Last Updated: July 2017

Colorado Water Conservation Board

Water Plan Grant Application

Instructions

To receive funding for a Water Plan Grant, applicant must demonstrate how the project, activity, or process (collectively referred to as "project") funded by the CWCB will help meet the measurable objectives and critical actions in the Water Plan. Grant guidelines are available on the CWCB website.

If you have questions, please contact CWCB at (303) 866-3441 or email the following staff to assist you with applications in the following areas:

Supply and Demand Gap Projects: Rebecca.Mitchell@state.co.us

Water Storage Projects: Anna.Mauss@state.co.us

Conservation, Land Use Planning: Kevin.Reidy@state.co.us

Education & Innovation Activities: Mara.MacKillop@state.co.us

Agricultural Projects: Gregory.Johnson@state.co.us

Environmental & Recreation Projects: Linda.Bassi@state.co.us

Applicants interested in submitting an 'Intent to Apply' in the future are encouraged to check here ☐ and fill in all sections with the best information available at the time. Exhibits excluded.

This "Intent to Apply" will help CWCB prioritize Projects that are not ready for fully completed Water Plan Grant Application due to the initial timeframe and deadlines required.

Water Project Summary

Name of Applicant	Denver Botanic Gardens
Name of Water Project	South Platte River Basin Restoration Planning and Feasibility Study

CWP Grant Request Amount	$69,847
Other Funding Sources MSUD	$7200
Other Funding Sources WRV	$720
Applicant Funding Contribution	$67,718
Total Project Cost	$145,485

Last Updated: July 2017

Applicant & Grantee Information	
Name of Grantee(s)	Denver Botanic Gardens
Mailing Address	909 York Street, Denver, CO 80206
FEIN	84-0440-359
Organization Contact	Rebecca Hufft
Position/Title	Associate Director of Applied Conservation
Email	Rebecca.hufft@botanicgardens.org
Phone	720-865-3597
Grant Management Contact	Tracy Zabel
Position/Title	Controller
Email	Tracy.zabel@botanicgardens.org
Phone	720-865-3505
Name of Applicant (if different than grantee)	
Mailing Address	
Position/Title	
Email	
Phone	

Last Updated: July 2017

Description of Grantee/Applicant
Provide a brief description of the grantee's organization (100 words or less).
Denver Botanic Gardens, one of the most visited gardens in North America, welcomed more than 1.2 million people in 2016 (York Street, Chatfield Farms, Mount Goliath locations). This included 34,000 school children, 6,000 from low-income schools benefiting from access funding. The Gardens showcase water-efficient horticultural and agricultural practices. Together with Colorado State University, the Gardens created Plant Select 25® years ago to bring to market plants that thrive in a semi-arid climate. A recent collaboration with Metropolitan State University of Denver to jointly manage its One World One Water Center creates a platform to educate an even broader audience.

Last Updated: July 2017

Type of Eligible Entity (check one)	
	Public (Government): Municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts): Authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises.
	Private Incorporated: Mutual ditch companies, homeowners associations, corporations.
	Private Individuals, Partnerships, and Sole Proprietors: Private parties may be eligible for funding.
X	**Non-governmental organizations (NGO):** Organization that is not part of the government and is non-profit in nature.
	Covered Entity: As defined in Section 37-60-126 Colorado Revised Statutes.

Type of Water Project (check all that apply)	
X	Study
	Construction
	Identified Process or Program
	Other –

Category of Water Project (check all that apply)		
	Supply and Demand Gap Projects - Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap. (Applicable Exhibit A Task(s) _____)	
	Water Storage Projects - Projects that facilitate the development of additional storage, artificial recharge into aquifers, and dredging existing reservoirs to restore the reservoirs' full decreed storage capacity. (Applicable Exhibit A Task(s) _____)	
X	Conservation and Land Use Planning Projects - Activities and projects that implement long-term strategies for conservation, land use, and drought planning. (Applicable Exhibit A Task(s) _2,4_____)	
	Engagement & Innovation Projects - Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application available on the website. (Applicable Exhibit A Task(s) _____)	
	Agricultural Projects - Projects that provide technical assistance and improve agricultural efficiency. (Applicable Exhibit A Task(s) _____)	
X	Environmental & Recreation Projects – Projects that promote watershed health, environmental health, and recreation. (Applicable Exhibit A Task(s) ___1,2,3,4_____)	
	Other	Explain:

Last Updated: July 2017

Location of Water Project	
Please provide the general county and coordinates of the proposed project below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Jefferson County
Latitude	39.568542
Longitude	-105.239156

Water Project Overview

Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for specifically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, and area of habitat improvements, where applicable. If this project addresses multiple purposes or spans multiple basins, please explain.
The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, Other Funding Sources/Amounts and Schedule.

The South Platte River Basin accounts for over half of the state's economic activity, contains seven of the top ten agricultural producing counties in Colorado, and includes many areas for recreation. With increasing populations and water demands, the South Platte Basin Implementation Plan (2015) encourages the protection of watershed health for the environmental and recreational economy. In 2015, we successfully initiated a watershed improvement project in the lower portion of the South Platte River Basin at Denver Botanic Gardens Chatfield Farms. Partnering with six other organizations and agencies, using a mix of federal, state, county, and private funds, we installed three in-stream structures along Deer Creek to re-wet historical oxbows, improving hydrology from historical stream channelization. We also planted over 1000 willows, cottonwoods, and other native riparian species and initiated a long-term monitoring program. We have seen increased channel flow and animal use in restored areas. Based on the success of this minimally invasive technique, we aim to expand to other areas in the South Platte River Basin. Partnering with Jefferson County Open Space, we propose to identify appropriate locations for in-stream structures on their properties. We will incorporate undergraduate and graduate students into all components of the project.

