

# Request for Qualifications for Cherry Creek Basin Water Quality Authority Pollution Abatement Project Manager (PAPM)

The Cherry Creek Basin Water Quality Authority (Authority) is requesting a statement of qualifications for a Pollution Abatement Project Manager (PAPM) to manage the Authority's capital improvement program. This PAPM works for the Authority's Board of Directors (Board) and works with the Technical Advisory Committee (TAC) and a team of consultants and outside entities and agencies that work to protect and improve water quality in the Cherry Creek Basin and Cherry Creek Reservoir. For more information about the Authority, see: <a href="https://www.cherrycreekbasin.org/about-us">https://www.cherrycreekbasin.org/about-us</a>.

The Authority is seeking a PAPM with these skills and qualifications:

- Licensed professional engineer in Colorado with 7+ years of experience in civil engineering.
- Experience with stream restoration, drainage planning, flood control and stormwater quality projects, including planning, design and construction observation experience.
- Experience managing contractors and working with project partners such as the Mile High Flood District, SEMSWA, and local governments in Arapahoe and Douglas counties.
- Practical understanding of the land development process, planning, permitting, construction and project sequencing and completion.
- Familiarity with Section 404 and 408 permitting processes, including implications for capital improvement project timelines.
- Familiarity with contract documents and technical specifications, particularly the Mile High Flood District's template.
- Familiarity with water quality regulations and the Mile High Flood District's Urban Storm Drainage Criteria Manual.
- Experience preparing and updating annual and long-range capital improvement program budgets.
- Strong organizational skills with demonstrated ability to self-manage and meet deadlines.
- Strong written and verbal communication skills, including ability to prepare routine technical memoranda and effectively present information at Board meetings.
- Ability to attend monthly <u>in-person</u> Board and Technical Advisory Committee meetings on the first and third Thursdays of the month.
- Ability to work collaboratively with a project team, including the Authority's Technical Manager, Executive Committee and other technical consultants.
- Proficiency in using common software programs such as Microsoft Office (e.g., Excel), Google Earth, Google Drive and video conferencing (e.g., Teams).
- Ability to dedicate approximately 810 hours annually (or approximate time equivalent of a 40% FTE), plus a 40-hour first-year startup allowance along with a 15% continency for unanticipated projects. The PAPM position will be renewed as an annual contract, with a

desire to retain the selected PAPM for a minimum of 3 to 5 years, following a 6-month performance review.

• Historically, the PAPM position has been filled by an independent consulting engineer. The Authority is open to applicants from consulting firms; however, the Authority desires a single individual as the primary point of contact on projects, serving as the "face" of the Authority's PAPM with limited support from other staff.

Attachment 1 provides a list of projects included in the Authority's 2024 approved budget, along with an approximate estimate of hours required for the PAPM to manage the project and fulfill the scope of work. Attachment 2 provides the most recent Capital Project Status Report. Attachment 3 provides the 10-year Capital Improvement Program budget updated in November 2023 to support preparation of the 2024 Annual Budget.

# **Application and Selection Process**

The application and selection process includes these steps:

- 1. The applicant will submit a statement of qualifications by December 13, 2023, including: 1) a statement of interest, 2) statement of ability to fulfill the requested scope of work, 3) resume of proposed PAPM, 4) brief description of approach that will be used to fulfill the scope of work, 5) billing rate schedule and initial budget estimate based on information provided in Attachment 1, 6) description of potential conflicts of interest, and 7) contact information for three references.
- 2. The Technical Manager and the Executive Committee will review applications and will conduct an interview (via Teams) with one or more candidates.
- 3. The selected candidate will prepare a refined scope of work, provide required proof of insurance coverage and certificate, and a signed PAPM Authority-provided contract. A final package from the applicant will be submitted by January 9, 2024.
- 4. The Technical Manager will submit a recommendation with a proposed contract to the Authority Board of Directors on January 18, 2024. The Board may offer the contract to the recommended candidate or direct the Technical Manager to resume the search for a PAPM.

If a qualified candidate is not identified in the timeframe identified in this selection process, then this schedule may be extended until an appropriate candidate is identified.

## **Other Information**

The Authority's current PAPM Manager will be available (up to 10 hours per week) to provide transition support for this position through March 31, 2024.

The 2024 PAPM position does not include in-reservoir projects, operation and maintenance of existing pollution reduction facilities (PRFs), land development referral reviews, or management of special/research projects.

Because the PAPM serves as the Authority's representative on capital improvement projects in the Cherry Creek Basin, consultants selected for Authority-funded or co-funded projects may have a potential conflict of interest that should be disclosed to the Authority so that any conflict can be addressed to the Authority's satisfaction.

If you have questions about this RFQ, contact: Jane Clary, Technical Manager for the Cherry Creek Basin Water Quality Authority, at <u>manager@ccbwqa.org</u> or 303.803.5187.

Tasks	Description	Type of Project/ Managed By	Status	Level of Effort	PAPM Hour Estimate	Notes Providing Basis for Estimated Hours Per Task
Task 100	Meeting, Budgets, General Administration				218	Meetings/Admin: Assume: 12*3 hours for Board, 12*3 hours for TAC, 50*1 hour weekly routine team coordination, 12*2 hours for monthly admin/invoice review. Annual Budget/CIP Preparation: 72 for CIP budget & budget support, including time to coordinate with partners and meet with management (60 hours) and TAC/Board Action Item Memos and meetings associated with Draft and Final (12 hours).
Task 200	Annual Report Support				30	Includes project completion reports and summaries for CCBWQA Annual Report.
Task 400	Capital Improvement Projects					
	East Shade Shelter Shoreline Stabilization Phase III	CCBWQA/ CCBWQA	60% Design	CCBWQA led and driven project	66	CCBWQA led project. Tower Loop design to incorporate comments from value engineering (review 4 hours) then shelved for final design and construction at a later time. East Shade Shelters 60% design submittal (review 6 hours, including associated meeting) and 100% design submittal (review 4 hours including associated meeting). Coordination with CPW, USACOE, and RESPEC (12 hours). Construction/Bid Coordination (12 hours). TAC/Board Action Item Memos and meetings associated with construction (6 hours). 1/3 construction in 2024 (20 hours).
	Lake Loop Shoreline Stabilization	CCBWQA/ CCBWQA	Received Comments from USACOE	Scope and scale of project has changed from 2023 storms	72	Design adjustments due to erosion - manage update to plans, coordinate with CPW and USACOE, and review submittal (20 hours). Construction in 2024 - CCBWQA Contracting - no public bid/work order (4 hours), TAC/Board Action Item Memos and meetings authorizing construction (6 hours). 10 construction observations (30 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).
	Stream Stabilization within State					
	Cherry Creek - Reservoir to Lake View Drive Alternatives Analysis	CCBWQA/ CCBWQA	Began Fall 2023	CCBWQA led and driven project	60	CCBWQA led project. 1/3 of Alternatives Analysis - Coordination with Muller, Arapco Open Space, Aurora, CPW, and MHFD (6 hours); Progress Meeting (3 hours); review alternatives (review 8 hours including associated meeting) and review report (4 hours); TAC/Board Action Item Memos and meetings (6 hours). All of preferred alternative selection - No Board action needed for award of Phase 2, Coordination (12 hours), review alternative (6 hours including associated meeting), Progress Meetings (9 hours), TAC/Board Action Item Memos and meetings (6 hours).
	Lone Tree Creek in CCSP downstream of Pond (CCBWQA Only)	CCBWQA/ CCBWQA	New	CCBWQA led and driven project	0	Moved CIP Funding to 2025
	Lone Tree Creek in CCSP upstream of Pond (Centennial Trail Portion)	Partner, Centennial led	Delayed but anticipated to begin in 2024	Partner project in CCSP that will be a PRF	56	Centennial led project but PRF for maintenance. Day to day Construction Management to be done by others. Coordination with CPW, Centennial, and Icon (8 hours). 12 construction meetings (36 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).
	Stream Stabilization Upstream of					
	Park Cherry Creek Stream Reclamation - Valley Country Club to Soccer Fields (Reaches 3 and 4, aka Arapahoe Road)	Partner, MHFD led & SEMSWA	Consultant Selection in 2023		40	MHFD led project. IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours). Preliminary Design only in 2024, Coordination with Arapco Open Space, Aurora, SEMSWA, and MHFD (6 hours). Progress Meetings (18 hours), Preliminary Design Submittal Review (8 hours including associated meeting)
	Piney Creek Reach 1 to 2 (SEMSWA)	Partner, SEMSWA led	Consultant Selection in 2023		56	SEMSWA led project. IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours). Design only in 2024, Coordination with Arapco Open Space, CPW, and SEMSWA (12 hours). Progress Meetings (18 hours), 30% Submittal Review (8 hours including associated meeting), 60% submittal review (6 hours including associated meeting), 100% submittal review (4 hours including associated meeting).
	Piney Creek Tower to Orchard (SEMSWA)	Partner, SEMSWA led	New	Funding only, likely won't start design until 2025	8	SEMSWA led project. Funding only in 2024 - IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours).
	McMurdo Gulch Reclamation Priority 3 (Castle Rock)	Partner, Castle Rock led	Wrapping up design in 2023	Funding in 2024. What is CCBWQA's involvement in construction?	26	Castle Rock led project, minimal work for CCBWQA during construction. IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours). 2 construction visits (6 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).
	Happy Canyon Creek at Jordan Road (SEMSWA)	Partner, SEMSWA led	Wrapping up alternatives phase	Includes sediment capture areas	58	SEMSWA led project. Final Design only in 2024 - IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours). Coordination with Arapco Open Space, CPW, and SEMSWA (12 hours). Progress Meetings (18 hours), 30 % Submittal Review (8 hours including associated meeting), 60% submittal review (6 hours including associated meeting), 100% submittal review (4 hours including associated meeting).
	Dove Creek U/S Pond D-1 to Chambers Rd (SEMSWA)	Partner, SEMSWA led	Wrapping up design in 2023	Funded in 2024.	26	SEMSWA led project, minimal work for CCBWQA during construction. IGA Amendment review and coordination (2 hours). TAC/Board Action Item Memos and meetings associated with IGA Amendment (6 hours). 2 construction visits (6 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).

Tasks	Description	Type of Project/ Managed By	Status	Level of Effort	PAPM Hour Estimate	Notes Providing Basis for Estimated Hours Per Task
	Cherry Creek at Dransfeldt	Partner, MHFD led	Wrapping up design in 2023	Funded in 2024.	18	MHFD led project, minimal work for CCBWQA during construction. No funding anticipated in 2024. 2 construction visits (6 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).
	Cherry Creek upstream of Scott Road	Partner, MHFD led	Wrapping up design in 2023	Funded in 2024.	24	MHFD led project, minimal work for CCBWQA during construction. No funding anticipated in 2024. 4 construction visits (12 hours). PRF summary report (6 hours). TAC/Board Action Item Memos and meetings associated with PRF summary report (6 hours).
Task (# TBD)	Planning Projects					
	Minor Tributaries Master Plan	MHFD led		MHFD-led.	50	1/4 of Cottonwood/Lone Tree/Windmill Creeks in CCSP MDP with SEMSWA and MHFD (in process, 10 hours); All of Sulphur, Sara, and Tallman Gulches with Parker and MHFD (new for 2024, 40 hours).
	Subtotal CIP & Planning Projects				560	
	Subtotal All Tasks				808	~39% FTE
	15% contingency (allowance for unscoped effort)				121	
	Total Hours				929	
	Start-up Allowance (first year)				40	First-year allowance to get up to speed.
	Total Hours for First Year				969	~47% FTE

Add expenses for mileage and other expenses as needed

#### Attachment 2

# CHERRY CREEK BASIN WATER QUALITY AUTHORITY 2023 Capital Project Status Report

November 10, 2023

#### **RESERVOIR PROJECTS**

- 1. East Shade Shelters Phase III and Tower Loop Phase II Shoreline Stabilization (CCB-17.5 and CCB-17.7)
  - a. Description: These projects were identified in 2014 through the annual inspection. The Tower Loop Phase II connects to the Phase I project and extends shoreline protection 570 feet to the southeast towards Dixon Grove. The East Shade Shelters Phase III starts on the north end of the Shade Structure and goes 400-feet to the south.
  - b. Status: Consultant selection is scheduled for the 1<sup>st</sup> quarter. A consultant selection committee will be set in February (1/29/21). At the February TAC meeting Jason Trujillo, Jon Erickson, Lanae Raymond, Bill Ruzzo were interested in serving on the consultant selection committee (2/11/21). This selection committee was discussed at the 3/18/21 Board Meeting, and no further members were added. The Request for Proposals (RFP) has been posted on BidNet and Proposals are due 04/21/21 (3/25/21). The pre-proposal meeting was held on 4/7/21. 5 proposals were received on 4/28/21; the selection committee is reviewing them. Interviews were held and a selection is being brought to the May Board meeting (5/14/21). Board authorized negotiations with RESPEC (5/27/21). Agreement has been executed with RESPEC (10/15/21). Field Survey of project areas and topographic mapping is underway (12/30/21). A design kickoff meeting was held on 4/22/22. A design sprint workshop was held on 7/12/22 which included a site visit and evaluation of alternatives. RESPEC is developing a recommended alternative (9/8/22). RESPEC provided updated project costs for budgeting (10/13/22). The 30% submittal was received on 11/16/22 and is under review. CCBWQA provided comments on 30% review on 1/17/23; a value engineering effort is recommended as the project costs exceed the budget. The value engineering meeting was held on 2/24/23. RESPEC's request for additional services was approved by TAC and Board in May (5/25/23). The reservoir water level has come down since the May and June storms and additional erosion was observed on 7/14/23; a site visit was made with RESPEC on 8/1/23 and the erosion areas at East Shade Shelters were measured. It has been estimated that roughly 14 cubic yards of soil was eroded from the 2023 storms (9/15/23). A progress meeting was held on 9/15/23. RESPEC will refine the breakout of components between recreational (CPW responsibility), water quality (CCBWQA responsibility), and shared (both CPW and CCBWQA responsibilities) costs and work on 408 review submittal to US Army Corps of Engineers.

