COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street
Denver, CO 80203

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

John Hickenlooper, Governor

Robert Randall, DNR Executive Director

Rebecca Mitchell, CWCB Director

**TO:** Colorado Water Conservation Board Members

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

**DATE:** January 22 -23, 2018 Board Meeting

**AGENDA ITEM:** 30 a-d. Water Plan Grants – Agricultural Viability
Final Consideration

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**Introduction**

The items listed below were presented by staff for Initial Consideration at the November 2017 Board Meeting in Broomfield, Colorado. The Board provided feedback and support for final consideration at this Board Meeting.

The Agricultural Viability category has $598,000 in available funds. With the final approval of the applications listed below, this Water Plan Grant category will have $198,000 available for future applications.

**Staff Recommendation**

Staff recommends board approval of the projects/activities listed in the following table for Water Plan Grant funding.

| Applicant | Project Name | % of Eligible Project Costs | Grant Amount |
|---|---|---|---|
| a. Colorado River Water Conservation District | Silt Water Conservancy District Agricultural Infrastructure Improvement Project | 4.2% | $100,000 |
| b. Turner Ditch Company | Turner and Lone Cabin Ditch-Combination Salinity Reduction Project | 5.8% | $175,000 |
| c. Ducks Unlimited, Inc | North Park Irrigated Meadows Infrastructure Improvements | 50% | $75,000 |
| d. Colorado River Water Conservation District | Fire Mountain Canal Regulating Reservoir | 3.2% | $50,000 |
| | | Total | $400,000 |

* Indicates items which will include a presentation by the applicant

See attached Data Sheets for locations and summaries.

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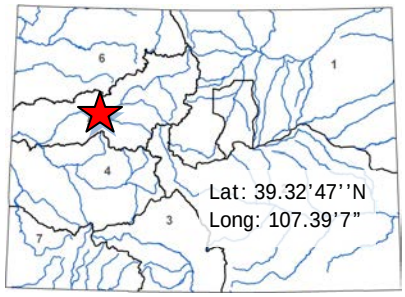
# Silt Water Conservancy District Agricultural Infrastructure Improvement Project

## Colorado River Water Conservation District

**January 2018 Board Meeting**
Final Consideration

## Water Plan Grant Application




| LOCATION | |
|---|---|
| *County/Counties:* | Garfield |
| *Drainage Basin:* | Colorado |

| DETAILS | |
|---|---|
| *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.

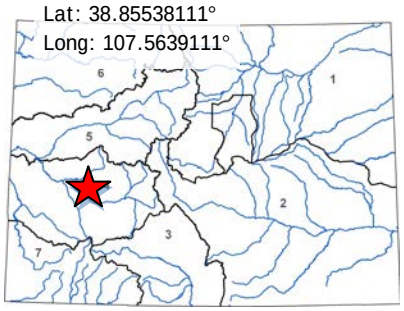
This project is part of a multi-purpose funding plan that will increase system efficiency, reducing losses, improving stream flow and riparian health in the local streams and the endangered species critical habitat of the Colorado River by reducing system losses, and reducing salt and selenium loading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

Colorado Water Conservation Board

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

January 2018 Board Meeting
Final Consideration

## Water Plan Grant Application




| LOCATION | |
|---|---|
| *County/Counties:* | Delta, Gunnison |
| *Drainage Basin:* | Gunnison |

| DETAILS | |
|---|---|
| *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:

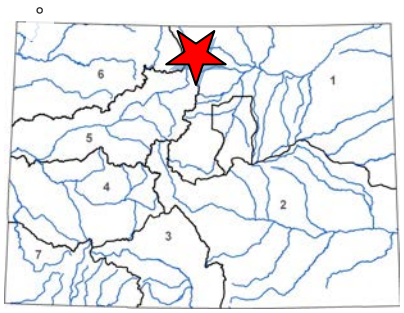
(1) Decommission the use of 9.5 miles (out of 25 miles total) of open earthen ditches and their implied easements and associated structures;
(2) Replace the remaining 15.5 mi of existing open ditch with HDPE and/or PVC plastic pipe;
(3) Construct a new Turner diversion structure at the existing Sweezy-Turner 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.

**January 2018 Board Meeting**
Final Consideration

## Water Plan Grant Application




| LOCATION | |
|---|---|
| *County/Counties:* | Jackson |
| *Drainage Basin:* | North Platte |

| DETAILS | |
|---|---|
| *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.

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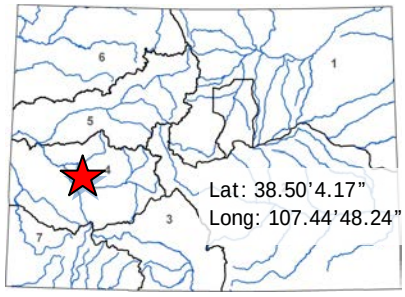
# Fire Mountain Canal Regulating Reservoir
# Colorado River Water Conservation District

**January 2018 Board Meeting**
Final Consideration

## Water Plan Grant Application




| LOCATION | |
|---|---|
| *County/Counties:* | Delta |
| *Drainage Basin:* | Gunnison |

| DETAILS | |
|---|---|
| *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.