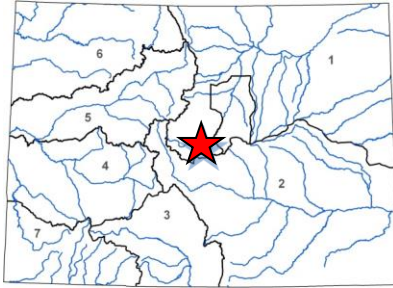




Water Plan Grant Application



| L O C A T I O N | |
|-------------------|-----------|
| County/Countries: | Statewide |
| Drainage Basin: | All |

| D E T A I L S | |
|-------------------------------|---|
| Total Project Cost: | \$249,500 |
| Water Plan Grant Request: | \$187,050 |
| Other CWCB Funding: | \$0 |
| Other Funding Amount: | \$44,650 |
| Applicant Match: | \$17,800 |
| Project Type(s): | Study |
| Project Category(Categories): | Agricultural |
| Measurable Result: | 5,000 Coloradans impacted by engagement activity, ~3M acres included in the studies |

Brink, inc. typically partners with university, government and agricultural industry to provide compliance and conservation assistance. Working cooperatively with stakeholders across disciplines they strive for outcomes that maximize private and public investments and expand agricultural knowledge and opportunity.

The proposed project would involve two statewide modeling projects - carbon sequestration and salinity management - with additional constituents to be modeled in the Grand Valley. Salinity modeling would examine how Natural Resources Conservation Service - Environmental Quality Incentive Program on-farm conservation practices affect salinity loading. In the Grand Valley, edge-of-field monitoring would also assess sources of and conservation practice benefits for selenium, iron and E-coli. The carbon-modeling project would examine how the same salinity/non-point source conservation practices affect carbon sequestration using the COMET model.

Funding Recommendation:

Staff is not recommending approval from the Agriculture category of funding the application score compared to the other applications received this round and feedback from the review committee.



Last Updated: June 2021

Colorado Water Conservation Board

Water Plan Grant Application

Instructions

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

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

| | |
|-------------------------------------|-----------------------------|
| Water Storage & Supply Projects | Matthew.Stearns@state.co.us |
| Conservation, Land Use Planning | Kevin.Reidy@state.co.us |
| Engagement & Innovation Activities | Ben.Wade@state.co.us |
| Agricultural Projects | Alexander.Funk@state.co.us |
| Water Sharing & ATM Projects | Alexander.Funk@state.co.us |
| Environmental & Recreation Projects | Chris.Sturm@state.co.us |

FINAL SUBMISSION: Submit all application materials in one email to

waterplan.grants@state.co.us

in the original file formats [Application (word); Statement of Work (word); Budget/Schedule (excel)]. Please do not combine documents. In the subject line, please include the funding category and name of the project.

Water Project Summary

| | | |
|--|---|------------|
| Name of Applicant | Brink, Inc. | |
| Name of Water Project | Modeling the Effects of Conservation Practices on Carbon Sequestration and Salinity Discharges from Irrigated Fields* | |
| *Note: | * Edge of Field losses of Se, Fe and E-coli will also be modeled in the Grand Valley. | |
| CWP Grant Request Amount | | \$187,050 |
| Other Funding Sources | <u>CO Corn Admin Committee</u> | \$ 18,000 |
| Other Funding Sources | <u>Soil Metrics, LLC (in-kind)</u> | \$ 14,000 |
| Other Funding Sources | <u>CAWA (in-kind)</u> | \$ 2,000 |
| Other Funding Sources | Grand Valley Water Users Association (GVWUA) | \$ 10,650 |
| Applicant Funding Contribution (in-kind) | | \$ 17,800 |
| Total Project Cost | | \$ 249,500 |



Last Updated: June 2021

| Applicant & Grantee Information | |
|--|-------------------------------------|
| Name of Grantee(s) | Brink, Inc. |
| Mailing Address | BOX 401, Erie, CO 80516 |
| FEIN | 80-0001516 |
| Organization Contact | Phil Brink |
| Position/Title | President / Environmental Scientist |
| Email | phil@brinkinc.biz |
| Phone | 720-887-9944 |
| Grant Management Contact | Phil Brink |
| Position/Title | same as above |
| Email | same as above |
| Phone | same as above |
| Name of Applicant (if different than grantee) | Same as Grantee |
| Mailing Address | NA |
| Position/Title | NA |
| Email | NA |
| Phone | NA |
| Description of Grantee/Applicant | |
| Provide a brief description of the grantee's organization (100 words or less). | |
| <p>Brink, Inc. provides compliance and conservation assistance to the agricultural industry. Within the conservation realm, we often partner with university, government and agricultural industry affiliates to address challenges and answer pressing questions that fill critical knowledge gaps which help agricultural producers improve competitiveness and avoid problems. Brink, Inc. provides a bridge by linking scientific theories with real world applications. We explore technologies and practices that clarify the extent of potential opportunities on-the-ground. Working cooperatively with other stakeholders across disciplines and professions, we achieve outcomes that maximize private and public investments and expand agricultural knowledge and opportunity.</p> | |



