



TO: Colorado Water Conservation Board Members

FROM: Brent Newman, Interstate, Federal, and Water Information Section

DATE: November 15-16, 2017 Board Meeting

AGENDA ITEM: 25 a-e. Water Plan Grants - Agricultural Viability
Initial Consideration

This item is for consideration only. No action is required at this time

Introduction

The agricultural viability category has \$598,000 in available funds, assuming Board approval of agenda items 25 a-c. In the October round of applications, the CWCB received five applications totaling \$1,100,000. Staff is supporting all five applications at 50% of the requested amount, as noted in the table below. This will leave \$48,000 remaining in the fund for upcoming rounds of applications. Staff has been in contact with applicants, and all understood the necessity for this reduction in funding, given the limited balance of the grant fund. Project proponents have indicated that the proposed projects will be able to proceed with the recommended amount of funding.

Applicant	Project Name	Request	% of Project	Staff Support
a. Colorado River Water Conservation District	Silt Water Conservancy District Agricultural Infrastructure Improvement Project	\$200,000	4.2%	\$100,000
b. Haymeadow Metropolitan District No. 6	Love & White Efficiency Project - Phase 1	\$300,000	9%	\$150,000
c. Turner Ditch Company	Turner and Lone Cabin Ditch-Combination Salinity Reduction Project	\$350,000	5.8%	\$175,000
d. Ducks Unlimited, Inc	North Park Irrigated Meadows Infrastructure Improvements	\$150,000	50%	\$75,000
e. Colorado River Water Conservation District	Fire Mountain Canal Regulating Reservoir	\$100,000	3.2%	\$50,000
		\$1,100,000		\$550,000



Staff Review and Comments

a. Colorado River Water Conservation District - Silt Water Conservancy District Agricultural Infrastructure Improvement Project

The project will upgrade the Grass Valley Canal, a critical water conveyance structure by placing approximately 1000 feet of existing open, unstable, earthen portions in closed HDPE pipe and by upgrading aging siphons resulting in significant water quantity and quality benefits. Currently it is estimated to lose approximately 250 acre-feet/year to groundwater seepage, loading an estimated 60 tons/year of salt and 10 lbs/year of selenium to the river basin.

Additionally, this project will upgrade critical infrastructure to control, store and convey water resources to and through Harvey Gap Reservoir by improving inflow/outflow features. Harvey Gap Reservoir is an off-channel reservoir that obtains its water supply from the Grass Valley feeder canal diverted from East Rifle Creek. It is estimated that 1000 acre-feet may be saved and/or retimed using the upgraded conveyance and storage facilities.

This project meets multiple goals of Colorado's Water Plan and advances the measurable objectives as identified in the Critical Action Plan. In particular, this project meets goals related to improvement of agricultural infrastructure, while incorporating multiple benefits related to endangered species and water quality. The project seeks to leverage significant federal funding from the Bureau of Reclamation and the Natural Resources Conservation Service. The applicant is also considering a small CWCB loan to fully fund the project. The project is supported by the Colorado Basin Roundtable.

The Silt area is classified as a salinity control area by Reclamation and NRCS. This project will also provide aquatic habitat benefits from reduced salinity and selenium contributions, which have negative impacts to endangered fish species in the Colorado River Basin. These benefits will accrue to in-state water users, supporting the goals of the Colorado River Basin Salinity Control Program, and downstream water users in the Colorado River basin.

See attached Data Sheet for a location and summary.

b. Haymeadow Metropolitan District No. 6 - Love & White Efficiency Project - Phase 1

Haymeadow Metropolitan District No. 6 (District) is the raw water service provider for the Haymeadow Property located adjacent and southwest of the Town of Eagle. The District currently owns majority shares in three senior agricultural ditches on Brush Creek including the Love and White, Wilkinson and Mathews Ditches. The District is committed to serving at least 320 acres of continued hay production on the Property and deliver non-potable irrigation water to the planned residential development on the west side of the property. Water conservation, efficiency and riparian/aquatic health are primary water management goals for the District.

Phase 1 irrigation delivery improvements are attained through the consolidation of three senior ditches, all identified as needing significant infrastructure maintenance. Piping the consolidated ditches will significantly reduce the transit losses in the system and improve hay production. The proposed new diversion structure, headgate and pipeline will limit diversions to only those times when the property is being irrigated.

This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3) This project was identified as a priority project by the Eagle County Conservation District Irrigation Asset Inventory, funded by the Colorado Basin Roundtable.

