fixed interest rate based on the need of the project and median household income of the area served. Projects may fall under two different funding programs; water & waste disposal and community facilities.

Applicants must be public entities, Tribes and nonprofit corporations with projects located in rural areas and towns up to 10,000 in population.

Funding Usage & Cost Sharing
Funds can be used for costs of construction of drinking water sourcing, treatment, storage and distribution. No funding match is required. In some cases, funding may be available for engineering fees, land acquisition and other costs determined necessary for project completion.

Project Eligibility
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance associated with drinking water sourcing and storage. An accepted Preliminary Engineering Report (PER) and environmental clearance is required for funding establishment.

Applications & Ranking Procedure
Grant and loan applications are accepted anytime, with funding allocated yearly. Project applicants are competing against all projects throughout the state, though past funding allocations have not had excess applicants. The total allocation of funding to the program is variable and dependent upon congress allocation. There is no maximum allocation of grant/loans per applicant, though most allocations are for loans. Interest rates are competitive. Median household income of community and utilized water rates is a major evaluation.

Grant and Loan Administration
Standard reporting practices are required by the RD program.

Contact Information:
USDA – RD – Staff Office
Telephone: (406) 585-2580
Website: http://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program/mt

FEMA – Building Resilient Infrastructure and Communities (BRIC)

History
BRIC is a new FEMA mitigation program that replaces the former Pre-Disaster Mitigation program. The BRIC priorities as it relates to dams are to: incentivize public infrastructure projects and incentivize projects that mitigate risk to one or more lifelines, which are essential to human health and safety or economic security. The lifelines include: safety and security, food, water, shelter, health and medical, energy (power & fuel), communications, transportation, and hazardous materials.

Purpose & Applicant Type
The intent of the program, as it pertains to dams is to provide funding assistance for dam projects that are highly likely to fail and provide floodwater storage and diversion. Funding for either rehabilitation or removal of the dam would be a good BRIC project.

Applicants must be: Local governments, cities, towns, counties, special district governments, and Indian tribal governments. The above entities are considered sub applicants and must submit sub applications to their state, tribe, or territory. Sub applicants are required to have a FEMA-approved Local or Tribal Hazard Mitigation Plan. For a State and its sub applicants to be eligible, the state must have received a major disaster declaration under the Stafford Act in the seven years prior to the annual grant application period. The last major declaration for Montana as of June 2021, was issued January 1, 2020. Therefore, the State of Montana and its sub applicants will be eligible to apply through January 1, 2027.

Funding Usage & Cost Sharing
Funds can be used for project scoping activities which include evaluating facilities to identify mitigation actions, community flood mitigation projects such as floodwater storage and diversion, and individual flood mitigation projects. Applications must provide at least 25% of total project costs (match) from public or private funds (other non-federal grants, loans, cash, in-kind, etc.)

Project Eligibility
The intent of the program, as it pertains to dam and irrigation projects, is to provide funding assistance associated with floodwater storage and diversion.

Applications & Ranking Procedure
Grant applications are accepted once every year, and open typically in late September and are due to the Montana Disaster and Emergency Services by mid-December. The total allocation of funding to the State of Montana is variable and is generally around $600,000. However, the State can submit an unlimited number of sub applications for the national competition where there is $50 million in funding available. Applications are evaluated, scored, and ranked based upon the Benefit Cost Analysis (BCA) that must be completed with the application. The BCA must be at least a one or higher for the applicant to apply. BCA scoring is extremely technical and must be completed by an engineering firm that has training in calculating BCA scores.

Grant Administration
Standard reporting practices are required.

Contact Information:
Sara Hartley, State Hazard Mitigation Officer
Montana Department of Military Affairs
Disaster & Emergency Services
Telephone: (406) 324-4794
Email: Sara.Hartley@mt.gov
Website: http://readyandsafe.mt.gov/Home/Articles/fma-2020bric-2020

FEMA – Rehabilitation of High Hazard Potential Dams (HHPD)

History
FEMA's Rehabilitation of High Hazard Potential Dams (HHPD) grant program provides technical, planning, design, and construction assistance for eligible rehabilitation activities that reduce dam risk and increase community preparedness.

