Water Storage in Montana

A Report Submitted to the Sixty Ninth Montana Legislature

Office of the Governor

Pursuant to Montana Code Annotated, Sec. 85-1-704

September 2024

East Fork of Rock Creek Dam Spillway, Granite County

Contents

EXECUTIVE SUMMARY

Montana law requires the Governor to submit a report on water storage to the Legislature. 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 (DNRC) Water Resources Division State Water Projects Bureau (SWPB) proposes six new projects for this biennium.

State Special Revenue accounts fund improvements for state owned water projects, including dams and canals. Additionally, the SWPB utilize Renewable Resource Grant and Loan (RRGL) funding from Legislative Sessions to assist funding water storage improvements. SWPB also received American Rescue Plan Act (ARPA) funding and continues to pursue additional Federal grant and funding opportunities for State Water Project rehabilitations.

New projects proposed for 2025 and 2026 timeframe:

- DNRC Broadwater Power Project Upgrades (Broadwater County), estimated cost $2,000,000.00 – funded by State Project Hydro earnings.

- DNRC East Fork of Rock Creek Dam Rehabilitation Construction Supplement (Granite County), estimated cost $500,000.00 – funding request from RRGL program.
    - East Fork of Rock Creek Dam Rehabilitation Construction underway (State Project Hydro earnings repayment for RRGL loan, debt relief of State Bond, as of 8/21/24).

- DNRC Broadwater Jetty & Main Canal Rehabilitation Construction (Broadwater County), estimated cost $7,000,000.00 – funded by State Project Hydro earnings.

- DNRC Tongue River Programmable Logic Controller (PLC) Replacement Construction (Big Horn County), estimated cost $140,000.00 – funded by Water Users Association contribution.

- DNRC Willow Creek Dam Rehabilitation Final Design (Madison County), estimated cost $1,000,000.00 – funded by 2023 HB 2, pending federal grant, and State Project Hydro earnings.

- DNRC Willow Creek Dam Rehabilitation Construction (Madison County), estimated cost $14,500,000.00 – funding request from RDG and RRGL programs.

East Fork of Rock Creek Dam Rehabilitation, Granite County

Ongoing projects:

- DNRC East Fork of Rock Creek Dam Rehabilitation Construction Contract Administration (Granite County), estimated cost $1,200,000.00.
- DNRC State Water Projects Planning Document, estimated cost $160,190.00.
- DNRC Broadwater Jetty & Main Canal Rehabilitation Final Design (Broadwater County), estimated cost $1,500,000.00.
- DNRC Flint Creek Main Canal Improvements Project Construction (Granite County), estimated cost $544,638.00 (ARPA Award of $272,319.00).
- DNRC Willow Creek Dam Rehabilitation Feasibility Study (Madison County), estimated cost $836,400.00.
- DNRC Painted Rocks Dam Rehabilitation Environmental Planning (Ravalli County), estimated cost $98,804.00.

Painted Rocks Dam Spillway, Ravalli County

Recently completed projects:

- DNRC Tongue River Dam Spillway Stilling Basin Erosion Repair (Bighorn County), cost $120,369.00.
- DNRC East Fork of Rock Creek Dam Rehabilitation Environmental Planning (Granite County), cost $98,265.00.
- DNRC Upper Toston Recreation Area Shoreline Stabilization (Broadwater County), cost $113,378.00.
- DNRC Ackley Lake Outlet Canal Rehabilitation Project (Judith Basin County), cost $422,622.90.

- DNRC Upper Musselshell Two Dot Canal Rehabilitation Project (Wheatland County), cost 174,971.85.

- DNRC East Fork of Rock Creek Dam Rehabilitation Final Design (Granite County), cost $972,790.00.

