October 2, 2023

To: Ben Wade, Colorado Water Conservation Board (CWCB)

From: The Watershed Center (formerly Lefthand Watershed Oversight Group)

RE: CWCB Water Plan Grant – Watershed Days Project Final Report

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The purpose of this memo is to provide a final report on activities related to The Watershed Center's Watershed Days project. The project timeline is 07/10/2019 – 07/10/2024 and the total project budget is currently $93,000 with $42,500 from the CWCB Water Plan Grant (awarded in 2019).

1. Project Summary and How the Project Was Completed

Project Summary and Impact

The Watershed Days project has been instrumental in helping to engage Front Range communities in learning about watershed health and recovery through participation in a regional Watershed Days event. Participants across all years included watershed residents from diverse demographics (e.g. business, agriculture, recreation, environment, K-8, research, etc.) across four watersheds. The event, which was held five times over the course of the project timeline, included community celebrations of watersheds, volunteer data collection events, educational tours in the watershed, and other events designed to engage community members with their watershed. By giving volunteers opportunities to gain hands-on experience in watershed monitoring, this event helped raise awareness of and connect watershed residents to Front Range water issues. Volunteers participating in a habitat survey of their local creek, for example, were made aware that different types of riparian habitat are necessary to support wildlife and protect water quality for humans. Participants in an Ecosystem Tour learned about the many ways human action can help build resiliency into Colorado ecosystems by examining restoration projects and future planned actions. Importantly, the data collection aspect of these events also helped generate valuable, region-scale scientific data about the health and recovery of our watersheds.

The outcome of this project is a more engaged population of watershed stewards of all ages and backgrounds. Participants across all years and activities gained a better understanding of the work that goes into watershed protection and restoration, which means that in the future they will be better able to steward their own lands, speak confidently about stewardship needs and watershed issues with other community members, and support policies and programs that lead to a healthier watershed. Additionally, data resulting from volunteer collection events contributed to a set of holistic, regional watershed health data, analyzed and reported on annually by The Watershed Center. This information is and will be used by watershed scientists and land managers to identify priorities and take action on important watershed issues.

How the Project Was Completed

Each summer for the past five years, The Watershed Center hosted community engagement opportunities for volunteers to engage with their watershed through a series of place-based learning events and celebratory gatherings. Volunteers participating in these events had the opportunity to collect important watershed health data, learn from experts in watershed science, and gather to celebrate their connection to their local watersheds. Specific data collection protocols were developed for these events, which allowed volunteers to collect standardized data that was then analyzed by The Watershed Center staff and reported on in annual reports for community audiences.

In addition to these annual events, The Watershed Center also used protocols developed for these events to engage with watershed residents year-round. Protocols were used to develop a volunteer post-fire weed detection program, pilot a volunteer water quality monitoring program, and provide opportunities for local watershed students to collect data as part of their science classes. Each year, The Watershed Center staff re-engaged volunteers and community members through annual reports, designed to present data in an approachable and accessible format.

With each iteration of Watershed Days, new lessons were learned, and The Watershed Center staff adjusted to volunteer feedback, changing circumstances, and logistical challenges. As a result, Front Range Watershed Days was implemented a little differently each year, but maintained the same themes of community engagement and watershed science throughout.

2. Obstacles Encountered and Solutions

Obstacle Encountered	Solution
The pilot test of our Watershed Days event in 2019 helped highlight minor logistical issues with the main hosted event (e.g. differentiation between volunteer leader and sponsor, quantity of food needed at the celebration, method for tracking/surveying celebration attendees that did not participate in the bioblitz, and confusion with directions to remote field sites). The primary issue we encountered was related to timing of bioblitz activities with the celebration. We found hosting both the bioblitz and celebration on the same day did not allow enough time for as much data collection as we had hoped to achieve.	Modified event logistics to address minor issues with main event through planning efforts for 2020. Hosted additional bioblitz activities ahead of the event to provide additional data collection time, while still maintaining one culminating bioblitz/celebration day.