Last Updated: June 2021

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

| Type of Water Project (check all that apply) | |
|--|--------------|
| X | Study |
| | Construction |
| | Other |

| Category of Water Project (check the primary category that applies and include relevant tasks) | | |
|--|---|----------|
| | <p>Water Storage & Supply - Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity, multi-beneficial projects, water sharing agreements, Alternative Transfer Methods, and those projects identified in basin implementation plans to address the water supply and demand gap. <i>Applicable Exhibit A Task(s):</i></p> <p>Note: For Water Sharing Agreements or ATM Projects - please include the supplemental application available on the CWCB's website.</p> | |
| | <p>Conservation and Land Use Planning - Activities and projects that implement long-term strategies for conservation, land use, water efficiency, and drought planning. <i>Applicable Exhibit A Task(s):</i></p> | |
| | <p>Engagement & Innovation - Activities and projects that support water education, outreach, and innovation efforts. <i>Applicable Exhibit A Task(s):</i></p> | |
| X | <p>Agricultural - Projects that provide technical assistance and improve agricultural efficiency. <i>Applicable Exhibit A Task(s):</i> Task 1, Task 2, Task 3</p> | |
| | <p>Environmental & Recreation - Projects that promote watershed health, environmental health, and recreation. <i>Applicable Exhibit A Task(s):</i></p> | |
| | Other | Explain: |



Last Updated: June 2021

| Location of Water Project | |
|---|--|
| Please provide the general county and coordinates of the proposed project below in decimal degrees . The Applicant shall also provide, in Exhibit C, a site map if applicable. | |
| County/Countries | All Counties in Colorado except Denver, Broomfield |
| Latitude | 37° N to 41° N Latitude |
| Longitude | 102°03' W to 109°03' W Longitude |

| Water Project Overview |
|--|
| <p>Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for specifically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, and area of habitat improvements, where applicable. If this project addresses multiple purposes or spans multiple basins, please explain.</p> <p>The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, Other Funding Sources/Amounts and Schedule.</p> |
| <p>This application represents two distinct statewide modeling projects – Carbon and Salinity - with additional constituents to be modeled in the Grand Valley. The Salinity modeling project will examine how certain NRCS-EQIP conservation practices affect salinity discharges from irrigated fields. As a contractor to Brink, Inc., CSU's One Water Solutions Institute will lead the modeling component, and will co-lead with Brink, Inc. the interpretation of results, preparation of the final report and presentations of the findings. Conservation practices to be modeled include tillage reduction practices, irrigation efficiency improvements and vegetative buffers.</p> <p>In the Grand Valley, edge-of-field losses of Selenium, Iron and E-coli will also be modeled. CDPHE believes the levels of these constituents are elevated within the Colorado River as it runs through the Grand Valley. The modeling study will aid in understanding whether irrigated agricultural land is releasing significant levels of these constituents from the field edges.</p> <p>The Carbon modeling project will examine how the same conservation practices affect Carbon sequestration in irrigated fields. Fields in the South Platte, Republican, Arkansas, Rio Grande, Southwest, Lower Gunnison-Uncompahgre, Grand Valley and Yampa drainage basin will be included. As a contractor to Brink, Inc., Soil Metrics (created through CSU Ventures) will use the COMET model to execute the modeling component of the study, and lead preparation of the final report.</p> |



Last Updated: June 2021

| Measurable Results | | |
|--|--|--|
| To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable: | | |
| | New Storage Created (acre-feet) | |
| | New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Non-consumptive | |
| | Existing Storage Preserved or Enhanced (acre-feet) | |
| | Length of Stream Restored or Protected (linear feet) | |
| | Efficiency Savings (indicate acre-feet/year OR dollars/year) | |
| | Area of Restored or Preserved Habitat (acres) | |
| | Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement | |
| | Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning | |
| 5,000 | Number of Coloradans Impacted by Engagement Activity | |
| 78,000 fields, 3,000,000 acres | Other | Explain: Number of irrigated fields and corresponding irrigated acreage that will be included in the studies |