#### STREAM RECLAMATION PROJECTS

- 1. Cherry Creek Stream Reclamation at Arapahoe Road aka Reaches 3 and 4 (CCB-5.14C)
  - a. Description: This project continues the work on Cherry Creek by CCBWQA, MHFD, and local partners. It ties into the previous stream reclamation projects of Cherry Creek Eco Park to Soccer Fields (CCB-5.14A) and Cherry Creek at Valley Country Club (CCB-5.14B). The 5,167 Linear Feet of stream reclamation reduces bed and bank erosion immobilizing approximately 88 pounds of phosphorus annually. The project is anticipated to be funded over several years and likely be broken into phases.
  - b. Status: In 2021, and IGA was executed between CCBWQA, MHFD, City of Aurora, and SEMSWA to begin this work. IGA Amendment that brings in 2022 funding is under review (5/13/22). Board authorized IGA Amendment for 2022 funding on 7/21/22 (8/12/22). IGA Amendment has been revised to show Aurora's lower participation; CCBWQA's participation was lowered accordingly to meet 25% partner project level; revised IGA Amendment received TAC recommendation and is being taken to Board for their consideration in October

(10/13/22). Board authorized the IGA Amendment for 2022 funding at their 10/22/22 meeting. It appears that CCBWQA's 2023 participation will be reduced as a result of less partner funding available for this project (2/24/23). The IGA Amendment that brings in 2023 funding was recommended by the TAC and authorized by the Board at their June meetings (6/29/23). MHFD is starting consultant selection process (10/13/23). *Jacobs, Olsson, and Muller were shortlisted for interviews which are scheduled for mid-December (11/10/23)*.

- 2. Cherry Creek Stream Reclamation Upstream of Scott Road (CCB-5.17)
  - a. Description: Design and construction of stream reclamation is in partnership with Douglas County and MHFD. It improves 4,100 feet of Cherry Creek and is located upstream of Scott Road.
  - Status: IGA was approved by the Board at their April 2020 meeting. Muller had been b. selected as consultant, and design scope of work is being prepared. Kickoff meeting was held on 12/11/20; a follow-up field visit will be scheduled for early 2021. Site visit was held on 1/29/21. Conceptual design is complete, negotiations are underway to contract for 60% design (4/8/21). Muller is working on alternatives (4/30/21). Muller is working on preliminary design and an IGA Amendment to bring in additional 2021 funding from Douglas County is being brought to the Board in October (10/15/21); IGA Amendment has been executed (11/11/21). Muller is preparing 60% Design Submittal (1/28/22). Muller submitted 60% Design on 2/2/22; comments have been provided on 60% Design Submittal (3/10/22). IGA Amendment bringing in 2022 funding is scheduled for TAC and Board consideration in June (5/27/22). IGA Amendment was authorized at the June 16<sup>th</sup> Board Meeting (6/30/22). Muller is working on Final Design and held a progress meeting on 4/14/23, a site visit is being scheduled to support the 90% design submittal. The 90% site visit was held on 5/22/23. Muller submitted their 90% design submission on 9/14/23; the engineer's estimate confirms that additional funding is needed for construction. IGA Amendment for additional funding is scheduled for TAC and Board consideration at October meetings and 90% review meeting was held on 10/13/23. Comments were provided for 90% submittal and discussed at the review meeting (11/10/23).
- 3. Cherry Creek Stream Reclamation at Dransfeldt (CCB-5.17.1B)
  - a. Description: Design and construction of stream reclamation is in partnership with Town of Parker and MHFD. It improves 2,400 feet of Cherry Creek near the future location of Dransfeldt bridge which is just downstream of the Cherry Creek at KOA project.
  - b. Status: Initial scoping has begun, and a partners meeting was held on 1/30/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA was approved by all parties and has been executed (6/25/21). Muller Engineering has submitted their Draft Scope of Work for Design Services, and the project sponsors have reviewed it (7/8/21). Design kickoff meeting was held on 10/14/21. Alternatives are being evaluated (12/9/21). Pre-submittal meeting for the 404 permit is being scheduled (12/30/21). CLOMR is being prepared for project (3/10/22) and was submitted to FEMA on 3/31/22. CEI was selected for as project partner to provide contractor input during the design (5/27/22). CLOMR is under review by FEMA (8/12/22). Muller has received comments on CLOMR and is preparing responses; 90% Submittal is scheduled for early February (1/27/23). Comments on 90% Submittal were provided on 2/22/23; project is experiencing substantive cost increases due to current market conditions (2/24/23). TAC at their 3/2/23 meeting recommended that the Board authorized the IGA Amendment to bring in 2023 funding along with an increase in CCBWQA's 2023 funding from \$170,000 to \$570,000. The Board authorized the IGA Amendment with the increased 2023 funding of \$570,000 at their 3/16/23 meeting. The Conditional Letter of Map Revision (CLOMR) was issued by the Federal Emergency Management Agency (FEMA) on April 28, 2023 (5/12/23). The sanitary sewer relocation will be contracted to start with, in order to avoid a pipe material cost increase, and to get it out of the way for the forthcoming stream reclamation (7/13/23). The sanitary sewer relocation has been contracted for with Concrete Express Inc. or CEI (8/11/23). Construction of stream reclamation will start once 404 permit has been received (11/10/23).

- 4. McMurdo Gulch Priority 3 Stream Reclamation (CCB-7.2)
  - a. Description: The design and construction of stream reclamation is in partnership with Castle Rock. Castle Rock is the lead agency. This phase continues the work from the previous phase. Muller Engineering is the design consultant.
  - b. Status: Board authorized IGA for Priority 3 at their May 19,2022 meeting. Muller submitted their 30% deliverable on 10/31/22, review comments were returned on 11/8/22. Easements needed for projects have been identified (1/23/22). The 60% Submittal was received on 1/30/23 and comments have been provided on 2/7/23. Muller is working on updating their construction cost estimate (2/8/23). On 2/23/23, Castle Rock requested that CCBWQA's 2023 funding be deferred to 2024 to match their schedule.
- 5. Lone Tree Creek in Cherry Creek State Park (CCB-21.1)
  - a. Description: This project includes a trail connection to Cherry Creek State Park and includes 570 linear feet of stream reclamation on Lone Tree Creek from the State Park Boundary to the Windmill Creek Loop Trail. The City of Centennial is the project lead. CCBWQA participation is for stream reclamation only.
  - b. Status: 95% submittal is under review (5/13/22); review comments have been returned (5/27/22). Project funding was brought to TAC at their 7/7/22 meeting, during drafting of IGA it was discovered that future maintenance of stream reclamation should be considered, project will be brought back to TAC at an upcoming meeting for maintenance discussion and recommendation (8/12/22). A stakeholder meeting was held on 9/29/22 to discuss maintenance. A stakeholder meeting was held on 11/2/22 to discuss findings from CCBWQA's site visit and findings included in Wright Water Engineers report. The Board supports CCBWQA's partnering with Centennial at their 11/17/22 meeting. A Memo of Understanding is under review by Colorado Parks and Wildlife (CPW) affirming maintenance responsibilities for the stream reclamation fit under the current agreement between CCBWQA and CPW (3/30/23). CCBWQA sent the Draft IGA to Centennial for review on 5/23/23. The project is included in CCBWQA's 2024 Budget and 10-year CIP (11/10/23).
- 6. Happy Canyon Creek County Line to Confluence with Cherry Creek (aka Jordan Road, CCB-22.1)
  - a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$325,000. The total project cost is estimated at \$1,300,000.
  - b. Status: IGA is scheduled for June TAC and Board meetings (5/27/21). IGA has been approved and executed by all parties (7/29/21). Jacobs has been selected as design consultant and project scoping is underway; limits have been extended upstream to the County Line and sediment capture area and transport will be included with the project (10/15/21). Jacobs has submitted their scope of work and fee for design which is under review by project sponsors (11/11/21). Project sponsors have completed a review of Jacobs' fee and scope of work and the agreement is being routed for signatures (1/28/22). IGA Amendment to bring in 2022 funding is in process (3/10/22). A project kickoff meeting was held on 3/28/2022. A site visit was performed on 4/12/22 to document existing conditions and identify sediment source/transport/deposition areas. Project Team is preparing a sampling plan for bank and bed materials to determine phosphorus content (5/13/22). The project team met on 5/24/22 to discuss project goals and Jacobs is progressing through the study. Jacobs and ERC are working on sediment transport analysis and model (6/30/22). The results from the sediment transport model were presented at the 8/23/22 progress meeting and an upstream sediment capture area just south of the JWPP was included in the alternatives analysis (8/26/22). The alternative analysis report is expected to be completed before the end of 2022 (10/13/22). Lab results from stream soil samples were sent to Jacobs so that they include phosphorus reduction in the alternatives analysis report: a groundwater investigation is needed to inform sediment capture facility and stream reclamation alternatives, scoping and negotiations are in progress (11/11/22). Groundwater scope of work has been reviewed and approved by project sponsors (1/13/23). The IGA Amendment bringing in the 2023 funding was recommended by TAC and authorized by the Board in April (5/12/23). Progress

meeting was held on 10/30/23 where the groundwater information was reviewed and the impacts from the 2023 storms were discussed; MHFD is planning additional sediment removals accordingly.

- 7. Happy Canyon Creek Upstream of I-25 (CCB-22.2)
  - a. Description: The design and construction are in partnership with Douglas County, City of Lone Tree, and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$500,000. The total project cost is estimated at \$2,000,000.
  - Status: Douglas County, City of Lone Tree, and MHFD have initially funded and selected b. Muller Engineering as the design engineer. Design has started and a progress meeting was held on 1/27/21. Design is progressing (2/11/21). Muller has submitted 60% Design Deliverables (5/27/21). IGA for 2021 Funding is being brought to Board in September (9/9/21). 2021 IGA Amendment has been executed (11/11/21). Coordination with CDOT and easement acquisitions are on-going (1/13/22). Board authorized 2022 funding and IGA Amendment at their June 16<sup>th</sup> meeting (6/30/22). The project received environmental clearance from CDOT (8/12/22). The 90% design submittal is scheduled for delivery by end of September (8/26/22). The 90% design submittal is being reviewed (10/13/22). Comments were provided on 90% submittal (11/11/22). Muller completed the 100% design submittal on 11/22/22. CDOT permit was issued, and pre-construction meeting was held on 1/10/23; construction start is scheduled for 1/30/23 pending execution of easement documents from Surrey Ridge which has agreed to terms and easement language. Notice to Proceed on construction is pending execution of easement documents (1/27/23). Easements have been signed by property owners and Notice to Proceed has been issued to Naranio Civil Constructors (2/8/23). Construction is underway with initial construction BMPs/stormwater controls in place; water diversion and control is being set up for the downstream section of the project (3/10/23). Water control is in place and construction of stream reclamation is underway for downstream sections of the project (3/30/23). Riffle and Boulder Cascade drop structures on downstream third of project are nearing completion (4/13/23). Construction is underway in the middle third of the project; efforts consist of stream grading and installation of Riffle and Boulder Cascade drop structures (5/12/23). The storm damage from May 11 to 13, 2023 event is being identified and repaired (5/25/23). Construction on the middle third is substantially complete and work has begun on the upstream third (7/27/23). The construction is nearly complete with the punch list walk on 9/13/23; contractor is working on completing plantings and resolving punch list items. Asphalt repairs on the frontage road are being scheduled and some of the plantings will need to be done during the 2024 spring planting window to improve their chance for success (11/10/23).
- 8. Dove Creek Otero to Chambers Rd. (CCB-23.1)
  - a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority (SEMSWA) and with Mile High Flood District (MHFD) being a key stakeholder; it includes 1,300 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$175,000. The total project cost is estimated at \$700,000.
  - b. Status: SEMSWA is drafting the Intergovernmental Agreement to bring in the 2021 funding for the project (3/12/21). RESPEC is the design consultant; two conceptual design alternatives have been prepared and reviewed during meeting on 3/15/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA has been approved and executed by all parties (7/29/21). 30% Design Review Meeting was held on 8/23/21. A Progress meeting is scheduled for 2/26/22 with 60% Plan submittal expected to follow (1/28/22). The 60% Design was submitted on 2/16/2022, comments were provided, and a design review meeting was held on 2/23/2022. IGA Amendment to bring in 2022 funding is in process (3/10/22). Construction costs were prepared by CEI based on 60% submittal (5/13/22). A design progress meeting was held 6/14/22 and 90% design submittal is being prepared (6/30/22). 90% design submittal is expected by the end of July (7/15/22). The 90% design submittal was reviewed, and comments were submitted on 8/22/22. Construction is

anticipated in 2023 (10/13/22). A progress meeting was held on 11/8/22, project will likely be done in 2 phases. IGA Amendment will be needed early in 2023 so that construction can start ahead of storm season. Dove Creek IGA for construction of Phase 1 is scheduled for TAC and Board in January 2023, construction is expected to start shortly afterwards (12/30/22). Construction is scheduled to start mid-February: construction agreement and engineering construction services amendment are currently being reviewed (1/27/23). Construction and engineering construction services have been finalized and a preconstruction meeting was held on 2/2/23. Notice to Proceed has been issued to Concrete Express; construction is underway with initial construction BMPs/stormwater controls in place (3/10/23). Water control is in place and construction of stream reclamation is on-going (3/30/23). Step pool drop structures have been constructed and work on soil wraps is underway (4/13/23). Low-flow or bank full channel work (soil wraps and erosion control blanket) and step-pool structures are complete, water diversion has been removed, and is active to storm flows; work continues in upland areas and higher elevations of stream reclamation (5/12/23). Storm damage from May 11 to 13, 2023 event is being repaired (5/25/23). Construction punch list is being completed (6/29/23). Construction of Phase 1 is complete (7/27/23).