Purpose & Applicant Type
The intent of the program is to provide funding assistance for dam projects that pose an unacceptable risk to the public. FEMA's HPPD grants are annual formula grants for repair, removal, or rehabilitation of eligible high hazard potential dams.

Applicants can be: non-federal governments and non-profit organizations. The above entities are considered sub applicants and must submit sub applications to their state or territory. States and territories must have an enacted dam safety program to be eligible to apply.

Funding Usage & Cost Sharing
Funds can be used for repair, removal, or any other structural or non-structural measures to rehabilitate an eligible high hazard potential dam. Applications must provide a non-federal cost-sharing requirement of not less than 35 percent.

Project Eligibility
To be eligible for HHPD funding a dam must: be non-federal, be located in a state/territory with a dam safety program, be classified as "high hazard potential" by the state/territory dam safety agency, have an emergency action plan (EAP) approved by the state/territory, fail to meet minimum state/territory dam safety standards, and pose a significant risk to populations downstream from the dam. The program also requires a 50-year operations and maintenance agreement. This requirement eliminates the ability of sponsors to assist dam operators with this grant opportunity. The 50-year requirement makes it legally impractical for a sponsor to provide this assurance.

Applications & Ranking Procedure
Funding through the State of Montana varies. In 2021, the State did not apply for funding because insufficient dams were considered eligible. Applicants must reach out to the Department of Natural Resources and Conservation Dam Safety Program to ensure the dam meets eligibility criteria.

Grant Administration
Standard reporting practices are required. In addition, there are numerous other requirements an applicant will want to inquire about.

Contact Information to apply:
Sara Hartley, State Hazard Mitigation Officer
Montana Department of Military Affairs
Disaster & Emergency Services
Telephone: (406) 324-4794
Email: Sara.Hartley@mt.gov
Website: https://www.fema.gov/sites/default/files/2020-08/fema_hhpd_grant-guidance.pdf

Contact Information to determine dam eligibility:
Michele Lemieux, PE
Department of Natural Resources
Dam Safety Program
Telephone (406) 444-6613
Email: mlemieux@mt.gov

Drinking Water State Revolving Fund (SRF)

History
The Montana Legislature established the Drinking Water State Revolving Fund (DWSRF) Loan Program for drinking water projects. Dam operators applying for an SRF Loan must have a dam that provides drinking water.

Purpose & Applicant Type
The Department of Environmental Quality (DEQ) is the administering agency and assures that the technical, financial, and programmatic requirements of the program are met. The Department of Natural Resources and Conservation (DNRC) issues the State's general obligation bonds and makes loans to the project borrowers. Cooperatively DEQ and DNRC administer the Drinking Water State Revolving Fund Loan Program.

Eligible organizations include community public water systems owed by private persons, municipalities, non-profit organizations, and non-community water systems.

Funding Usage & Cost Sharing
Funds can be used for drinking water projects. 100% of eligible project costs can be borrowed and planning costs covered. Ability to repay the loan must be shown.

Project Eligibility
A public water system is a system for the provision of water for human consumption to the public through pipes or other constructed conveyances if such system has at least fifteen service connections or regularly serves at least twenty-five individuals. States can provide DWSRF financial assistance only to the following types of public water systems:

- Existing privately owned and publicly owned community water systems
- Non-profit non-community water systems including systems utilizing point of entry or residential central treatment
- New community water systems that represent cost-effective solutions to existing public health problems with serious risks.

Applications & Ranking Procedure
Funding can be applied for at any time. An applicant must fill out a Uniform Application and a Drinking Water Survey to begin the process with DNRC. If an applicant is eligible, the SRF Loan program may provide loan forgiveness.

Loan Administration
Standard reporting practices are required.

Contact Information:
Anna Miller, Deputy Administrator
Department of Natural Resources
Telephone: (406) 444-6689
Email: annam@mt.gov
Website: http://dnrc.mt.gov/divisions/cardd/financial-bureau

WATERSHED GROUPS (CLARK FORK COALITION, ETC.), TROUT UNLIMITED, AND DUCKS UNLIMITED

Often, these groups are involved from the ground floor and provide grant management assistance and occasionally provide funding assistance on a case-by-case basis.