| Water Project Justification |
|---|
| <p>Provide a description of how this water project supports the goals of Colorado's Water Plan, the Analysis and Technical Update to the Water Plan, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).</p> <p>The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)</p> <p>The Water Plan presents the importance of establishing strategies to maintain the health of Colorado's waterways. All of the Basin Implementation Plans include goals for supporting healthy rivers and/or protecting and enhancing environmental recreational attributes.</p> <p>Increasing salinity in streams and irrigation water has a negative impact on fish and crops. Under Adaptive Innovation, the Water Plan Technical Update predicts a 13 percent decrease in gpcd (from 164 to 143 gpcd) compared to current conditions due to <u>conservation and efficiency</u>. While beneficial for water quantity demands, it is known that these practices along with recycling and re-use create more concentrated wastewater with a higher salinity concentration. It is not known how irrigation efficiency and other conservation practices implemented at the field level impact salinity discharges. Salinity concentrations in the South Platte River near Julesburg average about 1,200 mg/L. Salinity levels in the canal systems along the Arkansas River see an increase from 300 mg/L total dissolved solids (TDS) near Pueblo to over 4,000 ppm at the Colorado-Kansas border (IDS Group). Given the likely increase in salinity concentrations that will be seen in river basins across the state, it is important to understand whether increased agricultural irrigation efficiency and adoption of other conservation practices will have a positive, negative, or neutral impact on salinity in receiving surface and tributary groundwater.</p> |



Last Updated: June 2021

The Water Plan Technical Update indicates 700,000 acres of agricultural land could be lost by 2050 due to buy and dry and urbanization. The state water plan sets a goal of maintaining a “viable and productive agriculture industry” and each of the Basin Implementation Plans include goals with similar language. The Conservation practices that enhance carbon sequestration have the potential to increase agricultural producer income and help Colorado’s agricultural industry remain viable and productive. Related to the previously mentioned water plan goal, Colorado’s climate action plan calls for a 25% reduction in greenhouse gas emissions by 2025 and a 50% reduction by 2030.

Modeling Selenium (Se), Recoverable Iron (Fe) and E-coli losses from the edge of fields in the Grand Valley will bring clarity to whether agricultural land is releasing a significant quantity of any these constituents from the edge of irrigated fields. CDPHE believes the levels of these constituents are elevated within the Colorado River as it runs through the Grand Valley. The modeling study will also provide insights into how conservation practices – including more efficient irrigation practices and reduced tillage – affect edge of field discharges of Se, Fe, E-coli and Salinity.

The carbon sequestration modeling component of this project will examine how irrigation upgrades, reduced tillage and vegetative treatment strips sequester carbon when compared to the previous management regimes. This will fill an important information gap that will help quantify the carbon sequestration value of these practices, and inform whether it is commercially viable to encourage wider adoption of these practices by stacking a carbon credit payment on existing incentive programs.

Related Studies

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

This project will be complementary to the Colorado River Salinity Control Program. It will complement water quality studies that include Total Dissolved Solids (TDS) conducted by the United States Geological Survey (USGS) in the South Platte, Arkansas, Colorado, and Rio Grande basins and major tributaries. It will also complement the IDS salinity study in the lower Arkansas River and the Neirbo South Platte River Salinity study which found “salinity is a growing concern for irrigated agriculture and domestic water supplies.”

Previous CWCB Grants, Loans or Other Funding

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

POGG1 2020-2055 - 2019 Severance Tax Grant administered by CWCB entitled: Demonstrating Ag Progress on Water Quality: Modeling the Effectiveness of EQIP-Funded Conversation Practices.

Taxpayer Bill of Rights

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



Last Updated: June 2021

No TABOR related-constraints are known or anticipated.

| Submittal Checklist | |
|--|---|
| | I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract . |
| Exhibit A | |
| | Statement of Work ⁽¹⁾ |
| | Budget & Schedule ⁽¹⁾ |
| | Engineer's statement of probable cost (projects over \$100,000) |
| | Letters of Matching and/or Pending 3 rd Party Commitments ⁽¹⁾ |
| Exhibit C | |
| | Map (if applicable) ⁽¹⁾ |
| | Photos/Drawings/Reports |
| | Letters of Support (Optional) |
| | Certificate of Insurance (General, Auto, & Workers' Comp.) ⁽²⁾ |
| | Certificate of Good Standing with Colorado Secretary of State ⁽²⁾ |
| | W-9 ⁽²⁾ |
| | Independent Contractor Form ⁽²⁾ (If applicant is individual, not company/organization) |
| Water Sharing Agreements and Alternative Transfer Methods ONLY | |
| | Water Sharing Agreements and Alternative Transfer Methods Supplemental Application ⁽¹⁾ |

(1) Required with application.

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

Last Updated: June 2021

ENGAGEMENT & INNOVATION GRANT FUND SUPPLEMENTAL APPLICATION

Introduction & Purpose

Colorado's Water Plan calls for an outreach, education, public engagement, and innovation grant fund in Chapter 9.5.

The overall goal of the Engagement & Innovation Grant Fund is to enhance Colorado's water communication, outreach, education, and public engagement efforts; advance Colorado's water supply planning process; and support a statewide water innovation ecosystem.