Ackley Lake Outlet Canal Rehabilitation, Judith Basin County

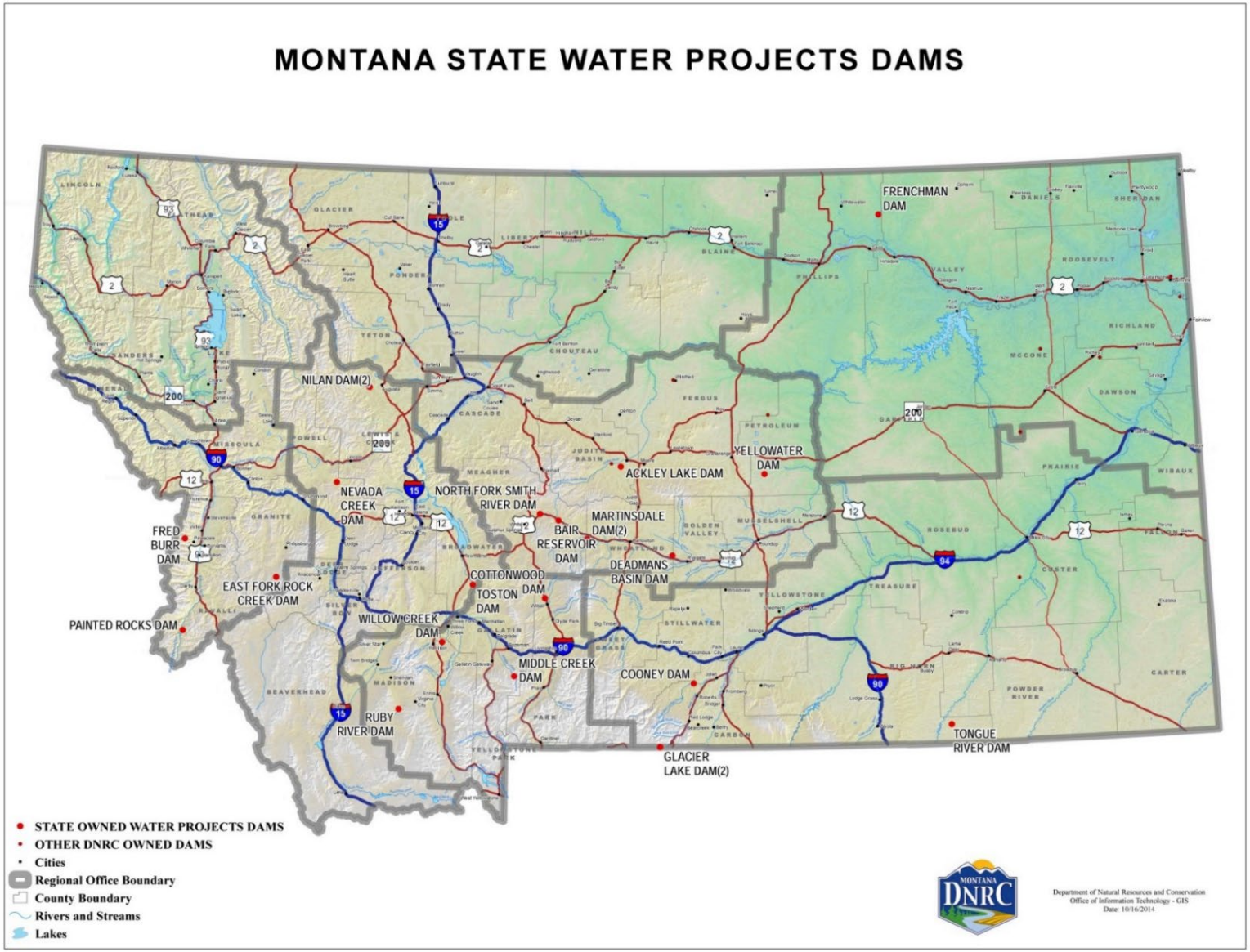


Figure 1 – Location Map of State Water Projects

STATE-OWNED WATER PROJECTS

Table 1 - List of State Water Projects

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

[1] With the exception of Frenchman Dam, all of 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. This report focuses on projects funded by the state, under the administration and ownership of the DNRC State Water Projects Bureau.

A. DNRC State Water Projects Bureau

The State Water Projects Bureau (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 (See previous pages). Additional information can be viewed on the DNRC WRD web site at: https://dnrc.mt.gov/Water-Resources/State-Owned-Dams-and-Canals/. 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 1,872 water-marketing contracts through local water user associations. Currently, 322,847 acre-feet of water is marketed by the SWPB to water users associations across the state. Revenue from SWPB's Broadwater (hydropower generation) Project fund state water project rehabilitations and continued operation of the Broadwater Project (operation expenses, maintenance obligations, and capital investments). Rehabilitation debt repayment funds come from loan repayment contracts with the water users associations, as well as utilizing State Project Hydropower earnings.

The SWPB ensures projects are operated and maintained in a safe, efficient manner, are kept to current dam safety standards, and 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.

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. The state's highest priority for repair and rehabilitation is assigned to high-hazard dams 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.

Spillway Repairs at Painted Rocks Dam, Ravalli 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 hydroelectric power generation account, where 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 continued spending authority from the Water Storage and Hydropower Earnings Accounts for the 2025-2026 biennium and includes additional spending authority for the following RDG and RRGL program amounts in the following sections.

D. Reclamation and Development Grants (RDG) Program

The Montana Reclamation and Development Grants (RDG) Program, managed by the DNRC's Conservation and Resource Development Division, has the ability to fund projects that meet a crucial state need and must prevent or eliminate severe and unacceptable damage to natural resources or capture extraordinary public benefit that would otherwise be lost. They must have a regional, watershed, or

statewide importance. Public benefit from implementation of this type of project must directly relate to natural resources. The DNRC-SWPB applied for the following grants for the 2025-2026 biennium:

- DNRC East Fork of Rock Creek Dam Rehabilitation Construction Supplement (Granite County), Grant Request of $500,000.00.
- DNRC Willow Creek Dam Rehabilitation Construction (Madison County), Grant Request of $500,000.00.

E. Renewable Resource Grant and Loan (RRGL) Program

The Montana Renewable Resource Grant and Loan (RRGL) Program, managed by the DNRC's Conservation and Resource Development Division, 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 applied for the following RRGL Program Loan for the 2025-2026 biennium:

- DNRC Willow Creek Dam Rehabilitation Construction (Madison County), Loan Request of $14,000,000.00.

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: https://dnrc.mt.gov/Conservation/Grant-and-Loan-Programs/.

Deadman's Basin Supply Canal Rehabilitation, Wheatland County

II. WATER STORAGE PROJECTS PRIORITIZED

One requirement of the water storage report is to prioritize state-owned DNRC water project proposals for the upcoming biennium. State-owned water projects with high-hazard dams in an unsafe condition receive first preference of funds from the state's Water Storage Account. Additionally, revenue 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 of Rock Creek Dam Rehabilitation Construction Contract Administration-Ongoing
2. DNRC East Fork of Rock Creek Dam Rehabilitation Construction Supplement-Started Fall 2024
3. DNRC East Fork of Rock Creek Fish Screen Seal Modifications-Ongoing
4. DNRC State Water Projects Planning Document-Ongoing
5. DNRC Broadwater Jetty & Main Canal Rehabilitation Final Design-Ongoing
6. DNRC Broadwater Jetty & Main Canal Rehabilitation Construction-2025
7. DNRC Broadwater Dam Upgrades-2025 & 2026
8. DNRC Flint Creek Main Canal Improvements Project Construction-2025
9. DNRC Tongue River Dam Programmable Logic Controller (PLC) Replacement Construction-Starting 2024
10. DNRC Willow Creek Dam Rehabilitation Feasibility Study-Ongoing
11. DNRC Willow Creek Dam Rehabilitation Final Design-TBD
12. DNRC Willow Creek Dam Rehabilitation Construction-TBD
13. DNRC Painted Rocks Dam Rehabilitation Environmental Planning-Ongoing

Projects 1, 3-5, 10 and 13 are on-going from the 2023-2024 biennium. New project proposals for the 2025-2026 biennium with funding sources are shown in Table 2. (Page 7).

