COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street, Room 718
Denver, CO 80203

P (303) 866-3441
F (303) 866-4474

Jared Polis, Governor

Dan Gibbs, DNR Executive Director

Lauren Ris, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Kirk Russell, P.E., Chief, Finance Section

DATE: November 15-16, 2023 Board Meeting

AGENDA ITEM: 17a. 2024 Projects Bill
(1-7) Non-Reimbursable Project Investments "En-Bloc" Approval

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Staff Recommendation
Staff recommends the Board approve funding for all of the Non-Reimbursable Investments listed below from the Construction Fund for inclusion in the 2024 Projects Bill.

Introduction/Background
The Finance Committee reviewed the Projects Bill - Non-Reimbursable Investment (NRI) applications on September 19, 2023. The Committee supported the projects listed below and recommended them for formal Board approval En-Bloc. If approved, these NRIs will be provided to the Projects Bill sponsors for inclusion in the 2024 CWCB Projects Bill. Data Sheets for each project are included. No formal presentations regarding these items will be made unless requested.

(1)	Floodplain Risk Management (Continuation)	Statewide	$500,000
(2)	Litigation Fund (Budget of $1,970,000) – Refresh	Statewide	$2,000,000
(3)	Weather Modification Permitting Program (Continuation)	Statewide	$500,000
(4)	Colorado Mesonet Enhancements (Continuation)	Statewide	$200,000
(5)	Satellite Monitoring/Maintenance Program (Continuation)	Statewide	$380,000
(6)	UCRC Modeling & Technical Analysis (Continuation)	Statewide	$500,000
(7)	Water Forecasting Partnership Project (Continuation)	Statewide	$2,000,000
		Total	$6,080,000

Attachments: Data Sheets

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Floodplain Risk Management

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PROJECT DETAILS	
Project Cost:	$7,727,617
NRI Funding Request:	$500,000
Funding Source:	*Construction Fund*
Project Type:	Leverage Funds for Grants
Type of Grantee:	State Agency

LOCATION	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins

Colorado has received over $63 million in federal grant dollars for floodplain mapping activities as part of the floodplain Map Modernization/Risk Map Program (Program) initiated by FEMA since 2003. The FEMA funds are supplemented by CWCB and local cost-share dollars to perform the map update work to create updated digital floodplain maps and flood risk tools. The initial Program funds authorized in the 2003 and all subsequent Construction Fund Bills have provided past required non-federal matching dollars, as well as associated projects for leverage. The State funds are further leveraged by local cost share dollars and in-kind services from many communities to obtain additional related information and project assistance. The total funding amounts have been instrumental in keeping Colorado as a lead state within FEMA Region 8 and will continue to benefit Colorado communities in the future. It is expected that significant FEMA funding will continue as long as the Program exists. Program deliverables will become part of the Flood Decision Support System (DSS) to increase data capture and enhance Colorado's decision support tools.

The Program impacts the entire state, and the objective is to develop updated watershed-based and/or countywide floodplain maps using information based on high quality data and current engineering technology within a digital environment. The use of GIS technology will be employed for all new countywide studies for ease of distribution, updating and viewing. The table below summarizes funding expected to be approved by FEMA for Federal Fiscal Year 2023, which starts October 1, 2023 and ends September 30, 2024.

Grant Description	FEMA Funding	Grant Description	FEMA Funding
FY23 CTP Project Management	$1,514,036	Summit Phase 3 Add'l	$98,947
Republican Basin BLE	$838,355	El Paso Phase 3 Add'l	$88,210
Routt BLE	$377,230	Arapahoe Phase 3	$413,327
San Miguel Phase 2 Add'l	$38,500	Las Animas Phase 3	$303,585
Grand Phase 2	$484,666	Crowley, Kiowa, Lincoln, Phillips, and Sedgewick Counties Phase 3	$1,071,146
Gunnison Add'l, Phase 2	$474,233	LOMR Review Partner Program	$873,600
Pueblo Add'l, Phase 2	$673,654	FY23 COMS	$165,634
Total FEMA Funding:	**$7,727,617**		