- 9. Dove Creek Chambers Rd. to Pond D-1 (CCB-23.1)
  - a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority (SEMSWA) and with Mile High Flood District (MHFD) being a key stakeholder; it includes 1,300 feet of stream reclamation. Construction was broken into 2 phases with Phase 2 scheduled for 2024.
  - b. Status: CCBWQA acted at their October meeting to advance their funding for Phase 2 Construction to 2023 with SEMSWA's funding scheduled for 2024, IGA has been prepared and scheduled for signatures after SEMSWA's November Board meeting, phosphorus estimates for sediment capture areas for the project were provided to Technical Manager (11/10/23).
- 10. Piney Creek from Fraser Street to Confluence with Cherry Creek aka Reaches 1 and 2 (CCB-21.1)
  - a. Description: This project includes 2900 liner feet of stream reclamation on Piney Creek. The project partners are SEMSWA and CCBWQA.
  - b. Status: Project coordination meeting was held with SEMSWA on 6/29/22. IGA drafted and is being reviewed by SEMSWA (8/12/22). IGA was approved by CCBWQA at the 9/15/22 Board meeting. IGA Amendment to bring in 2023 funding was recommended by the TAC and authorized by the Board in May (5/25/23). CCBWQA sent the Draft IGA Amendment to SEMSWA for review on 6/29/23. SEMSWA has no comments on the IGA Amendment and plans to take it to their Board in October (8/11/23). The project site was walked with SEMSWA and Olsson and Associates on 8/30/23, Olsson is preparing their scope of work and fee for design. *Comments on Olsson's scope of work and fee were provided to and coordinated with SEMSWA (11/10/23).*
- 11. Mountain and Lake Loop Shoreline Stabilization Phase II (OM 4.6)
  - a. Description: This project was identified through the 2020 annual inspection and design and permitting started in 2021. It adds about 40 feet of shoreline protection where it has eroded leaving a 1-2 foot tall vertical bank.
  - b. Status: Construction Plans have been prepared and the GESC was submitted to Arapahoe County for review (1/13/22). Plans are being reviewed by US Army Corps of Engineers for 408 clearance (5/13/22). Comments were received from the US Army Corps of Engineers on 8/29/23. A meeting has been scheduled for 11/16/23 with USACOE's local staff and CPW staff to discuss the cut and fill balance requirements on this project and other planned projects in Cherry Creek State Park (11/10/23).
- 12. Cherry Creek from Reservoir to Lake View Drive (OM 4.6)
  - a. Description: This project is in follow up to CCBWQA's study of Cherry and Piney Creeks in Cherry Creek State Park (CCSP). Muller completed two reports on Cherry Creek from

Reservoir to State Park Boundary, Stream and Water Quality Assessment and Baseline Channel Monitoring Report, in 2022. These reports highlight the need for this project.

b. Status: A workshop is scheduled for the 3/16/23, to seek CCBWQA Board and TAC input on this project and Cherry and Piney Creeks in CCSP (3/10/23). *The follow up from workshop is underway – project overview and funding flyer has been created,* Muller is scoping the next step of design for Reach 1 and providing a fee, and multi-pronged approach is in development for workshop priority reaches that prioritizes Reach 1 and reduces risk from upstream reaches; these items will be brought to TAC and Board for discussion, direction, and/or action at upcoming meetings (3/30/23). A site visit for partner outreach and funding was held on 5/25/23 at 1-4 pm (6/8/23). A coordination meeting was held with Aurora on 6/23/23 and they showed interest in partnering on the project to protect their water lines. The Mile High Flood District has provided their budget/CIP schedule and Arapahoe County Open Space has been contacted to investigate potential partnering opportunities (7/13/23). The TAC created a subcommittee for this project on 8/3/23; which will attend progress meetings, provide timely feedback to Muller, and to coordinate with TAC as needed. The alternatives analysis kickoff meeting was held on 8/29/23. A site visit was held on 9/22/23 to look at multiple flow paths and potential risks for consideration in alternatives analysis.

Attachment 3

# CHERRY CREEK BASIN WATER QUALITY AUTHORITY

# 2024-2033 CAPITAL IMPROVEMENT PROGRAM SUPPORTING DATA

TAC Draft – October 5, 2023 TAC Recommendation – November 2, 2023 Board Review Version – October 19, 2023 Board Final Version – November 16, 2023

## 2024-2033 CAPITAL IMPROVEMENT PROGRAM

This document presents the details of the 2024-2033 Capital Improvement Program (2024-2033 CIP), as reviewed by the Board with the 2024 funding included in the Budget that is adopted by the Board, and it includes the following information.

### Table 1 – Summary of Potential Pollutant Reduction Facilities, Revision for 2024-2033 CIP.

This table lists all the Pollutant Reduction Facilities (PRFs) that have been considered for implementation by the Authority since 2000 and shows their status. The "blue" font represents completed projects, the "green" font represents projects that are included in the 2024-2033 CIP, and projects in "black" font have been considered but haven't been included in the CIP.

Prior to 2010, Cherry Creek Reservoir was under a total maximum annual load (TMAL) limitation for phosphorus. Since PRFs originally focused on reduction of phosphorus loads discharged into the reservoir, Table 1 was developed to provide a brief summary of the design basis, projected loads and treatment, estimated PRF costs, and costs per pound of phosphorus immobilized. Currently there is no TMAL; instead, the control strategy identified in Regulation No. 72 is to minimize nutrient (phosphorus and nitrogen) concentrations. Therefore, PRFs are still evaluated, in part, on their costs per pound of phosphorus for consistency between all potential PRFs. Additional information on how PRFs are evaluated, particularly stream reclamation type projects, is presented in the Authority's report dated June 17, 2011 titled *Stream Reclamation Water Quality Benefit Evaluation Interim Status Report*.

The Cottonwood Creek Cattail Harvesting Pilot Project (CCB-13.3.1 A and B) included phosphorus reduction and removed (59-60 pounds per year) from the system based on 2020 Cattail Harvesting Pilot Project Memo for a unit cost \$1,000-1,017 per pound of phosphorus removed.

New for the 2024-2033 CIP, ten of the completed projects (see blue text) were selected based on the best available accounting information on total project costs of design, construction, and permit clearance. Other information such as stream length and project participation were adjusted based on best available information, with the source included in comments which can viewed in of the spreadsheet itself. The Stream Reclamation O&M costs were adjusted to be similar cost baseline of \$6,000 per mile with a minimum of \$1,000 for projects within Cherry Creek State Park (higher cost accounts for higher public use in the park) and \$2,000 per mile with of minimum of \$1,000 for remaining stream reclamation projects. The original project information was retained, and the updated and revised project information was delineated by adding an asterisk (\*) in the project designation and both were highlighted to facilitate comparison between the two.

New for the 2024-2033 CIP, the projects included in the CIP (see green text) the budget estimates of project costs were updated, based on similar projects that were bid in 2023 or updated engineer's opinions of construction costs, in an effort capture inflationary pressures and current market conditions.

### Table 2 – Summary of Recommended Pollutant Reduction Facilities 2024 – 2033 CIP

This table lists the PRFs that are in the current 10-year CIP with more detail provided for the projects in the current budget year. Since the Authority partners with other governmental agencies to design and construct some of the PRFs, the Authority's portion of total project costs is also shown. The total cost is included along with the Authority's portion. Previous funding contributed by the Authority is deducted from the Authority's portion to get the Residual PRF Costs for the Authority, the Residual PRF Costs for the Authority are then budgeted through the 10-year CIP, since most projects take several years from concept through construction.

Some highlights of the projects included in the 2024 Budget are described below.

The East Shade Shelter Shoreline Stabilization Phase III (CCB-17.5.1) project includes funding participation from the latest Engineer's opinion of probable cost of 86% Authority and 14% is CPW to cover their participation in amenities. The actual costs and participation split will need to be determined through final design and construction and further coordination between parties.

The Tower Loop Shoreline Stabilization Phase II (CCB-17.7) project has been moved back to final design in 2032 and construction in 2033 based on value engineering effort done in 2023. The actual costs and schedule will need to be monitored and evaluated with future CIP updates.

The Cherry Creek Stream Reclamation at Arapahoe Rd., Reaches 3 and 4 (CCB-5.14C) project includes CCBWQA's funding at 16% (not the typical 25% partner project) to match the average of \$1,016 per pound of phosphorus immobilized from Table 3. Project costs and participation may be better defined through the upcoming design and evaluated further with future CIP updates.

The Cherry Creek – Reservoir to Lake View Drive Alternatives Analysis and Development of Preferred Alternative (CCB-5.16A) project includes CCBWQA's funding of 100%.

The Cherry Creek all Reached in CCSP (CCB-5.16A, B, C) line includes CCBWQA funding \$7,650,000 over 10-years. It represents a funding stream that can be applied to projects as their costs and priorities and further identified and refined through current and upcoming design efforts. Currently, the Cherry Creek – Reservoir to Lake View Drive is considered the top priority; after the development of the preferred alternative and its associated costs will determine how far this funding will go. Additional project partners and funding from others will likely be needed in order to complete all of the stream reclamation on Cherry Creek within Cherry Creek State Park (CCSP).

The Piney Creek Reaches 1 to 2 (CCB-6.5) project includes CCBWQA's funding at 23% (not the typical 25% partner project) to match the average of \$1,016 per pound of phosphorus immobilized from Table 3. Project costs and participation may be better defined through upcoming design and evaluated further with future CIP updates.

The Piney Creek Reaches 4 to 5 (CCB-6.6) project includes CCBWQA's funding at 23% (not the typical 25% partner project) to match the average of \$1,016 per pound of phosphorus immobilized from Table 3. Project costs and participation may be better defined through upcoming design and evaluated further with future CIP updates.

The McMurdo Gulch Reclamation (CCB-7.4) includes CCBWQA's funding of 25% as it is a partner project and is for priority 3 stream reclamation. As requested by Castle Rock, it includes \$1,121,000 of CCBWQA for 2024, of which \$869,000 is new funding included in CCBWQA's 2024 budget, and \$252,000 of CCBWQA's unspent funding that was left over after the completion of priorities 1 and 2 stream reclamation. This information will need to be evaluated by CCBWQA when drafting the Intergovernmental Agreement between the parties, and when it is considered for action by CCBWQA's Board.

The Lone Tree Creek in CCSP downstream of Pond, CCBWQA only (CCB-21.1) project includes CCBWQA funding of 100%. This funding is only for the stream reclamation portion downstream of the pond and embankment only. The scope and cost of the project will need to be reevaluated based on completion of the Major Drainageway Planning Study that is currently underway. Additional improvements and partner funding may be needed as a result of this study.

The Lone Tree Creek in CCSP upstream of Pond, Centennial Trail Portion (CCB-21.3) project is done in conjunction with Centennial Trail Project. CCBWQA's funding is at 25% (not the typical 100% for projects within CCSP) and is for the stream reclamation portion of the larger trail project. The trail portion advanced the stream reclamation portion ahead of its water quality priority, limiting the funds available for the project. CCBWQA's Board has previously taken action to confirm the \$112k commitment to Centennial so it has been included in the 2024 Budget.

CCBWQA's funding on Happy Canyon Creek at Jordan Rd/ (CCB-22.1) is at 25% and continues the funding that was previously requested by SEMSWA.

CCBWQA's funding on PRF Preservation, Acquisition, Lease of Land or Water is budgeted for \$100k and CCBWQA's percentage is not known as no project and costs have been identified.

All other projects listed in the CIP were coordinated with project partners and adjusted based on input and direction received. Further evaluation and adjustments will likely be needed in future CIP updates when projects get closer to the current budget year.

### **2024 Operations and Maintenance Budget**

The projects and costs from 2023 Annual Inspection of PRFs at CCSP Task Memorandum by RG and Associates were included in the CIP for 2024. The RDS Utilities Costs were increased from \$65,000 to \$72,000, PRF Reseeding of \$5,000, PRF Mowing of \$5,000, Tree/Shrub Planting of \$2,000, and Fence Repair of \$8,000 were included at the direction of the Technical Manager and to match the 2024 Budget.

# Table 3 – Summary of 10 Completed Pollutant Reduction Facilities for Consideration in 2024 – 2033 CIP

From Table 2, the ten completed projects with the updated and revised project information, delineated by adding an asterisk (\*) in the project designation, were adjusted to 2023 costs using ENR's Building Cost Index. Three unit costs were developed for the stream reclamation cost per mile and the cost per pound of phosphorus immobilized (without or with cost sharing from

partners). Figure 1 shows the stream reclamation cost per mile and Figure 2 shows the cost per pound of phosphorus immobilized (without or with cost sharing from partners).

Summary statistics are included at the bottom of Table 2 of CIP and below. The mean of \$4,064 per pound of phosphorus (without cost sharing) or \$1,016 per pound of phosphorus (with cost sharing of 75% partner participation and 25% CCBWQA participation) were used to evaluate projects included in the 10-year CIP (see green text) in Table 1. When the calculated cost per pound of phosphorus exceeded these means then a more detailed method was used to calculate it, delineated with a pound sign (#) in the project designation, or CCBWQA's participation was adjusted down to get the cost per pound in alignment with the mean. As the projects move forward and more detailed costs and engineering information is available the projects that were adjusted can be further evaluated, to see whether additional funding from CCBWQA is warranted, and updated as needed in future CIPs.

Statistic	Stream Reclamation Cost per mile	\$/pound of phosphorus (w/o cost sharing)	\$/pound of phosphorus (w/ CCBWQA participation at historical limit of 25%)
Minimum =	\$ 3,145	\$ 1,890	\$ 472
Maximum =	\$ 13,840	\$ 8,292	\$ 2,073
Mean =	\$ 6,771	\$ 4,064	\$ 1,016
Median =	\$ 6,759	\$ 4,053	\$ 1,013
Standard Deviation =	\$ 3,581	\$ 2,137	\$ 534

#### E F G H I J K L M N O P Q R CHERRY CREEK BASIN WATER QUALITY AUTHORITY S T U V TABLE 1 - SUMMARY OF POTENTIAL POLLUTANT REDUCTION FACILITIES

# **REVISIONS FOR 2024 - 2033 CIP**

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#### Project Completed Planned for design/construction within 10-year CIP (see Table 2)