The grant fund aims to engage the public to promote well-informed community discourse regarding balanced water solutions statewide. The grant fund aims to support water innovation in Colorado. The grant fund prioritizes measuring and evaluating the success of programs, projects, and initiatives. The grant fund prioritizes efforts designed using research, data, and best practices. The grant fund prioritizes a commitment to collaboration and community engagement. The grant fund will support local and statewide efforts.

The grant fund is divided into two tracks: engagement and innovation. The Engagement Track supports education, outreach, communication, and public participation efforts related to water. The Innovation Track supports efforts that advance the water innovation ecosystem in Colorado.

Application Questions

*The grant fund request is referred to as "project" in this application.

| Overview (answer for both tracks) |
|---|
| In a few sentences, what is the overall goal of this project? How does it achieve the stated purpose of this grant fund (above)? |
| The project will quantify and help improve our understanding of the interplay between select conservation practices and salinity losses from irrigated fields in Colorado. The project will also the quantify carbon sequestration value associated with the selected group of conservation practices, and will indicate how those values differ from the management practices that preceded them. |
| Who is/are the target audience(s)? How will you reach them? How will you involve the community? |
| Our audience is irrigated agricultural producers, municipalities, water conservancy districts, DNR and CDPHE staff, NGOs, academia and policy makers throughout the state. We will reach them through our reports with accompanying media releases, presentations at meetings and events that are attended by members of the individual groups, one or more webinars and publications. We will involve the communities by inviting stakeholder input. |
| Describe how the project is collaborative or engages a diverse group of stakeholders. Who are the partners in the project? Do you have other funding partners or sources? |
| This project will engage the diverse group of stakeholders indicated above. The partners include Colorado State University, Colorado Corn Growers Association and other agricultural organizations, Colorado Ag Water Alliance, Colorado Association of Conservation Districts, Grand Valley Water Users Association, water conservancy districts, and others. |



Last Updated: June 2021

| |
|---|
| Describe how you plan to measure and evaluate the success and impact of the project? |
| 1) Completion of the modeling work and release of findings as reports with executive summaries 2) Media release with broad carry by industry, associations, and news dispersion entities 3) Completion of outreach efforts and gathering input received. |
| What research, evidence, and data support your project? |
| The 2019 technical update indicates in all scenarios of growth and climate change agricultural producers face water shortages through the state. Population growth scenarios result in higher TDS in streams due to reuse, recycling and the elimination of flushing flows once planned reservoirs are completed. Climate change is associated with excess carbon dioxide in the atmosphere. Carbon dioxide is a greenhouse gas: a gas that absorbs and radiates heat. NOAA reports that Carbon dioxide levels today are higher than at any point in at least the past 800,000 years. Warmer temperatures drive increased crop consumptive use through greater ET, requiring increased water diversion from streams when available, and depleting soil moisture with resulting impacts to return flows. These realities indicate greater challenges ahead for growers and fish. |
| Describe potential short- and long-term challenges with this project. |
| Short and long-term, the challenges for industry and government will be in understanding how to utilize the findings from these studies to develop policy and implement actions that will maximize the opportunity for market driven solutions and minimize impacts to the economy, the environment and quality of life for Coloradans. |

| |
|---|
| Please fill out the applicable questions for either the Engagement Track or Innovation Track, unless your project contains elements in both tracks. If a question does not relate to your project, just leave it blank. Please answer each question that relates to your project. Please reference the relevant documents and use chapters and page numbers (Colorado's Water Plan, Basin Implementation Plan, PEPO Education Action Plan, etc.). |
|---|

| Engagement Track |
|--|
| Describe how the project achieves the education, outreach, and public engagement measurable objective set forth in Colorado's Water Plan to "significantly improve the level of public awareness and engagement regarding water issues statewide by 2020, as determined by water awareness surveys." |
| As mentioned, the education, outreach and public engagement measures to be utilized include media releases, presentations at conferences and meetings, webinars, and publications. |
| Describe how the project achieves the other measurable objectives and critical goals and actions laid out in Colorado's Water Plan around the supply and demand gap; conservation; land use; agriculture; storage; watershed health, environment, and recreation; funding; and additional. |
| This project will help sustain agricultural viability by providing a clearer understanding of whether irrigated agricultural land management practices can play a role in limiting salinity increases in streams and rivers through reduced salinity discharges from fields. Similarly, selenium, total recoverable iron and e-coli losses from fields will be modeled in the Grand Valley. The findings from these studies have implications for economic and environmental interests. This project will also help sustain agricultural |



Last Updated: June 2021

viability though determining whether conservation practices can meaningfully offset carbon dioxide releases and generate sellable carbon credits that could supplement agricultural producer incomes.

