

Water Storage in Montana

A Report Submitted to the Sixty Eighth Montana Legislature

Office of the Governor

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Ruby River Dam, Madison County



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EXECUTIVE SUMMARY

Montana law requires the Governor to submit a report on water storage to the Legislature each regular session. The Governor's Report on Water Storage in Montana prioritizes new rehabilitation and construction projects for the upcoming biennium and summarizes projects that occurred during the previous biennium (Appendix A-MCA 85-1-703 Water Storage Policy). The Department of Natural Resources and Conservation Water Resources Division State Water Projects Bureau (SWPB) proposes two new projects for funding. The SWPB is also completing two Renewable Resource Grant and Load (RRGL) projects from last Legislative Session. In addition, SWPB is assisting two Water Users Associations affiliated with State Water Projects for irrigation projects funded by the American Rescue Plan Act. These State Special Revenue accounts are set aside to fund improvements for state-owned water projects, including dams and canals.

New projects proposed for 2023 and 2024 timeframe:

- East Fork Dam Rehabilitation: Construction, estimated cost \$16,900,000.00
- Willow Creek Dam Rehabilitation: Final Design, estimated cost \$1,500,000.00

Ongoing / recently completed projects:

- Ackley Lake Outlet Canal Rehabilitation Project (Judith Basin County), estimated cost \$160,000
- Upper Musselshell Two Dot Canal Rehabilitation Project (Wheatland County), estimated cost \$180,000
- Allendale Canal Intake and Fish Screen (Granite County), completed in 2022
- East Fork Rock Creek Dam Rehabilitation Environmental Planning (Granite County), estimated cost \$98,265
- East Fork Rock Creek Dam Rehabilitation: Final Design (Granite County), \$972,790
- Painted Rocks Dam Feasibility Study (Ravalli County). completed in 2021
- Painted Rocks Dam Toe Access (Ravalli County), completed in 2022
- Painted Rocks Dam Environmental Planning (Ravalli County), \$98,804
- State Water Projects Planning Document, estimated cost \$160,190
- Nevada Creek Douglas Canal Rehabilitation (Powell County), completed in 2021
- Frenchman Dam Operating Gate Replacement (Phillips County), completed in 2022 \$240,322
- Tongue River Dam Spillway Stilling Basin Erosion Repair (Bighorn County), estimated cost \$123,814
- Willow Creek Dam Feasibility Study (Madison County), \$750,000

- Middle Creek Dam Tower Safety Improvement Project (Gallatin County), completed in 2022 \$125,100
- Broadwater-Missouri Canal System Study and Master Plan (Broadwater County), completed in 2021
- Deadman's Basin Supply Canal Rehabilitation Project (Wheatland County), completed in 2021
- SWPB Flow Measurement Equipment Purchase - completed in 2022



Aerial view of Tongue River Dam Spillway

MONTANA STATE WATER PROJECTS DAMS



Figure 1 – Location Map of State Water Projects

STATE-OWNED WATER PROJECTS

Table 1 - List of State Water Projects

<u>Project Name</u>	<u>Year Completed</u>	<u>Storage (acre-feet)</u>	<u>Height (feet)</u>	<u>County</u>
<u>Ackley Lake Dam</u>	1938	6,722	51	Judith Basin
<u>Bair Reservoir Dam</u>	1939	7,300	106	Meagher
<u>Cooney Dam</u>	1937	28,230	102	Carbon
<u>Cottonwood Dam</u>	1953	1,905	39	Park
<u>Deadman's Basin Dam</u>	1941	72,218	60	Wheatland
<u>East Fork Dam</u>	1938	16,040	88	Granite
<u>Fred Burr Dam</u>	1949	525	50	Ravalli
<u>Frenchman Dam¹</u>	1952	2,801	44	Phillips
<u>Glacier Lake Dams</u>	1937	4,200	57 (N) 20 (S)	Carbon
<u>Martinsdale Dams</u>	1939	23,348	91 (N) 49 (E)	Wheatland & Meagher
<u>Middle Creek Dam (Hyalite)</u>	1951	10,184	125	Gallatin
<u>Nevada Creek Dam</u>	1938	11,152	105	Powell
<u>Nilan Dams</u>	1951	10,092	54 (N) 51 (E)	Lewis & Clark
<u>North Fork of Smith River Dam</u>	1936	11,500	84	Meagher
<u>Painted Rocks Dam</u>	1939	32,362	143	Ravalli
<u>Ruby River Dam</u>	1938	37,642	112.5	Madison
<u>Tongue River Dam</u>	1940	79,071	93	Big Horn
<u>Toston Dam (Broadwater-Missouri)</u>	1940	4,100	51.5	Broadwater
<u>Willow Creek Dam</u>	1938	18,000	105	Madison
<u>Yellow Water Dam</u>	1938	3,842	37	Petroleum

¹ With the exception of Frenchman Dam, all the above listed dams are classified as high hazard. A “high-hazard” dam stores over 50 acre-feet and is not a reflection on the actual condition of the dam. This classification is not based on the condition of the dam. The classification is only a reflection of paved roads/structures in the downstream area that could possibly be inundated during a sunny weather dam failure.

I. INTRODUCTION

The Governor's Report on Water Storage in Montana reviews state water storage policy and statutory criteria used for prioritization of proposed projects; identifies water storage projects proposed for development, including the rehabilitation of existing projects and progress on new projects; and summarizes water storage projects in progress over the previous two years. The focus of this report is on projects that are funded by the state, and under the administration and ownership of the Montana Department of Natural Resources and Conservation (DNRC) State Water Projects Bureau (SWPB).

A. DNRC State Water Projects Bureau:

The SWPB administers the operation, management, and rehabilitation of state-owned dams, canals, and hydropower projects under the purview of the DNRC Water Resources Division (WRD). A complete statewide location map of the projects is presented in Figure 1, and a list of existing State Water Projects is provided in Table 1. Additional information can be viewed on the DNRC WRD web site at <http://dnrc.mt.gov/divisions/water/projects> The SWPB also provides professional engineering and rehabilitation assistance on nine additional water projects owned by the Department of Fish, Wildlife and Parks (DFWP).

The SWPB markets water from the state-owned water storage projects primarily for irrigation and administers approximately 1,800 water-marketing contracts through local water user associations. Currently, 309,899 acre-feet of water is marketed by the SWPB to water users associations across the state. Revenue from the water purchase contracts, leasing of lands associated with the projects, and net revenue from hydropower generation supplements funds are used for state water project rehabilitations. Debt repayment funds come from repayment contracts with the water users as well as Hydropower Earnings.