Last Updated: July 2017

Measurable Results		
To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable:		
	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
	Existing Storage Preserved or Enhanced (acre-feet)	
4000	Length of Stream Restored or Protected (linear feet)	
	Efficiency Savings (indicate acre-feet/year OR dollars/year)	
20	Area of Restored or Preserved Habitat (acres)	
	Quantity of Water Shared through Alternative Transfer Mechanisms	
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning	
	Other	Explain:

Water Project Justification
Provide a description of how this water project supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers). The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)
Water flows in tributaries in the South Platte River Basin are variable and ephemeral. There are many reaches that are dry for large portions of the year. Historical channelization of these creeks has exacerbated this problem. Overtime, banks have become steeper and the channel more incised, with less water getting onto the banks which reduces the flood plain and available riparian habitat. Riparian habitat is vital for plants and animals and serves as an important wildlife corridor, especially in our urban and surburban areas. In a pilot study conducted at Denver Botanic Gardens Chatfield Farms, we installed three in-stream structures in 2016. We have shown through this pilot study that the installation of in-stream structures can restore historical flows, reactivating historical oxbows and increasing the amount of riparian habitat available. In addition to improved plant and animal habitat, restoring flows also provides longer water storage in the system and increases the duration of flow in the creek. In our second season post-installation in our pilot study, we found water was flowing in the creek a month longer than what would have been available from just upstream sources. This project directly address one of the main challenges in Colorado's Water Plan: water quality, watershed health, and ecosystem resilience (1-9). The focal habitat for this project is the aquatic habitat in the creek channel, floodplain, cottonwood riparian forest, and associated species. Riparian areas are closely connected with surrounding habitats, acting as thoroughfares between ecosystems such as the mountains and prairies, which is also an important characteristic for many of the bird species which inhabit riparian ecosystems. Riparian areas also function to reduce streambank erosion, flooding, pollutants and protect aquatic habitat. When creeks can meander, there are more

Water Project Justification

opportunities for water to be filtered by plants as it moves through their roots and the soil, allowing for an improvement in water quality.

The proposed work is a vital step to implement restoration efforts on Jefferson County Open Space property. This study will provide resource managers with the needed information to pursue permitting, construction approval, and funding for restoration. The restoration would facilitate overbank flows and wetting of larger floodplain areas using several small channel structures to restore hydrologic conditions suitable for the regeneration of cottonwoods and willows. These structures improve watershed health by reactivating historical flows and expanding available riparian habitat, creating an overall all healthier system that can promote native plants and animals. Lastly, reducing channelization and increasing the flood plain increases ecosystem resiliency and will allow the system to better deal with catastrophic events like flooding (reducing downstream flow of sedimentation) and drought (increasing water accessible to plant roots and soil communities). Additionally, the restoration effort along Deer Creek would be in line with the goals of the Chatfield Water Association by helping to restore riparian area functions including water quality improvement, stream shading, and flood attenuation.

This project directly addresses South Platte environmental and recreation goals outlined in the Colorado Water Plan (6-50), including:
-Maintain or increase the habitat for federally and state-listed threatened and endangered species or plant communities.
-Maintain or increase habitats in the environmental and recreational focus areas with imperiled species or plant communities and secure the species in these reaches as much as they can be secured within the existing legal and water management context.
- *Maintain or increase the wetland, lake, or stream habitat used by migratory and breeding birds.*
This region is home to over 1250 species (550+ plants, 71 mammals, 345 birds, 28 reptiles and amphibians, 150+ butterflies, and 100s of species of invertebrates) (Chatfield Basin Conservation Network (CBCN) 2006). Global, federal and/or state rare, imperiled, threatened, or endangered animal species occurring in the Basin include the bald eagle (*Haliaeetus leucocephalus*), Plains sharp-tailed grouse (*Tympanuchus phasianellus jamesii*), Preble's meadow jumping mouse (*Zapus hudsonius preblei),* Northern leopard frog (*Rana pipiens*), four rare fish, and ten butterflies, including the rare Hop's Blue (*Celastrina humulus*) (CBCN 2006). Rare plants found within the Basin include the wood lily (*Lilium philadelphicum*), American black currant (*Ribes americanum*), Bell's twinpod (*Physaria bellii*), and giant bur-reed (*Sparganium eurycarpum*) (CBCN 2006). Remnant tallgrass prairie is found in the Basin as well, including the species big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum nutans*) and switchgrass (*Panicum virgatum*) (CBCN 2006). Lewis's woodpecker has a high conservation need locally and throughout its range as well as being listed on the National Watch List and is a USFS Sensitive Species in Region 2 (Colorado Partners in Flight 2015). The degradation of many cottonwood riparian habitats likely leads to a decrease in food availability for Lewis's woodpecker by reducing the availability of substrate for their arthropod prey, in turn affecting their nesting success (Saab and Vierling 2001). Lewis's woodpecker has been sighted as recently as 2013 in Chatfield State Park (eBird 2015). Preble's meadow jumping mouse is a federally threatened species which prefers heavily vegetated, shrub dominated riparian habitats and closely adjacent upland habitats (USFWS 2015). The decline in Preble's range is thought to be a result of habitat destruction from real estate development, grazing, and water diversions (Ryon 1996). Areas of the nearby Upper South Platte River and West Plum Creek are Designated Critical Habitat for the Preble's meadow jumping mouse (U.S. Fish and Wildlife Service 2015). The larval host plant (wild/common hop, *Humulus lupulus*) of the rare hops azure (*Celastrina humulus*) butterfly also grows in this area.