Describe how the project achieves the education, outreach, and public engagement goals set forth in the applicable Basin Implementation Plan(s).

The South Platte Basin Implementation Plan calls for efforts to garner community and political support to develop tools to sustain irrigated agriculture (1.9.1). The Yampa/White/Green BIP calls for protecting and encouraging “agricultural uses of water in the YWG Basin within the context of private property rights” (1.2.4). Sustaining, protecting, and promoting agriculture is major theme of the Colorado River BIP (16). The Gunnison BIP also emphasizes the goal to “discourage the conversion of productive agricultural land to all other uses within the context of private property rights” (2). The Rio Grande BIP also cites the need for “outreach events designed for *agricultural water users* [emphasis added], public officials, and community members” (160). The Arkansas River Basin BIP cites a goal of “sustaining a productive agricultural economy in the Basin that sustains viable rural, agricultural-based communities.” This project’s modeling results will lead to a better understanding of the market value of conservation practices from the perspectives of salinity control and carbon sequestration. Both represent potential sources of income to irrigated agriculture in Colorado.

Describe how the project achieves the basin roundtable’s PEPO Education Action Plans.

Education toward and support for the agricultural community is emphasized in many of the basin Education Action Plans. The South Platte Basin Roundtable and Metro Roundtable Education Action Plan 2016-2018 calls for the long-term goal of hosting events focused on agriculture (page 1). One of the themes of the Colorado River BIP is Ecosystem Health - Protect and Restore Streams, Rivers, Lakes and Riparian Areas. The Colorado River BIP states that the RT will continue to use the partnerships and communication channels developed through the process of conducting outreach on the BIP to continue to educate the public on the activities of the Basin Roundtable and regional and statewide water needs. The Arkansas Basin Roundtable PEPO Workgroup Education Action Plan Scope of Work Years 2016-2019 emphasizes partnership in Arkansas Basin specific education, including agriculture (1). The Southwest Basin Roundtable Public Education, Outreach, and Participation Education Action Plan includes a call to “coordinate and implement workshop(s) focused on on-farm efficiencies and improvement” (6). The presentations, publications, meetings, webinars, and other outreach will provide opportunities for water stakeholders to gain a better understanding of the potential solutions that irrigated agriculture may be able to provide pertaining to both salinity and atmospheric carbon.

Innovation Track

Describe how the project enhances water innovation efforts and supports a water innovation ecosystem in Colorado.

Describe how the project engages/leverages Colorado’s innovation community to help solve our state’s water challenges.



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**Colorado Water
Conservation Board**

Department of Natural Resources

Last Updated: June 2021

| |
|---|
| |
| Describe how the project helps advance or develop a solution to a water need identified through TAP-IN and other water innovation challenges. What is the problem/need/challenge? |
| |
| Describe how this project impacts current or emerging trends; technologies; clusters, sectors, or groups in water innovation. |
| |



Last Updated: June 2021

Colorado Water Conservation Board

Water Plan Grant - Exhibit A

Statement Of Work

| | |
|--|---|
| Date: | June 25, 2021 |
| Name of Grantee: | Brink, Inc. |
| Name of Water Project: | Modeling the Effects of Conservation Practices on Carbon Sequestration and Salinity Discharges from Irrigated Fields* |
| *Note | * Edge of Field losses of Se, Fe and E-coli will also be modeled in the Grand Valley. |
| Funding Source: | Agricultural, Engagement & Innovation, Environment and Recreation |
| Water Project Overview: | |
| <p>This application represents two distinct modeling projects. Brink, Inc. will coordinate both. The Salinity modeling project will examine how select NRCS-EQIP conservation practices affect salinity discharges from irrigated fields. Colorado State University's One Water Solutions Institute will be the contractor in charge of executing the modeling component of the project, and will co-lead with Brink, Inc. the analysis and interpretation of results, preparation of the final report and presentations of the findings. CSU's Edge-of-Field Conservation Tool will be used to quantify salinity load changes resulting from the implementation of selected EQIP-funded conservation practices. Conservation practices to be modeled include tillage reduction practices, irrigation efficiency improvements and vegetative buffers.</p> <p>In the Grand Valley, edge-of-field losses of Selenium, Iron and E-coli will also be modeled. CDPHE believes the levels of these constituents are elevated within the Colorado River as it runs through the Grand Valley. The modeling study will aid in understanding whether irrigated agricultural land is releasing significant levels of these constituents from the field edges. It will also shed light on how common irrigation and tillage improvement BMPs influence edge of field losses of the Se, Fe, and E-coli.</p> <p>The Carbon modeling project will examine how the same conservation practices affect Carbon sequestration in irrigated fields. Fields in the South Platte, Republican, Arkansas, Rio Grande, Southwest, Lower Gunnison-Uncompahgre, Grand Valley and Yampa drainage basin will be included. As a contractor to Brink, Inc., Soil Metrics (created through CSU Ventures) will execute the modeling and analysis component of the study using the Greenhouse Gas Inventory Tool (GGIT), a derivative of the COMET model. Soil Metrics will also co-lead preparation of the final report. The results will be distributed and presented at venues and could have important implications pertaining to how agriculture employs BMPs to help protect surface water quality and sequester carbon.</p> | |
| Education and Outreach: | |
| <p><u>Twelve (12) Outreach Actions will be accomplished.</u> Outreach will include a combination of meetings, presentations, webinars, podcasts and publications. At least one will be pursued in each of the major river basins with additional meetings in the Colorado and the South Platte River Basin. Some of these presentations will be at annual water conferences. Events will connect with stakeholders in the agricultural, M & I, recreational, and environmental sectors. Some events will be done in conjunction with Colorado Ag Water Alliance (CAWA).</p> | |