The SWPB ensures that projects are operated and maintained in a safe, efficient manner, are kept to current dam safety standards, and that repayment contracts are properly administered. The SWPB is also responsible for overseeing repairs, maintenance, and rehabilitation of approximately 250 miles of irrigation canals associated with state-owned projects. Canals are integral components of many state water projects, delivering water to off-stream reservoirs and water users served by the respective projects. The SWPB is responsible for identifying and correcting operational deficiencies on these canals, which includes maintaining and operating over 40 canal and stream gauge stations to monitor water deliveries.



2021 Douglas Canal Rehabilitation, Nevada Creek State Water Project (Powell County)

B. Water Storage Project Classification and Terminology:

It is important to have a basic understanding of some principles and terms related to dam safety classification used in this report. Standards used by the State of Montana are as follows:

- **Unsafe spillway or dam** - A spillway that is deemed unable to safely pass the inflow design flood, or if the dam's structural integrity has become compromised since construction.
- **High-hazard dam** - A dam is high-hazard if it stores more than 50 acre-feet and its failure has the potential for loss of human life, regardless of its current structural condition. It should be noted that the state's highest priority for repair and rehabilitation is assigned to dams classified as high-hazard that are in an unsafe condition. The high-hazard classification should not be confused with an assessment of a dam's structural integrity or condition.
- **Repair of a project** - Most often refers to scheduled or emergency action taken to return dam function to original design capacity or for a project to continue operation at a reduced, but safe level.
- **Rehabilitation** - Involves upgrading existing projects to comply with or exceed current design and safety standards. This often includes removal and full replacement of structural components, such as a new spillway.



Deadman's Basin Dam (Wheatland County)

C. Water Storage and Hydropower Earnings Accounts:

State-owned water storage project dams classified as high-hazard that are in an unsafe condition receive first preference for use of funds from the state's Water Storage Special Revenue Account (Water Storage Account) (Section 85-1-704 MCA). This is a separate funding source from the Renewable Resource Grant and Loan program, which allocates interest revenue from the Resource Indemnity Trust Fund each biennium to be used exclusively for state-owned water storage projects. Another important funding source is the DNRC-SWPB Hydropower Program, where earned revenues from the sale of power are used to help finance the rehabilitation of other DNRC state-owned water storage projects, per MCA 85-1-220.

DNRC has requested additional spending authority from the Water Storage or Hydropower Earnings Accounts for the 2024-2025 biennium in the amounts of:

- \$16,900,000 for the final design of the East Fork Dam Rehabilitation Project, and
- \$500,000 grant from the Resource Development Grant Program, \$17,400,000 total.

D. Renewable Resource Grant and Loan (RRGL) Program:

The Renewable Resource Grant and Loan (RRGL) Program provides grant and loan funding for projects that conserve, manage, develop, or protect renewable resources. RRGL loans are made available to public entities with proceeds from the sale of coal severance tax secured bonds and frequently are offered at a subsidized interest rate. The subsidy is paid with coal tax revenues. The DNRC-SWPB did not apply for RRGL Program Grants for the 2024-2025 biennium, however, DNRC-SWPB is currently completing two RRGL projects from last session including:

- Ackley Lake Outlet Canal Rehabilitation Project (Judith Basin County), grant award of \$125,000.00
- Upper Musselshell Two Dot Canal Rehabilitation Project (Wheatland County), grant award of \$125,000.00



Two Dot Canal – Road Crossing and Check Structure Needing Repairs

II. WATER STORAGE PROJECTS PRIORITIZED:

One of the requirements of the water storage report is to prioritize state-owned DNRC water project proposals for the upcoming biennium. State-owned water projects that have dams classified as high-hazard that are in unsafe condition receive first preference for use of funds from the state's Water Storage Account. Additionally, revenue received from the state's Hydropower Earnings Account is used to assist in the rehabilitation costs of active state-owned water projects. Per the available funding, the following are SWPB's priorities:

1. DNRC East Fork Dam Rehabilitation Final Design
2. DNRC East Fork Dam Rehabilitation Construction
3. DNRC East Fork Dam Rehabilitation Environmental Planning
4. Willow Creek Dam Feasibility Study
5. DNRC Painted Rocks Dam Rehabilitation Environmental Planning
6. Willow Creek Final Design
7. DNRC Ackley Lake Outlet Canal Rehabilitation
8. DNRC Upper Musselshell Two Dot Canal Rehabilitation

Projects 1, 3, 4, and 5 are projects that are on-going from the 2021-2023 biennium. Project proposals for the 2024-2025 biennium and tabulates funding sources. Table 2 (page 11) lists ongoing or recently completed projects from the past biennium.

Other non-DNRC projects recommended for funding through the RRGL program include wastewater systems, municipal drinking water, water management, and irrigation water conveyance (not related to storage). Detailed project information and rankings on these non-state-owned projects can be viewed on the DNRC Grants and Loans Website at: <http://dnrc.mt.gov/divisions/cardd/resource-development>



Nevada Creek Dam Spillway (Powell County)

Table 2. New Projects – 2024-2026 Biennium Water Storage Project Proposals (in priority order)

Storage Project Name	RDG Grant Amount Requested /	Water Storage Account	RRGL Loan	Other Funding
DNRC East Fork Rehabilitation - Construction	\$500,000		\$16,900,000	Loan Repayment from Hydro Earnings
DNRC Willow Creek Phase 1	\$500,000			\$1,000,000 General fund one time only



Painted Rocks Dam-Driving Piling for New Bridge Abutments for Improved Access.

III. NEW PROJECT JUSTIFICATION FOR 2022-2023 BIENNIUM NEW PROJECT PROPOSAL PRIORITIZATION:

A. DNRC East Fork Dam Rehabilitation - Construction

East Fork Rock Creek Dam (EFRCD) is classified as a high-hazard dam and is located on the East Fork of Rock Creek in Granite County approximately 15 miles south of Philipsburg, . The dam is owned by the DNRC. The dam and reservoir are located within the Beaverhead-Deerlodge National Forest and the DNRC has a special use permit from the Forest Service (USFS) to operate and maintain the dam.