-Develop tools and methodologies to adequately assess what is needed to maintain or increase aquatic, riparian, and wetland habitats throughout the basin.

Last Updated: July 2017

Water Project Justification

-Protect, Maintain, and Improve Conditions of Streams, Lakes, Wetlands, and Riparian Areas to Promote Self-Sustaining Fisheries and Functional Riparian and Wetland Habitat to Promote Long-Term Sustainability.

- Maintain or increase the number of stream miles or surface area of streams, lakes, wetlands, and riparian areas for self-sustaining aquatic species populations, and wetland/riparian habitat.

A big hurdle to restoration projects is understanding funding and feasibility. By providing a feasibility study to Jefferson County Open Space, they would be ready to apply for funding to complete the restoration project. Currently, much of the aquatic habitat on the Open Space is degraded due to high flow energies in the creek. Restoration would include the installation of in-stream diversions which function like beaver dams. These in-stream installations cause more frequent and widespread overbank flows which in turn reduced the flow energies in the creek and greatly reduces the potential for erosion in the channel. This will provide the opportunity to create floodplain habitat without excavation to recreate oxbow areas. The oxbow wetlands would be connected to the creek to provide additional refugia habitat.

The restoration would facilitate overbank flows to move water from the stream channel and distribute it across the floodplain. Small channel structures or “beaver dam analogs” are intended to function like beaver dams, including more frequent and widespread overbank flows, which will restore the hydrologic conditions suitable for the regeneration of cottonwoods and willows. This will, in turn, encourage more beaver activity in the reach over the long-term by increasing food availability. The end-result is a more diverse flood plain habitat and habitat for fish and macroinvertebrates.

Related Studies

Please provide a list of any related studies, including if the water project is complementary to or assists in the implementation of other CWCB programs.

Denver Botanic Gardens initiated a restoration pilot program in 2015, installing three in-stream structures. These structures have successfully re-wetted historical oxbows and reactivated the floodplain, increasing the extent of riparian habitat along Deer Creek.

Previous CWCB Grants, Loans or Other Funding

List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order; 6) Percentage of other CWCB funding for your overall project.

N/A

Taxpayer Bill of Rights

The Taxpayer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect your application.

N/A

Last Updated: July 2017

Submittal Checklist	
X	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.
Exhibit A	
x	Statement of Work(1)
x	Budget & Schedule(1) *(Spreadsheet)*
x	Letters of Matching and/or Pending 3rd Party Commitments(1)
Exhibit C	
x	Map(1)
	Photos/Drawings/Reports
x	Letters of Support (Support letter from Basin Roundtable encouraged)
x	Certificate of Insurance (General, Auto, & Workers' Comp.)
x	Certificate of Good Standing with Colorado Secretary of State(2)
x	W-9(2)
	Independent Contractor Form(2) (If applicant is individual, not company/organization)
Engagement & Innovation Grant Applicants ONLY	
	Engagement & Innovation Supplemental Application(1)

(1) Required with application.
(2) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

Last Updated: July 5, 2017

Colorado Water Conservation Board

Water Plan Grant - Exhibit A

Statement Of Work	
Date:	**8/1/17**
Name of Applicant:	**Denver Botanic Gardens**
Name of Water Project:	**South Platte River Basin Restoration Planning and Feasibility Study**
Funding Source:	**Environmental & Recreation Projects**

Water Project Overview: Please provide a summary of the proposed water project (200 words or less). The same summary can be used from Page 5 of the CWP Grant Application.

The South Platte River Basin accounts for over half of the state's economic activity, contains seven of the top ten agricultural producing counties in Colorado, and includes many areas for recreation. With increasing populations and water demands, the South Platte Basin Implementation Plan (2015) encourages the protection of watershed health for the environmental and recreational economy. In 2015, we successfully initiated a watershed improvement project in the lower portion of the South Platte River Basin at Denver Botanic Gardens Chatfield Farms. Partnering with six other organizations and agencies, using a mix of federal, state, county, and private funds, we installed three in-stream structures along Deer Creek to re-wet historical oxbows, improving hydrology from historical stream channelization. We also planted over 1000 willows, cottonwoods, and other native riparian species and initiated a long-term monitoring program. We have seen increased channel flow and animal use in restored areas. Based on the success of this minimally invasive technique, we aim to expand to other areas in the South Platte River Basin. Partnering with Jefferson County Open Space, we propose to identify appropriate locations for in-stream structures on their properties. We will incorporate undergraduate and graduate students into all components of the project.

Objectives: List the objectives of the project.

1. Identify potential locations for in-stream structure installation on Jefferson County Open Space parcels.
2. Work with Jefferson County Open Space staff to conduct a feasibility study.
3. Establish long-term monitoring plots for vegetation and water quality at each potential installation location to collect baseline data.
4. Report on findings and next steps to seek approval for implementation and construction funding.

