

## Request for Proposals: Telemetered Data Project

**Date of Issuance:** 7/28/2023

### Background

The [California Water Data Consortium](https://cawaterdata.org) (Consortium) is a 501(c)3 non-profit organization founded in 2019 to support state agency implementation of the Open and Transparent Water Data Act (AB 1755, Dodd). The Consortium works actively with the state and partners to advance innovative projects that demonstrate the value of open and transparent water data.

The Consortium is currently advancing several projects, including a Groundwater Accounting and Data Reporting Project, an Urban Water Reporting Project, and a Telemetered Data Project. Read more about the Consortium's projects at: <https://cawaterdata.org/projects/>

### Project Background and Objectives

As the state experiences increasingly prolonged and intense weather events, more timely, accurate water data is critically needed by state and local agencies to ensure the effective administration of water rights; support water management decisions across a range of users, including urban water suppliers, agricultural water managers and users, environmental and community-based organizations, and other users; and maintain ecological requirements. Developing more accurate data requires working with hydrologists, data scientists, local and state governments, and community members to better understand: (1) what data are necessary to support the administration of existing water rights, environmental protections, and community needs; (2) the costs of establishing a telemetered water monitoring network within a watershed, including an evaluation of the trade-offs associated with different spatial and temporal resolutions of the monitoring network; (3) the legal and technical considerations associated with a telemetered water monitoring network (e.g., integration of telemetric reporting with existing networks, etc.); and 4) potential mechanisms to support instrumentation.

In July 2021, the Water Board received \$30 million to modernize the data systems used by the Division of Water Rights. In part, this funding established the Updating Water Rights Data (UPWARD) Project, which will develop a modern geospatial data management system to replace older systems (e.g., eWRIMS and RMS) which contain data on stream flows, water usage, water diversions, storage, rights, and fees. The new data system will also support data from telemetered water measurement devices to provide more up-to-date information about water diversions and water availability.

In response to the establishment of UPWARD, the Water Board created the Telemetry Research Unit within the Division of Water Rights. The Telemetry Research Unit will conduct a pilot project involving water telemetry studies in 1-3 California watersheds. The pilot project will be used to 1) assess how telemetry can empower local groups to adaptively manage their water resources, 2) refine the technical tools that the Division of Water Rights uses to assess water diversions and flows, 3) establish recommendations for how data will be submitted to and represented within UPWARD, and 4) advise the Water Board on regulation updates and technology upgrades.

The California Water Data Consortium will be developing recommendations on telemetered water monitoring networks to inform plans for a pilot project of the Telemetry Research Unit. The Consortium has issued this request for proposals (RFP) to conduct the project tasks outlined below. These project tasks will be completed in close coordination with Consortium staff. Additional project tasks, including

communications support and facilitation services, will be solicited in complementary RFPs. Individuals or groups bidding for this RFP are encouraged to look for and consider bidding for subsequent RFPs, as appropriate.

### Specific Project Tasks

The Contractor will work closely with Consortium staff to complete the following tasks:

#### **Task 1. Telemetry Report Part One: Analyses of telemetered water monitoring in various California regions, other states, and countries.**

1.1 Contractor shall conduct an analysis of telemetered water monitoring within California regions, other states, and other countries focusing on best practices. This analysis shall include identifying features of the monitoring network, including data collection, ownership, management, and data structures. The analysis should include an overview of: monitoring networks attributes (including density and location selection); data measurement technologies; equipment types; installation, maintenance, calibration, and certification processes; monitoring costs (including set-up and ongoing maintenance, calibration, and certification); monitoring ownership (i.e., who is the responsible party for the equipment and data management); monitoring management (i.e., who performs or supports the monitoring actions); data sharing mechanisms (including whether data is “pushed” or “pulled” and any intermediary data storage or management considerations [e.g., monitoring hub gateways, contractor-hosted websites]); data contents and formats; metadata contents and formats; data and metadata management including data and metadata quality assurance; and data publishing and visualization (including an emphasis on identity protection, data aggregation, and data usability).