The reservoir impounded by the dam provides water for irrigation to the Flint Creek Water Users Association and offers recreational opportunities. The Flint Creek Water Users Association (WUA), as per contract with the DNRC, conducts day-to-day operations and maintenance. The DNRC performed a Feasibility Study for EFRCD that evaluated the existing condition of the dam and develop conceptual alternatives that would bring the dam into compliance with the State of Montana Dam Safety Act.

The primary rehabilitation considerations addressed in the Feasibility Study included the:

1. Existing spillway, which is undersized and in poor condition.
2. Significant seepage through the foundation under the dam.
3. Outlet works need rehabilitation, including extending the outlet conduit and replacing the outlet structure.

Alternative rehabilitation measures for the spillway, seepage control, and the outlet works were developed and final design is currently underway and anticipated to be complete in late 2023.

The selected EFRCD rehabilitation alternative that is under final design includes the following features:

- Removing and replacing the existing concrete spillway with a new concrete structure.
- Rehabilitating the outlet works by refurbishing the existing valves and repairing or
- Replacing other components of the outlet works system.
- Constructing a new gate house and gate tower access.
- Constructing various seepage control features along the downstream side of the dam.
- Installing new instrumentation to monitor performance of the new seepage control system.
- Constructing a new bridge across the spillway approach channel.
- Repairing riprap on the upstream dam face.

Project Budget		
Funding Source	Amount	Committed/Uncommitted*
State Special Revenue – Hydro Earnings Loan Repayment for RRGL Loan	\$16,900,000	Uncommitted
RDG Grant	\$500,000.	Committed
TOTAL	\$17,400,000	

* **Committed** designates funding is approved and available, **Uncommitted** designates the funding is being requested at the time this report is being submitted.



East Fork of Rock Creek Dam Spillway (Granite County)



Geotechnical Investigation Drilling at East Fork of Rock Creek Dam (Granite County)

B. Willow Creek Dam Rehabilitation Final Design (Madison County)

The Willow Creek Dam Project is located approximately four miles east of the town of Harrison in Madison County, . Construction of the Willow Creek Water Project was completed in 1938 by the State Water Conservation Board (SWCB). Currently, the Willow Creek Water Project consists of a 105-foot high, 453-foot long, earth and rockfill dam. In the past 84 years, many repair and maintenance projects have been undertaken to keep the system in good working order.

Rehabilitation of the Willow Creek Project has been identified as a crucial state need due to safety concern related to downstream residents, environmental impacts related to a potential dam breach, and water storage restrictions that affect the drought resiliency of the Missouri River Headwaters Region.

In cooperation with the Willow Creek Water Users Association, SWPB is engaged in a feasibility study to develop alternatives for embankment stability, seepage mitigation, and spillway replacement. The study will select a preferred alternative for advancement to environmental analysis and final design. The feasibility study is an ongoing project and will soon be followed with final design. We anticipate that the final design will need to include a new and potentially larger spillway, seepage mitigation measures, a new gatehouse and tower safety improvements, added instrumentation and any other items identified in the ongoing feasibility study.

The estimated project cost is \$1,500,000

Funding was as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
General Fund - OTO	\$1,000,000	Uncommitted
Resource Development Grant	\$500,000	Committed
TOTAL	\$1,500,000	



Willow Creek Dam – Installing Reservoir Transducer in 2021

IV. ONGOING OR RECENTLY COMPLETED PROJECTS

Table 3. Ongoing or Recently Completed Projects

Ongoing / Recently Completed Projects	RRGL or RGD Grant	Water Storage Account	RRGL Loan	Other Funding
A. DNRC Allendale Canal Intake and Fish Screen (Granite Co.) - Completed				\$3,000,000; Natural Resources Damage Program Inter-Agency Agreement
B. DNRC East Fork Dam Final Design (Granite Co.) Ongoing				DNRC State Project Hydro Earnings \$972,790
C. DNRC East Fork Dam Rehabilitation Environmental Planning (Granite Co.) Ongoing		\$98,265		
D. DNRC Painted Rocks Site Investigations and Feasibility Study (Ravalli Co.) - Completed		\$145,635		DNRC State Project Hydro Earnings \$942,014
E. DNRC Painted Rocks Toe Access (Ravalli Co.) - Completed		\$1,213,115		Construction Services Only
F. DNRC Painted Rocks Dam Environmental Planning (Ravalli Co.) Ongoing		\$98,804		
G. DNRC State Water Projects Planning Document- Completed		\$160,190		
H. DNRC Nevada Creek Douglas Canal Rehabilitation (Powell Co.) - Completed	\$124,331.50			DNRC SWPB and WUA In-Kind Services: \$96,656.19 WUA: \$7,170.75
I. DNRC Willow Creek Dam Rehabilitation Feasibility Study Ongoing	\$500,000 RGD Grant			DNRC State Project Hydro Earnings \$750,000
J. DNRC Broadwater-Missouri Canal System Study and Master Plan (Broadwater Co.) - Completed	\$124,579.50			DNRC SWPB In-Kind Services: \$107,706.07
K. DNRC Deadman's Basin Supply Canal Rehabilitation (Wheatland Co.) - Completed	\$125,000.00			DNRC SWPB and WUA In-Kind Services: \$32,247.10
L. DNRC SWPB Flow Measurement Equipment Purchase - Completed				DNRC State Project Hydro Earnings
M. DNRC Ackley Lake Outlet Canal Rehabilitation (Judith Basin Co.) Ongoing	\$125,000.00			DNRC SWPB and WUA In-Kind Services: \$35,046.85
N. DNRC Upper Musselshell Two Dot Canal Rehabilitation (Wheatland Co.) Ongoing	\$125,000.00			DNRC SWPB and WUA In-Kind Services: \$35,046.85 WUA: \$20,000

A. DNRC Allendale Canal Intake and Fish Screen (Granite County)-Completed

The DNRC State Water Projects Bureau in conjunction with the Montana Department of Justice Natural Resource Damage Program (NRDP) completed delivery of new irrigation infrastructure associated with two diversions on Flint Creek in Granite County in 2022. These diversions provide irrigation water delivery to farms and ranches surrounding the community of Hall including the State’s Allendale Canal which is operated and maintained by the Flint Creek Water Users Association.

This project was administered by DNRC and funded by NRDP as a component of the Final Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plan. Project goals included preventing fish entrainment in the Allendale canal and nearby private ditches, promoting fish passage on Flint Creek, and improving water delivery infrastructure to ensure long-term, sustainable irrigation.

