Colorado Water Conservation Board

Water Supply Reserve Fund

Water Project Summary

Name of Applicant   Open Water Foundation

Name of Water Project

Basin Account Request Subtotal $120,000.00

Applicant Cash Match

Applicant In-Kind Match $10,000.00

Basin Requests

Sources of Funding

Applicant & Grantee Information

Name of Grantee: Open Water Foundation

Mailing Address: 320 East Vine Drive, Suite 212 Fort Collins CO 80524

FEIN: 462,676,240

Organization Contact: Steve Malers

Position/Title: Email: steve.malers@openwaterfoundation.org

Phone: 970-988-1447

Grant Management Contact: Steve Malers

Position/Title: Email: steve.malers@openwaterfoundation.org

Phone: 970-988-1447

Agency Information

Agency Type   Other

Current Assessment

Number of Shareholders or Customers

Number of Shares

Number of Taps

Average Monthly Water Bill

Annual Water Delivery (acre-feet)

Description of Grantee/Applicant

The 501(c)3 Open Water Foundation develops open source software and open data solutions to make better decisions about water.

Location of Water Project

Latitude   0.000000

Longitude   0.000000

Lat Long Flag

Water Source

Basins
Counties
Districts

Water Project Overview

Major Water Use Type
Type of Water Project
Scheduled Start Date - Design   10/23/2022
Scheduled Start Date - Construction   10/23/2022
Description

Measurable Results

0	New Storage Created (acre-feet)
0	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
0	Existing Storage Preserved or Enhanced (acre-feet)
0	New Storage Created (acre-feet)
0	Length of Stream Restored or Protected (linear feet)
$0	Efficiency Savings (dollars/year)
0	Efficiency Savings (acre-feet/year)
0	Area of Restored or Preserved Habitat (acres)
0	Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
0	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
0	Number of Coloradans Impacted by Engagement Activity
Other	

No additional measurable results provided

Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	September 30, 2022
Water Activity Name:	River Basin Information Websites for Big Thompson River, Saint Vrain Creek, and Clear Creek
Grant Recipient:	Open Water Foundation
Funding Source:	South Platte, Metro Basin WSRF
Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for. (PLEASE DEFINE ALL ACRONYMS).	
The Open Water Foundation (OWF) previously implemented the Poudre Basin Information website (https://poudre.openwaterfoundation.org/, see image below), which is a cross-jurisdictional community information resource. The website is used for education, to inform basin operations, as a source of data and information to evaluate and implement projects, and to facilitate fundraising.

The proposed project will continue to enhance the features of the software to provide additional information products, including additional historical and planning information. OWF will also implement basin information websites for the Big Thompson River, Saint Vrain Creek, and Clear Creek basins, to support organizations and citizens in those basins. Of particular importance is information about wildfires and flooding, leveraging the features implemented for the Poudre in response to the 2020 wildfires. The following image illustrates that flood warning information from the Larimer County flood warning system is available for the Poudre and Big Thompson Basins. Similarly, information from the Mile High Flood District is available for Saint Vrain Creek and Clear Creek.

Consistent with the OWF mission, deliverables will consist of open source software and open data to promote collaboration and efficiency.

This project aligns with the Colorado Water Plan (CWP) value of "an informed public with creative, forward-thinking solutions". | |