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Litigation Fund

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PROJECT DETAILS	
Project Cost:	$1,970,000
NRI Funding Request:	$1,970,000
Funding Source:	*Construction Fund*
Project Type:	Legal Support
Type of Grantee:	State Government

LOCATION	
Benefits:	Statewide
Water Source:	N/A
Drainage Basin:	All Basins

Section 37-60-121(2.5) provides that the Colorado Water Conservation Board is authorized "to expend, pursuant to continuous appropriation and subject to the requirements of paragraph (b) of this subsection (2.5), a total sum not to exceed the balance of the litigation fund, which is created, for the purpose of engaging in litigation…to defend and protect Colorado's allocations of water in interstate streams and rivers…" Paragraph (b) of section 121(2.5) provides: "pursuant to the spending authority set forth in paragraph (a) of this subsection (2.5), moneys may be expended from the litigation fund at the discretion of the board if (I) with respect to litigation, the Colorado Attorney General requests that the Board authorize the expenditure of moneys in a specified amount not to exceed the balance of the fund for the costs of litigation associated with one or more specifically identified lawsuits meeting the criteria set forth in paragraph (a) of this subsection (2.5)."

The CWCB has received a letter from Attorney General Phil Weiser stating that a total of $1,970,000 will be needed in FY 23/24 to adequately: defend in negotiations; litigation; and other processes the State's apportionments under the Compacts. The funds will be allocated as follows:

1) Colorado River Basin: $1,030,000 for FY 23/24
2) Republican River Basin: $110,000 for FY 23/24
3) South Platte River Bain: $205,000 for FY 23/24
4) Rio Grande Basin: $590,000 for FY 23/24
5) Arkansas River Basin: $35,000 for FY 23/24

The CWCB will request a refresh of the Litigation Fund up to $2,000,000 each year through annual appropriations in order for the Board to respond to unforeseen legal challenges.

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Weather Modification Permitting Program

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The CWCB has had grants since 2004 for water district sponsored cloud seeding programs developed after the early 2000s drought. In 2007, State-to-state agreements were signed to provide grants in Colorado. CWCB distributes grants from the CWCB, New Mexico Interstate Stream Commission, Southern Nevada Water Authority, Central Arizona Water Conservation District, and California Six Agency Committee. CWCB funding leverages pledged match funding from Lower Basin States water users. This funding helps meet CWCB goals to have industry standard equipment in operation for efficient and effective programs.

PROJECT DETAILS	
Project Cost: $1.5M (matching from Lower Basin States and local sponsors)	
NRI Funding Request:	$500,000
Funding Source:	*Construction Fund*
Project Type:	Snowpack Augmentation
Type of Grantee:	State Agency

LOCATION	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins

In 2019, the State of Wyoming collaborated with the CWCB and the Jackson County Water Conservancy District (JCWCD) to launch Colorado's first permitted aerial cloud seeding program. In 2021, JCWCD in partnership with CWCB permitted a new ground-based weather modification program in the North Platte Basin. Some of the requested funding increase will help to continue this new state-to-state collaboration in the North Platte Basin. In 2022, CWCB permitted the most recent weather modification program in the St. Vrain and Left Hand drainage, Colorado's first permitted weather modification program targeting the front range. Currently, a feasibility study is being conducted for the Yampa/White/Green Basin in the hopes of permitting a new weather modification program in the coming years.

Since 2007 the Lower Basin Water Users in the Colorado River (Southern Nevada Water Authority, California Six Agency Committee, and Central Arizona Water Conservation District) have donated $4.25M to match the CWCB's $3.8M to bolster locally sponsored cloud seeding in Colorado. Each year, about $1.5M is spent on supporting current operations, upgrading equipment, and financing various weather modification studies around the state.

Effective cloud seeding requires siting cloud seeders high onto ridges in areas of good airflow to ensure the silver iodide particles are regularly transported into clouds. We have had success at helping upgrade programs with new high elevation seeders at: Winter Park, Grand Mesa, Crested Butte, above McPhee Reservoir, near Mancos, and Telluride. These seeders are now owned by water districts. It has been clearly demonstrated that low elevation manually operated seeders are not particularly effective at getting seeding material into the clouds. High elevation seeding equipment is needed. Colorado has high elevation terrain and siting remote generators at high altitudes is vital for effective seeding.