Last Updated: July 5, 2017

Tasks
Provide a detailed description of each project task using the following format:
Task 1 – Identify potential locations for in-stream structure installation on Jefferson County Open Space parcels
Description of Task:
We will identify suitable locations for in-stream structure locations. Suitable locations will be historical oxbows in areas of the creek that are currently channelized, that have the potential to be reactivated to increase and improve the riparian habitat. This objective will also utilize undergraduate interns from Metropolitan State University of Denver to provide them hands on experience in natural resource management and GIS applications.
Method/Procedure:
To identify suitable locations, we will analyze the topography, hydrology, historical images, and current land use to determine the historical flow of the channel and assess the success of in-stream structures given the current land use. We successfully identified, permitted, and installed three in-stream structures in Deer Creek at Denver Botanic Gardens Chatfield Farms in 2016 using this approach. We will start by identifying locations for in-stream structures upstream of those installed currently in Deer Creek, which would expand our riparian habitat restoration efforts. We will also identify potential installation locations across Jefferson County Open Space for future years. A graduate student at University of Colorado Denver and undergraduate interns at Metropolitan State University of Denver will be actively engaged in this task. The locations will be selected based on the existing floodplain topography, and all locations will be in areas of historic channelization. Placing the in-stream structures at these locations will result in the reactivation of shallow, broad, and well-vegetated relict channels, resulting in the restoration of the natural hydrologic and disturbance regimes present on the floodplain prior to channelization. These natural regimes provide a net increase in aquatic resource functions and services. Reactivation of the historic channels is essential for woody plant regeneration (especially willows and cottonwoods), creating a diversity of herbaceous plant cover, nutrient cycling, groundwater recharge, water quality improvement, and other floodplain functions. Since the main flow path and floodplain of the creeks will remain unchanged, low flows will be kept in the main channel and overbank flows will be relatively infrequent and short in duration. No new wetlands are expected to be created by the placement of the in-stream structures. Additionally, overbank flows will be returned to the main channel through the relict channels which naturally reconnect to the main channel.
Grantee Deliverable: Describe the deliverable the grantee expects from this task
A report with maps identifying suitable locations for in-stream structures to reactivate the floodplain by rewetting historical oxbows.
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
A report that identifies suitable locations for in-stream structures with the amount of creek (miles) and riparian habitat (acres) that would be restored with the installations.

Last Updated: July 5, 2017

Tasks
Provide a detailed description of each task using the following format:
Task 2 – Work with Jefferson County Open Space staff to conduct a feasibility study.
Description of Task:
Review and planning will be necessary to determine which locations are appropriate for in-stream structure installation given land owner management plans. Denver Botanic Gardens will work closely with Jefferson County Open Space to assess real costs that will be associated with the in-stream structures for both installation and long-term maintenance. We will also need to work with Jefferson County Open Space to put together the appropriate documentation to obtain necessary permits for the installation of the in-stream structures. A graduate student at University of Colorado Denver will assist with this task.
Method/Procedure:
To support restoration projects on Jefferson County Open Space, we will assist in their internal decision-making by conducting a feasibility study. We will conduct on-site reviews with natural resource managers of Jefferson County Open Space and develop the necessary documentation to submit permit applications for in-stream structures. This will include developing a preconstruction notification letter to the US Army Corps of Engineers to obtain a nationwide permit (NWP 18). Using information gained from our pilot study at Denver Botanic Gardens Chatfield Farms initiated in 2015, and site-specific information on each proposed installation location, we will develop a construction budget, long-term maintenance costs, and impact assessments to other Open Space activities. We will also include an assessment of the state of the habitat if no restoration is done, and what improvements to habitat quality and stream health will likely be achieved, if the proposed restoration is pursued. This report will allow Jefferson County Open Space to assess the true costs and benefits of the proposed restoration project and have the necessary details to pursue permitting and internal construction funding.
Grantee Deliverable: Describe the deliverable the grantee expects from this task
Specific installation locations,permitting documentation and plans.
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
A feasibility study for Jefferson County Open Space to use as motivation for pursuing funding and permitting approval for restoration.

Tasks
Provide a detailed description of each task using the following format:
Task 3 - Establish long-term monitoring plots for vegetation and water quality at each potential installation location to collect baseline data.
Description of Task:
In 2016, we established 12 long-term monitoring plots for vegetation and water quality along Deer Creek at Denver Botanic Gardens Chatfield Farms and Jefferson County Open Space properties. These include plots at each of the three in-stream structures that were installed that same year along Deer Creek, and an additional six downstream and three upstream. At each of these plots we measured plant cover and density, canopy cover, and water quality (including TDS, pH, temperature, E. coli, Total Nitrogen, and Nitrate/Nitrite). We plan to extend this long-term monitoring with additional plots located at each of the identified potential locations for in-stream installations to collect baseline data prior to construction.

Last Updated: July 5, 2017

Tasks
Baseline data will be provided to Jefferson County Open Space as part of the feasibility study and to assist in permitting and construction efforts. Undergraduate students at Metropolitan State University of Denver and a graduate student at University of Colorado Denver will be incorporated into the monitoring to gain hands-on experience with this aspect of natural resource management and research.
Method/Procedure:
At each identified potential location for an in-stream structure, and at a location upstream and downstream of the potential structure, we will install a long-term monitoring plot. 50-meter transects will be located at each sampling location. An origin and endpoint will be marked with a rebar and metal tag and the GPS coordinates collected (UTM NAD 83). Vegetation cover for the overstory and understory will be documented separately. Percent cover will be assessed along each 50-meter transect using a point-intercept method. These interceptions are tallied at fifty systematically distributed locations along a 50-m transect, i.e., at each meter, one point 50 cm to either side perpendicular of the transect. A total of 100 points are collected along each sample transect. Percent cover values will be assessed for plant species, total vegetation cover, litter, standing dead, rock, bare ground, and total cover (vegetation plus litter plus standing dead, plus rock). At each sample point, after a “First Hit” interception by a plant species, we determine whether there are any further interceptions on other plant species. If so, these are tallied by species as “Other Hits”. Along each sample transect, the presence of less common species not hit during the point-intercept sampling are documented by recording the presence of all plant species occurring within one meter on either side of the sample transect. Thus, from each 50m cover sample transect comes a measure of species “density” that can be expressed as a number of species per 100 square meters. Species density includes species encountered in the cover hits plus the additional species not hit but present in the 100 square meter plot. Stream monitoring roughly follows guidance presented in the Environmental Protection Agency’s document “Volunteer Stream Monitoring: A Methods Manual” (United States 1997). Sampling will be conducted during dry weather, i.e., well after a precipitation or high flow event. For each stream monitoring point, three water samples will be collected and sent to a lab for analysis of E. coli bacteria, phosphate, nitrogen and nitrate. In addition, one (composite) macroinvertebrate sample will be collected at each stream monitoring point. We will also collect standard measurements, including temperature, pH, and TDS. Water samples will be analyzed at Metropolitan State University of Denver and the Colorado Department of Public Health and Environment. Macroinvertebrate samples will be sent to an external lab at GEI consultants for organism counts and lowest practical identification level. Macroinvertebrate samples and plant voucher specimens will be deposited at Denver Botanic Gardens. This task will engage students and volunteers who will assist in preparing locations for plot installation, including some noxious weed management, installing plots, and collecting data. Participants will include youth volunteers with Wildlands Restoration Volunteers, undergraduate students at Metropolitan State University of Denver, and a graduate student at University of Colorado Denver. Denver Botanic Gardens, partnering with Jefferson County Open Space and Metropolitan State University of Denver, plans to continue long-term monitoring of these plots after the completion of this grant.
Grantee Deliverable: Describe the deliverable the grantee expects from this task
Establishment of long-term monitoring plots along with annual data collection and training for the next generation of natural resource managers.
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task