Two new concrete diversions with fish passage capability were constructed with associated irrigation intake structures. Each diversion consisted of a concrete dam connected to a low-flow channel fishway. New concrete intake structures were incorporated at each diversion consisting of new irrigation delivery gates, added debris screening capability, sediment sluiceways, and safety features including walkways and handrails.

A vertical flat plate fish screen (125 cubic feet per second capacity) was installed on the State-owned Allendale canal. The vertical flat plate design consisted of 16 individual screen panels that can be individually lifted by a gantry system. A variable frequency drive motorized brush system cleans the screen and is associated with a programmable logic controller for cleaning settings. An 18 inch bypass pipe returns fish and debris back to Flint Creek. Three corrugated water screens were also installed on private irrigation ditches adjacent to the Allendale Diversion to prevent fish entrainment.

Parshall flume measurement devices were also included on each conveyance system. The Allendale canal included a concrete (cast-in-place) 10 foot throat width.

The final project cost including engineering and construction was \$2,997,261.

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
MT Dept. of Justice, NRDP (Inter-Agency Agreement)	\$2,997,261	Committed and Completed
TOTAL	\$2,997,261	



Allendale Canal Fish Screen Installation



Allendale Canal Intake Structure on Flint Creek



East Fork of Rock Creek Dam Spillway

B. DNRC East Fork Dam Rehabilitation Final Design (Granite County)

East Fork Rock Creek Dam (EFRCD) is classified as a high-hazard dam and is located on the East Fork of Rock Creek in Granite County approximately 15 miles south of Philipsburg. The dam is owned by the DNRC. The dam and reservoir are located within the Beaverhead-Deerlodge National Forest and the DNRC has a special use permit from the USFS to operate and maintain the dam.

The reservoir impounded by the dam provides water for irrigation to the Flint Creek Water Users Association (FCWUA) and offers recreational opportunities. The FCWUA, as per contract with the DNRC, conducts day-to-day operations and maintenance. The DNRC performed a Feasibility Study for EFRCD that would evaluate the existing condition of the dam and develop conceptual alternatives that would bring the dam into compliance with the State of Montana Dam Safety Act.

The primary rehabilitation considerations addressed in the Feasibility Study included:

1. Replacing the existing spillway.
2. Providing embankment seepage mitigation.
3. Rehabilitating the outlet works and replacing the outlet structure.

Alternative rehabilitation measures for the spillway, seepage control, and the outlet works were developed and the recommended alternatives are being carried forward into a final design effort, that is anticipated to be completed in late 2023.

The selected EFRCD rehabilitation alternative includes the following features:

- Removal and replacement of the existing concrete spillway with a new concrete structure.
- Rehabilitating the outlet works by refurbishing the existing valves and repairing or replacing other components of the outlet works system.
- A new gate house and gate tower access.
- Constructing various seepage control features along the downstream side of the dam.
- Installing new instrumentation to monitor performance of the new seepage control system.
- Constructing a new bridge across the spillway approach channel.
- Riprap repairs to the upstream dam face.

Project Budget		
Funding Source	Amount	Committed/Uncommitted
State Special Revenue – Hydro Earnings	\$800,000	Committed
TOTAL	\$800,000	

C. DNRC East Fork Dam Rehabilitation Environmental Planning (Granite County) - Ongoing

This project performs the necessary analyses for coordination with the USFS and U.S. Fish and Wildlife Service (USFWS) to ensure compliance with NEPA and ESA. Identifying an efficient path forward that addresses the significant environmental consultation and compliance required for the future rehabilitation is the focus of this planning study. The rehabilitation NEPA analysis, which will include consultation with the USFWS on how the dam and reservoir can be operated and managed with minimal impacts to Bull Trout, a threatened species under the ESA, will be an integral component of this study.

Estimated Project Cost \$98,265

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
Water Storage Account	\$98,265	Committed
TOTAL	\$98,265	

D. DNRC Painted Rocks Site Investigations and Rehabilitation Feasibility Study (Ravalli County)-Completed

Painted Rocks Dam is an on-stream reservoir located in Ravalli County. The dam is approximately 30 miles southwest of the town of Conner and is classified as a high-hazard dam due to the potential loss of life in the event of a dam failure.

The feasibility study evaluated alternatives to rehabilitate Painted Rocks Dam to meet existing dam safety and operational criteria. The existing spillway stilling basin requires repair, the outlet works are obsolete, and the project configuration limits site access for repair and maintenance activities. The alternatives analysis reviewed and analyzed spillway capacity and selected a preferred configuration; identified embankment stability issues; evaluated the cost and feasibility of developing a secondary outlet structure and provided final design and construction documents for a maintenance access road and bridge over the West Fork of the Bitterroot River.

The final cost for the feasibility study and final access design was \$1,087,649.33.

Funding was as follows:

Proposed Project Budget		
Funding Source	Amount	Committed/Uncommitted
Combined Water Storage Account/Hydro Earnings	\$1,087,649.33	Committed and Complete
TOTAL	\$1,087,649.33	



Painted Rocks Dam Spillway

E. DNRC Painted Rocks Dam Toe Access (Ravalli County)- Complete

The DNRC-SWPB completed access improvements to the downstream toe of Painted Rocks Dam in 2022. Access is required for ongoing operations and maintenance of the dam as well as future rehabilitation efforts. This project included construction of a bridge over the West Fork of the Bitterroot River approximately one-quarter mile downstream of the dam. It also included improvements to an existing access road and improvements to an existing two-track road on the west side of the river, from the new bridge to the downstream toe of the dam.

The final construction cost for the project was \$1,213,115

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
Water Storage Account	\$1,213,115	Committed and Completed
TOTAL	\$1,213,115	



Toe area of Painted Rocks Dam, Setting Bridge Beams for New Access.

F. DNRC Painted Rocks Dam Environmental Planning (Ravalli Co)-Ongoing

The focus of this planning study is providing the environmental data and analyses necessary for compliance with the Montana and National Environmental Policy Acts and ESA. This planning report will provide the basis for the permitting related consultation with the USFWS on how the dam and reservoir can be operated and managed with minimal impacts to Bull Trout, a threatened species under the ESA. This is a necessary and critical component of the future dam rehabilitation.

Estimated Project Cost is \$98,804

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
Water Storage Account	\$98,804	Committed
TOTAL	\$98,804	



Painted Rock Dam and Reservoir

G. DNRC State Water Projects Planning Document- Ongoing

This planning project is nearly complete and includes contracted services of \$160,190 for a condition assessment, preliminary cost estimates to repair, rehabilitate, and/or provide necessary alterations, and economic analysis of six active state-owned water storage projects. This effort will facilitate the prioritization of state-owned projects for future public investment or for possible transfer from state ownership. This effort will develop a standard method to produce benefit/cost studies to make better informed decisions on future project investments. It also develops standard Life Cycle Cost Models to better plan upcoming capital costs in a consistent manner.