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1												CHEI	RRY CREE	K BASI	N WA'	TER QUA	LITY AU	THORIT	TY				•	•				· · · · ·	
2								TA	<i>ABLI</i>	E I - S	SUM	MAR	OF PO	TENTI	IAL I	POLLU1	TANT I	REDUC	CTION FA	CILITIE	S								
3		Data	November 2, 2022										REVIS	DIONS	FOF	C 2024 -	2033 C	IP											
4		Date: Color Code:	Rue:	Project Completed																									
5			Green:	Planned for design/construction v	vithin 10-	year CIP	(see Table )	2)																					
			*	Project updated based on best av	ailable in	formation	n. Projects h	ave best acc	ountin	g infori	mation t	hat inclu	udes total pr	oject cost	ts of de	esign, const	ruction, co	onstruction	n management	t, and permit	clearance.	Other inform	mation suc	h as strea	am length wa	s adjusted bas	ed on informa	ion noted in	comments on
7			"	spreadsheet. O&M costs were ad	ijusted to	be simil	ar cost base	line. Project	s that	were bi	d/constr	ructed in	n phases, we	re separa	ted into	o those pha	ses to faci	litate adju	ustment to 202	3 costs on PI	RFs for WQ	Analysis.							
8			#	Site specific analysis used for pro	pject to su	ipport CC	BWQA's ft	ad with upda	ated pr	oject in	formati	on (den	oted with *)																
9				Tojeets inginighted so that origin	ai piojee	t informa	tion compa	cu with upua	ateu pi	oject in	norman	on (ach	oteu with j.																
11																													
12	Proj. Designation	Project Title	Status	Description		De	sign Basis				Projecte	d Loads		Proj	ected T	reatment					Cost E (100	stimate 10\$)					Unit C (\$/pou	əst ad)	Note
				PRF Type	Quantity	Unit	Rate	Volume	F	late	Т	otal	Source	Removal	lbs Remo		Capit	al Lan	nd Acquisition	Water	Capital	O&M	Annua	l Cost @	CCBWQA Share	CCBWQA Share	w/o cost	cost sharing	
13	(1)	(2)	(2)	(4)	(5)	(6)	(7)	(8)		(0)		(10)	(11)	(12)	ved (12)	(14)	(15)		(16)	Augment <sup>o</sup>	Replace <sup>9</sup>	(10)		1% 20)	(%)	(\$)	sharing (22)	(24)	(25)
	CCR-1	(2) Reservoir Destratification (mixing)	Officially start-up April 2008	Use inlake mixing to minimize algae	369	sq mi	(/) n/a	(8) n/a	n/a	(9)	n/a	(10)	(11) n/a	(12)	810	lbs/season	\$	968	(10)	(17)	(10)	\$	28 \$	80	100%	\$968	\$ 99 \$	99	(23)
15	CCB-1	CCSP Wetlands	Prelim design prepared in 2003	Restore 60 Acres of wetlands in	369	sami	3.5 cfs avg	1415 af/210	0.35	mg/l	1050	lbs/vr	Base flow		600	lbs/season	s	1 928 \$		\$ -	s	- 5	19 \$	123	100%	\$1.928	\$ 204 \$	204	18
16	CCD 52	Arapahoe/Douglas County Line	(Ref 1, 8) Project completed w/o Authority	multiple phases Local stream stabilization	0.51		daily flow	days	100	111g/1	- 1050 - 51	103/ 91		0.00/	000	103/300301	¢	1,0/2 0		¢	÷		1 0	50	00/	\$1,720	0 1050 0		2
17	ССВ-5.2	Stream Stabilization	participation Project completed by Parker w/o	(L = 2700 ft)	0.51	mi			100	ibs/mi	51	lbs/yr	Storm Flow	90%	46	ibs/year	\$	1,062 \$	-	\$ -	\$	- 8	1 5	58	0%	\$0	\$ 1,258 3	-	2
18	CCB-5.3	Stabilization	Authority participation	(L = 2700  ft)	0.51	mi			100	lbs/mi	51	lbs/yr	Storm Flow	90%	46	lbs/year	\$	436 \$	-	\$ -	\$	- \$	2 \$	25	0%	\$0	\$ 551 5	-	2
19	CCB-5.5	Stroh Road Stream Stabilization	Authority participation	(L = 5000  ft)	0.95	mi			100	lbs/mi	95	lbs/yr	Storm Flow	90%	85	lbs/year	\$	218 \$	-	\$ -	\$	- \$	1 \$	13	0%	\$0	\$ 149 5	-	2
	CCB-5.7	Cherry Creek Stream Stabilization at	IGA w/SEMSWA for design in	Local stream stabilization	1.30	mi			100	lbs/mi	130	lbs/yr	Storm Flow	90%	117	lbs/year	\$	4,756 \$	-	s -	\$	- \$	1 \$	256	24%	\$1,155	\$ 2,191 \$	532	2, 3
20		Eco-Park (SEMSWA)	2010 and construction in 2011/2012	(L = 6850 π)																									
21	CCB-5.7*	Cherry Creek Stream Stabilization at Eco-Park (SEMSWA)	IGA w/SEMSWA for design in 2010 and construction in 2011/2012	Local stream stabilization ( $L = 4850 \text{ ft}$ )	0.92	mi			100	lbs/mi	92	lbs/yr	Storm Flow	90%	83	lbs/year	\$	4,756 \$	-	\$ -	\$	- \$	2 \$	257	19%	\$905	\$ 3,106 \$	591	2, 3, 7
21		Charry Creek Stream Stabilization at	Design completed in 2011 for Phase	Local stream stabilization																									
22	CCB-5.9.1	12-Mile Park (CCSP) - Phase I	I.	(L = 500  ft)	0.09	mi			100	lbs/mi	9	lbs/yr	Storm Flow	90%	9	lbs/year	\$	296 \$	-	\$ -	\$	- \$	1 \$	17	100%	\$296	\$ 1,979 \$	1,979	2, 20
	CCD 5.0.2	Cherry Creek Stream Stabilization at	Design completed in 2013 for Phase	Local stream stabilization	0.47				100	n / ·	47	11 /	C/ 11	0.00/	42	n /	¢	1 420 0		0			1 6	70	1009/	61.420	e 1.020 e	1.020	2.20
23	ССВ-3.9.2	12-Mile Park (CCSP) - Phase II	П.	(L = 2500 ft)	0.47	mi			100	ibs/mi	47	lbs/yr	Storm Flow	90%	43	ibs/year	2	1,429 \$	-	\$ -	3	- 3	1 5	/8	100%	\$1,429	\$ 1,820 \$	1,820	2, 20
	CCB-5.10	Cherry Creek Stream Stabilization at	Design completed by PJMD. Authority is funding partner in	Local stream stabilization $(I = 5100 \text{ P})$	0.97	mi			100	lbs/mi	97	lbs/yr	Storm Flow	90%	87	lbs/year	\$	3,017 \$	-	s -	\$	- s	2 \$	164	21%	\$643	\$ 1,882 \$	401	2, 3
24		PJCOS (verminion Creek, PJMD.)	design	(L - 5100 II)																									
25	CCB-5.11	Cherry Creek Stream Stabilization at Norton Farms (Parker)	Conceptual design by UDFCD identified priority 3	Local stream stabilization (L = $2200 \text{ ft}$ )	0.42	mi			100	lbs/mi	42	lbs/yr	Storm Flow	90%	38	lbs/year	\$	900 \$	-	\$ -	\$	- \$	1 \$	49	28%	\$252	\$ 1,313 \$	368	2, 3
25	000 5 111	Cherry Creek Stream Stabilization at	Conceptual design by UDFCD	Local stream stabilization																		-							
26	ССВ-5.11*	Norton Farms (Parker)	identified priority 3	(L = 2500 ft)	0.47	mi			100	lbs/mi	4/	lbs/yr	Storm Flow	90%	43	lbs/year	\$	1,103 \$	-	\$ -	\$	- \$	1 \$	60	23%	\$255	\$ 1,410 \$	326	2, 3
27	CCB-5.12	Cherry Creek Stream Stabilization at Pine Lane	Project completed by Parker w/o Authority participation	Local stream stabilization ( $L = 1500 \text{ ft}$ )	0.28	mi			100	lbs/mi	28	lbs/yr	Storm Flow	90%	26	lbs/year	\$	500 \$	-	\$ -	\$	- \$	1 \$	28	0%	\$0	\$ 1,087 5	-	
	CCB-5 14	Cherry Creek Stream Reclamation -	IGA w/SEMSWA for design in	Local stream stabilization	2.08	mi			100	lbs/mi	208	lbs/vr	Storm Flow	90%	188	lbs/vear	\$ 1	0.200 \$	_	\$ -	s	s	1 \$	547	25%	\$2.499	\$ 2.920 \$	715	
28	CCD 5.14	CCSP to Eco Park (Ph II to V)	2010	(L = 11000 ft)	2.00				100	103/111	200	103/ 91	Storm Flow	2070	100	103/year	φ	φ		<b>\$</b>	Ψ	9	1 \$	547	2370	\$2,499	\$ 2,920 \$	,15	
	CCB-5.14B	Cherry Creek Stream Reclamation -	Projects with UDFCD, SEMSWA,	Local stream stabilization (L = 2000 ft.=1400 ft on Cherry Creek	0.38	mi			100	lbs/mi	38	lbs/yr	Storm Flow	90%	34	lbs/year	\$	2,284 \$	-	s -	\$	- s	1 \$	123	21%	\$484	\$ 3,607 \$	764	2, 3
29		Valley Country Club	and Aurora. Phases started in 2010.	and 600 ft. on Tributary)																									
	CCB-5.15	Cherry Creek Stream Reclamation at Country Meadows (Hess Rd)	Project by Town of Parker and Douglas County	Local stream stabilization ( $L = 7700 \text{ ft}$ )	1.46	mi			100	lbs/mi	146	lbs/yr	Storm Flow	90%	131	lbs/year	\$	2,170 \$	-	\$ -	\$	- \$	2 \$	118	24%	\$520	\$ 901 \$	216	2, 3
30		Charry Creek Stream Reclamation at	Project by Town of Parker and	Local stream stabilization																									
31	CCB-5.15*	Country Meadows (Hess Rd)	Douglas County	(L = 4200  ft)	0.80	mi			100	lbs/mi	80	lbs/yr	Storm Flow	90%	72	lbs/year	\$	2,788 \$	-	\$ -	\$	- \$	2 \$	151	25%	\$695	\$ 2,114 \$	527	2, 3, 7
	CCB-5.16	Cherry Creek Stream Reclamation -	Project w/in CCSP identified as	Local stream stabilization	0.01	mi			100	lbs/mi	1	lbs/vr	Storm Flow	90%	1	lbs/vear	s	300 \$	-	s -	s	- 5	3 \$	19	100%	\$300	\$ 37.299 \$	37 299	2 20
32		12 Mile Phase III	Reach 1 in Project CCB-5.14 work.	(L =30 ft,)					- 50						·	year	-	, v		-		-	- V		/			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	_, _~
	CCB-5.17.1A	Cherry Creek Stream Reclamation at KOA	Extension Requested by UDFCD	(L = 1400  ft original, L = 2000  ft with	0.38	mi			100	lbs/mi	38	lbs/yr	Storm Flow	90%	34	lbs/year	\$	2,035 \$	-	\$ -	\$	-	20 \$	129	20%	\$375	\$ 3,795 \$	776	2, 3
33		Charmy Crack Stream Pealemetics at	and Parker in 2019 Prelimiinary design completed 2019,	600 ft extension) Local stream stabilization																									
34	CCB-5.17.1A*	KOA	Extension Requested by UDFCD and Parker in 2019	(L =1400 ft original, L=2000 ft with 600 ft extension)	0.38	mi			100	lbs/mi	38	lbs/yr	Storm Flow	90%	34	lbs/year	\$	1,806 \$	-	\$ -	\$	- \$	1 \$	98	18%	\$333	\$ 2,868 \$	529	2, 3, 7
25	CCB-5.17.1B	Cherry Creek Stream Reclamation at	Design in 2021, Construction in	Local stream stabilization $(I_{-2400} \oplus a_{-2ij})$	0.45	mi			100	lbs/mi	45	lbs/yr	Storm Flow	90%	41	lbs/year	\$	7,274 \$	-	\$ -	\$	- \$	1 \$	391	12%	\$837	\$ 9,551 \$	1,099	2, 3
- 35	CCB-6.1	Piney Creek Stream Stabilization -	Authority funded \$118,000	Restore 5200 lf upstream of Parker	22.90	sa mi	n/a	n/a	100	lbs/mi	100	lbs/vr	Storm Flow	90%	90	lbs/vear	s	997 \$	-	s -	s	- \$	10 \$	63	13%	\$130	\$ 705 \$	92	2.3
36	CCR-62	Project 1 Piney Creek Stream Stabilization -	Arapahoe County in 2002. Project completed w/o Authority	Road Reclaim 1700 lf upstream of Buckley	0.32	1 mi			100	lbe/mi	32	1bc/m:	Storm Flow	00%	20	lbe/voor	¢	998 €		s	s	s	1 0	5.1	12%	\$120	\$ 1,000 0		2.3
37	CCB-0.2	Project 2 U/S Buckley Rd Piney Creek Stream Reclamation -	participation	Road Local stream stabilization	0.52	m			100	ios/mi	32	ios/mi	Storm Flow	90%	29	ios/year	\$	770 3	-	o -	3	- 3	1 3	54	1270	3120	J 1,080 \$	220	2, 5
38	CCB-6.4	Reachs 6 & 7 Piney Creek Stream Reclamation	Request from UDFCD in 2014	(L = 6,000 ft)	1.14	mi			unk		365	lbs/yr	Storm Flow	90%	329	lbs/year	\$ 1	1,000 \$	-	s -	\$	- 5	2 \$	591	25%	\$2,750	\$ 1,800 \$	450	12
39	CCB-6.4A *	Reach 7	Request from UDFCD in 2014	(L = 2,340  ft)	0.44	mi			100	lbs/mi	44	lbs/mi	Storm Flow	90%	40	lbs/year	\$	3,765 \$	-	\$ -	\$	- \$	1 \$	203	14%	\$512	\$ 5,082 \$	691	2, 3, 7
40	CCB-6.4B.1 *	Piney Creek Stream Reclamation - Reach 6 upstream of Caley	Request from UDFCD in 2014	Local stream stabilization ( $L = 1,600 \text{ ft}$ )	0.30	mi			100	lbs/mi	30	lbs/yr	Storm Flow	90%	27	lbs/year	\$	2,896 \$	-	\$ -	\$	- \$	1 \$	156	14%	\$394	\$ 5,726 \$	779	2, 3, 7
1	CCB-6.4B.2 *	Piney Creek Stream Reclamation -	Request from UDFCD in 2014	Local stream stabilization	0.49	mi			100	lbs/mi	49	lbs/yr	Storm Flow	90%	44	lbs/year	\$	2,659 \$	-	s -	\$	- \$	1 \$	143	14%	\$361	\$ 3,262 \$	443	2, 3, 7
41		Reach 6 Phase 2 McMurdo Gulch Reclamation		(L = 2,580 ft) Stream Reclamation																		-							
42	CCB-7.1	(Castle Rock)	Project completed in 2011	(L = 15,000  lf)	2.84	mi			100	lbs/mi	284	lbs/yr	Storm Flow	90%	256	lbs/year	\$	1,470 \$	-	s -	\$	- \$	28 \$	107	43%	\$630	\$ 419 \$	180	
43	CCB-7.2	(Castle Rock) 19/20 Project	2020	(L = 2,000  lf)	0.38	mi			100	lbs/mi	38	lbs/yr	Storm Flow	90%	34	lbs/year	\$	1,677 \$	-	\$ -	\$	-	17 \$	107	25%	\$420	\$ 3,127 \$	783	2, 3
44	CCB-7.2 *	McMurdo Gulch Reclamation (Castle Rock) 19/20 Project	Design in 2019, Construction in 2020	Stream Reclamation (L = 2,000 lf)	0.38	mi			100	lbs/mi	38	lbs/yr	Storm Flow	90%	34	lbs/year	\$	1,156 \$	-	\$ -	\$	- \$	1 \$	63	25%	\$289	\$ 1,846 \$	462	2, 3, 7