See attached Data Sheet for a location and summary.

c. Turner Ditch Company - Turner and Lone Cabin Ditch-Combination Salinity Reduction Project

This Salinity Control Project proposes to combine the irrigation operations of Turner Ditch, Lone Cabin Ditch and Reservoir, and Sweezy-Turner Ditch, located in the Minnesota Creek and Reynolds Creek drainages, into a closed, pressurized delivery system. The project objectives are to:

- (1) Decommission the use of 9.5 miles (out of 25 miles total) of open earthen ditches and their implied easements and associated structures;
- (2) Replace the remaining 15.5 mi of existing open ditch with HDPE and/or PVC plastic pipe;
- (3) Construct a new Turner diversion structure at the existing Sweezy-Turner diversion;
- (4) Pressurize the resulting combined system in excess of 50 psig;
- (5) Allow the new Lone Cabin system to directly access their Beaver Reservoir water (300 ac-ft) without water trades via a "connection" to the new Turner system;
- (6) Clean the irrigation water of vegetable matter down to 25 mesh (about 1 mm) using wedge screen at all head-gates.

This Project will eliminate delivery system losses (approximately 40%) and encourage on-farm sprinklers via pressure as a high efficiency replacement for flood irrigation in both the Reynolds and Minnesota Creek drainages. Irrigation water will be detained of alkalinity and selenium.

CWP funding (plus match) will be focused on diversion and piping of Lake Fork water located on the upper reach of Lone Cabin Reservoir, leveraging a larger Bureau of Reclamation Funding Opportunity Announcement Project. This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3) This project will also provide aquatic habitat benefits from reduced salinity and selenium contributions, which have negative impacts to endangered fish species in the Colorado River Basin. These benefits will accrue to in-state water users, supporting the goals of the Colorado River Basin Salinity Control Program, and downstream water users in the Colorado River basin.

d. Ducks Unlimited, Inc. - North Park Irrigated Meadows Infrastructure Improvements

The goal of this multi-purpose water project is to rehabilitate irrigation infrastructure (diversion, delivery, and storage) tied to critical wildlife habitat acres and productive ranchlands in North Park Colorado. One of the largest threats in this landscape is the loss of irrigated hay meadows on private lands. While this threat is multifaceted, a primary driver is aging infrastructure which hinders usability and overall effectiveness in terms of applied acres. The loss of irrigated hay fields can have direct impacts on the viability of private operations and the economic well-being of the local community.

Secondly, reduced application of decreed irrigation water can permanently threaten private water rights and associated beneficial uses.

Through this project, DU will rehabilitate irrigation infrastructure on at least three tracts of land in the Park through June of 2020. With over 20 years of project delivery in the Park, DU has developed relationships with a network of landowners, supplemented by the thunderstorm map of priority areas to identify tracts. Project partners will include CPW and the Colorado Cattlemen's Agricultural Land Trust.

Deliverables include: head-gate replacement and rehabilitation with new inverted rock vane structures, the installation of beaver compatible engineering solutions, the installation of water measurement equipment, ditch rehabilitation, water-control structure replacement and rehabilitation, the construction of new feeder ditch systems and the construction of shallow-water impoundments. These activities will increase capacity, improve efficiencies and ease operational requirements for the systems delivering water to the wet meadows of North Park.

This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3)

e. Colorado River Water Conservation District - Fire Mountain Canal Regulating Reservoir

This project proposal supports technical assistance activities necessary to design and engineer a fifty acre-feet re-regulation reservoir facility (with remote monitoring and control) on the Fire Mountain Canal (FMC), a component of the Federal Paonia Project. The FMC provides irrigation water to 8,200 acres of irrigated lands (480 water users) near Paonia and Hotchkiss, Colorado. The FMC Re-Regulation Reservoir is a critical component needed to create an "on-demand" irrigation delivery system with pressurized deliveries that enable on-farm high efficiency irrigation improvements in the water short, North Fork of the Gunnison River sub-basin. Sources of water include the North Fork of the Gunnison River, Terror Creek and Roatcap Creek. Major crops include livestock feed and fruit, such as apples, peaches, and cherries. Dairy cows and beef are principal livestock of the area.

