



COLORADO
**Colorado Water
Conservation Board**
Department of Natural Resources

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TO: Colorado Water Conservation Board Members

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

DATE: November 16-17, 2022 Board Meeting

AGENDA ITEM: 15a. 2023 Projects Bill
(1-9) Non-Reimbursable Project Investments “En-Bloc” Approval

Recommendation

Staff recommends the Board approve funding for all of the Non-Reimbursable Investments listed below from the Construction Fund for inclusion in the 2023 Projects Bill.

Introduction/Background

The Finance Committee reviewed the Projects Bill - Non-Reimbursable Investment (NRI) applications on September 14, 2022, in a virtual meeting. 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 2023 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 \$1,955,000) - Refresh	Statewide	\$2,000,000
(3)	Weather Modification Permitting Program (Continuation)	Statewide	\$500,000
(4)	Colorado Mesonet Enhancements (Continuation)	Statewide	\$150,000
(5)	Satellite Monitoring/Maintenance Program (Continuation)	Statewide	\$380,000
(6)	Fish and Wildlife Resource Fund (Continuation)	Statewide	\$2,000,000
(7)	Colorado Watershed Restoration Program (Continuation)	Statewide	\$500,000
(8)	Reservoir Enlargement Assessment Project (Continuation)	Statewide	\$1,000,000
(9)	Colorado Water Plan Grant - Supplemental Funding (Continuation)	Statewide	\$2,000,000
		Total	\$9,030,000

Attachments: Data Sheets



Colorado has received approximately \$56 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.

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$9,876,577
<i>NRI Funding Request:</i>	\$500,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Leverage Funds for Grants
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	Various
<i>Drainage Basin:</i>	All Basins

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 2022, which starts October 1, 2022 and ends September 30, 2023.

Grant Description	FEMA Funding	Grant Description	FEMA Funding
FY21 CTP Project Management	\$1,695,613	Chaffee, Costilla, Garfield Phase 3	\$792,689
Montrose, Grand Phase 1 (BLE/Discovery)	\$651,742	Gunnison Addtl, Pueblo Addtl, Phase 2	\$1,501,223
Arapahoe, Baca Phase 2	\$399,680	Custer Phase 2	\$259,687
Adams, Las Animas, Morgan Phase 3	\$792,154	Lake Phase 3 Addtl	\$40,096
Summit County Phase 3-4	\$333,943	Crowley, Kiowa, Lincoln, Phillips, and Sedgewick Counties Phase 2	\$1,292,641
Hinsdale and Logan Phase 3	\$495,678	LOMR Review Partner Program	\$200,000
FY22 COMS	\$212,240	El Paso Phase2 Addtl & Phase 3	\$1,209,191
Total FEMA Funding:	\$9,876,577		



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Litigation Fund

Colorado Water Conservation Board

November 2022 Board Meeting

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 (l) 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).”

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$1,955,000
<i>NRI Funding Request:</i>	up to \$2,000,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Legal Support
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	N/A
<i>Drainage Basin:</i>	All Basins

The CWCB has received a letter from Attorney General Phil Weiser stating that a total of \$1,955,000 will be needed in FY 22/23 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: \$1,020,000 for FY 22/23
- 2) Republican River Basin: \$105,000 for FY 22/23
- 3) South Platte River Basin: \$205,000 for FY 22/23
- 4) Rio Grande Basin: \$590,000 for FY 22/23
- 5) Arkansas River Basin: \$35,000 for FY 22/23

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.



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.

P R O J E C T D E T A I L S	
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

L O C A T I O N	
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. A 2015 National Center for Atmospheric Research Climatology of Seeding Potential study showed high seeding potential in the North Platte Basin. The program goal is to augment snowpack in the southeastern part of the basin. CWCB is currently working hopes to permit new programs in the St. Vrain and Left Hand drainage and in the Yampa/White/Green Basin 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 \$3.75M to match the CWCB's \$2.9M 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 ten years of facilitating successful multi-state collaborations to benefit local water supplies and downstream compact obligations. In 2015, a ten year \$15M winter research experiment in Wyoming concluded that a 5-15% increases in snowpack can be expected but only from about 30% of the storms appropriate for seeding. Therefore, a 1-5% increase in snowpack was demonstrated and can be expected in well designed and executed programs. 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.