Last Updated: July 5, 2017

Tasks
A report with a map of all monitoring plot locations and a summary of baseline data for each potential installation location.

Tasks
Provide a detailed description of each task using the following format:
Task 4 - Report on findings and next steps to seek approval for implementation and construction funding
Description of Task:
Denver Botanic Gardens will work with Jefferson County Open Space to assess results, present summary of preliminary data and feasibility study, and provide a clear plan to move forward with the appropriate construction and permit approvals for the successful implementation of the restoration project.
Method/Procedure:
Staff at Denver Botanic Gardens will put together a final report providing information on specific details of tasks completed and funds spent on the project. This report will include maps, photos, and descriptions of the work completed. In addition, staff (Dr. Hufft is affiliate faculty at UCD) will advise a graduate student at the University of Colorado Denver to complete the analysis of data collected in the monitoring plots. Dr. Hufft will also build on her knowledge from the current project at Denver Botanic Gardens Chatfield Farms to develop the next steps to get approval for the implementation of the restoration project.
Grantee Deliverable: Describe the deliverable the grantee expects from this task
Analyses of annual data collected at monitoring plots and training of a graduate researcher. All documentation necessary for next steps in the permitting and funding process to implement a construction project on Jefferson County Open Space property.
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
Final report and specific plan for Jefferson County Open Space and Denver Botanic Gardens to seek permitting and construction approval to proceed with restoring portions of the South Platte River Basin

Budget and Schedule
This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format.

Reporting Requirements
Progress Reports: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.

Last Updated: July 5, 2017

Reporting Requirements

Final Report: At completion of the project, the applicant shall provide the CWCB a Final Report on the applicant's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

The CWCB will withhold disbursement the last 10% of the budget until the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

Last Updated: July 5, 2017

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan Grant - Exhibit A
Budget and Schedule

Date: 8/1/2017

Name of Applicant: Denver Botanic Gardens

Name of Water Project: South Platte River Basin Restoration Planning and Feasibility Study

Task No.	Task Description	Start Date[(1)]	End Date	Water Project Funding Category	Grant Funding Request	Match Funding	Total
1	Identify potential locations for in-stream structure installation on Jefferson County Open Space	1/15/2018	12/31/2018	Environmental/Rec	$ 33,305	$ 32,447	$65,752
2	Work with Jefferson County Open Space staff to conduct a feasibility study.	1/1/2019	12/31/2020	Environmental/Rec	$ 8,483	$ 25,096	$33,579
3	Establish long-term monitoring plots for vegetation and water quality at each potential installation location to collect baseline data.	7/1/2018	10/1/2020	Environmental/Rec	$ 21,645	$ 11,681	$33,326
4	Report on findings and path forward to seek approval for implementation and construction funding	12/1/2018	12/31/2020	Environmental/Rec	$ 6,414	$ 6,414	$12,828
							$0
							$0
							$0
							$0
							$0
							$0
							$0
							$0
							$0
				Total	$69,847	$75,638	$145,485

(1) Start Date for funding under $100K, minimum 45 Days from Board Approval; Start Date for funding over $100K, minimum 90 Days from Board Approval.