Toston Dam Mitigation Wetland, Broadwater County

Table 2. New Projects – 2025-2026 Biennium Water Storage Project Proposals (in priority order)

Storage Project Name	RDG Grant Amount Requested	RRGL Loan	*HHPD Federal Funding	Other Funding
A. DNRC East Fork of Rock Creek Dam Rehabilitation Construction Supplement (Granite Co.)	$500,000.00	--	--	--
B. DNRC Broadwater Jetty & Main Canal Rehabilitation Construction (Broadwater Co.)	--	--	--	State Project Hydro Earnings $7,026,927.00 (current estimate)
C. DNRC Broadwater Power Project Upgrades (Broadwater Co.)	--	--	--	State Project Hydro Earnings $2,000,000,00
D. DNRC Tongue River Programable Logic Controller (PLC) Replacement Construction (Bighorn Co.)	--	--	--	TRWUA Contribution $171,513.00
E. DNRC Willow Creek Dam Rehabilitation Final Design (Madison Co.)	--	--	$310,000 (pending)	HB 2 2023 Session $500,000.00 State Project Hydro Earnings $190,000.00
F. DNRC Willow Creek Dam Rehabilitation Construction (Madison Co.)	$500,000.00	$14,000,000.00	TBD	WCWUA Contribution ~$3,000,000.00 State Project Hydro Earnings $2,500,000.00

*High Hazard Potential Dam (HHPD) awarded through Federal Emergency Management Agency (FEMA)

East Fork of Rock Creek Reservoir, Granite County

III. NEW PROJECT JUSTIFICATION FOR 2025-2026 BIENNIUM NEW PROJECT PROPOSAL PRIORITIZATION

A. DNRC East Fork of Rock Creek Dam Rehabilitation Construction Supplement (Granite County)

East Fork of Rock Creek Dam (EFRCD) is a high-hazard dam on the East Fork of Rock Creek in Granite County, approximately fifteen miles south of Philipsburg. The dam is owned by the DNRC. The dam and reservoir are within the Beaverhead-Deerlodge National Forest and the DNRC has an Agricultural Irrigation and Livestock Watering System Easement from the Forest Service (USFS) to operate and maintain the dam and associated canals.

The reservoir provides 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 to bring the dam into compliance with dam safety standards.

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 rehabilitation, including extending the outlet conduit and replacing the outlet structure.

Rehabilitation measures for the spillway, seepage control, and the outlet works were developed and final design was completed in late 2023. A public bid opening was held in the spring of 2024 and the project was awarded to Missouri River Contractors, LLC. Construction started in Summer of 2024.

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted***
State Project Hydro Earnings repayment for RRGL loan (Debt Relief of State Bond, as of 8/21/2024)	$20,000,000.00	Committed
State Project Hydro Earnings	$1,500,000.00	Committed
RDG Grant (2023 Legislative Session)	$500,000.00	Committed
RDG Grant (2025 Legislative Session)	$500,000.00	Uncommitted
TOTAL	$22,500,000.00	

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

B. DNRC Broadwater Jetty & Main Canal Rehabilitation Construction (Broadwater County)

The Broadwater-Missouri Project is located at the Toston Dam, approximately 6 miles south of Toston. The Main Canal infrastructure is owned by the SWPB and operated by the Broadwater-Missouri Water Users Association. The project consists of the construction of a new irrigation headrace with intake and outlet structures and submerged 2720mm HDPE pipe conduit, trash screens, and new irrigation headworks gates at Toston Dam. Specific construction tasks include:

- Dredging and excavation of the existing jetty, pipe subgrade and headrace intake and outlet structure subgrades, including rock excavation.
- Installation of drilled piles for the headrace intake and outlet structures and outlet cutoff wall.
- Construction of tremie-placed concrete base slabs for all structures.
- Construction of a closure pile assembly connecting the outlet cutoff wall to the dam.
- Supply and installation of all steel structures in the reservoir, new intake trash screens and intake bulkheads.
- Supply, assembly, and installation of large-diameter HDPE pipes and concrete ballast for the headrace conduit.
- Tremie-placed mass concrete infill for the structures and pipe anchorage
- HDPE pipe infill and secondary ballast placement.
- Construction of a grouted embankment closure section connecting the headrace outlet to the dam abutment.
- Construction of a tremie-placed concrete slab for the outlet wet well.
- Demolition of the existing dam irrigation gates and repair of the existing gate frames.
- Supply and installation of 4 new dam irrigation gates, electric actuators, power supply, and connection and integration to plant SCADA (Supervisory Control and Data Acquisition) system.
- Reclamation and seeding of all areas disturbed by project activities.