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 88 stations statewide tracking agricultural weather and Colorado's climate. The Climate Center is located at Colorado State University within the Department of Atmospheric Science.

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.***

P R O J E C T D E T A I L S	
Project Cost:	\$300,000
NRI Funding Request:	\$150,000
Funding Source:	Construction Fund
Project Type:	Data Collection/Maint.
Type of Grantee:	State Agency

L O C A T I O N	
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.

P R O J E C T D E T A I L S	
Project Cost:	\$380,000
NRI Funding Request:	\$380,000
Funding Source:	Construction Fund
Project Type:	DWR Streamgaging
Type of Grantee:	State Agency

L O C A T I O N	
Benefits:	Statewide
Water Source:	Various
Drainage Basin:	All Basins



Purgatoire River at Fisher's Crossing Stream Stage Radar Installation



The Fish and Wildlife Resources Fund (Fish and Wildlife Mitigation Fund) was established by the legislature in 1987 to help mitigate the impacts to fish and wildlife resources that are affected by the construction, operation, or maintenance of water diversion, delivery, or storage facilities, pursuant to C.R.S. Section 37-60-122.2 and Financial Policy 15 and 20. The statute was amended in 2002 to recognize the role instream flows in mitigating impacts, and authorized the Colorado Water Conservation Board as well as sponsors of existing facilities to use these funds. The purpose of the Financial Policies (15 and 20) is for the consideration and approval of Fish and Wildlife Resources Fund grant applications pursuant to sub-sections 2-5 of 37-60-122.2, C.R.S.

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$2,000,000
<i>NRI Funding Request:</i>	\$2,000,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Mitigation Grants
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	Various
<i>Drainage Basin:</i>	All Basins

The following projects have received approval for use of these funds over the years:

- 2008: \$30,000: Rio Blanco River Restoration Phase III, Lower Blanco Property Owners Association
- 2009: \$132,000: Rio Blanco River Restoration Phase IV, Lower Blanco Property Owners Association
- 2009: \$70,000: Clear Springs Ranch Fish Passage, Colorado Springs Utilities
- 2010: \$560,000: Reconstruction of the Hartland Diversion Dam, Painted Sky R C and D Council
- 2011: \$75,000: Upper South Platte Diversion Reconstruction Project, Coalition for the Upper South Platte
- 2012: \$50,000: Stream Mitigation Banking Protocols, Colorado State University
- 2014: \$100,000: Platte River Enhancement Phase II, South Suburban Park and Recreation District
- 2015: \$50,000: Stream Mitigation Protocol and Aquatic Habitat Mapping, Colorado State University
- 2017: \$450,000: South Platte Flood Hazard Mitigation, Urban Drainage and Flood Control District
- 2017: \$814,270: Chatfield Reservoir Mitigation Company, Plum Creek Restoration
- 2017: \$550,000: Buckhorn Valley Metropolitan District, Abrams Creek Ditch Lining Project



House Bill 22-1379 was signed into law in May 2022. Utilizing funds from the American Rescue Plan Act (ARPA) State and Local Fiscal Recovery Fund (SLFRF), it established an appropriation of \$10,000,000 for the CWCB Colorado Watershed Restoration Program. The bill states that the funds shall be used “for watershed restoration and flood mitigation grants to restore, mitigate, and protect stream channels and riparian areas susceptible to flood hazards and sediment erosion and deposition after wildfire, including expenditures for the design and implementation of projects intended to mitigate increased flows, sediment, and debris, with federal and local matching requirements.”