Estimated Project Cost is \$160,190

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
Water Storage Account	\$160,190	Committed
TOTAL	\$160,190	



Frenchman Dam. 60-year-old Operating Gate, Recently Replaced

H. DNRC Nevada Creek Water Project Douglas Canal Rehabilitation (Powell County)-Completed

The Douglas Canal Rehabilitation project was completed in 2021 by the DNRC-SWPB in cooperation with the Nevada Creek Water Users Association (NCWUA) to enhance water and habitat conservation through the installation of water measurement systems, the rehabilitation and replacement of dilapidated and/or failing structures in the Douglas Canal System, and the rehabilitation of sections of stream bank along Nevada Creek. The project focused on efforts that not only increased the functionality of the existing irrigation infrastructure but also enhanced natural resource conservation, preservation, development, and management.

The Douglas Canal Rehabilitation resulted in many benefits. Rebuilding the irrigation infrastructure provided long-term sustainable irrigation to the Upper Blackfoot valley. New water measuring devices installed in the canal and stream gives the NCWUA the tools to accurately measure, manage, and conserve water. Lastly, rebuilding the degraded streams banks has helped to protect local infrastructure and increases the quality of aquatic and riparian habitat, enhancing both fisheries and wildlife resources.

The total project cost was \$217,894.44.

Funding was as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
RRGL Grant	\$114,067.50	Committed and Complete
NCWUA Funding	\$7,170.75	
DNRC SWPB and NCWUA In-Kind	\$96,656.19	
TOTAL	\$217,894.44	



Nevada Creek Douglas Canal - New Intake Structure

I. DNRC Willow Creek Dam Rehabilitation Feasibility Study (Madison County)-Ongoing

The Willow Creek Dam Rehabilitation Project is located approximately four miles east of the town of Harrison in Madison County. Construction of the Willow Creek Water Project was completed in 1938 by the SWCB. Currently, the Willow Creek Water Project consists of a 105-foot high, 453-foot long, earth and rockfill dam. In the past 84 years, many repair and maintenance projects have been undertaken to keep the system in good working order.

Rehabilitation of the Willow Creek Project has been identified as a crucial state need due to safety concern related to downstream residents, environmental impacts related to a potential dam breach, and water storage restrictions that affect the drought resiliency of the Missouri River Headwaters Region.

In cooperation with the Willow Creek Water Users Association, SWPB is engaged in a feasibility study to develop alternatives for embankment stability, seepage mitigation, and spillway replacement. The study will select a preferred alternative for advancement to environmental analysis and final design.

Estimated Project Cost \$750,000

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
State Hydro Earnings	\$750,000	Committed
TOTAL	\$750,000	



Willow Creek Dam – Upper Portion of Spillway

J. DNRC Broadwater-Missouri Canal System and Master Plan (Broadwater County)- Completed

The Broadwater Missouri Canal System Master Plan was completed in 2021 by DNRC-SWPB to qualify and quantify structural and management problems in canal system to increase water conservation and reduce operation and maintenance costs for the benefit of the Broadwater-Missouri Water Users Association (BMWUA). The Master Plan resulted in a wholistic analysis to increase the efficiency of the canal system, enhance safety, and to identify tools needed to manage the system more effectively.

The Master Plan identified areas where rehabilitation and irrigation management efforts can have the greatest positive impact on water conservation. Planning for the rehabilitation and preservation of vital irrigation infrastructure, identifying water conservation opportunities, and developing a strategy for effective system management are the primary, significant benefits of the master plan. Conserving irrigation water also has a direct, positive effect on State revenues at the adjacent Broadwater Power Project for flows redirected through the hydroelectric plant. The master plan allows the BMWUA and DNRC-SWPB to begin work on improving and enhancing canal system maintenance and operations, so current and future generations can continue to rely on the critical water it provides.

The final project cost was \$228,325.31.

Funding was as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
RRGL Grant	\$120,619.24	Committed and Complete
DNRC SWPB In-Kind	\$107,706.07	
TOTAL	\$228,325.31	



Broadwater-Missouri Project- Repair and Maintenance on Missouri River Pipe Span

K. DNRC Deadman’s Basin Supply Canal Rehabilitation Project (Wheatland County) - Completed

Completed in 2021, the Deadman’s Supply Canal Rehabilitation Project was a joint effort by the DNRC-SWPB and the Deadman’s Basin Water Users Association (DBWUA) to remove canal restrictions so that high spring flows in the Musselshell River can be converted into storage water in Deadman’s Basin Reservoir. This rehabilitation project widened and graded 5,500 linear feet of canal which resulted in increasing the canal flow rate from 350 to approximately 600 cubic feet per second (original design flow rate).

The Deadman’s Supply Canal Rehabilitation project resulted in a critical water conservation effort in the Musselshell River watershed. Having the ability to manage diversion and storage of high spring river flows ensures water is available late into the irrigation season. Release of stored water from Deadman’s Basin Reservoir into the Musselshell River late in the summer helps preserve aquatic habitat, water quality, and irrigation operation along a 110-mile section of the river. Knowing there will be a steady supply of water throughout the irrigation season allows producers to maximize the development of their croplands.

The final project cost was \$155,439.60.

Funding was as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
RRGL Grant	\$123,192.50	Committed and Complete
DNRC SWPB and DBWUA In-Kind	\$32,247.10	
TOTAL	\$155,439.60	



Deadman’s Basin Supply Canal – Transporting Excess Sediment

L. DNRC State Water Projects Bureau Flow Measurement Equipment Purchase - Completed

The DNRC-SWPB purchased state of the art water measurement equipment to assist field personnel by replacing outdated technology and low inventory from new Water Project measurement station installations. This new equipment is more reliable and now readily available for new water measurement station installations and to replace non-working components. The equipment purchase has resulted in faster measurement capabilities to assist the State Water Projects Bureau manage additional sites.

Specific water measurement equipment purchases included side looking doppler sensors, acoustic doppler current profilers, water velocity recorders, bubbler systems, satellite links, stage radar recorders, GPS antennas, solar panels, cabinet enclosures.