Proposed project is only through 60 percent design, construction is tentatively scheduled to begin in Fall 2025.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted***
State Project Hydro Earnings	$7,026,927.00 (current engineer's estimate)	Committed

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

C. DNRC Broadwater Power Project Upgrades (Broadwater County)

The Broadwater-Missouri Water Project and Toston Dam were constructed in 1940. A hydroelectric plant (Broadwater Dam Project) was installed on the left side of the Toston Dam between 1987 and 1989. The project is owned by the DNRC and managed by the SWPB. The Broadwater-Missouri Water Users Association (BMWUA) operates and maintains the canal through a water marketing agreement with DNRC. Water diverted from the Missouri River is used for agricultural irrigation in the communities surrounding Toston and Townsend, MT.

The Broadwater Power Project is 35 years old, and the ageing infrastructure requires upgrades to continue successful operation and maintenance. Over the next several years, SWPB needs to accomplish a large number of improvements and repairs. For 2025, we have an initial list of priorities, including:

- Placement of overhead fiber optic cable between the Powerhouse and substation (estimated cost $300,000.00) to allow for future upgrades including protective relaying, security cameras, and back-up for the Control Room.
- Refurbish Governor System (high pressure oil to control wicket gates and turbine pitch, estimated cost $500,000.00). The system is old and increasingly unreliable and is essential to plant operation.
- Extend SCADA (Supervisory Control and Data Acquisition) network to blower houses (estimated cost $200,000.00) to ensure continued safe automated control of gates, instrumentation of river levels, and monitoring of blower house conditions.

The estimated project cost for the biennium is $2,000,000.00.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Projects Hydro Earnings	$2,000,000.00	Committed

Broadwater Power Project viewed for the Transmission Line, Broadwater County

D. DNRC Tongue River Programmable Logic Controller (PLC) Replacement Construction (Bighorn County)

Tongue River Dam is a high hazard dam on the Tongue River in Bighorn County, approximately five miles north of Decker. The dam is owned by the DNRC.

The reservoir provides irrigation to the Tongue River Water Users Association (TRWUA) and offers recreational opportunities. The TRWUA, as per contract with the DNRC, conducts day-to-day operations and maintenance. The Gate Control PLC is being replaced due to age, and it is no longer supported by original equipment manufacturer.

H2E (consultant) completed an alternative analysis as part of their Preliminary Engineering report in Spring of 2024. The preferred alternative is to replace the existing PLC system with a 5380 Compact Logix PLC, with a PanelView Plus 7 Standard. This construction contract is proposed for bid in Fall 2024 with construction beginning in January 2025, and finishing by Spring 2025.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted***
TRWUA	$171,513.00	Uncommitted

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

Tongue River Accumulator Work, Bighorn County

E. DNRC Willow Creek Dam Rehabilitation Final Design (Madison County)

The Willow Creek Dam Project is located approximately four miles east of Harrison in Madison County. Construction was completed in 1938 by the State Water Conservation Board (SWCB). The earth and rockfill dam is 105 feet high and 453 feet long.

Rehabilitation 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.

Willow Creek Dam Spillway, Madison County

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. We anticipate 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. Final design of the preferred alternative will be contracted to an engineering firm.

The estimated engineering design cost is $1,000,000.00.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
2023 HB2	$500,000.00	Committed
Federal HHPD Grant	$310,000.00	Uncommitted
State Project Hydro Earnings	$190,000.00	Committed
TOTAL	$1,000,000.00	

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

F. DNRC Willow Creek Dam Rehabilitation Construction (Madison County)

The Willow Creek Dam Project is approximately four miles east of Harrison in Madison County. Construction was completed in 1938 by the SWCB. The earth and rockfill dam is 105-feet high, 453-feet long.

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. Currently, SWPB's Willow Creek Dam operating permit, issued by the Montana Dam Safety Program, includes a reservoir pool restriction of 4 feet until a rehabilitation project is completed.

Willow Creek Reservoir, Madison County

In cooperation with the Willow Creek Water Users Association ability to pay contribution, SWPB is pursuing additional funding including Federal assistance, State grant and loan opportunities (RRGL), and State special revenue contributions.

The estimated project construction cost is $20,000,000.00.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
2025 RRGL Loan	$14,000,000.00	Uncommitted
2025 RDG Grant	$500,000.00	Uncommitted
WCWUA Contribution	$3,000,000.00	Uncommitted
State Project Hydro Earnings	$2,500,000.00	Committed
HHPD	TBD	Uncommitted
TOTAL	$20,000,000.00	

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

IV. ONGOING OR RECENTLY COMPLETED PROJECTS

Table 3. Ongoing or Recently Completed Projects

Ongoing / Recently Completed Projects	RRGL or RDG Grant	Water Storage Account	State Projects Hydro Earnings	Other Funding
A. DNRC East Fork of Rock Creek Dam Rehabilitation Construction Contract Administration (Granite Co.) **Ongoing (See page 12 for construction funding information)**	--	--	$1,226,945.00	--
B. DNRC State Water Projects Planning Document **Ongoing**	--	$339,509.00	--	--
C. DNRC Broadwater Jetty & Main Canal Rehab. Final Design (Broadwater Co.) **Ongoing**	--	--	$1,417,978.00	--
D. DNRC Flint Creek Main Canal Improvements Project Construction (Granite Co.) **Ongoing**	--	--	--	ARPA Water & Sewer Infrastructure Irrigation Grant $272,319.00 FCWUA Match $250,000.00 DNRC In-Kind Services $22,319.00
E. DNRC Willow Creek Dam Rehabilitation Feasibility Study (Madison Co.) **Ongoing**	--	--	$1,104,871.00	--
F. DNRC Painted Rocks Dam Rehabilitation Environmental Planning (Ravalli Co.) **Ongoing**	--	$98,804.00	--	--
G. DNRC Tongue River Dam Spillway Stilling Basin Erosion Repair (Bighorn Co.) **Completed**	--	--	$59,251.00	Private Settlement Funds $123,814.00
H. DNRC East Fork of Rock Creek Dam Rehabilitation Environmental Planning (Granite Co.) **Completed**	--	$98,265.00	--	--