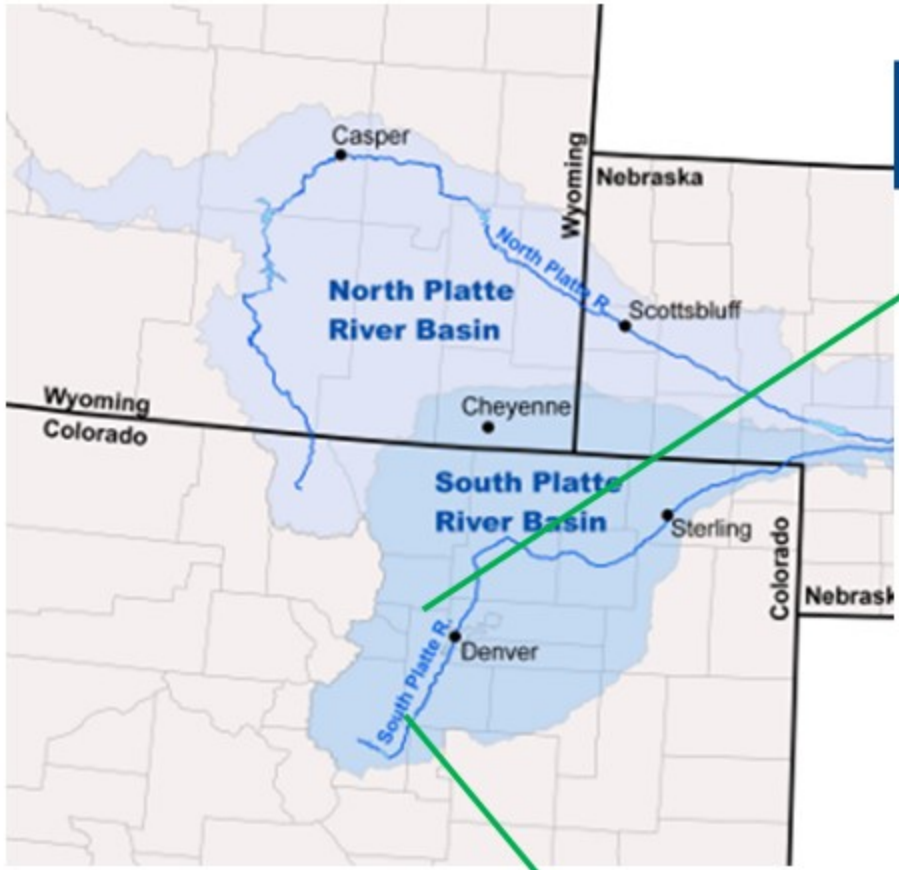
·Round values up to the nearest hundred dollars.

·Reimbursement eligibility commences upon the grantee's receipt of a Notice to Proceed (NTP)

·NTP will not be accepted as a start date. Project activities may commence as soon as grantee enters contract and receives formal NTP if prior to the listed "Start Date".

·The applicant shall provide a progress repost every 6 months, beginning from the date of contract execution.

·CWCB will withhold disbursement of the last 10% of the total grant amount until a Final Report is completed to the satisfaction of CWCB staff (2017 CWP Grant Guidelines).



JEFFERSON COUNTY OPEN SPACE

- Jefferson County Open Space Office
- Jefferson County Parks Education Center
  Lookout Mountain Nature Center and Preserver, Hiwan Heritage Park and Museum, and Jefferson County Fairgrounds
- Major Road or Park Access
- Stream or River
- Lake or Pond
- Jefferson County Open Space
  Please know local Rules and Regulations before entering each Open Space Park.
- Jefferson County Open Space Held Conservation Easement
  Public Access is limited or prohibited on most Jeffco Open Space Conservation Easements.
- Other Public or Conservation Land
- Jefferson County Boundary