Equipment purchases utilized the complete funding amount of \$98,700

Project Budget		
Funding Source	Amount	Committed/Uncommitted
State Hydro Earnings	\$98,700	Committed and Complete
TOTAL	\$98,700	



Frenchman Dam. Workers installing new operating gate.

M. DNRC Ackley Lake Outlet Canal Rehabilitation Project (Judith Basin County) - Ongoing

The Ackley Lake State Water Project, which consists of a reservoir, dam, supply and outlet canals, is owned by the DNRC and is maintained by the Ackley Lake Water Users Association (ALWUA). The Ackley Lake Outlet Canal is a critical conveyance canal for the ALWUA system, providing water to 4,500 acres of agricultural land and was designed to serve as a mechanism to quickly release flows from Ackley Lake.

A 2,200-foot section of the Outlet Canal is constructed on porous granular soils that allows water to escape from the canal bottom and side slopes. With sustained use of the Outlet Canal, this creates flooding in the downgradient Philbrook Cemetery and Hobson Philbrook Road. Due to flooding of downstream areas, the ALWUA is unable to rely on the Outlet Canal as a route for reducing water levels in Ackley Lake during flood events or high runoff conditions. As a result, the ALWUA is forced to maintain lower lake levels throughout the irrigation season to leave storage space available in the lake to account for future unexpected inflows.

The lower lake levels limit water users from utilizing their full allotment of water for irrigation purposes throughout the season, as lower lake levels are required to reduce the risk of dam failure from unexpected high-volume events. The proposed project will mitigate this water loss through seepage abatement measures and as a result conserve 750 acre-feet of water, restore crop production up to 16%, improve management of the ALWUA system, improve fish and wildlife habitat in the Judith River and Ackley Lake, and preserve recreational opportunities for Montanans.

The proposed project will involve reshaping and grading the existing canal to a consistent cross-sectional geometry and gradient, vegetation removal, and liner installation along a 2,200 linear foot reach of ALWUA Outlet Canal near the Philbrook Cemetery. The proposed project will provide conservation, preservation, development, and management benefits for the ALWUA shareholders and the State of Montana.

Estimated Total Project Cost \$160,046.85.

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
RRGL Grant	\$125,000	Committed
DNRC SWPB In-Kind	\$35,046	Committed
TOTAL	\$160,046	

N. DNRC Upper Musselshell Two Dot Canal Rehabilitation Project (Wheatland County) - Ongoing

The Two Dot Canal is part of the Upper Musselshell Project, owned and managed by the DNRC and maintained and operated by the Upper Musselshell Water Users Association (UMWUA). Built in 1939, the Upper Musselshell Project consists of two storage reservoirs (Bair and Martinsdale), two supply canals, one outlet canal, and two distribution canals. Water from the Project is primarily used for agricultural irrigation, water-based recreation, and the regulation of stream flows. The primary purpose of the Two Dot Canal Rehabilitation Project is to mitigate seepage losses, therefore improving irrigation delivery efficiency, water conservation, management of the system, and agricultural production.

The 32-mile long Two Dot Canal System supplies irrigation water to farms and ranches surrounding the communities of Two Dot and Harlowton. Implementation of Two Dot Canal Rehabilitation project will conserve an estimated 38.4 million gallons of irrigation water lost to canal seepage and provide sustainable agricultural development by increasing crop production by 5% for the 2,500 acres below the project area. Water users near the end of the Two Dot Canal System will benefit from reliable water deliveries throughout the irrigation season.

Estimated Project Cost \$180,046.85.

Funding is as follows:

Project Budget		
Funding Source	Amount	Committed/Uncommitted
RRGL Grant	\$125,000.00	Committed
UMWUA Contribution	\$20,000.00	Committed
DNRC SWPB In-Kind	\$35,046.85	Committed
TOTAL	\$180,046.85	



Upper Musselshell Two Dot Canal (near Mexican John drainage)

V. DNRC HYDROPOWER PROGRAM

The Hydropower Section of the DNRC-SWPB administers the development and operation of hydropower facilities on state-owned water projects. To date, one hydropower facility, the Broadwater Power Project near Toston, has been built.

A. DESCRIPTION

The Broadwater Power Project is a 10 megawatt, run-of-river hydroelectric project owned and operated by the DNRC-SWPB. The Project is located on the Missouri River, near the town of Toston. The site is about 20 river miles downstream of the headwaters of the Missouri River and about 20 river miles upstream from Canyon Ferry Reservoir. The original surface area of the reservoir was 327 acres, and the original storage capacity was approximately 4,100 acre-feet at full pool. A 2018 bathymetric survey found the reservoir surface area to be 275 acres and the volume to be approximately 2,400 acre-feet due to silting over the intervening years. The drainage area feeding the Project is about 14,669 square miles.

The Broadwater Project is a concrete gravity overflow dam, with a total length of approximately 630 feet. It is 24 feet high to the top of the gravity overflow section and 40 feet high to the tops of the abutment walls on either end. The maximum dam height from the bottom of foundation concrete to the top of the abutments is approximately 50 feet. The upstream face of the dam is vertical. The downstream face is a modified ogee section with an apron that extends 75 feet downstream from the upstream face of the dam. At either end of the dam, parallel to its axis, are counterfort abutment walls, which extend into the abutments and function as concrete seepage cutoff walls.

The spillway consists of seven spillway bays, each 54 feet wide, separated by six reinforced concrete piers, each three feet wide and about 20 feet long. The original spillway was fitted with needle beams and flashboards to regulate the water levels. Seven rubber gates are now used to control water levels. Each nylon reinforced rubber gate is approximately 51 feet long and 11 feet tall and can be individually regulated to control the reservoir pool level when the Missouri river flows exceed the 6600 cubic feet per second turbine rating or when the turbine is offline.

Air bag inflation is regulated through four compressor houses that sit atop the concrete piers between the spillway sections. Compressors and valves inflate and deflate the gates in response to commands received from the Powerhouse Control Room. The gates in the six northern bays are automatically regulated to maintain the headwater elevation. The gate in the southernmost bay is controlled manually. Air pressure signals from the gates are transmitted to the controller in the Powerhouse. Inflation pressures required for their operation are approximately equal to the maximum hydrostatic pressure exerted on them by the water retained behind them, or about five to six pounds per square inch (psi).

Water flows into the powerhouse through two inclined trash racks, each 20 feet wide and 40 feet high. The trash racks are cleared of debris with an automated trash rake. The water then flows on either side of a concrete and steel turbine pit, through 16 turbine wicket gates, then through the turbine. Flow from the turbine discharges into a draft tube 30 feet high, 40 feet wide, and 90 feet long.