Ongoing / Recently Completed Projects	RRGL or RDG Grant	Water Storage Account	State Projects Hydro Earnings	Other Funding
I. DNRC Upper Toston Recreation Area Shoreline Stabilization (Broadwater Co.) **Completed**	--	--	$113,378.00	--
J. DNRC Ackley Lake Outlet Canal Rehabilitation (Judith Basin Co.) **Completed**	$125,000.00 RRGL	--	--	DNRC SWPB In-Kind Services: $57,648.40 ARPA Grant $239,974.50
K. DNRC Upper Musselshell Two Dot Canal Rehabilitation (Wheatland Co.) **Completed**	$125,000.00 RRGL	--	--	UMWUA Match: $14,925.00 DNRC SWPB In-Kind Services: $35,046.85
L. DNRC East Fork of Rock Creek Dam Rehabilitation Final Design (Granite Co.) **Completed**	--	--	$972,790.00	--
M. DNRC Broadwater-Missouri East Canal Pipe Span Maintenance (Broadwater Co.) **Completed**	--	--	$100,000.00	B-MWUA Contribution $225,000.00

A. DNRC East Fork of Rock Creek Dam Rehabilitation Construction Contract Administration (Granite County) Ongoing

East Fork Rock Creek Dam (EFRCD) is a high hazard dam 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 within the Beaverhead-Deerlodge National Forest and the DNRC has an Agricultural Irrigation and Livestock Watering System Easement to operate and maintain the dam.

East Fork of Rock Creek Dam, Rehabilitation Pre-Bid Meeting, May 2024, Granite County

The reservoir provides 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 to evaluate the existing dam condition and develop conceptual alternatives to bring the dam into compliance with federal dam safety standards.

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.

After final design, a construction contract was advertised through the Montana public contracting process in the spring of 2024. The construction contract was awarded to Missouri River Contractors, LLC. A notice to proceed was issued in July 2024 and the project is currently under construction. To facilitate this 3-year construction effort, the State Water Projects Bureau contracted with Schnabel Engineering to facilitate contract administration services as the Engineer of Record.

Estimated engineering construction management cost is $1,226,945.00.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings	$1,226,945.00	Committed

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

B. DNRC State Water Projects Planning Document Ongoing

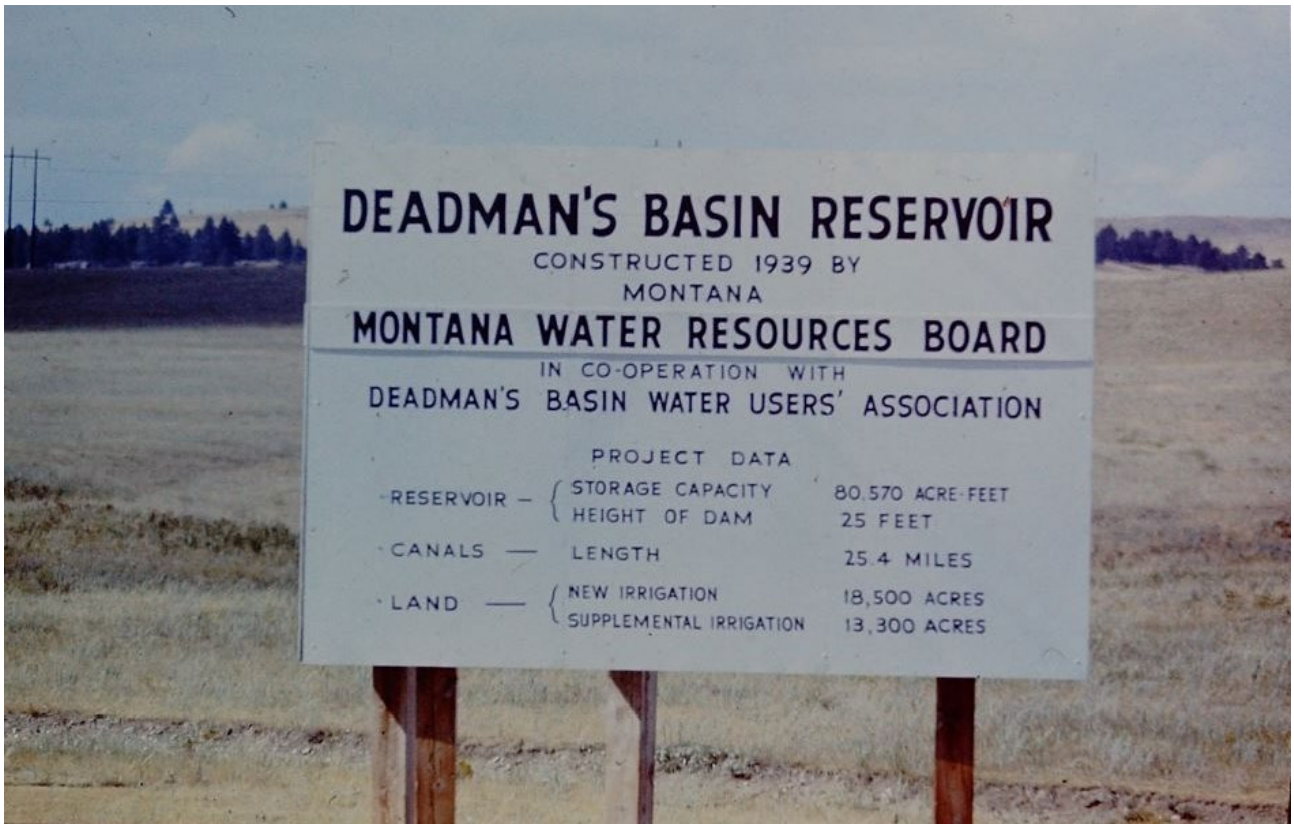
This planning project is nearly complete and includes contracted services for a condition assessment, preliminary cost estimates to repair, rehabilitate, and/or provide necessary alterations, and economic analysis of 15 active state-owned water storage projects. This effort will facilitate the prioritization 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 $300,000.00.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
Water Storage State Special Revenue Account	$339,509.00	Committed