OTHER POTENTIAL GRANT/LOAN SOURCES

Other potential funding sources, though not utilized often for larger scale dam and irrigation projects are:

- National Fish and Wildlife Foundation (NFWF) - Environmental Solutions for Communities
  - Competitive grant program to restore, sustain and enhance fish, wildlife, and habitats
- Montana Department of Agriculture – Growth Through Agriculture (GTA) Program
  - Grant/loan program to diversify and strengthen Montana agricultural industry.
- Wyss Foundation Grants
  - Private grant foundation focusing on land conservation
- Montana Department of Justice – Natural Resource Damage Program (NRDP)
  - Previously utilized grant system no longer operational. The NRDP will provide funding assistance to projects located within damaged/impaired areas in the Clark Fork Basin.
- Coca Cola Foundation
  - Grant program focusing on water stewardship
- US Army Corps of Engineers Water Resource Development (WRDA) - https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/WRRDA-7001-Proposals/
  - Proposals can be for feasibility studies and water resources development projects.
- US Army Corps of Engineers Corps Water Infrastructure Financing Program (CWIFP) https://www.usace.army.mil/Missions/Civil-Works/Infrastructure/revolutionize/CWIFP/
  - Loan funding available to maintain, upgrade, and repair dams. Loans are for projects or a group of projects with eligible costs in excess of $20 million.

FREQUENTLY ASKED QUESTIONS

Frequently asked Questions

Private dam with sponsor questions

What kind of assurances would a Conservation District applying for State grants on behalf of a private dam owner need to make? What about federal grants (HHPD, BRIC)?

Not all grant sources, allow Conservation Districts to apply for grants on behalf of private dam owners. For those grants that do allow this option, the Conservation District would be responsible for the following:

- Fiscal responsibility and oversight – the district must ensure that all grant funds are spent per the grant agreement and may need to audit the funds if the grant requires.
- Meet all conditions that are defined in the grant contract. A Conservation District should review with its attorney the grant contract and determine if the district can provide the assurances required in the contract before signing and obligating the funds. If a district does not feel comfortable with the terms, it can decide to refuse the grant.
- Ensure the project is completed with the scope of work and timeline defined in the grant agreement.
- Provide grant administration that includes submitting reimbursement requests, grant reporting, and grant closeout documents.
- The district should consider having a memorandum of understanding (MOU) with the dam owner that obligates the owner to comply with the conditions of the grant.

What would a Conservation District look for in a project when considering whether to sponsor a private dam owner on a grant application?

The three main things to consider when sponsoring a project are the level of project planning, project readiness, and community benefits.

- Has the private dam owner completed a preliminary engineering report?
- Does the dam owner have an engineering firm contracted for the project?
- Is the project's cost estimation completed by an engineering firm?
- What other sources of funds does the private dam owner have (cash, loan, etc.) for the project?
- If the grant is awarded, is the private dam owner ready to start the project?
- Does the dam owner have the capacity to meet the conditions of the grant?
- Does the project have adequate public benefits and is the community supportive?
- What are the long-term operation and maintenance (O&M)requirements of the grant sponsor? If an O&M assurance is required, a conservation district should have a legal review before committing.

What typical administration costs would a Conservation Districts incur sponsoring a grant for a private dam owner? Are these costs included in the grant application?

There are two main costs associated with the administration of any grant, 1) grant administration and 2) financial review or audit of the project.

Both items can typically be added to the project's budget and can be paid by the grant. Each grant source varies, so further research will be required to ensure that the grant will cover both administration costs.

Renewable Resource Grant and Loan (RRGL) Program

What is the difference between the RRGL loans for a private dam owner versus an RRGL loan for a public dam owner?

The biggest difference between the RRGL for public dam operators vs. private dam operators is the amount of funds and the application. DNRC has separate funding sources that are available for projects depending on the type of entity applying. Private dam owners cannot apply for funding using the same application process used by public dam owners, and the same is true in reverse. For example, a RRGL loan to a public dam owner goes to the legislature for approval, and as such is tied to the legislative session schedule. A private dam owner can apply for a private loan from the RRGL program at any time. Note private loans are limited to either $400,000 or 80 percent of the fair market value of the security given for the loan.

What information would a private dam owner need to apply for a private RRGL loan?