This task includes identification and analysis of case studies, interviews, or other analyses to identify best practices associated with the development of telemetered water monitoring. Analyses may include, but are not limited to, literature review; interviews, including interview protocol development, identifying suitable interview candidates, scheduling and performing 10-15 interviews with experts, and recording and synthesis of the information from the interviews; and other analyses, as deemed appropriate. No travel budget is included for this portion of the work. All interviews and analyses for Task 1 will be conducted virtually.

The Contractor shall meet with Consortium staff, and where appropriate external advisors, throughout the task to provide updates and solicit feedback on developing work products. Consortium staff, and where appropriate external advisors, may submit comments or questions (either during meetings or in writing) during report development. The Contractor shall respond to the comments and questions before the report is accepted for final approval.

**Task 1 Deliverable 1:** Contractor shall synthesize and summarize the findings from Task 1.1 into Telemetry Report Part One. Report delivery shall include report copyedit, formatting, graphic design (as needed), and compliance with State Water Resources Control Board document accessibility requirements. The Contractor will submit a draft report to the Consortium. The final report will incorporate feedback from up to three rounds of major edits and revisions. The Contractor shall respond to the comments and questions before the report is accepted for final approval. The Contractor should prioritize work under this task before proceeding to subsequent tasks, unless

directed otherwise. No travel budget is included for this portion of the work. All interviews and analyses for Task 1 will be conducted virtually.

**Task 2. Telemetry Report Part Two: Evaluate California watershed(s), engage stakeholders, and summarize findings.**

2.1 The Contractor shall conduct interviews with water leaders and, as possible, analyze watershed characteristics to identify potential California watersheds in which to conduct a telemetered water pilot study. Wherever possible, interviews and analysis should include questions on key watershed features and hydrology; water management activities; critical management issues; existing water telemetry (including monitoring locations, data and metadata contents and formats, and who is conducting the monitoring); identities of water right holders and key stakeholders; water diversions, uses, and storage; and potential challenges to piloting a telemetered water monitoring network in potential watersheds. Based on this analysis, the Contractor and the Consortium will recommend at least one and up to three watersheds for a telemetered water monitoring pilot project. Interviews, analyses, and selection rationale shall be summarized in a memo that includes an initial list of key stakeholders within the top recommended watershed.

This task includes identification and analysis of potential watersheds and their suitability as a site to conduct a telemetered water monitoring pilot. Analysis may include, but is not limited to, interviews and/or spatial/statistical analyses of existing data networks, diverters, or other watershed characteristics that could inform the suitability of a watershed to serve as a site to conduct a telemetered water monitoring pilot. This analysis should include: water management activities; critical management issues; an overview of existing water telemetry (including monitoring locations, data and metadata contents and formats, and who is conducting the monitoring); critical management issues that should be considered in a water monitoring network; identities of water right holders and key stakeholders; diversions, uses, and storage; instream flow requirements and other environmental factors; and recommended monitoring design. Site suitability will be assessed with Consortium staff and the Telemetry Research Unit, and may include a variety of factors, including, but not limited to watershed size and complexity, number and willingness of interested parties, existing data structures, existing diversion structures and other monitoring networks, or other factors. Interviews will include interview protocol development, identifying suitable interview candidates, scheduling and performing 10-15 interviews with experts, and recording and synthesis of the information from the interviews; or other analyses, as deemed appropriate. No travel budget is included for this portion of the work. All interviews and analyses for Task 2.1 will be conducted virtually.