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



Deadman's Basin Historic Signage, Wheatland/Golden Valley Counties

C. DNRC Broadwater Jetty & Main Canal Rehab. Final Design (Broadwater County) Ongoing

The Broadwater-Missouri Water Project including the Toston Dam and first half mile of the Main Canal are on lands owned by DNRC and managed by the SWPB. The Broadwater-Missouri Water Users Association (BMWUA) operates and maintains the canal through a water marketing agreement with DNRC. Water diverted from the Missouri River is used for agricultural irrigation in the communities surrounding Toston and Townsend.

In 2000, a rock jetty was installed upstream from the Main Canal intake structure and Project intake to mitigate woody debris entrainment into the canal. The jetty has generally been effective in reducing debris from reaching the canal intake. However, long-term maintenance of the rock jetty has proved burdensome as rock continues to settle toward the Powerhouse intake and submerge the top of the jetty below the normal operating reservoir elevation.

Rock Jetty at Broadwater Project (Toston Dam), Broadwater County

The current Jetty and Main Canal intake configuration contributes to sedimentation into the canal and reduces the canal conveyance capacity. Unbalanced sediment deposition is also contributing to erosion of the canal sidewalls. Currently, there is no way to divert sediment out of the canal and materials entrained must be removed by heavy equipment. Incorporating a system by which sediment can be diverted out of the canal, such as a wasteway, would improve conveyance, help preserve the canal geometry, and reduce maintenance costs. Morrison-Maierle, Inc. is currently under contract to design the proposed improvements/replacement of the Jetty and the Main Canal. The 60 percent design was delivered to DNRC in August 2024.

Project Cost is $1,417,978.00

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings	$1,417,978.00	Committed

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

D. DNRC Flint Creek Main Canal Improvements Project Construction (Granite County) Ongoing

The East Fork Rock Creek Main Canal is southwest of Philipsburg in Granite County. The 7.7 mile main canal is part of the Flint Creek Water Project which also includes the East Fork Rock Creek dam and reservoir, along with four other delivery canals. The system is owned by the DNRC and operated by the Flint Creek Water User's Association.

The East Fork Rock Creek Main Canal was constructed in 1938 through a pervious hillside. In 2010, the DNRC installed new monitoring sites along the canal to help quantify seepage rates. Data collected in 2010 and 2011 in the location of the proposed lining project document seepage loss as high as 30 acre-feet per day with a seasonal average between 15 and 20 acre-feet per day. Past efforts by the DNRC and Water User's Association to reduce seepage by placing bentonite clay in the canal have been marginal. Seepage was reduced along the canal bottom, but side slopes remained unprotected and highly pervious.

Also, a 3,850-foot segment of the canal is in very poor condition and requires rehabilitation. Trees, stumps, and vegetation hinder flows and remove water from the canal. The canal bottom profile in this area has deteriorated causing an inconsistent channel slope and areas of ponding. These conditions negatively affect the canal capacity and increase seepage. Also, the canal bank is less than 6 feet wide allowing very limited access for cleaning and maintenance.

The project includes improvements to two segments of the East Fork Rock Creek Main Canal to address seepage issues, improve hydraulic capacity, and allow for future maintenance/cleaning. Segment 1 includes channel rehabilitation and liner installation along 1,200 feet of the canal; and segment 2 includes rehabilitation of the channel and removal of debris along 3,850 feet of the canal.

Estimated Project Cost is $544,638.00.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
ARPA Water & Sewer Infrastructure Irrigation Grant	$272,319.00	Committed
FCWUA Match	$250,000.00	Committed
DNRC In-Kind Services	$22,319.00	Committed
TOTAL	$544,638.00	Committed

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

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

The Willow Creek Dam Rehabilitation Project is approximately four miles east of Harrison in Madison County. Construction of the Willow Creek Water Project was completed in 1938 by SWCB. The earth and rockfill dam is 105 feet high and 453 feet long.

Rehabilitation of the Willow Creek Project is a crucial state need due to safety concerns for downstream residents, environmental impacts from 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.

Project Cost $1,104,871.00.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings	$1,104,871.00	Committed

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

Willow Creek Dam Outlet Works, Madison County

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

Painted Rocks Dam is on the West Fork of the Bitterroot River which is critical Bull Trout habitat. Therefore, DNRC must consult with federal agencies about potential impacts the proposed rehabilitation might have on this threatened species. This planning study will provide data and analyses necessary for the proposed Painted Rocks Dam Rehabilitation to comply with the Montana and National Environmental Policy Acts and the Endangered Species Act (ESA). DNRC will consult with the US Fish and Wildlife Service (USFWS) on how dam rehabilitation can be executed with minimal impacts to Bull Trout. A consulting firm specializing in environmental permitting has been hired to perform consultation and permitting.

