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 14-15, 2018 Board Meeting

AGENDA ITEM: 11a. 2019 Projects Bill
Non-Reimbursable Project Investments "En Bloc" Approval

Introduction

The Finance Committee reviewed the following Projects Bill - Non-Reimbursable Investment (NRI) applications on September 18, 2018 in Steamboat Springs, Colorado. The Committee supported the projects listed below and recommended them for Board approval. If approved, these NRIs will be recommended to the Bill Sponsors for inclusion in the 2019 Projects Bill. Board Memos and Data Sheets for each project are included. No formal presentation will be made unless requested.

(1)	Flood & Drought Response Fund – Refresh (up to $500K) Statute change to auto refresh	Statewide	est. $500,000
(2)	Feasibility Study Small Grant Fund – Auto Refresh (up to $500K) Statute change to auto refresh	Statewide	est. $300,000
(3)	Litigation Fund – Refresh (up to $2M)	Statewide	est. $100,000
(4)	Colorado Floodplain Map Modernization Program - Continuation	Statewide	$500,000
(5)	Satellite Monitoring System Maintenance Program - Continuation	Statewide	$380,000
(6)	Weather Modification Permitting Program - Continuation	Statewide	$175,000
(7)	Colorado Mesonet Project - Continuation	Statewide	$150,000
(8)	Lidar Acquisition - Continuation	Statewide	$200,000
(9)	Instream Flow Engineering and Tech Support Services – Continuation	Statewide	$250,000
(10)	Technical Assistance Grants for CRSP MOU	Statewide	$200,000
		Total	$2,755,000

Recommendation

The Staff and the Finance Committee recommends the Board approve the Non-Reimbursable Investments listed above for inclusion in the 2019 Projects Bill.

Attachments: Data Sheets

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Flood & Drought Response Fund

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PROJECT DETAILS	
Project Cost:	$500,000 annually
NRI Funding Request:	$500,000
Funding Source:	*Construction Fund*
Project Type:	Program Funds
Type of Grantee:	State Government

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

A $150,000 Flood Response Program was authorized in the 2001 Construction Fund Bill (SB 01-157) and enacted by the Colorado General Assembly. This amount was increased in the 2007 Construction Fund Bill (SB 07-122) to $300,000 to reflect the additional cost of performing existing program functions and the addition of valuable services under the program. In FY 2013 the scope of the fund was expanded to include drought response activities, which continue to be included. The original expansion of the scope did not include any increase in funds; however in fiscal year 2014 the fund was increased to $500,000 to reflect activities associated with Drought Response and to address the increasing threat of wildfires and post-wildfire activities.

The Flood and Drought Response Fund (Fund) exists to give the CWCB an ability to quickly respond to events and have program funds in the areas of: 1) flood & drought documentation, 2) flood & drought forecasting and outlooks, 3) post-event floodplain mapping, 4) aerial photography, and 5) flood & drought mitigation. Funds from this account may be used for projects and studies in support of the efforts of the Colorado Resiliency Working Group (CRWG), especially the Watersheds and Natural Resources Sector, a subgroup headed by CWCB staff as well as climate change activities that involve the CRWG. The CRWG is committed to improving state processes to incorporate resiliency into Colorado public health, safety, and welfare.

The current request is to refresh the account up to $500,000 for FY 2019/20 for flood and drought response purposes, including post-wildfire activities. Use of this fund to address both flood and drought increases the efficiency and effectiveness of the CWCB to adequately respond to natural hazards affecting Colorado while also recognizing the current fiscal constraints by utilizing existing resources. Staff clearly recognizes that there will be years in the future when both flood conditions and drought conditions exist during the same year, as was the case in 2013. In those situations, the Fund could be stressed by needs from the two extreme conditions, and Staff will prioritize expenditures.

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Feasibility Study Small Grant Fund

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PROJECT DETAILS	
Project Cost:	$500,000
NRI Funding Request:	$500,000
Funding Source:	Construction Fund
Project Type:	Grant Fund Refresh
Type of Grantee:	CWCB

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

In 1999 through SB 99-173, the Legislature authorized the Board to set aside $200,000 of Construction Fund money in a special fund reserved for feasibility studies for water resources infrastructure systems projects. The money in the fund is continuously appropriated to the Board for immediate availability for making small grants to water users to help pay for the costs of preparing feasibility studies in conformance with the CWCB Water Project Loan Program Guidelines. The fund is intended to encourage planning by local water supply entities and to evaluate technical feasibility and the financial aspects of projects if funded through Water Project Loan Program.

In an effort to align with the goals of the Colorado Water Plan, staff is aksing the board to support a statute change in Section 37-60-122.7(5) to increase the appropriation to $500,000. The intent of the increase is to encourage and support reconnaissance and feasibility planning by local water providers.