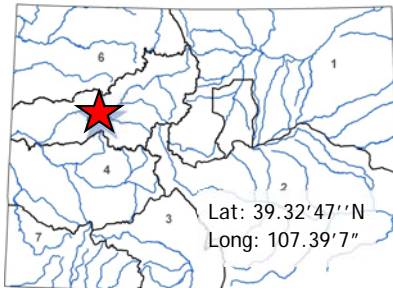
This project meets goals identified in Colorado's Water Plan relating to "updating agricultural infrastructure, especially where improvements provide multiple benefits." (Chapter 10, Measurable Objective D, Action 3) The project will leverage NRCS funding under the Regional Conservation Partnership Program in the Lower Gunnison. This project will also provide aquatic habitat benefits from reduced salinity and selenium contributions, which have negative impacts to endangered fish species in the Colorado River Basin. These benefits will accrue to in-state water users, supporting the goals of the Colorado River Basin Salinity Control Program, the Gunnison Selenium Management Program, and downstream water users in the Colorado River basin.



Silt Water Conservancy District Agricultural Infrastructure Improvement Project Colorado River Water Conservation District

November 2017 Board Meeting
Initial Consideration

Water Plan Grant Application



L O C A T I O N	
County/Countries:	Garfield
Drainage Basin:	Colorado

D E T A I L S	
Total Project Cost:	\$4,710,000
Water Plan Grant Request:	\$200,000
Other CWCB Funding:	\$0
Other Funding Amount:	\$3,010,000
Applicant Match:	\$10,000
Project Type(s):	Construction
Project Category(Categories):	Agricultural Viability
Measurable Result:	1000 AF/yr efficiency savings, reduction of salt and selenium in Colorado River Basin

The Silt Water CD operates and maintains an integrated system of water diversion, collection, storage and distribution facilities under contract to Reclamation and operates and maintains the non-project portion of the irrigation system under contract to Farmers Irrigation Company.

The project will upgrade the Grass Valley Canal, a critical water conveyance structure by placing approximately 1000 feet of existing open, unstable, earthen portions in closed HDPE pipe and by upgrading aging siphons resulting in significant water quantity and quality benefits. Currently it is estimated to lose approximately 250 acre-feet/year to groundwater seepage, loading an estimated 60 tons/year of salt and 10 lbs/year of selenium to the river basin.

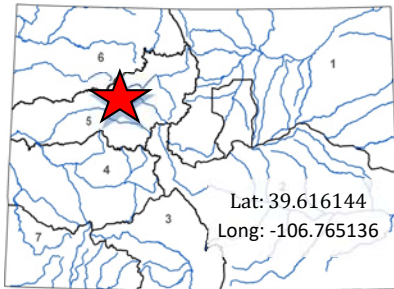
Additionally, this project will upgrade critical infrastructure to control, store and convey water resources to and through Harvey Gap Reservoir by improving inflow/outflow features. Harvey Gap Reservoir is an off-channel reservoir that obtains its water supply from the Grass Valley feeder canal diverted from East Rifle Creek. It is estimated that 1000 acre-feet may be saved and/or retimed using the upgraded conveyance and storage facilities.

Together these two 100-year old components make up more than half of the Silt Project, and without this project an estimated 6120 irrigated acres will be adversely impacted.

This project is part of a multi-purpose funding plan that will increase system efficiency, reducing losses, improving stream flow and riparian health in the local streams and the endangered species critical habitat of the Colorado River by reducing system losses, and reducing salt and selenium loading from the district.



Water Plan Grant Application



L O C A T I O N	
County/Countries:	Eagle
Drainage Basin:	Colorado

D E T A I L S	
Total Project Cost:	\$3,325,800
Water Plan Grant Request:	\$300,000
Other CWCB Funding:	\$0
Other Funding Amount:	\$1,625,000
Applicant Match:	\$1,400,800
Project Type(s): Construction	
Project Category(Categories): Agricultural, Environmental & Rec	
Measurable Result:	1680 AF efficiency savings

Haymeadow Metropolitan District No. 6 (District) is the raw water service provider for the Haymeadow Property located adjacent and southwest of the Town of Eagle. The District currently owns majority shares in three senior agricultural ditches on Brush Creek including the Love and White, Wilkinson and Mathews Ditches. The District is committed to serving at least 320 acres of continued hay production on the Property and deliver non-potable irrigation water to the planned residential development on the west side of the property. Water conservation, efficiency and riparian/aquatic health are primary water management goals for the District.

Phase 1 irrigation delivery improvements are attained through the consolidation of three senior ditches, all identified as needing significant infrastructure maintenance. Piping the consolidated ditches will significantly reduce the transit losses in the system and improve hay production. The proposed new diversion structure, headgate and pipeline will limit diversions to only those times when the property is being irrigated.

The District and the Town of Eagle are cooperating on this project and are both committed to the Brush Creek Watershed Management Plan. The Brush Creek Plan aims to prioritize the junior decreed CWCB minimum flows in Brush Creek, through agreed curtailment, improved irrigation efficiencies and stream flow monitoring. Brush Creek restoration will occur around the decommissioning of historical diversion structures on Brush Creek.