https://cwcb.colorado.gov/
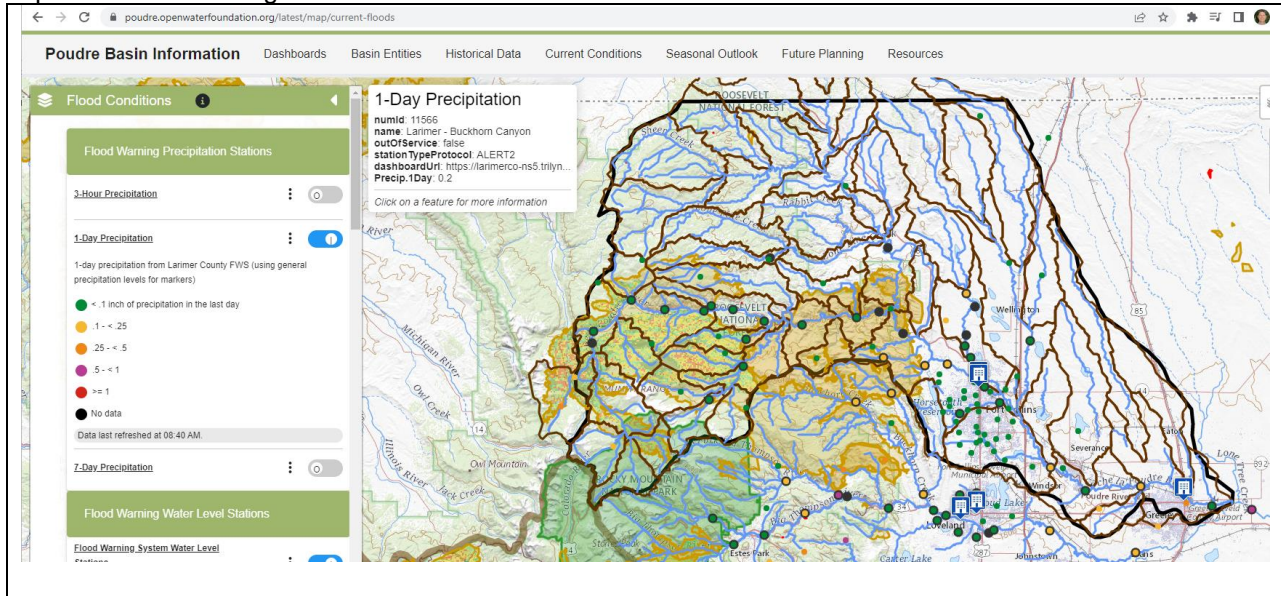
Objectives: (List the objectives of the project. (PLEASE DEFINE ACRONYMS).

The objectives of the project are as follows:

1. **Provide a cross-jurisdictional community information resource for water-related information for local river basins**. These websites allow anyone to quickly find information in an easy-to-use web application. Where necessary, datasets from individual entities (municipalities, special districts, ditches) are combined to provide integrated information. Documentation for datasets, maps, and map layers are provided to educate the public. Links to original data sources are provided to allow a deeper dive into the original data.

2. **Provide context on water issues**. Rather than just presenting data, the website provides documentation and visualizations that provide additional context to help understand water issues. For example, the county map is colored to show which counties export data to the basin, and which counties receive exports from the basin. Each basin has its own context.

3. **Support education to create an informed public and decision-makers**. In addition to supporting basic education on water issues, the websites can be used for a range of education programs and interactions, including water leaders programs, providing resources for staff, and to inform decision-makers including legislators, city councils, and boards and commissions.

4. **Support dialogue on water issues**. The websites can support dialogue on complex water issues, for example as input to community stakeholder meetings, and other gatherings.

5. **Inform operational decisions.** The datasets, context, and information products can be used to inform operational decisions. For example, the Poudre Runs Through It work group convenes a bi-weekly "Flows Coordination" group that uses the Poudre Basin Information website for input. More information is being enabled in response to feedback.

6. **Leverage public data.** Information websites can leverage public datasets, such as from the State, federal, and local sources, and increase access to those datasets. Information is presented to increase understanding of connected issues.

7. **Encourage organizations to publish more data.** Basin information websites illustrate the value of open data and point out cases where data are not being published. Over time, this tends to lead to more data being published in order to support education and community information.

8. **Memorialize analysis workflows.** Basin information websites require processing input datasets into information products that are more useful. Implementing automated workflows ensures that these analyses are memorialized and can be reused in other basins and for other projects. This increases efficiency and reduces costs for projects.

9. **Support Stream Management Plans and Basin Information Plans.** Basin information websites can support plans by providing access to datasets and information on the front end of planning, and by publishing the results of plans. The information can be updated and kept current so that plan activities can be tracked and evaluated.

10. **Support entities that do not have technical capability.** There are many water entities, including nonprofits that have been formed in response to wildfires, floods, or other stream restoration needs. These organizations often do not have the technical ability to create and maintain web-based information tools, which hinders their ability to coordinate and operate. OWF's efforts support these organization and the various communities within river basins. Each basin website can support many organizations.