Project Cost is $98,804.00.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
Water Storage State Special Revenue Account	$98,804.00	Committed

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

Painted Rocks Dam Toe Access Bridge, Ravalli County

G. DNRC Tongue River Dam Spillway Stilling Basin Erosion Repair (Bighorn County) Completed

An erosion void between the right spillway wingwall and the adjacent cut rock slope was reported in 2009. Due to weathering and surface runoff, it increased in volume to approximately 127 CY with a depth of over 5 feet. The Tongue River Water Users' Association (WUA) proposed a repair solution in January 2021. The DNRC met with the WUA and a local contractor onsite to investigate the void and discuss design and construction options. In April 2021, Allied Engineering was hired to prepare a design based on the WUA's concept. Multiple design iterations led to the final design which was the low-cost and low-impact alternative that provided a long-term solution. Construction was advertised for public bid in July 2022. Olympus Technical Services, Inc., was awarded the contract and construction finished in May 2023.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings	$59,251.00	Committed
Private Settlement Funds (ESA & Yellowstone Compact)	$123,814.00	Committed
TOTAL	$183,065.00	Committed

H. DNRC East Fork of Rock Creek Dam Rehabilitation Environmental Planning (Granite County) Completed

East Fork of Rock Creek Dam is on USFS property within Bull Trout critical habitat. Therefore, DNRC consulted with the USFS and USFWS to ensure dam rehabilitation complies with NEPA and ESA. A consulting firm specializing in environmental permitting was hired to perform consultation and permitting, and work was completed in March 2024.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
Water Storage State Special Revenue Account	$98,265.00	Committed

I. DNRC Upper Toston Recreation Area Shoreline Stabilization (Broadwater County) Completed

The project involved shoreline stabilization improvements to address bank erosion upstream of the Toston Dam main canal intake along the left bank of the Missouri River. Portions of the riverbank within the Bureau of Land Management (BLM) Upper Toston Recreation Area and adjacent to the DNRC Broadwater Power Project and Broadwater-Missouri Canal Headworks had been slowly eroding. A combination of boat wakes, wave action, and the channeled flow to the Powerhouse and headworks were causing the erosion. The Upper Toston Recreation Area is a popular recreation site that provides camping and day-use opportunities consisting of a parking area, latrine, and boat launch with floating dock. Addressing this on-going bank erosion was necessary to prevent further erosion from occurring to this important recreation site.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
Broadwater R&R	$113,378.00	Committed

Shoreline Stabilization – BLM's Upper Toston Recreation (near Toston Dam), Broadwater County

J. DNRC Ackley Lake Outlet Canal Rehabilitation Project (Judith Basin County) Completed

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 allow 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.

Ackley Lake Outlet Canal Cattle Crossing, Judith Basin County

The lower lake levels limit water users from utilizing their full allotment of water for irrigation, as lower lake levels are required to reduce the risk of dam failure from unexpected high-volume events. The project mitigated this water loss through seepage abatement measures and conserved 750 acre-feet of water, restored crop production up to 16%, improved management of the ALWUA system, improved fish and wildlife habitat in the Judith River and Ackley Lake, and preserved recreational opportunities for Montanans.

The project involved reshaping and grading the existing canal to a consistent cross-sectional geometry and gradient, vegetation removal, and liner installation along a 2,200-foot reach of the Outlet Canal near the Philbrook Cemetery. The project provided conservation, preservation, development, and management benefits for the ALWUA shareholders and the State of Montana. Work was completed in 2023.

Funding is as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
RRGL Grant	$125,000.00	Committed
DNRC SWPB In-Kind	$57,648.40	Committed
ARPA Competitive Grant	$239,974.50	Committed
TOTAL	$422,622.90	Committed

K. DNRC Upper Musselshell Two Dot Canal Rehabilitation Project (Wheatland County) Completed

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 the Two Dot Canal Rehabilitation project conserved an estimated 38.4 million gallons of irrigation water lost to canal seepage and provided sustainable agricultural development by increasing crop production by 5 percent for the 2,500 acres below the project area. Water users near the end of the Two Dot Canal System benefit from reliable water deliveries throughout the irrigation season. Work was completed in 2024.

Funding is as follows:

Project Budget		
Funding Source	**Original Amount**	**Committed/Uncommitted**
RRGL Grant	$125,000.00	Committed
UMWUA Contribution	$14,925.00	Committed
DNRC SWPB In-Kind	$35,046.85	Committed
TOTAL	$174,971.85	Committed

Upper Musselshell Two Dot Canal, Wheatland County

L. DNRC East Fork of Rock Creek Dam Rehabilitation Final Design (Granite County) Completed

East Fork Rock Creek Dam (EFRCD) is a high hazard dam 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 within the Beaverhead-Deerlodge National Forest and the DNRC has an Agricultural Irrigation and Livestock Watering System Easement to operate and maintain the dam.

The reservoir provides 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 to evaluate the existing dam condition and develop conceptual alternatives to bring the dam into compliance with dam safety standards.

The EFRCD rehabilitation 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.

An engineering firm specializing in dams was hired to design the East Fork Dam Rehabilitation. Design was completed in Fall 2023.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings	$972,790.00	Committed

M. DNRC Broadwater-Missouri East Canal Pipe Span Maintenance (Broadwater County) Completed

The East Canal Pipe Span crosses the Missouri River and is part of the East Canal of the Broadwater-Missouri Project, owned and managed by the DNRC SWPB. The East Canal provides irrigation water conveyance for the Broadwater-Missouri Water Users Association. A major maintenance rehabilitation project was performed on the pipe span in 2001. The rehabilitation included exterior and interior coating applications to preserve the steel infrastructure.