DENVER BOTANIC GARDENS CHATFIELD FARMS

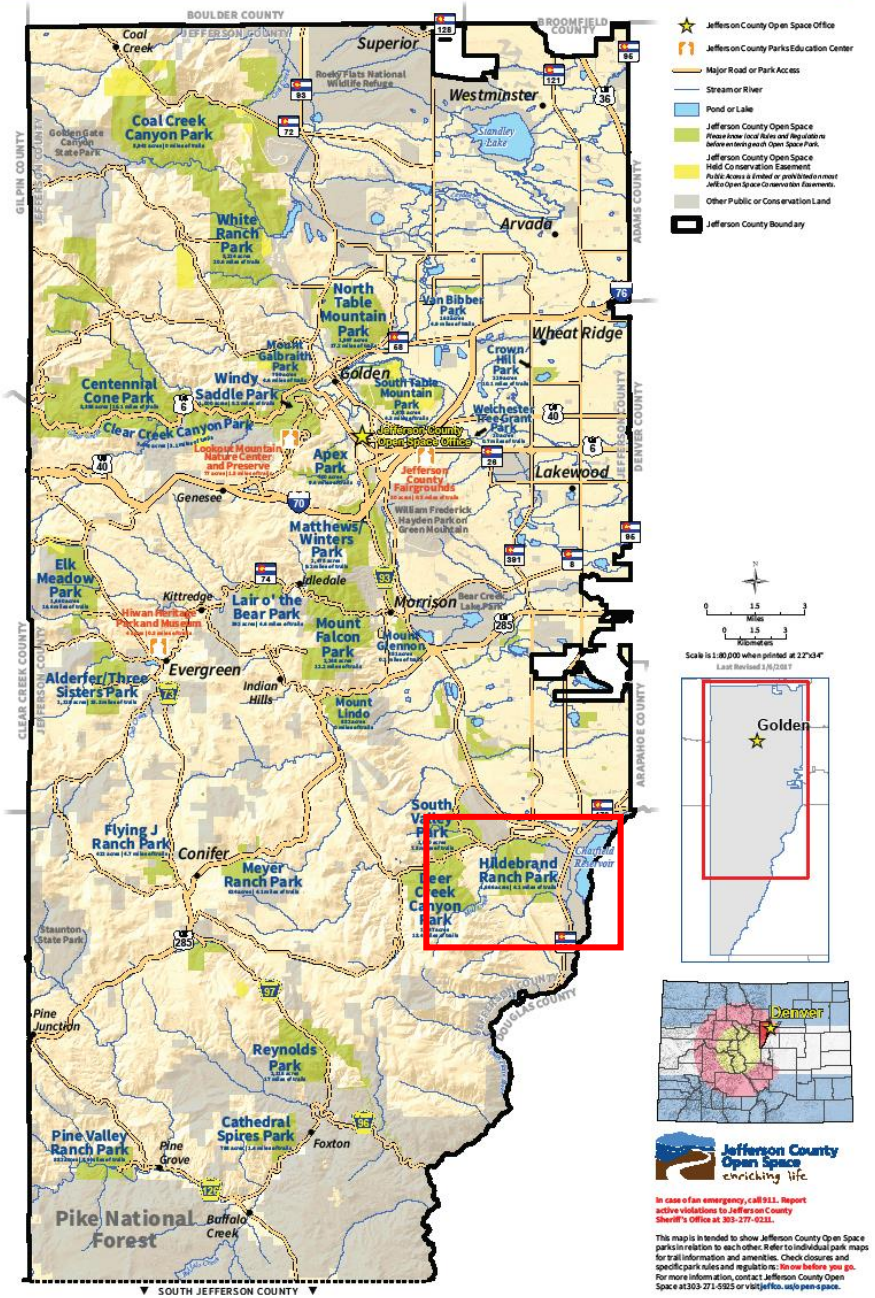
0 5 10 Miles

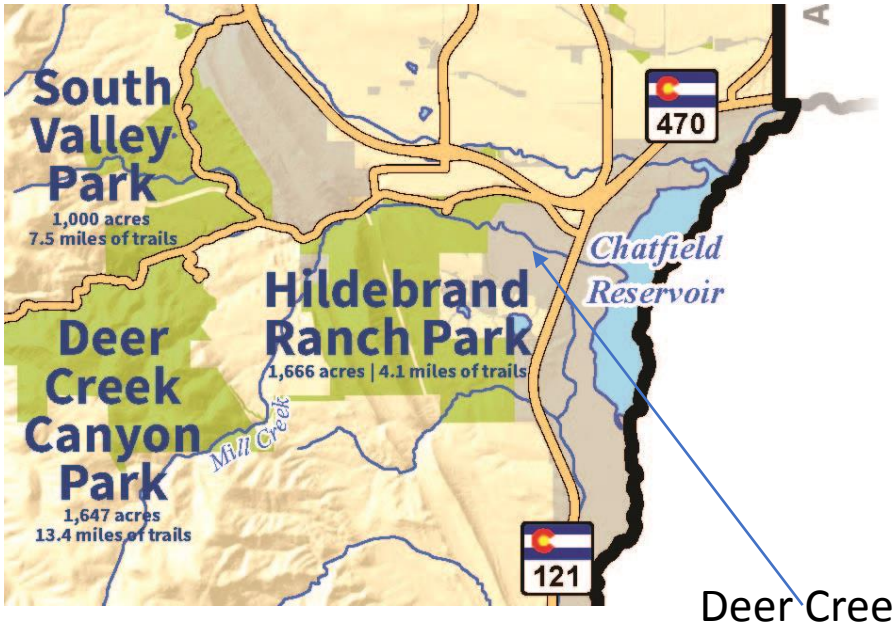
0 10 20 Kilometers

Scale is 1:368,000 when printed at 8"x11"