Last Updated: June 2021

Publications will be carried in agricultural outlets and other water focused media. Various formats including written, digital and social media will be used to communicate the findings of the two studies.

Project Objectives:

- Set up and complete the salinity and carbon modeling simulations and verify and validate outputs.
- Set up and complete the selenium, total recoverable iron and e-coli modeling simulations and verify and validate outputs.
- Prepare and release a final report with executive summary for each modeling study detailing project components, including the need, purpose, modeling features, management scenarios, narrative, tabular and graphic interpretation of findings, conclusions and any recommendations.
- Conduct outreach to convey findings of each study to all categories of water stakeholders.

Tasks

Task 1 – Prepare Dataset and Management Scenarios and Set up and Test Models

Description of Task: Prepare Dataset and Management Scenarios and run sample model simulations

Acquire data representing USDA Natural Resources Conservation Service (NRCS) EQIP-funded conservation practices installed in Colorado over the last 2 years and combine with existing data. Prepare individual field management scenarios for western slope counties and crops.

Method/Procedure:

- Acquire the conservation practice data via a FOIA request. Sort the data by conservation practice, county, acres implemented, and cost and confirm interpretive accuracy with NRCS. Combine new data with previously obtained data spanning from 2008 to 2018.
- Research and prepare individual field management scenarios for western slope counties and crops. Verify new management scenario assumptions with CSU and NRCS scientists in western slope counties. Prepare final dataset of management scenarios.
- Establish modeling output requirements for each model (Salinity discharge quantification, Carbon sequestration, and selenium, total recoverable iron and e-coli in the Grand Valley).
- Import 2019 and 2020 irrigated fields data by county for all counties in study.
- Make any changes needed to Salinity routines in SWAT to accommodate all basins.



Last Updated: June 2021

- Prepare SWAT routines for Selenium, Total Recoverable Iron and E-coli for Grand Valley irrigated land modeling.
- Prepare modeling programs to run test simulations.

Deliverables:

- Finalized dataset representing selected conservation practices installed between 2008 – 2020 in Colorado.
- Management scenarios for each of the predominant crops grown in each county included in the studies.
- Sample set of model test runs, review of outputs and adjustments as needed.

| Tasks |
|---|
| Task 2 – Run Models, Analyze Findings and Prepare Reports |
| Description of Task: |
| This task represents the modeling component of the project. The salinity routine developed for the Arkansas River Basin for the Soil and Water Assessment Tool (backbone program of the Edge of Field Conservation Tool) must be adapted to the other basin before running the salinity discharge simulations. Once the datasets and models are ready we will run the simulations, then review outputs and make changes where anomalies are identified. SWAT routines (code) must be prepared and validated for Selenium, Iron and E-coli modeling that will be done in the Grand Valley. The final model outputs will be analyzed and individual reports with findings and any recommendations will be prepared. |
| Method/Procedure: |
| <ul style="list-style-type: none">- Run modeling simulations using Edge of Field Conservation Tool (EoFCT) and COMET to model salinity discharges and carbon sequestration respectively. Run modeling simulations using EoFCT for the three additional constituents of interest in the Grand Valley. Review results. If needed, make modifications to model and re-run.- Re-run model simulations.- Compare and analyze respective output sets. This process may include meetings with NRCS, BoR, USGS, Grand Valley Water Users Association, and others to discuss findings regarding any specific challenges related to model interpretation and accuracy of findings.- Prepare report of modeling results with executive summary. |
| Deliverables: |



Last Updated: June 2021

- Three Reports; each detailing the findings of the respective modeling effort, with an executive summary and recommendations for each.
- Media releases (one for each report) and posting of reports online at CSU, Brink, Inc. and Soil Metrics websites and social media accounts. GVVUA and others may also post the results of the modeling of lands in the Grand Valley.