11. **Innovate**. The work that OWF is doing on basin information websites is innovative. A relatively small amount of funding has large impacts because improved information and knowledge helps people and organizations evaluate challenges and propose solutions. OWF continues to invest in research and development to advance software tools that enable the implementation of innovative basin information websites.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 1 - (Name) Enhance Basin Information Website Software
Description of Task:
The Open Water Foundation (OWF) has helped to develop software that is part of Colorado's Decision Support Systems (CDSS) and migrated the software to open source projects, including the TSTool software that is used to automate time series processing and StateMod software that is used for water resources modeling for the Colorado Water Plan (CWP). OWF has also developed open source products including the GeoProcessor (similar to TSTool, but automates processing spatial data) and the InfoMapper, which is the web application used for basin information websites. This core set of tools allows OWF to process datasets and create basin information websites. One current focus is to create an "InfoMapper Builder" application that will allow anyone to create their own website. This tool can be used to allow individuals and organizations to maintain and enhance information websites. This task focuses on enhancing the software tools to enable new information products for website users. Because the work is highly technical, OWF expects to fund this work through in-kind labor match and match from other technical projects.
Method/Procedure:
OWF uses an agile methodology for software development, which consists of a high-level roadmap for each product and an online backlog of issues maintained in open source GitHub repositories. Work items have a description, size, priority, and type (e.g., enhancement or bug fix). Staff coordinate their work to make progress on the work backlog and release updates to the software and website content. A version is used for software products, with releases made on the OWF website. Software projects are maintained in open source GitHub repositories, for example https://github.com/OpenWaterFoundation/owf-app-infomapper-ng for the InfoMapper and the OpenCDSS TSTool software (https://opencdss.state.co.us/opencdss/tstool/). Examples of new visualizations and data integrations from this project include: - Additional water quality data integration.   - Climate data integration.   - Transbasin diversions   - Historical and real-time reservoir data   - Display project locations and information from the CWP datasets   - Other, as listed in repository issues   New software features will first be tested on the Poudre Basin Information website.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Ongoing work will be accessible in GitHub repositories for each software product. Software installers are available from the OpenCDSS website (https://opencdss.state.co.us/) and OWF's software website (https://software.openwaterfoundation.org/). The work in progress and products released at milestones are accessible to the public. The deliverables from this project are used to implement basin information websites for this project and other projects.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The software repositories above are accessible to the CWCB and form the basis of deliverables. In addition, OWF will provide a project report to summarize access to the deliverables.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 2 – Big Thompson Basin Information Website
Description of Task:
The Big Thompson Basin Information website will be implemented similar to the Poudre Basin Information website. Where appropriate, statewide and shared datasets will be used to configure maps and other information products. OWF typically splits large datasets into smaller datasets for basins in order to ensure that software performs well and mobile data plans are not burdened. Basin-specific datasets and information products will be added in order to provide basin-specific context that is relevant to the entities and people in the basin. For example, this requires tracking down municipal water utility boundaries and adding map content for local organizations such as stream coalitions. The initial work done on basin-specific datasets often leads to longer tasks that may extend beyond the initial project due to the timelines of other projects and are tracked in repository issues (see Method/Procedure below). An example of an activity that requires persistence is working with municipal utilities to acquire public access to datasets. The result will be a Big Thompson Basin Information website that is similar to the Poudre Basin Information website, with context-specific information. Improvements to shared datasets and information products will be shared with other basin websites. Local context includes coordinating with important organizations in the basin, such as the Little Thompson Watershed Coalition, Big Thompson Watershed Coalition, Northern Colorado Fireshed Collaborative, and Northern Water. Basin information websites provide foundational resources and it is desirable to have consistency between basins so that implementation can be efficient and high-level website users (such as South Platte Basin Roundtable members) are able to efficiently navigate between websites. OWF expects to learn from each basin and apply lessons learned to other basin websites. OWF does not expect to implement or be part of a time-consuming and expensive stakeholder outreach program. We are not opposed to being involved in such efforts; however, the level of effort estimated for this project envisions that most of staff time will be spent on technical work, not public meetings for outreach, etc.
Method/Procedure:
The agile methodology that was described for Task 1 is also applied to the implementation of basin information websites. However, rather than focusing on specific software enhancements and bug fixes, the procedure focuses on acquiring and processing datasets into useful information products such as maps, and creating documentation that explains the information. OWF creates a public GitHub repository for each basin implementation website, which allows tracking work backlog. For example, the Poudre Basin Information issue tracker (https://github.com/OpenWaterFoundation/owf-infomapper-poudre/issues) has over sixty open issues related to specific datasets and information products, some of which will impact other basins. The Poudre Basin Information website configuration will be copied to the Big Thompson website configuration as a start. The Poudre configuration will then be modified to focus on the extent, context, and specific datasets of the Big Thompson Basin (Water District 4). Automated workflows that process datasets for the website will be updated for the Big Thompson. In some cases, workflows can process data for the entire state and in other cases basin-specific datasets must be handled. OWF will deploy the website to the cloud as soon as a minimum viable product is ready and will coordinate with key stakeholder organizations in the basin to gain feedback and make adjustments. For