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$500,000
<i>NRI Funding Request:</i>	\$500,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Watershed Restoration
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	Various
<i>Drainage Basin:</i>	All Basins

The CWCB Watershed and Flood Protection Section is also working on a program that provides a proactive approach to address post wildfire flooding, debris flows, and other impacts. Wildfire Ready Watersheds will be completed by the end of 2022 and has a two part focus: a statewide post-fire susceptibility analysis and (2) a framework that communities can use to perform watershed scale planning to address post wildfire hazards. Early results indicate that a significant portion of the state will be susceptible to post wild-fire impacts. This indicates a need for framework implementation for many communities. The CWCB will be piloting 2-4 framework implementations to refine the framework and demonstrate it's efficacy in identifying pre fire mitigation projects designed to protect lives, property, and water supplies.

Staff is anticipating another Special Release of CWRP to disperse the funds appropriated in HB 22-1379. There is an ongoing need to fund technical assistance associated with the House Bill 22-1379, Wildfire Ready Watershed implementation, grants approved through the Watershed Health and Recreation category of the Colorado Water Plan grant program, and unforeseen disasters such as floods and post wild-fire hazards.



Reservoir Enlargement Assessment Project

Colorado Water Conservation Board

November 2022 Board Meeting

Dam Safety Branch sees an opportunity for multi-stakeholder benefit through this project. Previous CWCB NonReimbursable Investment funding has been utilized to pilot the proposed project and has already shown significant statewide benefits. Additional grant funds are being requested to utilize these tools on a prioritized list of high hazard dams that show a likely potential for enlargement of existing facilities. These studies will serve a dual function of defining potential enlargement quantities and identifying components of the structure that may need to be modified as part of a safe enlargement scenario. An equitable prioritization process will be utilized to select the projects in a maximum number of water divisions across the State, consistent with the goals of the Colorado Water Plan for increasing storage.

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$17M
<i>NRI Funding Request:</i>	\$1,000,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Technical Investigation
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	Various
<i>Drainage Basin:</i>	All Basins

Colorado Dam Safety is statutorily responsible for determining the safe storage level for all reservoirs in the State of Colorado. Many of the 398 classified high hazard dams in Colorado are approaching 100 years of age as the population continues to increase below them. This project will further the goal identified in the Colorado Water Plan of examining the enlargement potential at existing reservoirs by identifying the most likely locations for successful enlargement projects while at the same time determining improvements required to ensure safe storage in these high hazard facilities.

Colorado Dam Safety has developed a consistent approach for completing comprehensive evaluations of dams, known as Comprehensive Dam Safety Evaluations (CDSE). This Project utilizes a CDSE risk-informed decision making process to identify dam failure modes for a given storage capacity. This information can then be used to determine improvements necessary to meet dam safety standards for the increased



storage, and ultimately for the development of cost estimates of the enlargement. The CDSE approach provides for the use of risk-informed decision making in reservoir enlargement planning, spillway adequacy studies, and assessment of need for reservoir storage restrictions to ensure the protection of life and property.



This funding will support the Water Plan Grant Program. Funding for the Water Plan Grant Program comes from the Construction Fund, sports betting revenue, and from General Fund appropriations as approved by the General Assembly. The Water Plan Grant Program is available to promote progress on the critical actions identified in the Water Plan and its measurable objectives. The Board will fund the projects, programs and activities that have the best opportunity to make progress on the Water Plan's objectives and that are in alignment with the program guidelines.

P R O J E C T D E T A I L S	
<i>Project Cost:</i>	\$2,000,000
<i>NRI Funding Request:</i>	\$2,000,000
<i>Funding Source:</i>	Construction Fund
<i>Project Type:</i>	Water Plan Grants
<i>Type of Grantee:</i>	State Agency

L O C A T I O N	
<i>Benefits:</i>	Statewide
<i>Water Source:</i>	Various
<i>Drainage Basin:</i>	All Basins

Water Plan Grant Program Appropriation History

	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
Total appropriated	\$ 15.55M	\$ 9.55M	\$ 20.85M	\$ 12.8M	\$ 15.0M	\$ 8.2M
Construction Fund	\$ 15.55M	\$ 9.55M	\$ 12.55M	\$ 12.8M		\$ 1.0M
Sports Betting						\$ 7.2M
General Fund			\$ 8.3M		\$ 15.0M	