| Tasks |
|--|
| Task 3 – Outreach to Convey Findings of Modeling Simulations |
| Description of Task: |
| Twelve (12) Outreach Actions will be accomplished. Outreach will include a combination of meetings, presentations, webinars, podcasts and publications. Outreach actions will be accomplished in all of the major basins within the state with additional meetings in the Colorado and the South Platte River Basin. Some of these presentations will be at annual water conferences. Events will connect with stakeholders in the agricultural, M & I, recreational, and environmental sectors. |
| Publications will be carried in agricultural outlets and other water focused media. Various formats including written, digital and social media will be used to communicate the findings of the two studies. |
| Method/Procedure: |
| Presentations will be given at conferences, meetings and webinars. We will coordinate with CAWA and agricultural industry groups to give presentation at their gatherings, and we will solicit interest from water conservancy districts, conservation districts, Colorado Watershed Assembly, Colorado Association of Conservation Districts, NRCS and basin forums. |
| One (1) webinar and /or (1) podcast – one for each study – will be executed, along with a publication. |
| Deliverable: |
| <ul style="list-style-type: none">- Twelve (12) Outreach Actions.- List of outreach events and audience size and general makeup when known- Posting of reports and power point presentations on website(s)- Posting of publications on websites- Posting of podcasts on websites |

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

| Reporting Requirements |
|------------------------|
|------------------------|



Last Updated: June 2021

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

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

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

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

Payment

Payment will be made based on actual expenditures and must include invoices for all work completed. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

Costs incurred prior to the effective date of this contract are not reimbursable. The last 10% of the entire grant will be paid out when the final deliverable has been received. All products, data and information developed as a result of this contract must be provided to as part of the project documentation.

Performance Measures

Performance measures for this contract shall include the following:

(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Water Plan Grant Guidelines, the CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

(b) Accountability: Per Water Plan Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per Water Plan Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.

(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.



COLORADO

**Colorado Water
Conservation Board**

Department of Natural Resources

Colorado Water Conservation Board

Water Plan Grant - Exhibit B

Budget Template Instructions

**** Please select the most appropriate budget template for your project from the worksheet tabs below. A general budget template is provided, as well as templates for studies, construction, and engineering projects.****

**COLORADO**Colorado Water
Conservation Board

Department of Natural Resources

Colorado Water Conservation Board**Water Plan Grant - Exhibit B****Budget and Schedule****Prepared Date: 6/25/2021****Name of Applicant: Brink, Inc.****Name of Water Project: Modeling the Effects of Conservation Practices on Carbon Sequestration and Salinity Discharges from Irrigated Fields****Project Start Date: 10/1/2021****Project End Date: 10/1/2023**

| Task No. | Task Description | Task Start Date | Task End Date | Grant Funding Request | Match Funding | Total |
|-----------------|--|------------------------|----------------------|------------------------------|----------------------|------------------|
| 1a | Salinity Discharge Modeling, Analysis & Reporting | 10/1/2021 | 10/1/2023 | \$51,800 | \$25,600 | \$77,400 |
| 1b | Carbon Sequestration Modeling, Analysis & Reporting | 10/1/2021 | 10/1/2023 | \$98,200 | \$15,800 | \$114,000 |
| 1c | Se, Fe & E-coli Edge of Field Modeling; Grand Valley | 10/1/2021 | 10/2/2023 | \$31,950 | \$10,650 | \$42,600 |
| 2a | Outreach; Modeling Project and Results | 10/1/2021 | 10/1/2023 | \$4,600 | \$9,000 | \$13,600 |
| 2b | Outreach Expenses (mileage, lodging, conferences, etc) | 10/1/2021 | 10/1/2023 | \$500 | \$1,400 | \$1,900 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| | | | | | | \$0 |
| Total | | | | \$187,050 | \$62,450 | \$249,500 |



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

Colorado Water Conservation Board
Water Plan Grant - Detailed Budget Estimate
Fair and Reasonable Estimate

Prepared Date: 6/26/2021

Name of Applicant: Brink, Inc.

Name of Water Project: Modeling the Effects of Conservation Practices on Carbon Sequestration and Salinity Discharges from Irrigated Fields

EXAMPLE A: Study or Project Coordination

Task 1 - Prepare and Run Models, Analyze Findings, Prepare Reports

| Sub-task | Item | Hourly Rate | # Hours | Sub-total |
|----------|------|-------------|---------|-----------|
|----------|------|-------------|---------|-----------|

Edge of Field Salinity Discharge Modeling & Reporting

Modeling, Analysis, Reporting \$ -

SUB TOTAL

Carbon Sequestration Modeling & Reporting

Modeling, Analysis, Reporting

SUB TOTAL

Grand Valley Edge of Field Loss Modeling & Reporting; Selenium (Se), Iron (Fe) & E-Coli (TMDL constituents)

Modeling, Analysis, Reporting

SUB TOTAL

Task 2 - Educational Outreach

Outreach

Outreach presentations, webinars, meetings, podcasts, articles, etc

SUB TOTAL

Expenses

(Travel, lodging, meals, copies, printouts, conference reg.)