https://cwcb.colorado.gov/

Tasks
example, interactive website maps may be more useful than maps in PDF reports, and organizations may have specific requirements that allow the maps to be linked from those organizations. OWF prefers to use public datasets and works with organizations to publish their datasets in the cloud to facilitate use and integration. Once the initial product has reached a level of sufficient capabilities, the website address can be published in organization newsletters, social media, and other media to encourage more use. Additional enhancements are made and new versions are released, consistent with the agile methodology described previously. In most cases it is possible to identify important datasets and information products that should receive higher attention and project resources. Some lower-priority activities and those that require a longer timeline, may not be completed within this project. One of OWF's goals is maintain activities across projects so that identified issues can eventually be resolved.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Ongoing work will be accessible in GitHub repositories for datasets and website configuration. For example, see the repository for the Poudre Basin Information website (https://github.com/OpenWaterFoundation/owf-infomapper-poudre). The basin information websites will be publicly accessible throughout (and after) the project.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The GitHub repositories for the datasets and website, and the deployed website, will be accessible to the CWCB and forms the basis of deliverables.   In addition, OWF will document in the project reports how to access to the deliverables.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 3 – Saint Vrain Creek Basin Information Website
Description of Task:
The implementation of the Saint Vrain Creek Basin Information website will be similar to that of the Poudre and Big Thompson sites discussed previously, with the following and other considerations: • The overall basin includes Saint Vrain Creek and Left Hand Creek (Water District 5). • Key stakeholder organizations in the basin include the Saint Vrain and Left Hand Water Conservancy District (SVLHWCD), Left Hand Watershed Center, and Northern Colorado Fireshed Collaborative. • Flood recovery, monitoring, and nexus with wildfires and forest health are important. • Similar to the Poudre, the basin has diverse water resources issues, including water use for municipal, industrial, and agricultural activities, and environmental and recreational uses • The datasets for the previously-completed stream management plan could be utilized in the website. • Potential funding sources include a recent SVLHWCD mill levy increase and Natural Resources Conservation Service (NRCS) PL-566 grant.
Method/Procedure:
See Task 2.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
See Task 2. Similar deliverables will be produced for the Saint Vrain Creek Basin.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
See Task 2. Similar deliverables will be produced for the Saint Vrain Creek Basin.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 4 – Clear Creek Basin Information Website
Description of Task:
The implementation of the Clear Creek Basin Information website will be similar to that of the Poudre, Big Thompson, and Saint Vrain sites discussed previously, with the following and other considerations: • The overall basin includes Clear Creek (Water District 7) and important features such as Standley Lake can also be included. • Key stakeholder organizations in the basin include the Clear Creek Watershed Foundation, Clear Creek Watershed & Forest Health Partnership, Clear Creek Integrated Water Management Team, and Northern Colorado Fireshed Collaborative. • The nexus with wildfires, forest health, and flood monitoring is important. • This basin has a nexus with both the South Platte (SBBRT) and Metro Basin Roundtables (MBRT) – the MBRT has expressed an interest in seeing a basin information website implementation for a metro basin, especially to justify WSRF funding • An ongoing integrated water management plan (IWMP) could benefit from a basin information website. • The website can integrate with the Mile High Flood District (MHFD) flood warning system and other programs. The MHFD flood warning system uses the same software as the Larimer County system. • Funding sources include the IWMP effort and many projects for municipal entities in the basin.
Method/Procedure:
See Task 2.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
See Task 2. Similar deliverables will be produced for the Clear Creek Basin.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
See Task 2. Similar deliverables will be produced for the Clear Creek Basin.

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
Task 5 – Project Management
Description of Task:
This task includes administrative project management, including invoicing and reporting. Technical project management including coordination of technical work is expected to occur within the technical tasks described previously. To simplify project accounting, OWF expects this task to be funded with in-kind funding.
Method/Procedure:
OWF will submit invoices at the end of each month where substantial work has occurred, will submit progress and final reports as required, and will comply with other CWCB grant requirements.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Internal project management artifacts including budget tracking spreadsheet.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Project management deliverables including invoices, budget tracking, and progress and final reports.

Budget and Schedule
Exhibit B **- 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. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements

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

Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee'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.

Payments

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. 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.

The CWCB will pay the last 10% of the entire water activity 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 water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

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

(b) Accountability: Per the 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 the 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.