A transfer of approximately $500,000 from the Construction Fund's unreserved cash into the fund is requested to fund the Feasibility Study Small Grant Fund.

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Litigation Fund

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PROJECT DETAILS	
Project Cost:	$1,294,300
NRI Funding Request:	*Up to* $2,000,000
Funding Source:	*Construction Fund*
Project Type:	Other
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 Cynthia Coffman stating that a total of $1,294,300 will be needed in FY18/19 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: $643,000 for FY18/19
2) Republican River Basin: $118,000 for FY18/19
3) Rio Grande Basin: $533,300 for FY18/19

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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Colorado Floodplain Map Modernization

Colorado Water Conservation Board

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PROJECT DETAILS	
Project Cost:	$1,900,000
NRI Funding Request:	$500,000
Funding Source:	*Construction Fund*
Project Type:	Matching Funds for Grants
Type of Grantee:	State Government

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

Colorado has received approximately $23.6 million in federal grant dollars for floodplain mapping activities as part of the floodplain Map Modernization/Risk Map Program (Program) initiated by FEMA in 2003. The FEMA funds are being matched by CWCB and local cost-share dollars to implement 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 the required non-federal matching dollars (80/20 cost share program). The State funds are further leveraged by local cost share dollars and in-kind services from many communities thus far. 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 DSS system to increase data capture and enhance Colorado's decision support tools.

The Program will eventually impact the entire state, and the objective is to develop updated watershed-based and/or countywide floodplain maps using current base map information 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 provided by the CWCB and FEMA/Local governments for CWCB managed projects (in progress or completed).

COUNTY/WATERSHED	CWCB Funds	FEMA/Local Funds	COUNTY/WATERSHED	CWCB Funds	FEMA/Local Funds
Archuleta	$71,000	$228,760	Mesa	$33,960	$435,780
Boulder	$17,807	$524,709	Montrose	$60,376	$241,503
Clear Creek	$2,950	$158,605	Montezuma	$53,000	$452,735
Chaffee	$44,000	$399,290	Morgan	$25,000	$270,700
Delta	$21,630	$277,763	Park	$18,800	$165,200
El Paso	$75,635	$1,472,030	Pitkin	$20,772	$466,388
Elbert	$141,548	$301,982	Prowers	$76,605	$691,024
Fremont	$23,294	$146,240	Pueblo	$71,768	$1,115,902
Garfield	$29,912	$325,000	Rio Grande	$58,300	$152,810
Gunnison	$79,250	$272,422	Summit	$21,098	$189,876
La Plata	$74,200	$391,910	Teller	$23,100	$207,900
Logan	$30,550	$271,050	Weld	$112,419	$658,530
St. Vrain Wtsd	$88,580	$354,320	Purgatoire	$140,137	$347,963
Clear Creek Wtsd	$114,060	$456,240	Cache La Poudre Ph 1 & 2	$718,834	$150,000
Upper White Wtsd	$0	$353,756	El Paso Approximate Mapping	$0	$129,860
Middle South Platte Approximate Mapping	$0	$80,000	Cache La Poudre Phase 3		$285,596
Upper Gunnison 2 Phase	$38,935	$126,815	IFSAR (Moffat, Lincoln, Yuma, Phillips, Middle South Platte)	$100,000	$250,000
Animas Wtshd Phase 2		$654,717	CHAMP PMR's		$929,729
Garfield County Risk Map Phase 2		$212,558	Animas Watershed Phase 2		$654,717
Garfield County Risk Map Phase 3		$346,752	Animas Watershed Phase 3		$295,000
Delta County Discovery	$98,818		Delta County Phase 2		$350,000
Rio Blanco County Additional Studies		$70,000	Cache La Poudre Additional Studies		$195,000
El Paso & Teller pre levee work		$275,000	Upper Yampa Discovery		$253,085
CHAMP Work Phase 2 & 3		$620,000	Arkansas River Phase 2		$340,000
FEMA FY 2018 LiDAR grant		$2,200,000	Colorado River Hydrology Update	$139,992.00	
Arkansas River Hydrology Update	$195,585.00				

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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 600 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.

North Fork Gunnison River – New Radar Sensor Installation (Note these installations are more cost efficient as they require significantly less infrastructure than a typical stilling well and shelter)

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 WCD, and California Six Agency Committee. CWCB funding helps staff leverage pledged match funding from Lower Basin States water users. The CWCB goals are industry standard equipment in operation for efficient and effective programs.

PROJECT DETAILS	
Project Cost: $1.3M (matching from Lower Basin States and local sponsors)	
NRI Funding Request:	$175,000
Funding Source:	*Construction Fund*
Project Type:	Snowpack augmentation
Type of Grantee:	Local Water Districts

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

There is interest in both the North Platte and Rio Grande in developing cloud seeding programs. The State of Wyoming has stated interest in partnering with the CWCB and the Jackson Water Conservancy District. Some of the requested funding increase will help facilitate 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. A 1990 U.S. Bureau of Reclamation Study concluded the same for the North Platte. The local goals would be to augment snowpack in the southeastern part of the basin. The program can be designed to benefit the North Platte and South Platte.