The CWCB has been facilitating successful multi-state collaborations to benefit local water supplies and downstream compact obligations for years. Most recently, the Bureau of Reclamation awarded a $2.4 Million dollar grant to bolster cloud seeding programs in Utah, Wyoming, and Colorado. As we move forward, Colorado must continue to investigate and pursue opportunities for collaboration between basins to benefit multiple watersheds and thus the entire state as a whole.

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Colorado Mesonet Enhancements

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The Colorado Climate Center was established by the state in 1974 through the Colorado State University Agricultural Experiment Station to provide information and expertise on Colorado's complex climate. Through its program of Climate Monitoring, Climate Research and Climate Services, the Center is responding to many climate related questions and problems affecting the state today. One way the Center monitors the climate is through CoAgMET, a network of over 90 stations statewide tracking agricultural weather and Colorado's climate. The Climate Center is located at Colorado State University within the Department of Atmospheric Science.

PROJECT DETAILS	
Project Cost:	$450,000
NRI Funding Request:	$200,000
Funding Source:	*Construction Fund*
Project Type:	Data Collection/Maint.
Type of Grantee:	State Agency

LOCATION	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins

This project builds on recent work that has improved the quality, accessibility, and usability of meteorological data collected by the Colorado Agricultural Meteorological Network, CoAgMET (also known as Colorado's Mesonet). CoAgMET is rapidly maturing as Colorado's Mesonet, providing high quality weather data targeted for use in water planning, management, conservation and education. In recent years we have expanded the network (now with over 90 stations) and increased the number of stations reporting data every 5 minutes. We have also revamped the website and developed a new API that makes it even easier for data users to find what they need. The CoAgMET data are used for a broad range of applications, including irrigation planning, drought monitoring, water availability calculations, real-time weather monitoring, and much more. This proposed project will further enhance CoAgMET data and will increase its uses for understanding the climate of Colorado, especially in relation to stakeholder needs in the water and agriculture sectors.

High quality weather data for water resources application is greatly taken for granted and receives little financial support. It is a statewide effort benefiting many users from agricultural producers to municipal water providers and many others. Federal data collection efforts have provided useful long-term temperature and precipitation data but not the extensive measurements of humidity, wind and solar radiation needed for computing reference evaporation and crop consumptive use. The Colorado Regional Climate Reference Network, gifted to CSU from the National Weather Service, represents a federal investment in hardware of nearly $1,000,000 and is an excellent high-quality network for tracking indicators of climate change. Funding from CWCB in previous years has enabled the enhancement of some of these stations to fill critical monitoring gaps and improve evapotranspiration monitoring. Grant funds will allow effective enhancements to the CoAgMET network, improved delivery of data and new products for water use planning and climate change monitoring. They will improve real-time monitoring capabilities to improve severe weather warnings and emergency management applications. ***Importantly, this grant funding will allow CoAgMET to continue to qualify for federal matching funds through the National Mesonet Program to support critical operations and maintenance needs***.

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Satellite Monitoring/Maintenance Program

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PROJECT DETAILS	
Project Cost:	$380,000
NRI Funding Request:	$380,000
Funding Source:	*Construction Fund*
Project Type:	DWR Streamgaging
Type of Grantee:	State Agency

LOCATION	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins

This project entails the continued, long-term operational viability of the State Satellite Linked Monitoring System and Stream Gage Refurbishment Program, which is administered by the Division of Water Resources (DWR). This program currently encompasses about 650 satellite stream gaging stations that require continued replacement of outdated data collection platforms, upgrades to transmission components, and refurbishment of the associated infrastructure. In addition, many existing gaging stations need to be modified to provide critical stream flow data for both flood and low flow monitoring. Changes in technology, which will ultimately increase reliability and real time data transmission rates, will require the DWR to continue to upgrade the system in the future. In addition, this project provides annual maintenance for the Arkansas River Basin Compact Lysimeter Research Project. The costs associated with the continued refurbishment and operational viability of the Satellite Monitoring System is currently approximately $330,000 per year. The cost associated with the Lysimeter Project is approximately $50,000 per year. The total project cost is $380,000.