**Task 2 Deliverable 1:** The contractor will develop a memo in partnership with Consortium staff recommending at least one and up to three watersheds for a telemetered water monitoring pilot project. The Contractor will write the memo, including copyedit, formatting, graphic design (as needed), and compliance with State Water Resources Control Board document accessibility requirements. The Contractor will submit a draft of the memo to the Consortium. The final memo will incorporate feedback from up to three rounds of major edits and revisions. The Contractor shall respond to the comments and questions before the memo is accepted for final approval. No travel budget is included for this portion of the work. All interviews and analyses for Task 1 will be conducted virtually.

2.2 In partnership with the Consortium and the Telemetry Research Unit, the Contractor shall decide on the most highly recommended watershed and develop a draft report that provides an overview of

the watershed, its key features, and hydrology. This report will serve as the basis for stakeholder outreach and the development of telemetered water monitoring network recommendations. This analysis should include water management activities; an overview of existing water monitoring stations and telemetered sites (including monitoring locations, data and metadata contents and formats, and who is conducting the monitoring); critical management issues that should be considered in a water monitoring network; identities of water right holders and key stakeholders; water diversions, uses, and storage; instream flow requirements and other environmental factors; and other factors potentially important for telemetered water monitoring network design. The report should include watershed maps, including locations of existing diversion or other monitoring sites, major water rights holders, critical watershed management areas, other information relevant to the development of telemetered water monitoring networks. This report should include an initial set of recommendations for monitoring network design developed based on learning from Task 1 and understanding of local conditions developed in this task. Initial recommendations should be designed to facilitate conversation and feedback on the following topics: 1) data architecture, including data reporting formats and protocols and data transmission methods and protocols; 2) monitoring equipment, including equipment types, trade-offs around modification of existing networks versus the development of new monitoring networks, including easements, etc., and network operation and maintenance; 3) potential funding structures, including state-contracted monitoring networks, locally-funded monitoring networks, and hybrid approaches; and 4) other considerations, including network spatial density, potential monitoring locations, data reporting formats and protocols, software options, and other concerns or opportunities. Recommendations should consider the critical water management issues within the watershed and should highlight both the challenges, as well as benefits to developing telemetered water monitoring networks. These recommendations will be modified and refined based on feedback from local data reporters, water managers, interested parties, and others.

**Task 2 Deliverable 2:** In partnership with Consortium, the Contractor will develop a report that provides an overview of the watershed, its key features, and hydrology. This report should include an initial set of recommendations for monitoring network design developed based on learning from Task 1 and understanding of local conditions developed in this task. The Contractor will write the report, including copyedit, formatting, graphic design (as needed), and compliance with State Water Resources Control Board document accessibility requirements. The Contractor will submit a draft of the report to the Consortium. The final report will incorporate feedback from up to three rounds of major edits and revisions. The Contractor shall respond to the comments and questions before the report is accepted for final approval. No travel budget is included for this portion of the work. All interviews and analyses for Task 2.2 will be conducted virtually.

- 2.3 The Contractor will identify key stakeholders in the recommended watershed identified in Task 2.2. Development of the stakeholder list will be based on research, interviews, or other methods. The Contractor will receive input on the stakeholder list from the Consortium and the Telemetry Research Unit. The Contractor with support from Consortium staff and a professional facilitator shall develop an outreach plan and engage stakeholders and using the draft watershed-specific report developed in Task 2.2:
- a. Solicit feedback on critical water management issues in the watershed.
  - b. Learn about and solicit feedback from major diverters and stakeholders in the watershed on existing data collection and reporting methods, challenges, and opportunities for piloting a telemetered water monitoring network.
  - c. Ground-check collected information on existing data systems currently functioning in the watershed.

- d. Solicit feedback on recommendations for a telemetered water monitoring network for the watershed.
- e. Develop trust with stakeholders.
- f. Assemble contact list of stakeholders who are willing to participate in pilot study water telemetry monitoring, including both those who are and are not currently conducting water telemetry.