Phase 2 (not included in application) addresses design and installation of the hay production field sprinklers which is expected to largely be funded by an EQIP grant. Phase 3 (separate application) addresses potable supply-demand management which capitalizes on the agricultural infrastructure to provide residential non-potable irrigation water, decreasing the demand on the Town of Eagle's water treatment plant and allowing the irrigation water to flow in Brush Creek for an additional four miles below the Town's intake.

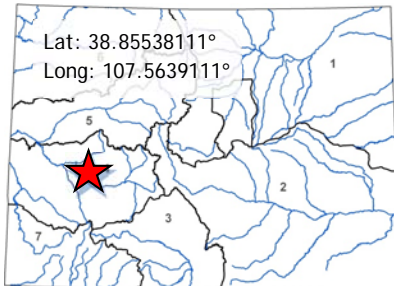
This project was identified as a priority project by the Eagle County Conservation District Irrigation Asset Inventory, funded by the Colorado Basin Roundtable.



Turner and Lone Cabin Ditch-Combination Salinity Reduction Project Turner Ditch Company

November 2017 Board Meeting
Initial Consideration

Water Plan Grant Application



L O C A T I O N	
County/Countries:	Delta, Gunnison
Drainage Basin:	Gunnison

D E T A I L S	
Total Project Cost:	\$6,000,000
Water Plan Grant Request:	\$350,000
Other CWCB Funding:	\$0
Other Funding Amount:	\$5,650,000
Applicant Match:	\$200,000
Project Type(s): Construction	
Project Category(Categories): Agricultural, Environmental & Rec	
Measurable Result: 1800 AF efficiency savings, 3500 tons of salt detained annually	

Turner Ditch Company is the designated entity representing both Turner Ditch Company and Lone Cabin Ditch and Reservoir Company. The Turner Ditch system serves 47 farms with 9 miles of open unlined ditch where crossings of unstable Mancos Shale hillsides in the Minnesota Creek drainage have been problematic. Irrigation operations include one diversion structure on Minnesota Creek, three lateral ditches on Lamborn Mesa and 55 user take-outs. The Lone Cabin Ditch system serves 15 farms with 17.2 miles of open unlined ditch which includes two water intake diversions on Minnesota Creek Lake Fork, three lateral ditches on Lamborn Mesa and 15 user take-outs. The system also includes the Trade/Transfer Ditch (24,171 feet) and a secondary collection ditch called the Highline Ditch (14,250) above and to the southeast of Lone Cabin Reservoir. The above ditch systems both access Beaver Reservoir (700 ac-ft) and irrigate a total of 1000 acres of farmland.

This salinity control project proposes to combine the irrigation operations of Turner Ditch, Lone Cabin Ditch and Reservoir, and Sweezy-Turner Ditch located in the Minnesota Creek and Reynolds Creek drainages into a closed, pressurized delivery system. The project objectives are to:

- (1) Decommission the use of 9.5 miles (out of 25 miles total) of open earthen ditches and their implied easements and associated structures;
- (2) Replace the remaining 15.5 mi of existing open ditch with HDPE and/or PVC plastic pipe;
- (3) Construct a new Turner diversion structure at the existing Sweezy-Turner diversion;
- (4) Pressurize the resulting combined system in excess of 50 psi;
- (5) Allow the new Lone Cabin system to directly access their Beaver Reservoir water (300 ac-ft) without water trades via a "connection" to the new Turner system;
- (6) Clean the irrigation water of vegetable matter down to 25 mesh (about 1 mm) using wedge screen at all head-gates.

This Project will eliminate delivery system losses (approximately 40%) and encourage on-farm sprinklers via pressure as a high efficiency replacement for flood irrigation in both the Reynolds and Minnesota Creek drainages. Irrigation water will be detained of alkalinity and selenium. CWP funding (plus match) will be focused on diversion and piping of Lake Fork water located on the upper reach of Lone Cabin Reservoir, leveraging a larger Bureau of Reclamation (BoR) FOA Project.



North Park Irrigated Meadows Infrastructure Improvements Ducks Unlimited, Inc.