Last Revised 1/10/2017

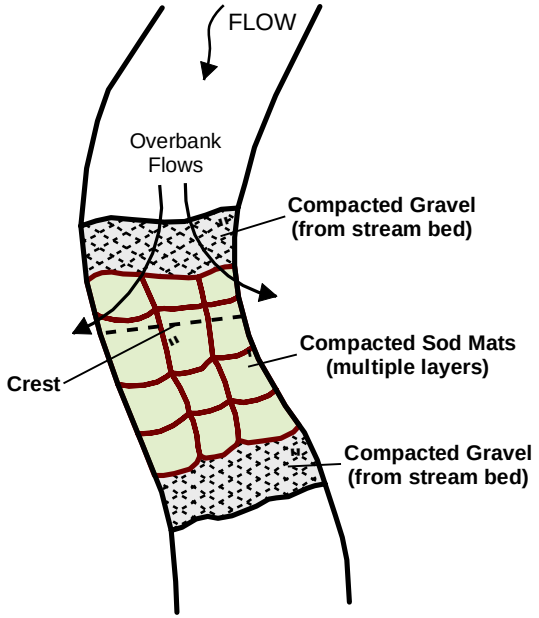
JEFFERSON COUNTY OPEN SPACE



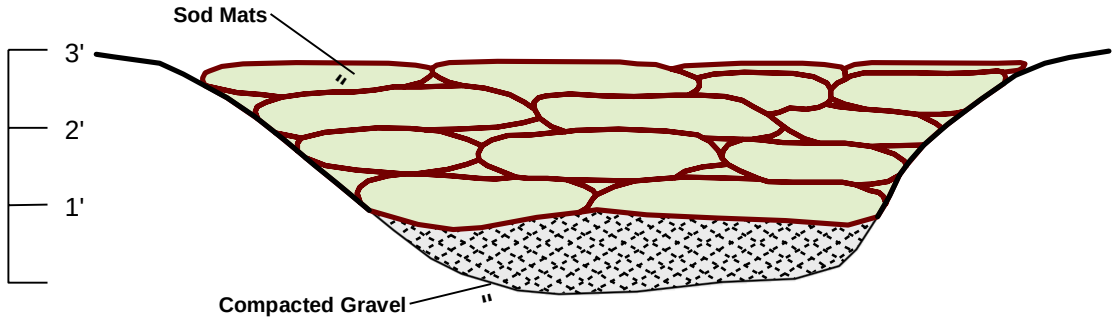


Deer Creek

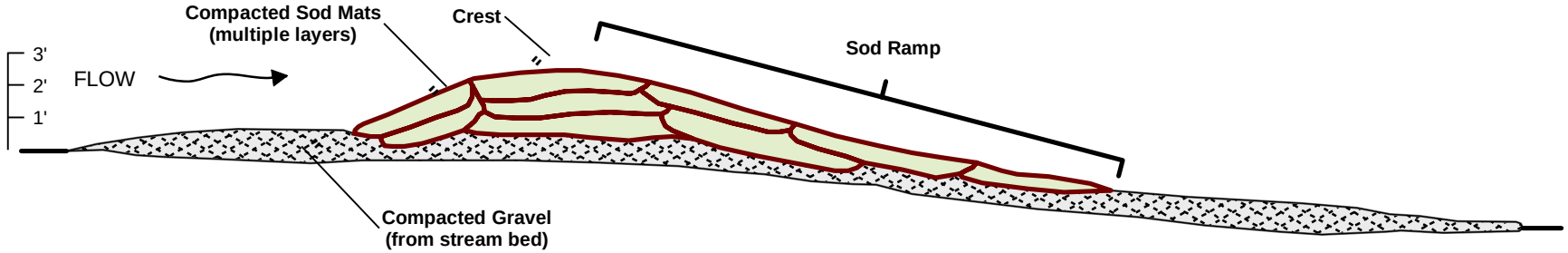
PLAN VIEW



CROSS SECTION VIEW



PROFILE VIEW



AlpineEco

NOT TO SCALE

06/23/2014

Denver Botanic Gardens at Chatfield

Figure 2
Riparian Restoration Plan

Jefferson County
Open Space
enriching life

August 1, 2017

Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

RE: Water Plan Grant Application by Denver Botanic Gardens for the South Platte River Basin Restoration Planning and Feasibility Study

Dear Grant Evaluation Board,

Jeffco Open Space (JCOS) strongly supports Denver Botanic Gardens' application to the Colorado Water Conservation Board's Water Plan Grant program for the *South Platte River Basin Restoration Planning and Feasibility Study*. The proposed study will build upon ongoing riparian restoration efforts already underway along Deer Creek at Denver Botanic Gardens' Chatfield Farms location.

JCOS owns and manages the Hildebrand Ranch Park property just upstream of Chatfield Farms. This grant will provide critical information to JCOS regarding the feasibility of implementing a similar and complementary riparian restoration project along the stretch of Deer Creek that runs through Hildebrand Ranch Park. Factors to be assessed include priority restoration sites, alignment with Park operations, potential changes in creek hydrology and hydraulics, and timelines for permitting and construction. The results of the study will be used by JCOS and the Denver Botanic Gardens to determine budgets, permitting needs, opportunities for public engagement and construction timelines for project implementation.

Denver Botanic Gardens and JCOS have been discussing potential avenues of collaboration at Hildebrand Ranch Park in recent years, and the proposed grant represents an exciting opportunity to advance a collaborative, multi-benefit project.

Thank you for your consideration and if we can provide any additional information or answer any questions, please contact me at 303-271-5930 or thoby@jeffco.us.

Sincerely,

Tom Hoby

Tom Hoby
Director

cc: Drew Rayburn, Natural Resources Supervisor

July 21, 2017

Dear Mara,

I am writing in support of the Denver Botanic Gardens grant request to conduct work on the Deer Creek restoration project with Dr. Sarah Schliemann and other faculty members and students at MSU Denver.

This project will help mentor undergraduate students by providing research opportunities to select appropriate sites for river restoration and implemention of a monitoring program.

Student internships will be an important part of this project, and provide real world learning experiences for our undergraduate students.

Thank you very much for your consideration of the Denver Botanic Gardens grant request.

Best wishes,

Tom

Tom Cech, Co-Director
One World One Water Center
Metropolitan State University of Denver
Denver, Colorado
tcech@msudenver.edu
970.371.9598

WILDLANDS RESTORATION VOLUNTEERS

Healing the Land
Building Community

July 28, 2017

Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Re: South Platte River Basin Restoration Planning and Feasibility Study

To Whom It May Concern:

It is my pleasure to express my support for the South Platte River Basin Restoration Planning and Feasibility Study proposal by Denver Botanic Gardens to restore a critical stretch of Deer Creek in the Chatfield Basin. On behalf of Wildlands Restoration Volunteers (WRV), I look forward to collaborating with Denver Botanic Gardens and its partners to complete this valuable work.

WRV's mission is "to foster a community spirit of shared responsibility for the stewardship and restoration of public, protected, and ecologically important lands." Towards this goal, WRV organizes high impact restoration and stewardship projects throughout Colorado that engage volunteers in meaningful service and produce tangible results. WRV's Youth & Inclusiveness Program engages diverse youth in this initiative, connecting underserved populations with their local environment and empowering them to make a positive difference. Since 2009, WRV has inspired over 3,000 youth to participate in stewardship activities that provide valuable hands-on learning opportunities.

WRV will contribute to this project through the coordination of multiple volunteer events during which urban Denver youth will participate in hands-on restoration. In addition to the recruitment and coordination of volunteers, WRV will oversee project logistics such as tools, food, and volunteer safety. WRV has a long track record of organizing high quality volunteer restoration projects, and looks forward to collaborating with Denver Botanic Gardens to engage youth in this project.

WRV shares Denver Botanic Garden's goal of inspiring the public to be good stewards of the environment, and is confident that this project will produce a tangible impact to both the environment and the greater Denver community. Please feel free to contact me at 303-543-1411 if you have any questions concerning this letter of support. Thank you for your consideration.

Sincerely,

Rachel Brett

Rachel Brett
Youth and Inclusiveness Program Director

www.wlrv.org

3012 Sterling
Circle, #201
Boulder, CO 80301
303-543-1411