W	Х	Y	Z	AA	AB	AC	AD

	А	В	С	D	E	F	G	Н	I J	К	L M	N	) P		Q	R	S	T	. L	J	V	W	Х	Y	Z	A	A	AB	AC	AD
1											CHERRY CRE	EK BASIN W	ATER QUA	ALITY	AUTHORITY	ľ														
2								$T_{2}$	4 <i>BLE 1 - S</i>	SUMM	ARY OF PC	DTENTIAL	. POLLU	TAN	REDUCT	<b>FION FA</b>	CILITIE	S												
3											REVI	SIONS FO	OR 2024 -	- 2033	CIP															
4		Date:	November 2, 2023																											
5		Color Code:	Blue:	Project Completed																										
6			Green:	Planned for design/construction	within 10	)-year CI	P (see Table	2)																						
			*	Project updated based on best av	ailable i	nformatio	n. Projects	have best acc	counting inform	nation tha	at includes total p	roject costs of	design, cons	struction	construction 1	management,	, and permit	clearanc	ce. Other info	ormation su	ch as stre	am length w	as adjusted b	ased on informa	ion noted in	commen	nts on			
7				spreadsheet. O&M costs were a	djusted	to be simi	lar cost bas	eline. Project	ts that were bi	d/constru	cted in phases, w	ere separated	nto those ph	ases to f	acilitate adjust	ment to 2023	3 costs on PI	RFs for	WQ Analysis											
8			#	Site specific analysis used for pr	oject to s	support C	CBWQA's f	funding level																						
9				Projects highlighted so that origi	nal proje	et inform	ation compa	red with upd	ated project in	formation	(denoted with *	).																		
45	CCB-7.3	McMurdo Gulch Reclamation (Castle Rock) 20/21/22 Project	Design in 2020, Construction 2021	Stream Reclamation ( $L = 3,700 \text{ lf}$ )	0.70	mi			100 lbs/mi	70	lbs/yr Storm Flov	90% 6	3 lbs/year	\$	2,460 \$	-	s -	\$	- \$	25 \$	156	25%	\$615	\$ 2,480 \$	620	2,	, 3			
46	CCB-7.3 *	McMurdo Gulch Reclamation (Castle Rock) 20/21/22 Project	Design in 2020, Construction 2021	Stream Reclamation (L = 3,700  lf)	0.70	mi			100 lbs/mi	70	lbs/yr Storm Flov	90% 6	3 lbs/year	\$	1,940 \$	-	s -	\$	- \$	1 \$	105	24%	\$466	\$ 1,664 \$	400	2, 3	3, 7			
											base flow	70% pond																		
	CCB-12	Bowtie Property PRF	Purchase completed 2003	construct sediment pond (Ph 2)	22	sq mi	2-year flood	300 af	500 mg/l/ton	85	lbs/yr and minor	65% 23	5 lbs/year	\$	826 \$	300	\$ 63	\$	1.8 \$	6 \$	70	100%	\$826	\$ 299 \$	299	2	2			
47											flood	wetlands	_	_																
48	CCB-13.1	Cottonwood\Peoria Wetlands Pond	Completed 2003. Restorative maintenance required in 2009	Joint funded project with UDFCD, GWV, Arapahoe County	8.30	sq mi					base and flood flows	measured 30	3 lbs/year	· \$	1,636 \$	-	\$ -	\$	- \$	5 \$	93	12%	\$196	\$ 255 \$	31	2	2			
	CCB-13.2	Cottonwood Stream Reclamation in CCSP	Phase I completed in 2004. Phase I completed June 2008 (Ref 2)	I 11,600 lf of stream reclamation from Peoria to Perimeter Rd, Pond	2.20	mi			100 lbs/mi	220	lbs/yr base and flood flows	see separate 7	0 lbs/year	\$	2,200 \$	-	s -	\$	- \$	55 \$	173	100%	\$2,200	\$ 237 \$	237	2	2			
49		Cottonwood Creek Stream	Authority contributed \$338,000 for	2.600 lf of stream reclamation from		<u> </u>						calcs																		
50	CCB-13.3	Stabilization at Easter Avenue	construction in 2010.	Easter Ave to Briarwood Ave	0.49	mi			100 lbs/mi	49	lbs/yr Storm Flov	90% 4	4 lbs/year	\$	1,350 \$	-	\$ -	\$	- \$	1 \$	73	25%	\$338	\$ 1,655 \$	414	2	2			
51	CCB-13.4	Peoria Trib B/Airport East and West Pond (Outfall C-1)	Cottonwood Creek Master Planned Improvements. Ponds combined into one.	Combined existing detention ponds and provided EURV	0.35	sq mi			400 lbs/sq mi	140	lbs/yr Base and storm flow	40% 5	6 lbs/yr	\$	523 \$	-	\$ -	\$	- \$	- \$	28	25%	\$131	\$ 500 \$	125					
	CCD 17.0	Reservoir Shoreline Stabilization	Scheduled for construction	CCSP Recreation sites: Mountain,													¢	_				1000/	@1.101		1.015		14			
52	ССВ-17.2	Mountain Loop Trail	beginning in 2012	(2,300 ft of shoreline)								3	4 Ibs/yr	\$	1,131 \$	-	\$ -	3	- 5	2 8	00	100%	\$1,151	\$ 1,215 \$	1,215	1, 1	10			
53	CCB-17.3	West Boat Ramp Parking Lot WQ Improvements	Final design completed in 2012	Provide water quality treatment of parking lot runoff.	3.43	ac prkg lot				3	lbs/yr parking lot	70%	lbs/yr	\$	330 \$	-	\$-	\$	- \$	1 \$	19	100%	\$330	\$ 8,903 \$	8,903	1	1			
54	CCB-17.4	East Boat Ramp Shoreline Stabilization Phase II	Identified during 2012 annual PRF inspection	105 lf of bank stabilization	105	lf	0.1 cy/yr/ft		0.14 lbs/lf	14.7	lbs/yr bank erosio	n 80% 1	2 lbs/yr	\$	91 \$	-	\$-	\$	- \$	2 \$	7	100%	\$91	\$ 585 \$	585	1, 1	16			
55	CCB-17.5	East Shade Shelter Shoreline Stabilization Phase II	Identified during 2012 annual PRF inspection	20 lf of bank stabilization	20	lf	0.1 cy/yr/ft		0.14 lbs/lf	2.8	lbs/yr bank erosio	n 80% 2	lbs/yr	\$	18 \$	-	s -	\$	- \$	- \$	1	100%	\$18	\$ 431 \$	431	1, 1	16			
56	CCB-20.1	Detention Pond Retrofit Program - McMurdo Gulch	Phase 1 - McMurdo Gulch	Modify existing ponds to meet current standards for WQ	1	Each			0.40 lbs/Trib Acre	0.4	lbs/yr Residentia	9	lbs/pond/	yr \$	60 \$	-	s -	\$	- \$	0 \$	4	100%	\$60	\$ 396 \$	396	1,	17			
57	CCB-222	Happy Canyon Creek Upstream of I- 25 (MHFD)	Requested in 2020	3000 lf of stream reclamation	0.57	mi			100 lbs/mi	57	lbs/yr Storm Flov	90% 5	l lbs/year	\$	5,441 \$	-	\$ -	\$	- \$	54 \$	346	9%	\$500	\$ 6,765 \$	622	2,	, 3			
58	CCB-222*	Happy Canyon Creek Upstream of I- 25 (MHFD)	Requested in 2020	3000 lf of stream reclamation	0.57	mi			100 lbs/mi	57	lbs/yr Storm Flov	90% 5	l lbs/year	s s	4,021 \$	-	\$ -	\$	- \$	1 \$	216	9%	\$362	\$ 4,232 \$	381	2, 3	3, 7			