November 2017 Board Meeting
Initial Consideration

Water Plan Grant Application



L O C A T I O N	
County/Countries:	Jackson
Drainage Basin:	North Platte

D E T A I L S	
Total Project Cost:	\$300,000
Water Plan Grant Request:	\$150,000
Other CWCB Funding:	\$0
Other Funding Amount:	\$150,000
Applicant Match:	\$150,000
Project Type(s): Construction	
Project Category(Categories): Agricultural, Environmental & Rec	
Measurable Result:	1000 acres of protected or restored wetlands habitat

The goal of this multi-purpose water project is to rehabilitate irrigation infrastructure (diversion, delivery, and storage) tied to critical wildlife habitat acres and productive ranchlands in North Park Colorado. One of the largest threats in this landscape is the loss of irrigated hay meadows on private lands. While this threat is multifaceted, a primary driver is aging infrastructure which hinders usability and overall effectiveness in terms of applied acres. The loss of irrigated hay fields can have direct impacts on the viability of private operations and the economic well-being of the local community. Secondly, reduced application of decreed irrigation water can permanently threaten private water rights and associated beneficial uses.

Through this project, DU will rehabilitate irrigation infrastructure on at least three tracts of land in the Park through June of 2020. With over 20 years of project delivery in the Park, DU has developed relationships with a network of landowners, supplemented by the thunderstorm map of priority areas to identify tracts. Project partners will include CPW and the Colorado Cattlemen's Agricultural Land Trust.

Deliverables include: head-gate replacement and rehabilitation with new inverted rock vane structures, the installation of beaver compatible engineering solutions, the installation of water measurement equipment, ditch rehabilitation, water-control structure replacement and rehabilitation, the construction of new feeder ditch systems and the construction of shallow-water impoundments. These activities will increase capacity, improve efficiencies and ease operational requirements for the systems delivering water to the wet meadows of North Park.

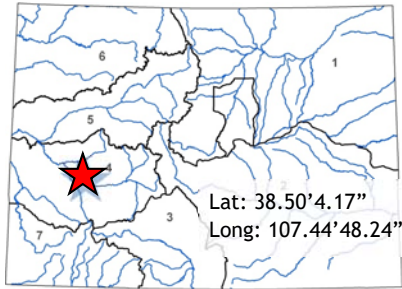
The first phase of work was initiated in 2010 and supported by the Colorado Water Conservation Board (Water Supply Reserve Account Grant), Colorado Parks and Wildlife (CPW), North American Wetlands Conservation Act (NAWCA), and a host of private landowners. This initial phase concentrated on planning and outreach, producing a spatially-explicit thunderstorm map of priority irrigated meadows and potential project sites. Significant landowner engagement and site assessments also took place. With remaining funds, infrastructure improvements were made on one private ranching operation and two high-value publicly-managed properties. DU is now looking to partner on the implementation of Phase II of the irrigated meadows work, through this grant application.



Fire Mountain Canal Regulating Reservoir Colorado River Water Conservation District

November 2017 Board Meeting
Initial Consideration

Water Plan Grant Application



L O C A T I O N	
County/Countries:	Delta
Drainage Basin:	Gunnison

D E T A I L S	
Total Project Cost:	\$3,132,000
Water Plan Grant Request:	\$100,000
Other CWCB Funding:	\$0
Other Funding Amount:	\$6,000
Applicant Match:	\$6,000
Project Type(s):	Construction
Project Category(Categories):	Agricultural Viability
Measurable Result:	50 af new storage, salt and selenium reduction in Gunnison and Colorado River systems

This project proposal supports technical assistance activities necessary to design and engineer a fifty acre-feet re-regulation reservoir facility (with remote monitoring and control) on the Fire Mountain Canal (FMC), a component of the Federal Paonia Project. The FMC provides irrigation water to 8,200 acres of irrigated lands (480 water users) near Paonia and Hotchkiss, Colorado. The FMC Re-Regulation Reservoir is a critical component needed to create an “on-demand” irrigation delivery system with pressurized deliveries that enable on-farm high efficiency irrigation improvements in the water short, North Fork of the Gunnison River sub-basin. Sources of water include the North Fork of the Gunnison River, Terror Creek and Roatcap Creek. Major crops include livestock feed and fruit, such as apples, peaches, and cherries. Dairy cows and beef are principal livestock of the area.

Support of this project addresses multiple purposes including:

- Agricultural Sustainability / Supply and Demand / Storage: Stretches limited supplies in a water short area, allows producers to capture, temporarily store and maximize benefits of early spring flood flow;
- Efficiency: Re-timed and pressurized deliveries that enable conversion to on-farm high efficiency systems and stabilized flows; and
- Environmental (Water-Quality and Threatened and Endangered Species): Potential reductions to on-farm selenium and salinity loading to the Gunnison and Colorado River benefitting critical fish habitat.