Remote-controlled Automatic Data Collection Platform (ADCP) system developed by DWR to expand use and improve safety of ADCP's

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UCRC Modeling & Technical Analyses

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PROJECT DETAILS	
Project Cost:	$500,000
NRI Funding Request:	$500,000
Funding Source:	*Construction Fund*
Project Type:	Interstate Negotiations
Type of Grantee:	Interstate Commission

LOCATION	
Benefits:	Statewide
Water Source:	Colorado River
Drainage Basin:	Colorado River

The current operating guidelines for Glen Canyon Dam and Hoover Dam expire in December 2025. As such, the seven Basin States and the federal government have initiated a formal process to negotiate new operating guidelines.

The Upper Colorado River Commission (UCRC) is an interstate water administrative agency established by action of five state legislatures and Congress with the enactment of the 1948 Upper Colorado River Basin Compact. The UCRC serves as the Upper Division States' forum for interstate discussions. It is critical that the UCRC support the Upper Basin in technical modeling and analyses, to ensure that post-2026 negotiations develop operating guidelines that align with actual hydrology. The work will include a range of modeling efforts to better understand alternatives; analyses to test with the interstate technical teams; and potential findings for the UCRC Commissioners to consider. Analyses will also focus on other Upper Basin programs and technical matters in the interim period (through 2026) as needed.

This Non-Reimbursable Investment (NRI) of $500,000 will support the UCRC in undertaking the modeling and technical analyses necessary to support development of post-2026 operational guidelines for Lake Powell and Lake Mead that protect Colorado's and the Upper Basin's significant interests in the River. This NRI will also support analyses and technical work relating to operations and programs in the interim period (through 2026), which will be undertaken by the CWCB.

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Water Forecasting Partnership Project

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PROJECT DETAILS	
Project Cost:	$4,300,000 (matching will be sought)
NRI Funding Request:	$2,000,000
Funding Source:	*Construction Fund*
Project Type:	Data and Modeling Upgrades
Type of Grantee:	State Agency

LOCATION	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins

The water forecasting partnership project began in the FY2016/2017 under SB 16-174. This original authorization appropriated $300,000, and was reauthorized in both HB17-1248 and SB18-218 for $800,000 each fiscal year. This project was most recently funded at $450,000 in HB22-1316, and $1,000,000 in SB23-177. Staff requests $2,000,000 be appropriated for continuation of this work in FY 2024/2025. The new funds will be used to complete the projects described under the blue heading. This amount is in line with total CWCB Projects Bill, WSRF, and Water Plan Grant funding combined in FY22/23. The goal of this program is to acquire new data and refine water supply forecasting statewide.

The FY22/23 round of funding leveraged $1,822,213 in match from local stakeholders. These stakeholders created a central group called the Colorado Airborne Snow Measurement Group (CASM). The $1,000,000 from FY23/24 is also being used to leverage Federal Funds through the Bureau of Reclamation's Snow Water Supply Forecasting Program. Staff anticipates at least this match level for FY24/25, and will be working to seek additional match.

FY 2023-24 Proposed Funding			
Location	**Item**	**Cost**	**Notes**
Statewide	Colorado Airborne Snow Measurement Group Pilot Project Support (continuation)	$1,800,000	Partner with the stakeholders in the Colorado Airborne Snow Measurement group to conduct multiple LiDAR/Spectrometer flights in pilot basins to determine ideal flight numbers per season. Flights will be determined by a larger group representing areas across the State. This group includes Denver Water, Northern Water, Dolores Water, USGS, and the Colorado River District.
Statewide	NCAR (continuation)	$200,000	Maintain 5 stations in Conejos basin in partnership with Conejos Water Conservancy District. Provide experimental forecasting using multi-radar multi-sensor methods to compare to official federal forecasting.
Total Request:		**$2,000,000**	