	А	В	С	D	E	F	G	Н		J	К	L	М	N	0	P	0		R	S	T	U		/	w	Х	Y	Z	AA		AB	AC	AD
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2								T	ABLI	E 1 - J	SUM	MAR	Y OF PO	TENTI	AL P	POLLUT	ANT R	REDU	UCTION FAC	TLITIES	5												
3													REVIS	SIONS	FOR	2024 - 2	2033 C	IP															
4		Date:	November 2, 2023																														
5		Color Code:	Blue:	Project Completed																													
6			Green:	Planned for design/construction	within 10	-vear CI	P (see Table	2)																									
0				Project updated based on best av	ailable in	formatio	n. Projects	have best acc	countin	g inform	mation t	that incl	udes total pr	oiect costs	s of des	sign, constru	uction. co	nstruc	tion management, a	and permit c	learance. C	ther informat	ion such	as stream	length was ad	liusted bas	sed on inform	nation noted i	in comments on				
7			*	spreadsheet. O&M costs were a	djusted to	be simil	ar cost base	eline. Projects	s that w	vere bid	l/constru	ucted in	phases, wer	e separate	d into t	hose phases	s to facilit	tate adj	justment to 2023 co	osts on PRF	s for WQ A	nalysis.			0	5							
8			#	Site specific analysis used for pr	oject to si	upport C	CBWQA's f	funding level																									
9				Projects highlighted so that original	nal proje	ct inform	ation compa	ared with upd	ated pr	oject in	nformati	ion (der	noted with *)																				
	Proj.	Project Title	Status	Description		D	esign Basis				Projecte	shea.I be		Proje	ected Tr	reatment							Cost Es	timate							Unit (	Cost	Note
60	Designation	rioject rate	Status			-	g	1			I	u Loads		110,	1	catintent	Capital f	from				1	(100	0\$)			1	CCBWOA	CCBWOA	_	<u>(\$/pou</u>	und)	
				PRF Type	Quantity	Unit	Rate	Volume	R	late	Т	Total	Source	Removal	lbs	Removed	2023 to 2	2032	Total Project Cost De	sign in 2023	Capital in	Land	Wa	ter	Capital Capital	O&M	Annual Cost	Share	Share	W/	/o cost	w/cost	
61	(1)	(2)	(2)	(4)	(5)	(6)	(7)	(8)		(0)		(10)	(11)	(12)	(12)	(14)	CIP (15)		(16)	(17)	(19)	(10)	Augi		(21)	(22)	(22)	(%)	(\$)	51	(26)	(27)	(28)
02	(1)	(2) Chama Carali Staran Stabilization at	(5)	(T)	(3)	(0)	(7)	(8)		())	1	(10)	(11)	(12)	(15)	(14)	(15)	<u> </u>	(10)	(17)	(10)	(1))	(2	0)	(21)	(22)	(23)	(24)	(25)		(20)	(27)	(20)
	CCB-5.4	Main Street (Parker)	Conceptual design by UDFCD	(L = 4000  ft)	0.76	mi			100	lbs/mi	76	lbs/yr	Storm Flow	90%	68	lbs/year	\$ 1	1,776	\$ 5,600 \$	840	\$ 4,76	) \$ -	\$	- \$	- \$	2	\$ 302	23%	\$1,280	\$	4,430	\$ 1,013	2, 3, 7
63		· · · · · · · · · · · · · · · · · · ·		, <i>í</i>								+																		_			
	CCB-5.6	Cherry Creek Stream Stabilization at Lincoln Avenue (Parker)	Conceptual design by UDFCD	Local stream stabilization $(L = 2350 \text{ ft})$	0.45	mi			100	lbs/mi	45	lbs/yr	Storm Flow	90%	40	lbs/year	\$ 1	1,447	\$ 3,290 \$	494	\$ 2,79	7 \$ -	\$	- \$	- \$	1	\$ 177	23%	\$755	\$	4,425	\$ 1,016	5 2, 3, 7
64				( )								-																	_				
	CCB-5 14C	Cherry Creek Stream Reclamation at Arapahoe Rd - Valley Country Club	Projects with UDFCD, SEMSWA,	Local stream stabilization	0.98	mi			100	lbs/mi	98	lbs/vr	Storm Flow	90%	88	lbs/vear	\$ 5	5 287	\$ 10.600 \$	1 590	\$ 9.010		s	- 5		2	\$ 570	16%	\$1.665	s	6 4 6 2	\$ 1.015	237
65	000000000	to Soccer Fields, Reaches 3 to 4	and Aurora. Phases started in 2010.	(L = 5167 ft on Cherry Creek)	0.50				100	100,111	1	100.91	Biolini Tiow	,,,,,	00	ios year	Ψ.	.,207	¢ 10,000 ¢	1,000	<i>y</i> ,,,,,		Ĵ	Ű	Ť	-	0 0,0	10/0	\$1,000	Ŷ	0,102	\$ 1,015	2, 0, 7
00																																	
		Cherry Creek Stream Reclamation - Reservoir to Lake View Drive		Local stream stabilization																													
	CCB-5.16A	(Reach 1 in Muller's 2022 Stream	Project w/in CCSP	(L=5400 ft,)	1.02	mi			100	lbs/mi	102.3	lbs/yr	Storm Flow	90%	92	lbs/year	\$ 6	6,842	\$ 11,846 \$	1,777	\$ 10,069	, s	- \$	- 5	- \$	6	\$ 641	100%	\$11,846	\$	6,960	\$ 6,960	2, 3, 6
66		Assessment Report)																															
		Cherry Creek Stream Reclamation -																															
	CCB-5 16A#	Reservoir to Lake View Drive	Project w/in CCSP	Local stream stabilization	1.02	mi									1684	lbs/vear	5 6	6 842	\$ 11.846 \$	1 777	\$ 10.06	s.	s	- 5	- \$	6	\$ 641	100%	\$11.846	s	380	\$ 380	2 3 6 10
		(Reach 1 in Muller's 2022 Stream Assessment Report)		(L =5400 ft,)												,		.,		-,,,,,		Ĩ	Ť	ľ	Ĩ					Ĩ			_, _, _, _, _,
67								-						-									_										
		Cherry Creek Stream Reclamation -																															
	CCB-5.16B	Lake View Drive to North Side of DOLA (Reach 2 in Muller's 2022	Project w/in CCSP	Local stream stabilization $(L = 4400 \text{ ft})$	0.83	mi			100	lbs/mi	83.3	lbs/yr	Storm Flow	90%	75	lbs/year	\$ 5	5,612	\$ 7,920 \$	1,188	\$ 6,732	2 \$ -	\$	- \$	- \$	6	\$ 430	100%	\$7,920	\$	5,738	\$ 5,738	2, 3, 6
		Stream Assessment Report)		(2 1100 14)																													
68																							-										
	CCB-5 16C	Cherry Creek Stream Reclamation -	Projects with UDFCD, SEMSWA,	Local stream stabilization	1.17				100	lha/mi	117	lbc/rm	Storm Flour	0.0%	106	lbc/roor	\$ 10	0.054	\$ 11.160 \$	1.674	\$ 0.49			\$		1	\$ 500	100%	\$11.160	¢	5 667	\$ 5667	226
	CCD-5.10C	Assessment Report)	and Aurora. Phases started in 2010.	(Cherry Creek Reach 3 L =6200 ft)	1.17				100	108/111	117	105/yr	Storm Flow	9076	100	105/year	\$ 10	0,034	\$ 11,100 \$	1,074	\$ 2,40	, , .		- 3	- 3	1	5 399	10070	\$11,100	¢	5,007	\$ 5,007	2, 3, 0
69												+											+						+				
	CCB-5.16C #	Cherry Creek Stream Reclamation - (Reach 3 in Muller's 2022 Stream	Projects with UDFCD, SEMSWA,	Local stream stabilization	1 17	mi									1963	lbs/vear	\$ 10	0.054	\$ 11.160 \$	1 674	\$ 9.48	sis -	s	- 5	-   \$	1	\$ 599	100%	\$11.160	s	305	\$ 305	2 3 6 10
70		Assessment Report)	and Aurora. Phases started in 2010.	(Cherry Creek Reach 3 L =6200 ft)												,	1			-,	.,		Ť	ľ	Ť	-				Ĩ			_, _, , , ,
	CCB-5 17 2	Cherry Creek Stream Reclamation	Project requested by Douglas	Local stream stabilization	0.81	mi			100	lbs/mi	81	lbs/vr	Storm Flow	90%	73	lbs/vear	\$ 5	5 477	\$ 5477 \$	822	\$ 4.65	5 5 -		- 5	- 5	2	\$ 295	24%	\$1.309	s	4 031	\$ 963	237
71	000 011/12	U/S Scott Road Piney Creek - Cherry Creek to	County and UDFCD in 2019	(L = 4300 ft)	0.01				100	100,111	01	1013 91	Biolini Tion	,,,,,	,5	ios year	÷ .	.,	φ 2,, φ	022	• 1,00		-	-	Ŷ		0 200	2.00	\$1,505	-	1,001	\$ ,05	2, 5, 7
	CCB-6.5	Parker Road, Reaches 1 to 2	Requested in 2020	2900 lf of stream reclamation	0.55	mi			100	lbs/mi	55	lbs/mi	Storm Flow	90%	49	lbs/year	\$ 2	2,350	\$ 4,060 \$	609	\$ 3,45	1 \$ -	\$	- \$	- \$	1	\$ 219	23%	\$930	\$	4,421	\$ 1,013	2, 3, 7
72		(SEMSWA)										-											-										
	CCB-6.6	Piney Creek south of Orchard Rd.,	Requested in 2020	3800 lf of stream reclamation	0.72	mi			100	lbs/mi	72	lbs/mi	Storm Flow	90%	65	lbs/year	\$ 3	3,000	\$ 5,320 \$	798	\$ 4,522	2 \$ -	\$	- \$	- \$	1	\$ 286	23%	\$1,220	\$	4,416	\$ 1,013	2, 3, 7
73		Reaches 4 to 5 (SEIMSWA)																															
	CCB-7.4	McMurdo Gulch Reclamation	Design in 2022- 2023, Construction	Stream Reclamation	1 24	mi			100	lbs/mi	124	lbs/vr	Storm Flow	90%	112	lbs/vear	s a	3 298	\$ 5162 \$	774	\$ 4.38	s .	s	- 5	- 5	2	\$ 279	25%	\$1 292	s	1 878	\$ 470	237
74	000 ///	(Castle Rock) 22/23/24/25 Project	in 2024	(L = 6,550 lf)					100	100,1111		1013 91	Biolini Tiow	,,,,,		ios year	Ψ.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• 5,102 •		• 1,50		÷	ŷ	Ŷ		0 2/7	2070	\$1,2>2	Ψ	1,070	•	2, 0, 7
	CCB-13-3-1A	Cottonwood Creek Catail Harvesting	Pilot Project - Odd Years Harvest	1.7 Acres of Cattail Harvesting	2 90	mi				lbs/mi	30	lbc/yr	Storm Flow	100%	50	lbs/waar	s	60	\$ 00		\$ 0		s	s			\$ 5	100%	\$90	¢	1 525	\$ 1.525	
75	CCD-15.5.17	from Reservoir to Peoria Street~	Left Bank	1.7 Heres of Cattain Harvesting	2.50					103/111	50	105/ 91	Storm 1 low	10070	57	ios/yeur	\$		φ <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	,	\$ ,	φ	Ψ	ŷ	- 0		\$ 5	10070	\$50	Ψ	1,525	\$ 1,525	<u> </u>
	CCB-13 3 1P	Cottonwood Creek Cattail Harvesting from Reservoir to Peoria	Pilot Project - Even Years Harvest	2.0 Acres of Cattail Harvesting	2.90	mi				lbs/mi	237	lhs/vr	Storm Flow	100%	60	lbs/vear	s	60	s 90	<u> </u>	\$ 0	) s -	s	- \$		-	\$ 5	100%	\$90	s	1 500	\$ 1.500	4
76	000 100010	Street~	Right Bank	210 Heres of Culture Hur resulting	2.50					100,111		100/ 91	Diolimition	10070		ios, jeu	Ŷ		ф , , , , , , , , , , , , , , , , , , ,	, 	÷ ,.	, ¢	Ψ	Ű			÷ .	10070	\$70	Ψ	1,000	\$ 1,500	
77	CCB-13.5.3	Cottonwood Creek Tributary - Shooting Area Tributary (CCSP)	Requested in 2020	600 lf of stream reclamation	0.11	mi			100	lbs/mi	11	lbs/yr	Storm Flow	90%	10	lbs/year	\$	300	\$ 720 \$	108	\$ 612	2 \$ -	\$	- \$	-	1	\$ 40	25%	\$180	\$	3,870	\$ 967	2, 3, 6
	CCB-13.5.4	Cottonwood Creek and Tributary C	Requested in 2020	2080 If of stream reclamation	0.39	mi			100	lbs/mi	39	lbs/vr	Storm Flow	90%	35	lbs/year	S 1	1.664	\$ 2,496 \$	374	\$ 2.12	2 \$ .	s	- 5	-	1	\$ 135	2.5%	\$624	\$	3.800	\$ 950	2, 3, 7
78		(IWSD)		Partner with others to purchase		-							+	-		,		<u> </u>	.,		_,		+								. ,		,-,.
	CCB-16	Stream Corridor Preservation	No projects identified	property or conservation easements													\$	100	\$ 100 5	5 -	\$ 10	D					\$ 5	100%	\$100				1
79	000 15 1	Mountain and Lake Loop - 2021	Identified during 2020 annual PRF	along Cherry Creek				-				-		-							<u></u>		_							_	0	e	
80	ССВ-17.2.1	Shoreline Maintenance	observation	45 If of bank stabilization	45	lf	0.1 cy/yr/ft		0.14	lbs/lf	6.3	lbs/yr	bank erosior	n 80%	5.04	lbs/yr	\$	24	\$ 65 5	· -	\$ 65	» <del>s</del>	· \$	- \$	- \$	1	\$ 4	100%	\$65	\$	889	\$ 889	1, 16, 22
81	CCB-17.5.1	East Shade Shelter Shoreline Stabilization Phase III	Identified during 2014 annual PRF inspection	400 lf of bank stabilization	400	lf	0.1 cy/yr/ft		0.14	lbs/lf	56.0	lbs/yr	bank erosior	n 80%	44.8	lbs/yr	\$	906	\$ 975 \$	184	\$ 79	1 \$ -	\$	- \$	- \$	1	\$ 53	86%	\$842	\$	1,188	\$ 1,026	1, 16, 22
	CCB-17.7	Tower Loop Shoreline Stabilization	Identified during 2014 annual PRF	700 lf of bank stabilization	700	lf	0.1 cy/yr/ft		0.14	lbs/lf	98.0	lbs/yr	bank erosior	n 80%	78.4	lbs/yr	\$ 1	1,076	\$ 1,035 \$	155	\$ 880	) \$ -	\$	- \$	- \$	1	\$ 56	100%	\$1,035	\$	720	\$ 720	1, 16, 22
62		Lone Tree Creek in CCSP	Identified in 2014 P	500.16-6-4							+	+											+						,	+			
	CCB-21.1	downstream of Pond (CCBWQA	Arapahoe County Open Space.	CCSP Boundary to Cottonwood Creek	0.09	mi			100	lbs/mi	9	lbs/yr	Storm Flow	90%	9	lbs/yr	\$	340	\$ 600 \$	90	\$ 510	) \$ -	\$	- \$	- \$	1	\$ 33	100%	\$600	\$	3,889.15	\$ 3,889	2, 3, 6
83		Only)	Request from Centennial for	71016-6-4								+		1								+	-							+			
	CCB-21.3	Lone Tree Creek in CCSP upstream	Participation in Stream	/10 It of stream reclamation between CCSP Boundary and Windmill Creek	0.13	mi			100	lbs/mi	13	lbs/vr	Storm Flow	90%	12	lbs/vr	\$	448	\$ 448 5	s _	\$ 44	3 S -	s	- \$	- \$	1	\$ 25	25%	\$112	\$	2,065.93	\$ 516	2, 3, 6
84		or Pond (Centennial Trail Portion)	Reclamaation portion of Trail Project.	Loop Trail										1		,																	
	COP 22 1	Happy Canyon Creek at Jordan	D ( 11 2020	2,500 lf of stream reclamation, project	0.05				100		0.5		G/ 171	0.004		11 /	e -			0.45		-			_			220/	61.445		4.425	e 101-	2.2.5
85	CCB-22.1	Road (SEMSWA)	Requested in 2020	extended another 2000 feet in 2022	0.85	mi			100	lbs/mi	85	lbs/yr	Storm Flow	90%	77	lbs/year	\$ 2	2,731	\$ 6,300 \$	945	\$ 5,35	) \$ ·	5	- \$	- \$	2	\$ 340	23%	\$1,445	\$	4,427	\$ 1,015	2, 3, 7
	CCP 22.1	Dove Creek Otero Avenue to U/S of	D ( 11 2020	2700 lf of stream reclamation (broken	0.51				100				G/ 171	0.001		11 /				,	e 100						e 0:-	1.00	6770		5 707	e 000	2.2.7
	CCD-23.1	Pond D-1 (SEMSWA)	requested in 2020	into 2 phases, see 23.2A and 23.2 B)	0.51	1 <sup>m1</sup>	1	1	100	108/mi	1 21	ios/yr	Storm Flow	90%	40	10s/year	1	1	a 4,900 S		o 4,96	′ °	3	- 3	-   \$	1	° <sup>∠0/</sup>	10%	\$778	3	5,790	l <sup>a 909</sup>	2, 3, 7