The powerhouse is a reinforced concrete structure constructed in the left abutment between 1987 and 1989. Electric power was first generated at this installation in June 1989. The powerhouse is approximately 160 feet long, with a maximum width of 46 feet and a maximum height above the foundations of about 64 feet. To construct the powerhouse, a portion of the concrete counterfort abutment wall constructed as part of the original dam was removed. The powerhouse contains a single, horizontally mounted double-regulated

Kaplan turbine in a pit-type configuration. The turbine has a capacity of 10 megawatts (MW) at a rated head of 21 feet and flow of 6630 cfs. It typically operates at a 1.0 power factor.

The generator produces power at 4160 volts ac, which is stepped up in voltage to 100 kilovolts (kV) using an on-site transformer. The power is then transmitted over a three-mile-long transmission line to the DNRC-SWPB owned Broadwater Substation where it connects to the NorthWestern Energy 100kV line between East Helena and Trident.

B. FINANCING/REVENUE

Original construction bonds were issued September 1991 for \$21,735,000 which was used to cover the cost of constructing the Broadwater Project. The bonds were refinanced September 2001 to lower the cost of the debt payment. The last payment on the construction bonds was made on December 1, 2017.

All the electricity produced is sold to NorthWestern Energy under a 35-year Power Purchase Agreement which runs through June 2024. Revenues remaining after bond payments and operation costs are used to help finance the rehabilitation of other DNRC-SWPB water projects. For average water flows, Broadwater generates roughly 53 million kilowatt-hours of electricity and typically earns between \$4,000,000 and \$5,000,000 in energy and capacity revenue annually. After construction bond payments and operating expenses, approximately \$2,000,000 is available to rehabilitate state-owned dams annually. Gross revenues for the last nine fiscal years were:

- Fiscal Year 2022: \$4,881,793
- Fiscal Year 2021: \$3,611,782
- Fiscal Year 2020: \$6,314,040
- Fiscal Year 2019: \$5,610,863
- Fiscal Year 2018: \$4,642,635
- Fiscal Year 2017: \$5,058,265
- Fiscal Year 2016: \$4,751,849
- Fiscal Year 2015: \$5,126,321
- Fiscal Year 2014: \$4,221,877

C. HISTORY

The DNRC-SWPB owns and operates the Broadwater Project. It was one of many state-owned water storage projects built by the Montana State Water Conservation Board (Board). These projects were built during the 1930's to take advantage of the federal government's Public Works Administration's efforts to offset depression era economics as well as mitigating the effects of long-term drought. The DNRC-SWPB is the successor to the Board. Original construction of what was then known as the Broadwater-Missouri Dam was completed in 1940.

In May 1982, the DNRC submitted an application for license for the Broadwater Dam Project to the Federal Energy Regulatory Commission (FERC). Between 1987 and 1989, the powerhouse was constructed in the left abutment containing a single, pit-Kaplan 10 MW hydroelectric generating unit. Commercial power production began in June 1989.

In 2000, a rock embankment jetty was placed between the canal and turbine intakes. It extends out from the dam 130 feet into the reservoir to separate the flow paths of the irrigation diversion and the powerhouse intake. A primary design consideration of the jetty was minimizing the amount of debris at the canal diversion headgates.

A new automated track rake was installed at the turbine intake in 2002. The trash rake cleans debris from the intakes of the powerhouse and greatly reduces shutdowns of the power plant for intake cleaning and maintenance. Also, a new steel deck was constructed upstream of the dam at river left, adjacent to the powerhouse, during the summer of 2002 to facilitate handling and storage of debris.

A bridge construction project replaced the original timber deck over the dam's spillway during the summer and fall of 2006. The original bridge structure (built in 1940) was removed, new concrete pedestals were poured in place, and a steel girder structure with a reinforced concrete deck was installed. The approaches at both ends of the bridge were regraded and Mechanically Stabilized Earth (MSE) block retaining walls were built to stabilize the steep side slopes. At the same time, an MSE block retaining wall was installed with new fencing around the canal intake to facilitate maintenance and public safety. The bridge serves as a primary maintenance access and provides public recreational access to the east side of the river.

In 2012, the rubber bladder gate in Bay 5 failed along a seam. Analysis determined the remaining gates had exceeded their design life and required replacement. All seven rubber gates were replaced in 2014. MWH Americas was the design engineer, Dyrhoff Limited was the supplier for the replacement gates (which were manufactured by Huaxia), and NW Construction completed the installation. As part of this effort, additional site improvements were made steel bulkheads were procured to replace the old wooden flashboards; ladders and catwalks were installed to facilitate inspection of the gates and spillway; and additional valves were added to allow air pressure control of individual gates, instead of in pairs. Also, the approach to the left side of the spillway bridge was paved to provide safer access to the bridge deck.

More recent Project improvements include:

- A redundant Internet Service Provider (ISP) was established so that Project Internet communications are never interrupted.
- A new Control Room has been constructed. It provides a better and safer environment for Operators with less electrical equipment nearby, and more space for operating interfaces and camera displays. Numerous changes to the Supervisory Control and Data Acquisition (SCADA) system have been made including replacement of the Programmable Logic Controllers (PLCs), improvements in reporting plant alarms to Operators when they are off-site, better Human-Machine Interface (HMI) displays, a local weather sensor and displays, camera improvements, and longer retention of camera and plant data.
- The original hatches on the Powerhouse roof were past their useful lifetime and presented sealing issues. They were replaced with weatherproof metal hatches and include ventilation fans to cool the facility more efficiently.
- The cooling water pumps from the original construction of the facility were replaced with Variable Frequency Drive controllers and pumps for better control. The original manual strainers were replaced with automatic self-cleaning strainers for increased efficiency and less risk to personnel. Additional instrumentation was added as part of the upgrade.
- The station water system was replaced with an updated system, which included separating station water from the gate flushing system for better performance and control.
- The two dewatering pumps, used to remove water from the waterway prior to entry for inspection or maintenance, were replaced.
- The station air compressor was obsolete and allowed excessive water vapor in the lines. It was replaced with a compressor and dryer of modern design.
- The electric motors, blowers, and valve actuators in all four blowerhouses were replaced.