**Task 2 Deliverable 3:** The Contractor will develop a stakeholder list identifying key stakeholders and interested parties in the identified watershed. Development of the stakeholder list will be based on research, interviews, or other methods. The Contractor will develop the stakeholder list, including copyedit, formatting, graphic design (as needed), and compliance with State Water Resources Control Board document accessibility requirements. The Contractor will submit a draft of the stakeholder list to the Consortium. The final stakeholder list will incorporate feedback from up to three major rounds of edits and revisions. The Contractor shall respond to the comments and questions before the final stakeholder list is accepted for final approval. No travel is budgeted for this deliverable. Any interviews or analyses conducted for this deliverable will be done virtually.

The Contractor will work with a professional facilitator to develop an outreach plan that will guide stakeholder engagement, including but not limited to the tasks outlined in Task 2.3 and deliverables outlined under Task 2 Deliverable 4.

**Task 2 Deliverable 4:** Plan, scope, host, and conduct follow-up for up to two watershed-specific stakeholder meetings. These meetings will be used to solicit feedback on existing monitoring infrastructure, challenges, and opportunities; critical water management issues in the watershed; and recommendations for a telemetered water monitoring network in the watershed. These meetings will be in-person meetings in California and will include travel. In partnership with the Consortium, the Contractor will be responsible for outreach to participants, meeting material development, including material design and formatting, and meeting follow up.

2.4 The Contractor will write the Telemetry Report Part Two. Part Two will summarize findings from stakeholder engagement activities (Task 2.3) and integrate those findings with the watershed research (Task 2.2) to develop recommendations for expanding the water telemetry network within the recommended watershed(s). Recommendations should include an assessment of 1) data architecture, including data reporting formats and protocols and data transmission methods and protocols; 2) monitoring equipment, including equipment types, trade-offs around modification of existing networks versus the development of new monitoring networks, including easements, etc., and network operation and maintenance; 3) potential funding structures, including state-contracted monitoring networks, locally-funded monitoring networks, and hybrid approaches; and 4) other considerations, including network spatial density, potential monitoring locations, data reporting formats and protocols, software options, and other concerns or opportunities. Recommendations should consider the critical water management issues within the watershed and should highlight both the challenges, as well as benefits to developing telemetered water monitoring networks. Throughout this report part, discussion should consider technological infrastructure and stakeholder support.

**Task 2 Deliverable 5:** The Contractor will write the Telemetry Report Part Two. Part Two will summarize findings from stakeholder engagement activities (Task 2.3) and integrate those findings with the watershed research (Task 2.2) to develop recommendations for expanding the water telemetry network within the recommended watershed(s). The Contractor will write the report, including copyedit, formatting, graphic design (as needed), and compliance with State Water Resources Control Board document accessibility requirements. The Contractor will submit a draft of the report to the Consortium.

The final report will incorporate feedback from up to three rounds of major edits and revisions. The Contractor shall respond to the comments and questions before the report is accepted for final approval.

Throughout the project, the Contractor shall meet regularly (weekly or biweekly) with Consortium staff and coordinate with Consortium staff and other Consortium contractors on tasks and deliverables.

Project Funding and Budget

- This is an hourly, time and materials contract not to exceed \$513,000.
- Task estimates have been provided below. However the proposal may propose different task totals, so long as the proposal does not exceed \$513,000.

<b>Task</b>	<b>Total</b>
Task 1	\$81,000.00
Task 2.1	\$111,000.00
Task 2.2	\$128,000.00
Task 2.3	\$141,000.00
Task 2.4	\$52,000.00
<b>Total</b>	<b>\$513,000.00</b>

- Covered travel for task 2.3 for the in-person watershed meetings will be negotiated and added to the contract after the locations have been identified.
- This project is funded through the State Water Resources Control Board (SWRCB) and the Contractor will be subject to contract passthrough provisions as required by SWRCB.
- The Contractor is expected to provide monthly progress reports and monthly invoices using Consortium-provided reporting templates or Contractor templates with Consortium approval.