W	Х	Y	Z	AA	AB	AC	AD

	А	В	С	D	E	F	G	Н	1	J K		L	М	N	0	Р		Q	R	S	Т	U		V	W	X		Y	Z	AA
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2								14	DLL	- 501											20									
3													REVIS	SIONS	FOI	R 2024 -	- 203.	3 CIP												
4		Date:	November 2, 2023																											
-		Color Code:	Blue:	Project Completed																										
5		contraction countr	Casaa	Diamod for design/sometrystion v	within 1	0 view CI	ID (and Table	2)																						
6			Green.	Prained for design/construction (	within 10	o-year Ci	IF (See Table	<i>2)</i>							1							d								
_			*	Project updated based on best av	ailable i	nformatio	on. Projects	have best acco	unting i	nformatio	n that	include	es total pi	roject cos	ts of d	esign, cons	struction	on, constru	iction manageme	it, and permit	Clearance. U	ther inform	nation s	such as str	ream length v	vas adjuste	1 based	on infor	nation noted	in comments on
7				spreadsheet. Own costs were a	ajustea	to be sim	mar cost base	enne. Projects	that we	re bia/cor	istructe	ea in pr	nases, we	ere separa	ted int	o tnose pn	ases to	acintate	adjustment to 20	25 costs on P	KFS for WQ /	anaiysis.								
8			#	Site specific analysis used for pro	oject to :	support C	CCBWQA's f	unding level																						
9				Projects highlighted so that origin	nal proje	ect inform	nation compa	red with updat	ed proje	ect inform	ation (	denoted	d with *)	).																
	Proj.	Project Title	Status	Description		r	Design Basis			Proje	cted Lo	ads		Pro	jected T	reatment					Cost Est	imate						Un	it Cost	Note
00	Designation	-		-	Source of share best available information. Projects have best accounting information that includes total project costs of design, construction, construction management, and permit clearance. Other information such as stream length was adjusted to be small accounting information. Projects that were bid/costnuctive in blass total project closts or BEFs for W2 Ausjusted.         Vertice 10 WayDECLEWEANS         Vertice 10 WayDECLEWEA														jound)	_										
				PRF Type	Vision 10-year CIP (see Table 2)         Set on bost available information. Projects have best accounting information that includes total project ostal project ostal to those phases to the ostal adjustment to 2023 costs on PRFs for WQ Analysis.         Vision 2007       CBWQAS funding level         Set on togical project information. Projects that were bid/constructed in phases, were separated into those phases to facilitate adjustment to 2023 costs on PRFs for WQ Analysis.       Vision 2007       Completion to approximation to an adjustment to 2023 costs on PRFs for WQ Analysis.         Vision 2007														w/cost sharin	g										
89	(1)				A variable of the standing of the																									
90	(1) The projects list	(2) ed below are older and will likely nee	(3) I to be further evaluated and have	(4) costs updated in with future CIP effort	OKM             costs were adjusted to be similar cost baseline. Projects that were bid/constructed in phases, were separated into those phases to facilitate adjustment to 2023 costs on PRFs for WQ Analysis.                 costs             do cost														(23)	(24)										
31	ine projects list	a seton are order and win akery nee	to se tarther evaluated and have		provide specific provide p														T											
	CCB-8	Limestone Filter Enhancement	Specific project not identified	downstream of retention pond	Set is a state of the state of														\$ 42	0										
92				Construct 2 MCD AWT alort or	npted • second prior that in a second prior that includes or that includes or that includes or that or the dates or the second prior that includes or that includes or that or the dates or the second prior that includes or that includes or that or the dates or the second prior that includes or that includes or that or the dates or the second prior that includes or that includes or that or the dates or the second prior that includes or that includes or that includes or that includes or that or the dates or the second prior that includes or that includes or that or the dates or the second prior that includes or that includes														<u> </u>											
				Construct 2 MGD A w 1 plant on Cottonwood Creek to treat Cherry	A Complexed 3 of consistence on the star value be information. Projects have best accounting information that includes total project costs of design, construction, nanagement, and permit clanation. Collect information such as strateness projects into accounting information that includes total project costs of design, construction, nanagement, and permit clanation. Collect information such as strateness projects into accounting information that includes total project costs of design, construction, nanagement, and permit clanation. Collect information such as strateness projects into accounting information that includes total project costs of design, construction, nanagement, and permit clanation. Collect information such as strateness projects into accounting information to the series accounting information to th																									
	CCB-11	Advanced Water Treatment Plant	Conceptual design prepared	Creek and Cottonwood Creek flows															\$	- 11										
93				(0.21-mg/ influent, 0.03 mg/l disch)	for designation within 10-year CIP (see Table 2) protects have best accounting information. Projects have best accounting information that includes total project on separated into see passes to facilitate adjustment to 2023 costs on RFs for WQ Analysis. Project to support CCBWQA's funding level bigligit do so that original project to information compared with guarding level by Types <u>a ounting low in a do one of the set accounting information to the passes on the set accounting information.</u> Project Low Cost Cost Cost Cost Cost Cost Cost Cost																									
	CCB-17.4.1	East Boat Ramp Shoreline	Identified during 2012 annual PRF	400 lf of bank stabilization	neighed Pacing Car														\$ 50	8 1, 16										
94		Stabilization Phase III West Shade Shelter Shereline	inspection																	,										
95	CCB-17.6	Stabilization PRF <sup>14</sup>	Student Project w/WPR in 2013	1,400 lf of bank stabilization															\$ 14	4 21, 22										
	CCP 17.9	Dixon Grove Shoreline Stabilization	Identified during 2019 annual PRF	200 lf -ft -rt-hili-ti-r															e ((	7 1 16 22										
96	CCD-17.8	Phase II	inspection		Composed       Index Data data data data data data data data														\$ 00	7 1, 10, 22										
97	CCB-18	OWTS Sewer Service	No action to date	Provide Sewer Service for OW1S Areas	disploatestration within 19-see CUP (see Table 2)         ted based on best and best on best accounting frammation that has been best accounting frammation that best accounting thread to be separated into use plases to acclusion and permit displaces to a PEK S for VQ Analysis.       The second to a set and permit displaces to a plasma best on the plasma best on a plasma best on														Determined	1										
	CCB-10	Non-point Pollutant Management	No action to date	Assist agricultural contributors to water	Integration water spectra (1) water water (1) w														Determined	1										
98	ССВ-19	Non-point Politiant Management	No action to date	quality impact	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$															1										
99           1001           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121           122           123	BASIS FOR AM (A (B)	<ul> <li>ALVSIS:</li> <li>Unit cost of phosphorus removal based at 4% interest rate.</li> <li>All projects identified provide for addi requirements, unless noted otherwise.</li> <li>S:</li> <li>1. Assumed that augmentation for cor</li> <li>2. Augmentation for naturally establis</li> <li>3. Phosphorus Estimated based on Int</li> <li>4. See 2020 Cattail Harvesting Pilot F</li> <li>5. Pond updates to bring up to current ponds already exist.</li> <li>6. Updated O&amp;M Cost to \$6k per milk</li> <li>7. Updated O&amp;M Cost to \$2k per milk</li> <li>8. Water costs at</li> <li>9. Present worth of capital replacement</li> <li>10. Benefit listed in Muller's Cherry C</li> <li>11. Land acquisition and water augme influenced scope of project.</li> <li>12. Total Phosphorus loading derived</li> <li>14. Benefit approximated based on ot</li> <li>17. Loads and performance based on</li> <li>19. Approach was shifted to focus on</li> <li>20. Joint project with CCSP. Integrat</li> </ul>	l on annualized cost of completed pre CRF = tional phosphorus immobilization bey usumptive use not required hed wetlands not required (assumptive reim Stream Reclamation Paper roject Memo. Phosphorus estimated standards and to facilitate maintenand (increased cost to account for higher with a minimum of \$1k \$ 6,500 tr reek Stream and Water Quality Asses ntation not defined. CWSD\ACWW from laboratory sediment samples & her shoreline projects and estimates calculations for 3 McMurdo Gulch p stream reclamation (CCB-5.14) and e design with Dog Park uses and imp	oject over 35 years 0.053577 yond minimum on) I based on SEMSWA 2020 Data. ce. No phosphorus calculation provided, si r public use for projects in CCSP)with a m per acre foot essment, Reservoir to State Park Boundary A JWPP project Stantec Geomorphic Study BANCS analy onds. reduction of sediment and nutrient sources rovements.	ince ninimum c 7, Novemb ysis. s from ero	of \$1k. ber 2022 sion.													REFERENCES 1. Muller Eng 2003 2. Muller Eng 2003 3. AMEC 2005. D 4. AMEC 2005. D 4. AMEC 2006. Re Reservoir Destratifi 5. Tetra Tech Augu via Sediment Trap. 6 WERF 2000. Ph Approach to Achiev 7. Ruzzo, WP Sept Reduction from 8. Ruzzo, W. P. Sep Augmentation Re 9. TetraTech Decer 10. Brown and Cala Wetland Assess 11. PBSJ October 2 12. Brown and Cala 13. CCBWQA TA( 14. Ruzzo Memo, §	. Feasibility Eve . Feasibility Eve aft Feasibility Eve aft Feasibility R commendations tation Project. st 2006. Phospi psphorus Crediti ing Water Quali member 21, 2006 puirements. here 2006. Dess. Hwell Feb 2007. ment 1006. Draft Mcl iwell 2010. Che Sument 6, 2011. September 4, 20	aluation for Che luation for Cotto eport Cherry Cr for Prepurchase horus Estimates . Trading in the O ty Benefits. Cherry Creek Co ion 5. Cottonwood C ion of Cherry Cr Shop Creek Weu Murdo Gulch Ma rry Creek Stream Stream Restreat 13, West Shade S	ry Creek Sta nwood Creei ek Reservoir of Jamor Eq n Cherry Creek rridor Master reek Reclama vek Sediment lands Polluta ior Drainage n Reclamatio to Drainage theter Shorel	te Park & Stream uipment eek and Basin: 4 Plan-E: ation - W Basin a the Redu way Ma nat Shoo Quality Jine Stab	Wetlands Pr n Stabilizatio tification t for Cherry Cost for Ren An Innovativ Sstimate of PI Water Rights uction Facilit aster Plan p Creek Tra Benefit Evala bilization PR	roject on Project Creek moval ve hosphorus stabilization. ty stabilization. ty ail. uation Interim LF - Water Qua.	Status Repor				
124 125		21. Phosphorus: Shoreline 177 lbs/yr 22. Updated O&M Cost to \$2k per 10	+ Parking Lot 2 lbs/yr =179 lbs/yr 00' with a minimum of \$1k																											

John project with CCSP: Integrate design with Dog Park uses and Imp 21. Phosphorus: Shoreline 177 lbs/yr + Parking Lot 2 lbs/yr =179 lbs/yr 22. Updated O&M Cost to \$2k per 1000' with a minimum of \$1k

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3								20	24 -	203	3 B	UDC	<b>JET</b>	PRO	JEC	ΓΙΟΝ	NS (	10005	5)														
4	~ ~ ~ ~																																
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_		November 2, 2023				PR	۶F		I	Propo	sed 20	)24 Bu	dget		2	2025	2	2026	2027		2028	202	29 Budget	20	)30	2	.031	2	J32	20	J33	202	Total
7	Project			Autho		Cos	sts								В	udget	B	udget	Budge	t	Budget			Bu	dget		Idget	Bu	dget	Bur	dget		
8	No	Project Title	Total	Porti	Dn Portion	'		Desi	gn	Capi	ital	Land	1	Total	1	otal	T	otal	Total		Total		Total	Т	otal	т	otal	T(	otal	Tc	otal	1	Гotal
9	Budget Categ	jory - General																		_						+		<u> </u>	$\rightarrow$				
10	Budget Categ	ory - Reservoir Projects																															
11	CCB-17.5.1	East Shade Shelter Shoreline Stabilization Phase III	\$ 975	\$ 8	842 86%	\$	658	\$	-	\$	658	\$-	\$	65	8 \$	-	\$	-	\$-		\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	658
12	CCB-17.7	Tower Loop Shoreline Stabilization Phase II	\$ 1,035	\$ 1,0	035 100%	\$ 1,	,035	\$	-	\$	-	\$ -	\$	-	\$	-	\$	-	\$-	,	\$-	\$	-	\$	-	\$	-	\$	155	\$	880	\$	1,035
12	Budgot Catoo	Incru Stream Peolomation Projects																															
13	1.3       Budget Category - Stream Reclamation Projects       Image: Comparison of the stream Reclamation at the stream Recla																																
14	CCB-5.4	Main Street (Parker)	\$ 5,600	\$ 1,2	280 23%	\$ 1,	,280	\$	-	\$	-	\$ -	\$	-	\$	-	\$	-	\$7	00	\$ 58	0 \$	-	\$	-	\$	-	\$	-	\$	-	\$	1,280
15	CCB-5.6	Cherry Creek Stream Stabilization at Lincoln Avenue (Parker)	\$ 3,290	\$ 7	23%	\$	755	\$	-	\$	- :	\$-	\$	-	\$	-	\$	-	\$-	,	\$-	\$	-	\$	411	\$	344	\$	-	\$	-	\$	755
	CCB-5.14C	Cherry Creek Stream Reclamation at Arapahoe Rd Valley Country Club to	\$ 10,600	\$ 1,6	655 16%	\$ 1,	,104	\$	-	\$	300	\$-	\$	30	0 \$	340	\$	340	\$ 1	24	\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	1,104
16		Soccer Fields, Reaches 3 to 4															-									──		├──		<u> </u>			
17	CCB-5.16A	Drive Alternatives Analysis and Development of Preferred Alternative	\$ 438	\$ 4	100%	\$	181	\$	181	\$	-	\$-	\$	18	1 \$	-	\$	-	\$-		\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	181
18	CCB-5.16A, B, C	Cherry Creek all Reaches in CCSP	\$ 30,488	\$	- 0%	\$	-	\$	-	\$	- :	\$ -	\$	-	\$	770	\$	1,110	\$2	25	\$ 19	5\$	1,280	\$	500	\$	1,190	\$	1,470	\$	910	\$	7,650
19	CCB-6.5	Piney Creek - Cherry Creek to Parker Road, Reaches 1 to 2 (SEMSWA)	\$ 4,060	\$ 9	930 23%	\$	829	\$	39	\$	- :	\$-	\$	3	9\$	25	\$	75	\$ 1	50	\$ 12	5\$	125	\$	125	\$	125	\$	40	\$	-	\$	829
20	CCB-6.6	Piney Creek south of Orchard Rd., Reaches 4 to 5 (SEMSWA)	\$ 5,320	\$ 1,2	220 23%	\$ 1,	,220	\$	-	\$	75	\$ -	\$	7	5\$	150	\$	235	\$2	50	\$ 25	0\$	260	\$	-	\$	-	\$	-	\$	-	\$	1,220
21	CCB-7.4	McMurdo Gulch Reclamation (Castle Rock)	\$ 5,162	\$ 1,2	292 25%	\$ 1,	,121	\$	-	\$	-	\$ 1,1	21 \$	1,12	1\$	-	\$	-	\$-	'	\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	1,121
22	CCB-13.5.3	Cottonwood Creek Tributary - Shooting Area Tributary (CCSP)	\$ 720	\$	180 25%	\$	180	\$	-	\$	-	\$-	\$	-	\$	-	\$	-	\$-		\$ 18	0\$	-	\$	-	\$	-	\$	-	\$	-	\$	180
23	CCB-13.5.4	(IWSD)	\$ 2,496	\$ 6	24 25%	\$	624	\$	-	\$	-	\$ -	\$	-	\$	-	\$	-	\$-		\$-	\$	-	\$	624	\$	-	\$	-	\$	-	\$	624
24	CCB-21.1	of Pond (CCBWQA Only)	\$ 600	\$ 6	600 100%	\$	600	\$	120	\$	- :	\$ -	\$	12	0\$	480	\$	-	\$-	,	\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	600
25	CCB-21.3	Pond (Centennial Trail Portion)	\$ 448	\$	12 25%	\$	112	\$	-	\$	112	\$ -	\$	11	2 \$	-	\$	-	\$-		\$-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	112
26	CCB-22.1	(SEMSWA)	\$ 6,300	\$ 1,4	45 23%	\$ 1,	,264	\$	-	\$	50	\$ -	\$	5	0\$	75	\$	75	\$ 1	71	\$ 17	0 \$	170	\$	170	\$	170	\$	170	\$	43	\$	1,264
∠/ 28	Budget Categ	Jory - PRF Water Quality/Wetland Ponds	ase																							+		<u> </u>		<u> </u>			
		PRF Preservation, Acquisition, Lease of	¢ 1000	6 4 7	100/	¢ 4	000	¢		¢	100	¢		40		400		400	¢ -	00	¢ 40			•	400	-	400	•	400	6	400	¢	4 000
29		Land or Water	φ 1,000	φ ι,0	100%	φ 1,	,000	φ	-	φ	100	φ -	>	10		100	<b>P</b>	100	φ 1 1	00	φ 10	*	100	₽	100	<b>_</b>	100	-	100	*	100	\$	1,000
30		SUB-TOTALS											\$	2,75	6   \$	1,940	\$	1,935	\$ 1,7	20	\$ 1,60	0   \$	1,935	\$	1,930	\$	1,929	\$	1,935	\$	1,933	\$	19,613
51																																	