A subsequent Work Plan was prepared by the SWPB that recommended maintenance and repair needs based on previous site inspections. The Work Plan identified specific maintenance and repair locations, quantity estimates, tool requirements, safety measures, and acceptable product data information.

Commencing in spring 2022, the East Canal Pipe Span project consisted of the following maintenance and repairs:

- Maintenance of pipe span interior coating at selected locations.
- Maintenance of pipe span exterior coating.
- Maintenance of the pipe span expansion joint.
- Repair of concrete spall at the pipe span expansion joint support abutment.
- Repair of concrete spalls at the pipe span outlet concrete headwall.
- Repairs to concrete cracks on top of pipe span support piers and headwalls.
- Greasing expansion roller fittings.
- Vegetation removal around concrete abutments, headwalls, and walkway.

Broadwater-Missouri East Canal Pipe Span

SWPB staff performed the design and managed the public contracting including public bidding and construction inspection and contract administration services. The project was completed in 2023.

Funding was as follows:

Project Budget		
Funding Source	**Amount**	**Committed/Uncommitted**
State Project Hydro Earnings (Broadwater Irrigation Mitigation)	$100,000.00	Committed
B-M WUA Contribution	$225,000.00	Committed
TOTAL	$325,000.00	

V. MT 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, locally known as the Toston Dam, is a 9.66 megawatt, run-of-river hydroelectric project owned and operated by the DNRC SWPB. The Project is on the Missouri River, approximately five miles south 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 40 feet high to the top of the gravity overflow section and 56 feet high to the top of the retaining wall. 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 (cfs) 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 5 to 6 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. 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 3-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 $21,735,000.00 which was used to cover the cost of constructing the Broadwater Project. The bonds were refinanced Sept 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 originally under a 35-year Power Purchase Agreement (PPA) which ran through June 2024. A temporary one-year PPA was negotiated to maintain power sales to NorthWestern Energy while a long term (anticipated to be 20 years) PPA is finalized. Updating the interconnection agreement, a prerequisite for the PPA, will require on-line plant testing to develop the required data. The temporary and new PPAs will have market-based power rates instead of fixed power rates. Revenues remaining after operational 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 has earned between $4,000,000 and $5,000,000 in energy and capacity revenue annually. However, this is expected to drop significantly under the new PPA. Approximately $2.0 million was available to rehabilitate state-owned dams annually. Gross revenues for the last eleven fiscal years were:

- Fiscal Year 2024: $6,641,964.00
- Fiscal Year 2023: $5,072,439.00
- Fiscal Year 2022: $4,881,793.00
- Fiscal Year 2021: $3,611,782.00
- Fiscal Year 2020: $6,314,040.00
- Fiscal Year 2019: $5,610,863.00
- Fiscal Year 2018: $4,642,635.00
- Fiscal Year 2017: $5,058,265.00
- Fiscal Year 2016: $4,751,849.00
- Fiscal Year 2015: $5,126,321.00
- Fiscal Year 2014: $4,221,877.00

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. The jetty is now past its useful life and will be replaced as discussed in Section E Future Plans.

A new automated trash 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.

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 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.

Recent Project improvement includes the shoreline stabilization project which was completed in the winter of 2023/2024. It established a rip-rap bank to prevent erosion along the riverbank of the BLM Upper Toston Dam Recreation Area.

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.

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 252 cfs and is 34.3 miles long while the Westside Canal has a capacity of 90 cfs and is 12.4 miles long. Prior to construction of the powerhouse, the Broadwater Missouri Water Users Association (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 expired 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, were 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. These delays have pushed the deadline for the new license out a year. A new license is anticipated to be issued by June 30, 2025.

The Power Purchase Agreement (PPA), with NorthWestern Energy expired July 1, 2024, and a one-year PPA extension was negotiated. A new 20-year PPA with NorthWestern Energy will be completed by July 1, 2025.

With the completion of bond repayment, SWPB's focus will be directed on catching up on deferred maintenance and upgrades.

The near term includes the following items:

- The generator brushes and holders are of an obsolete design and will be replaced in late 2024.
- Safety audit findings are being addressed. They include succession planning, maintenance and capital improvement planning and document handling including data retention, standard operating procedures, and preventative maintenance instructions.
- 60 percent Design to replace the rock jetty originally constructed to reduce debris loading on the Broadwater-Missouri Canal intakes has been completed. Replacement of the jetty with twin 9-foot diameter PVC pipes will be completed the winter of 2025/2026.

Funding requested for 2025 includes:

- Placement of overhead fiber optic cable between the Powerhouse and substation (estimated cost $300,000.00) to allow for future upgrades including protective relaying, security cameras, and back-up power for the control room.
- Refurbish Governor System (high pressure oil to control wicket gates and turbine pitch, estimated cost $500,000.00). The system is old and increasingly unreliable and is essential to plant operation.
- Extend SCADA (Supervisory Control and Data Acquisition) network to blower houses (estimated cost $200,000.00) to ensure continued safe automated control of gates, instrumentation of river levels, and monitoring of blower house conditions.

Additional priorities for more distant funding include:

- 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.
- The abutments on both sides of the dam have been found to be unstable in large seismic events. Conceptual designs are complete, geotechnical work and a seismic study must be completed prior to completion of design and construction.
- Modernization of the Trash Rake including replacing sensors on the and 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.

Downstream of Toston Dam, Broadwater County

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. 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
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*
    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 each regular session of the legislature a report 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
    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. 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 issue.
i. Supports water conservation activities
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
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
c. Third preference must be given to the planning and construction of new water storage facilities

Person with disabilities who need an alternative accessible format of this document should contact:

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Glacier Lake Reservoir, Carbon County