The following will be required to apply for a private RRGL loan:

- A technical report on the project or a Preliminary Engineering Report on the project.
- Narrative reports on the natural resource features of the project.
- Maps of the project site.
- Property records and permits.
- Water right permits.
- Representative pictures of the project and problem.

Financial documentation is also required and includes:

- Construction budget (with accompanying cost estimates from an engineering firm)
- Statement of financial condition
- Profit or loss statement
- Documentation of income sources
- Three-year projected operating budget for the project
- Description of the loan collateral (security is typically a lien on real estate)
- Abstract of title or other evidence of ownership
- Other funding commitments or status documentation

How long does it take to be approved for a private RRGL loan? How far in advance of the project should a private dam owner apply?

The dam owner should apply for the RRGL loan once the project technical memo or Preliminary Engineering Report is completed. Expenses incurred before the loan is approved will not be reimbursable.

If a dam owner runs out of money for a project mid-way, can they apply for an RRGL private loan?

No, the RRGL private loan must be applied for at the beginning of a project once the project technical memo or Preliminary Engineering Report is completed. A private loan is not available mid-way through the project.

What is the collateral on a private RRGL loan?

By state statute, all loans must be secured by a lien on Real Estate. Using water rights as collateral may be allowed. The lien is generally in the form of a Mortgage. Title insurance and recording fees are the responsibility of the applicant. DNRC seeks security of the loan of at least 150% of the loan amount.

What is the collateral on a public RRGL loan?

User rates typically fund public projects. Therefore, the public entity would need to ensure that user rates can either cover the debt associated with the project or increase user rates to cover the debt.

How do interest rates for RRGL loans compare to the interest rate from a bank?

RRGL loans are financed from the sale of state bonds. The interest rate varies from year to year, and successful applicants will be notified of the proposed bond sale and the anticipated interest rate before each sale. In general, the rates are better, but that depends on a number of factors. Note that some dam owners may receive better rates from loan institutions that specialize in agriculture, especially if the dam owner has a relationship with that institution.

How is the RRGL Loan Program funded?

The sale of state bonds.

Do I need a Bond Attorney to help me secure an RRGL loan?

If the RRGL loan (public or private) is being paid for with user rates, a bond attorney is needed. However, if user rates are not a part of the project, the loan will be structured as a general obligation bond, and a bond attorney is unnecessary.

<u>Renewable Resource Grants (RRGL)</u>

What is the typical cost to hire an engineering firm to write an RRGL construction grant application?

RRGL construction grants require that each construction project have a Preliminary Engineering Report. Therefore, an applicant should have a relationship with an engineering firm already, and the engineering firm would be able to give the applicant a quote.

Do I need to use an engineering firm to write the grant application?

An applicant does not need to use an engineering firm to write the grant application. However, it is strongly suggested that the applicant work closely with its engineer while writing the application. Historically, grants written by an experienced engineering firm fare better in the ranking and are more apt to receive funding.

The project is going to cost much more than we anticipated in the application. Can we wait and apply for an additional RRGL grant in 2 years?

Only one RRGL grant can be open at a time. To avoid cost overruns, it is strongly recommended that the applicant work closely with an engineering firm. An engineering firm can work with the applicant to divide the project up into phases that are achievable with the available budget.

How is the RRGL Grant Program funded?

This program is funded through earnings from certain natural resource-based taxes. Montana Code Annotated specifies the specific earnings MCA 85-1-603.

In a typical year, how many projects are funded?

Since the program is funded through certain natural resource-based taxes, the amount of funding and the number of projects funded varies each biennium. In years with low resource based tax revenue, roughly 30 projects are funded. In high resource based tax revenue years, around 80-90 projects are funded.

Can I ask my local Representative or Senator to change my ranking?

No, projects are ranked by DNRC staff using feedback from external engineering consultants hired by DNRC to review applications. Ranking is based on predetermined, set criteria.

If awarded a grant, how many years do we have to spend the funding? Can we get an extension of time?

The grant application asks each applicant to define specific project implementation tasks and timelines. The grant contract is awarded with this timeline in mind. Extension requests can be made when the project will require more time to complete the approved tasks described in the grant agreement. If the extension is approved, the applicant will need to submit a revised scope, schedule, and budget.

Matching Funds

Can RRGL grants and loans be used as cost-share for federal grants?