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_		November 2, 2023						PRF		Proposed	2024 Budget		2025		2026	2027	2028	2029 Budget	2030	2031	2032	2033	Total
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	Project	Project Title	То	tal <sup>1</sup>	Autho	rity	Authority		Design	Capital	Land	Total	Total		Total	Total	Total	Total	Total	Total	Total	Total	Total
8	NO.				Portio	on	Portion		•	•													
		OPERATIONS AND																					
32		MAINTENANCE								•									•				
33		Routine Category																					
34	OM-7	Reservoir Destratification	\$	400	\$ 4	100	100%					\$ 40	\$	40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 40	\$ 400
35	OM-14.1	PRF Weed Control	\$	103	<b>\$</b> 1	03	100%					\$ 13	\$	10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 10	\$ 103
36	OM-14.2	PRF Reseeding at CCSP	\$	45	\$	45	100%					\$5	\$	5	\$5	\$5	\$5	\$5	\$5	\$ 5	\$ 5	\$5	\$ 50
37	OM-14.3	PRF Mowing	\$	50	\$	45	100%					\$5	\$	5	\$5	\$5	\$5	\$5	\$5	\$5	\$ 5	\$5	\$ 50
38		SUB-TOTAL	\$	598	\$5	593						\$ 63	\$	60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 60	\$ 603
39		Operations Category																					
40	0 - 1	RDS Utilities	\$	720	\$ 7	/20	100%					\$ 72	\$	72	\$ 72	\$ 72	\$ 72	\$ 72	\$ 72	\$ 72	\$ 72	\$ 72	\$ 720
41	0 - 2	RDS Service Plan	\$	172	\$ 1	72	100%				1	\$ 13	\$	14	\$ 15	\$ 16	\$ 17	\$ 18	\$ 19	\$ 20	\$ 20	\$ 20	\$ 172
42	O - 3	PRF Emergency Repairs	\$	- :	\$	-	100%					\$ -	\$-		\$ -	\$ -	\$-	\$ -	\$-	\$ -	\$ -	\$ -	\$ -
43	0 - 4	Meteorological Station	\$	30	\$	30	100%					\$ 3	\$	3	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3	\$ 30
44		SUB-TOTAL	\$	922	\$ 9	922						\$ 88	\$	89	\$ 90	\$ 91	\$ 92	\$ 93	\$ 94	\$ 95	\$ 95	\$ 95	\$ 922
45		Restorative Category																					
46	OM -	Tree/Shrub Planting	\$	18	\$	18	100%					\$ 2	\$	2	\$2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 2	\$ 20
47	OM -	Fence Repair	\$	72	\$	72	100%					\$ 8	\$	8	\$8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 80
48	OM -	Shoreline / Bank Restoration			,														-				\$ -
49	-	Average Annual Cost	\$ 1	,755	\$ 1.7	755	100%					\$ -	\$ 1	95	\$ 195	\$ 195	\$ 195	\$ 195	\$ 195	\$ 195	\$ 195	\$ 195	\$ 1,755
50		Shop Creek	\$	17	\$	17	100%					\$ 17					1				1	1	\$ 17
51		Cottonwood Wetlands	\$	31	\$	31	100%					\$ 31											\$ 31
52		Tower Loop	\$	3	\$	3	100%					\$ 3					İ						\$ 3
53		East Shade Shelter	\$	3	\$	3	100%					\$ 3											\$ 3
54		East Boat Ramp	\$	16	\$	16	100%					\$ 16											\$ 16
55		Mountain/Lake Loop Shoreline	\$	65	\$	65	100%					\$ 65											\$ 65
56		Cherry Creek 12-mile	\$	8	\$	8	100%					\$ 8											\$ 8
57	OM -	Wetland Harvesting	\$	900	\$ 9	900	100%					\$ 90	\$	90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 900
58		SUB-TOTAL	\$ 2	,888	\$ 2.8	388						\$ 243	\$ 2	95	\$ 295	\$ 295	\$ 295	\$ 295	\$ 295	\$ 295	\$ 295	\$ 295	\$ 2.898
59		Rehabilitation Category		<u> </u>	, -											-							,
60	OM -						100%							-+									
61	0.01	SUB-TOTAL	\$	-	\$	_	10070					\$ -	<u>s</u> -		<u>s</u>	\$ -	<u>s</u> -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
62			Ψ		Ψ							<b>→</b> -	¥ -	+	<u>→</u>	¥ -	<b>₩</b> -	₩ <sup>-</sup>	₩ <sup>-</sup>	₩ <sup>-</sup>	<b>₩</b> -	¥ -	_ <del>▼</del>
63		SUB-TOTAL O&M										\$ 201	\$ 1	11	\$ 115	\$ 116	\$ 117	\$ 110	\$ 110	\$ 150	\$ 150	\$ 150	\$ 1.122
0.3												ψ <u>3</u> 54	φ 44 Φ 0.04		<u>y 440</u>	ψ 440	φ 441 φ ο ο 1 -	φ 440	φ 449	φ 400	φ 400	φ 430	φ 4,423
64		GRAND I UIAL										\$ 3,150	\$ 2,38	54	\$ 2,380	ə 2,166	\$° 2,047	<b> </b> \$ 2,383	\$ 2,3/9	\$ 2,379	<b>  \$</b> 2,385	<b> \$ 2,383</b>	\$ 24,036

### E F G H I J K L M N O P Q R S T U V W X Y CHERRY CREEK BASIN WATER QUALITY AUTHORITY TABLE 3 - SUMMARY OF 10 COMPLETED POLLUTANT REDUCTION FACILITIES FOR CONSIDERATION IN 2024 - 2033 CIP

Date:	November 2, 2023
Color Code:	Blue:
	*

	А	В	C	D	E	F	G	Н		J K	L	М	N	0	Р	Q		R	S		Т	U	V	r	W	Х	Y	Z	AA	AB		AC	AD	AE	AF	AG
1										T			CHI	ERRY C	REEK BA	SIN WATE	ER QUA	LITY AU	THORITY				~													
2										$T_{2}$	ABLE .	3 - SUM	MARY	OF I	COMP	LETED	POLL	UIANI	REDUC	TION	FAC	ILITIES	S													
3													FC	OR CC	DNSIDE	RATION	N IN 20	024 - 20	33 CIP																	
4		Date:	November 2, 2023																																	
5		Color Code:	Blue:	Project Completed																																
6			and a	Corrected to reflect final projec	a informa	tion, see o	comments it	or details																												
8	Projects taken fro	m Table 1. Project updated based on	best available information. Projects ha	ve best accounting information that include	udes total p	roject costs	of design, cons	struction, const	truction m	anagement, and	l permit cle	arance. Othe	r information	n such as s	tream length v	vas adjusted ba	ased on info	ormation note	d in comments	s on spread	sheet. O&	M costs wer	e adjusted t	o be simila	r cost baseline	. Projects that	were bid/cor	structed in ph	ises, were separated into	o those phases to fa	cilitate ad	justment to	2023 costs or	PRFs for WQ Analysis	·	
	Proj.	Project Title	Status	Description		De	esign Basis		cted				Treatme	en en		Cost Estima	te										wo	Unit Cost	Adj	justed to 2023 \$ (1	000\$)			2023 WQ Unit C	lost	Note
9	Designation					1			Loads			1	t	Ihe		(10003)			1				1		CCDWOA	CCDWOA	,	»pounu)	D:J					(3/poulu)		
				PRF Type	Quantity	Unit	Rate	Volume	R	ate	Total	Source	Remova	l Remo		Capital	Land .	Acquisition	Water	Caj	pital	O&M	Annual (	Cost @	Share	Share	w/o cost	w/cost sh	aring Date/Constructi	on ENR Factor	Cons	truction	Cost per mile	w/o cost sharing w/co	st sharing	
10	(1)			(4)		(5)	(0)	(7)	(	8)	(0)	(10)	(11)	ved	(12)	(14-)		(15)	Augment	Кер	lace	(19)	47	0	(%)	(\$)	sharing	(22)	Date		<u> </u>	.051		<u> </u>		(24)
	(1)	(2)	(3)	(4)		(5)	(6)	(7)		5)	(9)	(10)	(11)	(12)	(13)	(14a)	+	(15)	(16)	(	(/)	(18)	(19	,, 	(20)	(21)	(22)	(23)			+			<u> </u>	+	(24)
	CCB-5.7*	Cherry Creek Stream Stabilization at Eco Park (SEMSWA)	IGA w/SEMSWA for design in 2010 and construction in 2011/2012	Local stream stabilization	0.92	mi			100	lbs/mi 92	lbs/yr	Storm Flo	w 90%	83	lbs/year	\$ 4,75	6 \$	-	s	- \$	-	\$	2 \$	257	19%	\$905	\$ 3,10	6 \$	591 August 2012	1.58	\$	7,531	\$ 8,199	\$ 4,919 \$	936	1, 2
12		Eco-I aik (BEMB WIN)	2010 and construction in 2017/2012	(E 4050 R)													_			_								_			<u> </u>			<u> </u>		
	CCB-5 11*	Cherry Creek Stream Stabilization at	Conceptual design by UDFCD	Local stream stabilization	0.47	mi			100	lbs/mi 47	lbs/v	Storm Flor	w 90%	43	lbs/vear	\$ 1.10	13 5	_	s			s	1 \$	60	23%	\$255	\$ 14	0 5	326 January 2016	1.48		1 634	\$ 3.452	\$ 2,090 \$	483	1.2
13	CCB-5.11	Norton Farms (Parker)	identified priority 3	(L = 2500 ft)	0.47				100	105/111 47	105/91	30111110	w 9076	45	ios/year	3 1,10	,5 ,5	-	3	- 3	-	9	1 0	00	2370	3233	5 1,41	0	520 January 2010	1.40	1	1,054	\$ 3,432	5 2,050 5	405	1, 2
		Cherry Creek Stream Reclamation at	Project by Town of Parker and	Local stream stabilization																																
14	CCB-5.15*	Country Meadows (Hess Rd)	Douglas County	(L = 4200 ft)	0.80	mi			100	lbs/mi 80	lbs/yı	Storm Flo	w 90%	72	lbs/year	\$ 2,78	88 \$	-	\$	- \$	-	\$	2 \$	151	25%	\$695	\$ 2,11	4 \$	527 October 2014	1.51	\$	4,222	\$ 5,307	\$ 3,202 \$	798	1, 2
14			Prelimiinary design completed 2019.	Local stream stabilization																										-	+			<u> </u>	-+	
	CCB-5.17.1A*	Cherry Creek Stream Reclamation at KOA	Extension Requested by UDFCD	(L=1400 ft original, L=2000 ft with	0.38	mi			100	lbs/mi 38	lbs/yr	Storm Flo	w 90%	34	lbs/year	\$ 1,80	6 \$	-	s	- \$	-	\$	1 \$	98	18%	\$333	\$ 2,86	8 \$	529 July 2020	1.32	\$	2,378	\$ 6,278	\$ 3,776 \$	696	1, 2
15			and Parker in 2019	600 ft extension)							_	_	_				_			_								_			+			<u>↓                                      </u>		
16	CCB-6.4A *	Piney Creek Stream Reclamation - Reach 7	Request from UDFCD in 2014	Local stream stabilization (L = 2.340  ft)	0.44	mi			100	lbs/mi 44	lbs/m	Storm Flo	w 90%	40	lbs/year	\$ 3,76	5 \$	-	s	- \$	-	\$	1 \$	203	14%	\$512	\$ 5,08	2 \$	691 December 201	6 1.44	\$	5,422	\$ 12,234	\$ 7,319 \$	995	1, 2
10				(12 2,5 10 10)									-				+			-										_	+				+	
	CCB-6.4B.1 *	Piney Creek Stream Reclamation -	Request from UDFCD in 2014	Local stream stabilization	0.30	mi			100	lbs/mi 30	lbs/yr	Storm Flo	w 90%	27	lbs/year	\$ 2,89	6 \$	-	s	- \$	-	\$	1 \$	156	14%	\$394	\$ 5,72	6 \$	779 November 201	6 1.45	s	4,194	\$ 13,840	\$ 8,292 \$	1,128	1,2
17		Reach 6 upstream of Caley		(L = 1,600  ft)																												-				
																															1					
	CCB-6.4B.2 *	Piney Creek Stream Reclamation - Reach 6 Phase 2	Request from UDFCD in 2014	Local stream stabilization (I = 2.580  ft)	0.49	mi			100	lbs/mi 49	lbs/yr	Storm Flo	w 90%	44	lbs/year	\$ 2,65	i9 \$	-	S	- \$	-	\$	1 \$	143	14%	\$361	\$ 3,26	2 \$	443 November 201	7 1.40	\$	3,712	\$ 7,597	\$ 4,554 \$	618	1, 2
18		reach o'r nabe 2		(12 2,000 K)																																
		McMurdo Gulch Reclamation	Design in 2019. Construction in	Stream Reclamation																																
	CCB-7.2 *	(Castle Rock) 19/20 Project	2020	(L = 2,000 lf)	0.38	mi			100	lbs/mi 38	lbs/yı	Storm Flo	w 90%	34	lbs/year	\$ 1,15	56 \$	-	\$	- \$	-	\$	1 \$	63	25%	\$289	\$ 1,84	6 \$	462 February 2020	1.33	\$	1,532	\$ 4,045	\$ 2,447 \$	612	1, 2
19													_							-								-			+			<u> </u>	+	
	CCB-7.3 *	McMurdo Gulch Reclamation	Design in 2020, Construction 2021	Stream Reclamation	0.70	mi			100	lbs/mi 70	lbs/yr	Storm Flo	w 90%	63	lbs/year	\$ 1,94	10 S	-	s	- \$	-	\$	1 \$	105	24%	\$466	\$ 1,60	4 \$	400 November 202	1 1.14	s	2,204	\$ 3,145	\$ 1,890 \$	454	1, 2
20		(Castle Rock) 20/21/22 Project		(L = 3,/00 II)																																
		Happy Canyon Creek Upstream of I-							1.00																											
21	CCB-222*	25 (MHFD)	Requested in 2020	3000 If of stream reclamation	0.57	m			100	lbs/mi 57	lbs/yı	Storm Flo	w 90%	51	lbs/year	\$ 4,02	1 8	-	5	- \$	-	\$	1 8	216	9%	\$362	\$ 4,2;	2 8	381 May 2023	1.02	\$	4,114	\$ 7,240	\$ 4,330 \$	390	1, 2
					-1							-								_							-	_	\$/pound of					LI	L	\$/pound of
																													phosphorus (w	1			Stream	\$/pound of phosphorus	1	phosphorus (w/
																													participation a	t		1	Reclamation	(w/o cost		participation at
22																													historical limit	of		,	cost per fille	sharing)		historical limit
23				Minimum	= 0.30	)																					\$ 1,41	0	\$ 3.	53	\$	1,532	\$ 3,145	\$ 1,890		\$ 472
24				Maximum	= 0.92	2																					\$ 5,72	6	\$ 1,4	31	\$	7,531	\$ 13,840	\$ 8,292	1	\$ 2,073
25				Mean = Median	= 0.52	2																					\$ 2,97	5	\$ 7·	44	\$	3,498	\$ 6,771 \$ 6,750	\$ 4,064	1	\$ 1,016 1,012
20				Standard Deviation =	= 0.40	)																					\$ 1.47	, 7	\$ 3	47 69	\$ \$	1.864	\$ 0,739 \$ 3,581	\$ 2,137		\$ 1,013 \$ 534
28																											. ,.,		-					×		
29	BASIS FOR AN	ALYSIS:																																		
30	(A)	Unit cost of phosphorus removal base at 4% interest rate	ed on annualized cost of completed proj	ect over 35 years																																
32	(B)	All projects identified provide for add	titional phosphorus immobilization bev	ond minimum																																
33	(-)	requirements, unless noted otherwise.	· · · ····																																	
34	2023 CIP NOTI	S:																																		
35		<ol> <li>Corrected project information as n</li> <li>Updated O&amp;M Cost to \$2k per mi</li> </ol>	ioled in comments in spreadsheet.	outside of CCSP																																

Z AA AB AC AD AE AF AG								
	Z	AA	AB	AC	AD	AE	AF	AG