D. IRRIGATION

The project was originally constructed in 1940 as an irrigation diversion structure by the State Water Conservation Board as the Broadwater-Missouri Diversion Project. Water from the reservoir continues to be used for irrigation. It is diverted into the main canal through a headgate structure to the west of the powerhouse. The turbine and canal intakes are separated by a rock embankment jetty.

Immediately downstream of the irrigation canal intake, a transition section conveys the flow from the intake to a box culvert section ten feet wide by seven feet high, approximately 400 feet long. The box culvert discharges through another transition section into the main Broadwater-Missouri Canal. At the end of the main canal, approximately 1.5 miles from the intake, an 84-inch diameter steel pipe flume, 667 feet long, conveys much of the flow across the Missouri River into the Eastside Canal.

The main Broadwater-Missouri Canal has a capacity of 342 cfs and is 1.5 miles long before it splits into the Eastside and Westside Canals. The Eastside Canal has a capacity of 262 cfs and is 34.3 miles long while the Westside Canal has a capacity of 90 cfs and is 12.4 miles long. The dam is operated by the DNRC-SWPB in conjunction with the BMWUA. Prior to construction of the powerhouse, BMWUA operated the dam. After project modifications in 1989, the BMWUA role is limited to the operation of the irrigation canal system, while SWPB personnel operate and maintain the dam and powerhouse.

E. FUTURE PLANS

The FERC-issued license for the Broadwater Power Project was issued for 35 years and expires on June 30, 2024. Project staff, along with a contracted consultant, are well along in the process of relicensing. Required studies, including water quality and fish entrainment, are completed. No changes to Project operation are expected because of relicensing. A Draft License Application (DLA) was submitted in January 2022 and comments were received. The Final License Application (FLA) was filed in late June 2022 and incorporated changes based on DLA comments. Staff is responding to FERC questions and data requests. A new license is anticipated to be issued by June 30, 2024.

The Power Purchase Agreement (PPA), currently with NorthWestern Energy, also expires as of July 1, 2024. Contracts with consultants having expertise in this area are being hired. Potential power purchasers are being contacted. This effort is expected to require significant staff time and attention in the next two years.

With the completion of bond repayment, additional funding is available for application to catching up on deferred maintenance and upgrades. This effort includes the following items:

- A Preliminary Engineering Report on alternatives to replace the rock jetty originally constructed to reduce debris loading on the Broadwater-Missouri Canal intakes was completed. In addition to jetty replacement, work will include installing erosion control measures along the bank at the BLM Upper Toston Recreation Site and assessing existing irrigation canal control gates alternatives. The erosion control measures will be installed in the spring of 2023. Replacement of the jetty and other measures will be completed in 2024 and 2025.
- Installation of fiber optic cable from the powerhouse to the substation to enable backup Internet service, establish a backup control room, and allow off-site backup of operational data will be installed in the 2023/2024 timeframe.
- Protective relaying upgrades to take advantage of modern microprocessor-based protection of the high-voltage lines, generator, and transformer are planned for implementation in the next few years.
- Automation upgrades including sensor upgrades, replacement of Input/Output (I/O) cards to transmit field data to the SCADA system, and necessary coding changes to take advantage of these changes are ongoing.

- Modernization of the Trash Rake including replacing sensors on the on-board Programmable Logic Controller (PLC) with modern equipment and upgrading the algorithms in the PLC will be completed in the next few years.



Broadwater Power Project, Missouri River near Toston, Montana

VI. APPENDIX A

A. Water Storage Policy and Statutory Criteria

The 1991 Montana Legislature passed into law a policy to define when water storage is the best solution for solving specific water problems. When storage is determined to be the best alternative, the policy identifies criteria to use in ranking state-funded projects. (Sections 85-1-701-704 MCA).

85-1-703. Water storage policy

(1) The legislature recognizes that water resources needs are growing, existing water facilities are aging and in need of repair, and new water storage projects have become more difficult to complete. Other types of actions will be needed to solve many emerging problems, but if storage is the best way to meet growing water needs and solve problems, it should be actively pursued.

(2) In determining the best solution for a particular water management problem, the state shall:

- a. carefully define the problem;*
- b. identify all options to solve the problem, including water storage;*
- c. determine whether water is physically and legally available to solve the problem; and*
- d. select the option that best meets the following criteria:*
 - i. technical feasibility;*
 - ii. financial feasibility;*
 - iii. economic feasibility;*
 - iv. political feasibility;*
 - v. legal feasibility; and*
 - vi. environmental feasibility.*

B. Water Storage Project Prioritization Policy

The statute calls for this report to the legislature and describes its requirements. The statute also identifies different criteria to be used to prioritize new water storage projects, storage rehabilitation projects, and budget priorities for the allocation of state water storage development funds. Section 85-1-704 prioritization of water storage projects - governor's report, states:

1) The governor shall submit to the legislature a report in accordance with 5-11-210 identifying specific water storage projects proposed for development, including the rehabilitation of existing projects and new project proposals. The report must contain:

- a. A list of water storage project priorities;*
 - b. an implementation strategy for each priority project that identifies resources (including specific budget requests), government actions, and other actions needed to accomplish the project; and*
 - c. a progress report on the development of water storage projects during the previous 2 years.*
- 2) In setting priorities among new water storage projects, the governor shall consider whether a project:*
- a. Solves a severe water problem;*
 - b. Provides multiple uses and benefits;*
 - c. Provides for public uses;*
 - d. Shows strong evidence of broad citizen support;*
 - e. Is able to obtain non-state sources of funding;*
 - f. Protects and seeks to enhance social, ecological, cultural, aesthetic values;*
 - g. Improves local and state economic development;*

- h. Could resolve Indian and Federal reserved water rights issues;*
 - i. Supports water conservation activities; and*
 - j. Promotes the use of water reserved under Montana law.*
- 3) *In setting priorities among water storage rehabilitation projects, the governor shall consider whether the project:*
- a. Is needed to protect public safety;*
 - b. Has impacts if not repaired or rehabilitated; and*
 - c. Accomplishes the goals listed in subsection (2a) through (2j).*
- 4) *In establishing budget priorities for the allocation of state storage development funds:*
- a. First preference must be given to projects that resolve threats to life and property posed by high-hazard facilities that are in an unsafe condition;*
 - b. Second preference must be given to projects that improve or expand existing water storage facilities; and*
 - c. Third preference must be given to the planning and construction of new water storage facilities.*



Emergency spillway repairs at Fred Burr Dam after annual inspection discovered voids under the spillway floor.

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North Fork Smith River Dam, Meagher County