SUB TOTAL

TOTAL

| Item Cost | Item Quantity | Sub-total |
|-----------|---------------|-----------|
|-----------|---------------|-----------|

\$ 77,400.00 1.00 \$ 77,400.00

\$ 114,000.00 1.00 \$ 114,000.00

\$ 42,600.00 1.00 \$ 42,600.00

\$ 13,600.00 1.00 \$ 13,600.00

\$ 1,900.00 1.00 \$ 1,900.00

| Total | CWCB Funds | Matching Funds |
|-------|------------|----------------|
|-------|------------|----------------|

\$ 77,400.00 \$ 51,800.00 \$ 25,600.00

\$ 77,400.00 \$ 51,800.00 \$ 25,600.00

\$ 114,000.00 \$ 98,200.00 \$ 15,800.00

\$ 114,000.00 \$ 98,200.00 \$ 15,800.00

\$ 42,600.00 \$ 31,950.00 \$ 10,650.00

\$ 42,600.00 \$ 31,950.00 \$ 10,650.00

\$ 13,600.00 \$ 4,600.00 \$ 9,000.00

\$ 13,600.00 \$ 4,600.00 \$ 9,000.00

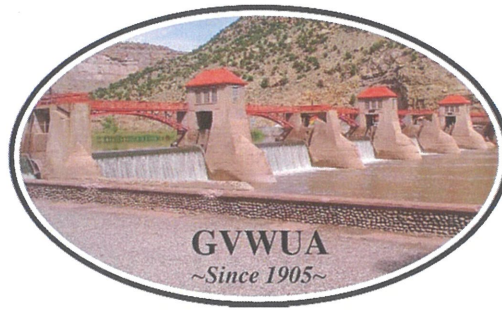
\$ 1,900.00 \$ 500.00 \$ 1,400.00

\$ 1,900.00 \$ 500.00 \$ 1,400.00

\$ 249,500.00 \$ 187,050.00 \$ 62,450.00

OVERALL TOTAL

\$ 249,500.00



**Grand Valley Water Users Association
Grand Valley Project
1147 24 Road, Grand Junction, CO 81505
Phone: 970-242-5065 Fax: 970-243-4871
www.GrandValleyWaterUsers.com**

July 20, 2021

Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

RE: Brink, Inc. Proposal to Model Field Salinity Discharges

Dear Colorado Water Conservation Board members:

Grand Valley Water Users Association (GVWUA) supports the referenced project, which will involve modeling conservation practices to determine how they affect carbon sequestration and edge of field salinity discharges. This project will also model discharges of Total Maximum Daily Load (TMDL) constituents of interest in the Grand Valley. Specifically, these include Selenium, Iron, and E-coli.

Colorado State University's Edge-of-Field Conservation Tool will be used to quantify salinity and TMDL constituent releases resulting from the implementation of selected EQIP-funded conservation practices. Conservation practices to be modeled include tillage reduction practices, irrigation efficiency improvements and vegetative buffers.

The GVWUA is interested in understanding how tillage, irrigation and vegetative buffers affect Selenium (Se), Recoverable Iron (Fe) and E-coli discharges from the edge of fields in the Grand Valley. CDPHE believes the levels of these constituents are elevated within the Colorado River as it runs through the Grand Valley. The modeling study will be useful in understanding whether irrigated agricultural land is releasing significant levels of these constituents from the edge of fields. It will also provide insights into how conservation practices – including more efficient irrigation practices and reduced tillage – affect edge of field discharges of Se, Fe, E-coli and Salinity.

The GVWUA is committing to provide \$10,650 in match funding for this project. We may solicit other local stakeholders to share in underwriting the committed match amount.

This project will help sustain agricultural viability by providing a clearer understanding of whether agricultural conservation practices are helping to protect water quality in streams and rivers through reduced pollutant discharges from fields. This has implications for environmental interests as well. The project will also help sustain agricultural viability by determining whether conservation practices can be used to meaningfully reduce carbon emissions from irrigated agricultural land, and offset other CO₂ releases to generate sellable carbon credits that could supplement agricultural producer incomes.

Please feel free to contact me if you have any questions about our support for the proposed project.

Sincerely,

A handwritten signature in blue ink, reading "Mark Harris". The signature is fluid and cursive, with the first name "Mark" and last name "Harris" clearly distinguishable.

Mark Harris
General Manager
Grand Valley Water Users Association