Since 2007 the Lower Basin Water Users in the Colorado River (Southern Nevada Water Authority, California Six Agency Committee, and Central Arizona WCD) have donated $2.5M to match the CWCB's $2.5M to bolster locally sponsored cloud seeding in Colorado. Each year about $1M is spent with $175,000 or 18% from the CWCB and $175,000 or 17% from the Lower Basin and New Mexico. The other 65% of the funding comes from ski areas, water districts, towns and counties. Based on success from 2007-2017 the Lower Basin has developed a new nine year agreement that will $500K per state per year for Upper Basin States as match for upper basin expenditures on cloud seeding programs.

Effective cloud seeding is getting cloud seeders high onto ridges in areas of good airflow to have the silver iodide particles regularly transported into cloud. 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 in cloud. High elevation seeding equipment is needed. Colorado has high elevation terrain for effective seeding.

The CWCB has ten years of facilitating successful multi-state collaborations to work on a watershed basis to benefit local water supplies and downstream river compact obligations. In 2015, a ten year $15M winter research experiment in Wyoming concluded that 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. The ranges in the Wyoming experiment were the Sierra Madre and Medicine Bow Ranges just across the border. They also need northwest flow for good winter storms. This is also the case in the North Platte Basin.

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Colorado Mesonet Project

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PROJECT DETAILS	
Project Cost:	$150,000
NRI Funding Request:	$150,000
Funding Source:	*Construction Fund*
Project Type:	Data Collection/Maint.
Type of Grantee:	State Government

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

The Colorado Climate Center runs the Colorado Agricultural Meteorological (CoAgMet) network consisting of 75 stations statewide tracking agricultural weather, climate and drought. The Center also manages the Colorado Reginal Climate Reference Network (CO-RCRN) which consists of 17 high-quality precipitation and temperature monitoring stations located in pristine environments. These sites, started by NOAA, were intended to monitor the climate over long periods of time in areas free of urbanization and with datasets free of station moves, changes in observation time and other factors that create inhomogeneity in climate datasets. Current base funding for these networks does not allow for them to be run at high quality levels and still develop products to enhance the data. CO-RCRN needs multiple station visits per year to add and remove fluids from rain gauges. The CoAgMet network, in order to be run as a reliable mesonet for real-time weather monitoring, drought monitoring, and calculations of consumptive use needs close attention paid to quality control and making sure all sensors are functioning properly. If they aren't, a technician should be deployed as soon as possible to resolve issues (particularly during the growing season). Due to budget and staff constraints, products cannot be developed while providing the close attention needed for quality data.

July 2015, CoAgMet received the first funding from the state to begin moving towards a multipurpose state "Mesonet" focusing on agricultural and water resources as well as long-term climate monitoring and short term real-time weather tracking to aid weather prediction, emergency management and other diverse uses. With this funding, we have been able to develop products and tools greatly needed to enhance data, identify and implment areas for expansion and upgrading to newer technology in order to provide beneficial real-time weather data. Stations in the network are now transmitting data every 5 minutes and the network covers and reasonably represents the weather conditions of the majority of state, resulting in and broader application and surveillance capabilities.

In order to continue expanding and improving the Colorado Mesonet data and products, and track long term climate conditions that could impact our water resources, continuation of the state funding is needed. 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 be used to qualify for federal matching funds through the National Mesonet to support critical operations and maintenance needs.***

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Colorado Lidar Data Acquisition Program

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PROJECT DETAILS	
Project Cost:	$3,400,000
NRI Funding Request:	$200,000
Funding Source:	*Construction Fund*
Project Type:	Matching Funds for Grants
Type of Grantee:	State Government

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

Colorado has received approximately $5.6 million in federal grant dollars for elevation data acquisition activities to support the floodplain Map Modernization/Risk Map Program in Colorado. High quality topographic data is necessary to develop accurate FEMA flood hazard mapping. Additionally, the Colorado Hazard Mapping program relies on high quality elevation data for debris flow mapping and fluvial hzard mapping. The FEMA funds can be leveraged through the U.S. Geological Survey (USGS) 3DEP Program (3D Elevation Program).

The 3DEP Program (Program) was developed to respond to a growing need for high quality topographic data nationwide. The primary goal of this Program is to systematically collect 3D elevation data in the form of light detection and ranging (lidar) across the U.S over an 8-year period. Lidar technology has many uses and is utilized across many different industries. In addition to floodplain mapping, other examples of lidar uses include determining forest biomass, measuring snow pack, transportation planning, identification of reclamation mining sites, and geohazard mapping.