COVID-19 restrictions presented obstacles in 2020, because a key aspect of Watershed Days is a large community celebration.	Delayed celebration component of Watershed Days until 2021 but continued bioblitz component in 2020. Used small group sizes and outdoor setting to keep staff and participants safe. This approach allowed us to maintain momentum and interest among our community by providing the opportunity to participate in smaller-group data collection activities without the larger-scale event. This approach also allowed us to maintain consistency with year-to-year data collection efforts and avoid data gaps.
In 2021, Big Thompson Watershed, one of the four watershed groups we had previously partnered with for Watershed Days, was unable to participate.	Engaged with Estes Valley Watershed Coalition, who participated in previous years in a smaller capacity, to partner at full capacity in 2021. This solution allowed us to maintain a multiple-watershed approach to data collection.
Initial vegetation data collection methods were technically challenging for many volunteers.	The Watershed Center staff worked to adapt data collection activities to be more volunteer-friendly. In 2021, we opted to engage volunteers in an app-based vegetation survey instead of using the past year's vegetation survey datasheets, which volunteers found difficult to fill out without in-depth botanical knowledge. Using the app instead allowed volunteers to collect data without any prior experience with plants. They could also interact with the data in a more enjoyable, approachable format.
In 2021, we experienced waning interest in the celebration component of Watershed Days and noted that the logistical challenge of a single-day, widespread volunteer data collection event occasionally led to incomplete or inaccurate data.	For Watershed Days 2022, we focused on a single location, scaled back the number of activities available, and highlighted a single "ecosystem tour" to provide an all-ages, experiential learning opportunity. This approach allowed us to be more efficient in our preparations and better communicate to participants what to expect from the event.

	Additionally, we relied more heavily on year-round programs like Fire Followers, which allowed volunteers to collect data at their own pace and time and ensured a steady rate of participation.
The complexity and technical difficulty of water quality monitoring did not lend The Water Quality Detection Team task to be accessible as a community science program. We originally pursued developing such programs to monitor pH and heavy metal content with private landowners and Balarat Education Center, but were challenged by the level of effort, necessary equipment, and professional lab analysis required to maintain a robust water quality monitoring program with volunteers.	To incorporate Water Quality Detection into community science, we pivoted to a partnership with Lyons schools, where we used protocols previously created for Watershed Days events to work with middle school classrooms to study water quality through benthic macroinvertebrate surveys. These lessons involved both a data collection day and a lead-up scaffolding lesson so students could learn the necessary terms, concepts, and skills in a classroom setting. This approach allowed us to utilize detailed protocols with students and collect data intended to monitor for changes in water quality using benthic macroinvertebrate populations as an indicator.
Our scaled-back event in 2022 was well attended, but volunteers preferred certain events.	In 2023, we chose to focus in on our Ecosystem Tour and do away with elements of the celebration that did not seem to attract as many participants. This approach resulted in great turnout, and allowed participants to witness restoration projects firsthand, discuss the science that supported project designs, and interact with experts on the ground.

3. Confirmation of Matching Commitments

Below we provide a confirmation that all matching commitments have been fulfilled.

Match Funding Source	**Income (07/10/2019 -Present)**	**Expense (07/10/2019 - Present)**	**Status**
Colorado Division of Reclamation, Mining and Safety	$ 9,998.00	$ 9,911.20	Complete
Watershed Center Cash Match (From Stewardship Partners and Donors), as well as Boulder Community Foundation	$ 26,996.95	$ 26,996.95	Complete
In-Kind (Volunteers, Other Participating Watershed Coalitions, and Vendors)	$ 18,615.57	$ 18,615.57	Complete
TOTAL Match	**$ 55,610.52**	**$ 55,610.52**	**Complete**

4. Summary of Key Deliverables

Table 1 summarizes each project deliverable and presents associated materials**.**

Task	Deliverable	Materials
Task 1 – Pre-Event Coordination and Outreach	A Front Range Watershed Days Event Plan with all event details, including planning and preparation information, outreach and recruitment approaches, participant surveys, draft event itinerary, protocols, and lessons learned.	Event Plans
Task 2 – Water Quality Detection Team	Report of procedures and summary of collected data and documented responses (when applicable). All procedures developed will also be included in the Event Plan (Task 1 Deliverable).	Procedures - St. Vrain Basin Hazard Monitoring Procedures – Volunteer Water Quality Monitoring pilot program Monitoring Results – Volunteer Water Quality Monitoring pilot program
Task 3 – Weed Control Rapid Response Team	Weed map, report of procedures, and summary of collected data including quantified weed control actions (e.g. acres removed). All procedures developed will also be included in the Event Plan (Task 1 Deliverable).	Weed Map Procedures - Watershed Days Protocol (also included in Event Plans – Task 1 materials) Procedures – Fire Followers Quantified Weed Control Actions
Task 4 – Front Range Watershed Days Event	Event Summary Report including participant logs, participant	Event Summary Report

	surveys, event photos, and data collection sheets.	
Task 5 – Data Analysis, Report Development, and Re-Engagement	Illustrative and visually compelling final report summarizing the regional state of Front Range watershed health and recovery including scientific findings, lessons learned, and next steps.	2019 Watershed Days Report 2021 Watershed Days Report 2022 State of the Watershed Report

5. Additional Materials

Watershed Days Planning Committee Notes
June 17, 2019 Planning Meeting Notes
July 15, 2019 Planning Meeting Notes
September 29, 2020 Event Debrief Notes
August 4, 2021 Planning Meeting Notes
March 29, 2022 Planning Meeting Notes