RFP and Project Timeline

- *RFP Timeline:*
  - August 11<sup>th</sup> - Deadline to submit questions
  - August 18<sup>th</sup> - Deadline to submit proposals
  - August 31<sup>st</sup> - Anticipated notification date to the RFP awardee
- *Project Timeline:*
  - This work is expected to start 10/2/2023 and must be completed by 12/31/2024.

<b>Task</b>	<b>Deliverable</b>	<b>Planned Start Date</b>	<b>Planned Completion Date</b>
<b>Task 1</b>	<b>Task 1, Deliverable 1a:</b> Draft Report One	10/2023	2/01/2024
	<b>Task 1, Deliverable 1b:</b> Final Report One		1 month after receipt of final round comments from Consortium

<b>Task 2.1</b>	<b>Task 2, Deliverable 1a:</b> Draft memo of potential watersheds for telemetered data pilots	10/2023	2/01/2024
	<b>Task 2, Deliverable 1b:</b> Final memo of potential watersheds for telemetered data pilots		Two weeks after receipt of final round of comments from Consortium
<b>Task 2.2</b>	<b>Task 2, Deliverable 2:</b> Draft report providing a watershed overview and local telemetered water monitoring network recommendations	02/2024	04/01/2024
<b>Task 2.3</b>	<b>Task 2, Deliverable 3:</b> Stakeholder outreach list	02/2024	04/01/2024
	<b>Task 2, Deliverable 4:</b> Stakeholder meetings	04/2024	08/01/2024
<b>Task 2.4</b>	<b>Task 2, Deliverable 5a:</b> Draft Report Two synthesizing findings from Task 2	04/2024	09/01/2024
	<b>Task 2, Deliverable 5b:</b> Draft Report Two synthesizing findings from Task 2		1 month after receipt of final round comments from Consortium

### Minimum Contracting Team Requirements

Any contacting team applying for this work must:

- Certify that they are not currently under suspension or debarment by any state or federal government agency, and that neither Contractor or any of its proposed subcontractors are tax delinquent with the State of California.

Have a minimum of seven years of experience:

- Designing and implementing complex projects that include feedback from a range of individuals with a diversity of experience, backgrounds, and interests.
- Developing technical reports that can serve as the basis for project implementation, ideally in stakeholder-driven processes.

Have a minimum of five years of experience:

- Developing and working with water diversion data networks and/or telemetered data networks.
- Conducting mixed method analysis around technical water management topics.
- Reviewing and synthesizing findings from scientific literature, case studies, interviews, and other analyses to develop actionable recommendations.

Additional requirements, include:

- Excellent communication skills in both written and oral format.
- Experience working in California water management.
- Experience developing technical reports and recommendations in stakeholder-driven processes.
- Experience working in collaborative processes that include multiple contractors jointly developing work products.



- Ability and willingness to submit timely narrative and budget reports to comply with SWRCB reporting requirements.

The Contracting team will be selected based on the above criteria, as well as project team experience, expertise, and overall value.

#### Instructions for submission of proposals

- Please submit proposals via email to [amiller@cawaterdata.org](mailto:amiller@cawaterdata.org) no later than COB **August 18<sup>th</sup>, 2023**.
- The Consortium anticipates conducting interviews and outreach to potential contracting teams the weeks of August 21<sup>st</sup> – August 31<sup>st</sup>. Please have staff available to respond to requests during that time.
- A submission must include:
  - Description of the company and biographies for key personnel who would work on this project.
  - A narrative about the key personnel's relevant experience in related areas of work.
  - A proposal narrative outlining approach and key personnel for each project task outlined above.
  - A budget with hourly rates and a total per task.
  - A description of 2 – 3 comparable projects including:
    - Project Scope
    - Key roles with explanation of specific team member contributions
    - Links to two or more similar technical reports developed in-house. The proposal should clearly identify the role key personnel played in the development of each of each example provided.
    - At least one external reference for each example provided