Yes, RRGL grants and loans are considered state funding and can be used as a cost-share for federal grants.

We understand in-kind services can be used as cost-share. What are typical in-kind costs, and how do we track our contribution?

DNRC grants do not require a match. Many other grants will require a cost-share and allow in-kind as a match option. Each grant source will explain in its guidelines, what is allowed as an in-kind match, and how to track the match. In-kind services can include use of the applicants own equipment or time spent by a dam operator on the project. In all cases, careful documentation must be maintained.

Do the RRGL grants require cost share? Will our grant be ranked higher if I show cost share?

No, DNRC grants do not require a cost-share/match. The project is not ranked higher if a match is provided. However, the largest RRGL grant is $125,000, and most projects are much larger in cost.

Planning Grants

Can we apply for a planning grant for preliminary engineering/investigation and not apply for an RRGL grant later?

Yes, a planning grant from DNRC can be used for a preliminary engineering report (PER). DNRC does not expect an applicant that receives a planning grant to utilize the RRGL grant or loan for construction. Note that planning grants are available to help with developing a preliminary engineering report. Keep in mind that for dam projects, additional engineering analysis is often necessary and would be completed during the construction of the project. A PER does not include this analysis, but the construction project will need to include the analysis to obtain the required construction permit from the State Dam Safety Program. It is important to discuss the analysis needed, design approach, and schedule with the State Dam Safety engineers in advance to avoid delays.

Can we apply for two planning grants (i.e., one for investigation and one for grant writing)?

DNRC planning grants can only be used for preliminary engineering reports, feasibility studies, investigation, or planning tools. Planning grants cannot be used to fund grant writing services. However, an applicant can apply for two planning grants if each planning grant is for a different project.

Is there a cost-share for a planning grant?

No, there is not match/cost-share requirement for DNRC planning grants.

Environmental Requirements

What is the difference between MEPA and NEPA? If I use both state grants and federal grants, do I need to meet the criteria from both?

MEPA is a Montana environmental requirement, and NEPA is a national environmental requirement. Each funding source has its own criteria that must be met when using the grant source. Often more than one environmental report will be needed to meet the requirements.

Procurement

Are we required to follow specific state procurement laws to hire a contractor/engineer? Or are we okay as long as we show we used a competitive process?

In most cases, private operators/owners will not need to follow specific state procurement laws because they are a private entity. However, suppose a private entity is utilizing state or federal

funding. In that case, those funding sources will need to be contacted before procurement because the funding agency may require a private entity to follow state procurement laws.

Public entities must follow state-specific procurement laws. Montana Code Annotated defines the procurement process and can be found at the following links:

Hiring engineers, architects, etc. can be found here:
https://leg.mt.gov/bills/mca/title_0180/chapter_0080/part_0020/section_0040/0180-0080-0020-0040.html

Hiring contractors can be found here:
https://leg.mt.gov/bills/mca/title_0180/chapter_0040/part_0030/section_0030/0180-0040-0030-0030.html

We have a local contractor we would like to use and have their input during the design. Do state grant and loan programs require us to follow a competitive hiring process for contractors and engineers, or can we sole source?

In most cases, private operators/owners will not need to follow specific state procurement laws because they are a private entity. However, suppose a private entity is utilizing state or federal funding. In that case, those funding sources will need to be contacted before procurement because the funding agency may require a private entity to follow state procurement laws.

Public entities must follow state-specific procurement laws and a competitive hiring process would required for both engineers and contractors. Engineers can be hired based on qualifications. Contractors are hired by the lowest technically responsive bid.

We want to use the same engineering firm for the final design/construction that we used for the preliminary design/grant. Can we justify using a sole source hiring process?

An engineering firm must still be hired under the competitive hiring process but can be hired for the entire project, from preliminary design/grant to final design and construction. For federal grants, the procurement of the engineer must be for all services, which includes grant writing, or the engineering firm will not be eligible to complete design and oversee construction.

Preliminary Design vs. Final Design/Construction

The final design that construction will be based on is different from the grant application's preliminary design. Is that a problem?

If the final design is different than the preliminary design used in a grant application, the grant and loan programs will need to be informed right away. A change in the location of a project can change environmental requirements. A change in scope and schedule must be approved before the final design begins.

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