The Program is a unique opportunity for collaboration between all levels of government and to leverage services and expertise of private sector mapping firms to acquire the data. The CWCB has been contacted by several local, State, and Federal organizations, including the Colorado Department of Transportation (CDOT), Colorado Geological Survey (CGS), Division of Reclamation and Mining Services (DRMS), and the U.S. Forest service, with great interest in partnering on future lidar acquisitions in Colorado. The CWCB can leverage FEMA and State funds to obtain USGS funding through the 3DEP Program. This Program requires a 25% non federal cost share for acquisition projects in order to receive USGS matching funds up to 50% of the total cost of the projects.

Similar to the FEMA Map Modernization Program where the CWCB has leveraged millions of federal dollars for floodplain mapping Colorado, this is a rare opportunity to leverage additional federal funds with State dollars and provide communities across the State with up to date, accurate elevation data that can be utilized for a multitude of purposes.

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ISF Engineering and Technical Support

Colorado Water Conservation Board

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PROJECT DETAILS	
Project Cost:	$250,000
NRI Funding Request:	$250,000
Funding Source:	*Construction Fund*
Project Type:	Study
Type of Grantee:	State Agency

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

This project is for the continued implementation of the CWCB's long range engineering and technical support services program. This program has been in place since 2005 to provide support services to address specific agency needs related to protecting the Board's existing instream flow (ISF) water rights, providing sound science and engineering for ISF recommendations, and until 2008, providing technical analyses for the transfer of acquired water rights to instream flow use. The use of these funds is on an as-needed basis and often cannot be anticipated in advance or addressed through Severance Tax projects that are limited to one-year time frames.

Potential uses of this fund include science and engineering investigations necessary to provide the Board with scientifically rigorous information necessary for its statutory determinations. This could include more complex water availability studies, development of science to improve quantification, or site specific studies. Others uses include expert testimony necessary to provide the board additional expertise during administrative hearings or complex court cases. Technical support can include database development, small annual fees associated with housing the updated R2Cross model on the Colorado State University eRAMS platform, as well as imaging, retrieval, and research of ISF documents. Furthermore, technical support is required on a seasonal basis to augment staff resources in the collection and analysis of field data.

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Technical Assistance for Implementation of the Memorandum of Agreement Concerning the Upper Colorado River Basin Fund

Colorado Water Conservation Board

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PROJECT DETAILS	
Project Cost:	$200,000
NRI Funding Request:	$200,000
Funding Source:	*Construction Fund*
Project Type:	Grant Program
Type of Grantee:	State Government

LOCATION	
Benefits:	Colorado, Gunnison, SW
Water Source:	Various
Drainage Basin:	Colorado, Gunnison, SW

In 2011, the Upper Colorado River Division States (Colorado, Wyoming, Utah, and New Mexico), the United States Bureau of Reclamation (Reclamation), the United States Department of Energy Western Area Power Administration, and the Colorado River Energy Distributors Association (CREDA) signed a Memorandum of Agreement (MOA) that authorizes the use of the Upper Colorado River Basin Fund (Basin Fund) to further the purposes of the 1956 Colorado River Storage Project (CRSP) Act (Public Law 485) and to reduce the impact on the CRSP firm power rate by eliminating the collection of power revenues beyond that amount needed to repay the costs of the existing projects through Fiscal Year (FY) 2025.

The Basin Funds that are the subject of the MOA are from excess CRSP power revenues allocated to the Upper Basin States. An average of $11.5 million is to be collected each year, up to $161 million total over the term of the MOA. Forty-six percent of the total funds collected are to be allocated to Colorado (roughly $73 million after setting aside funds for Basinwide projects) through 2025. MOA funds can be utilized for specific types of operations, maintenance, and replacement (OM&R) projects—not including completely new construction. The MOA funds are available to CRSP Participating Projects.

In the MOA process, CWCB selects projects for MOA funding and Reclamation is tasked with implementing those projects from design to completion. Several MOA projects have gone over budget in recent years. This is largely due to Reclamation's non-contract costs, particularly in the design stage. The high costs are often coupled with delays--a matter expected to worsen as Reclamation anticipates large, high-priority projects in California to overtake its Technical Service Center's task list in the next several years.

This new CWCB fund would be made available to MOA Project Beneficiaries (PBs) that have already received approval for a MOA project but have not yet entered the design stage. The PB would work with an engineering firm to complete the project design, which Reclamation would then use for the construction phase of the project. CWCB staff believes this will lead to significant efficiencies in time and cost.

This project will help implement Colorado's Water Plan, which places high value on efficient and effective water infrastructure. The funding requested herein will be used to provide technical assistance for the design stage of MOA projects, which will ensure the MOA funds remain available for the construction phase of the projects.