



**WaterSMART-Applied Science Grants  
for Fiscal Year 2022  
(NOFO No. R22AS00165)**

**Mission Creek Subbasin  
Water Quality Model  
for the Coachella Valley Salt and  
Nutrient Management Plan**

**Submitted by:**

Coachella Valley Water District  
P.O. Box 1058  
Coachella, CA 92236

## TITLE PAGE

**Project Title:** Mission Creek Subbasin Water Quality Model for the CV-SNMP

**Applicant Name:** Coachella Valley Water District

**Applicant Address:** 75515 Hovley Lane East, Palm Desert, CA 92211

**Project Manager:** Zoe Rodriguez del Rey  
zrodriguezdelrey@cvwd.org  
(760) 398-2661 ext. 2389

## TABLE OF CONTENTS

<b>SECTION</b>	<b>PAGE NO.</b>
<b>1. TECHNICAL PROPOSAL AND EVALUATION CRITERIA.....</b>	<b>1</b>
1.1 Executive Summary .....	1
1.2 Technical Project Description .....	2
1.3 Project Location.....	8
1.4 Evaluation Criteria.....	8
Evaluation Criterion A—Benefits to Water Supply Reliability (40 points) .....	8
1.4.2 Evaluation Criterion B—Need for Project and Applicability of Project Results (20 points).....	12
1.4.3 Evaluation Criterion C—Project Implementation (20 points).....	13
1.4.4 Evaluation Criterion D—Dissemination of Results (10 Points).....	16
1.4.5 Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points).....	17
1.4.5.1 Sub-criterion No. E1. Climate Change .....	17
1.4.5.2 Sub-criterion No. E2. Disadvantaged or Underserved Communities	19
1.4.5.3 Sub-criterion No. E.3. Tribal Benefits.....	20
<b>2. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE .....</b>	<b>20</b>
<b>3. REQUIRED PERMITS AND APPROVALS .....</b>	<b>22</b>
<b>4. PROJECT BUDGET.....</b>	<b>22</b>
<b>5. LETTERS OF SUPPORT AND LETTERS OF PARTICIPATION .....</b>	<b>26</b>
<b>6. OFFICIAL RESOLUTION .....</b>	<b>26</b>
<b>7. REFERENCES.....</b>	<b>27</b>

## 1. TECHNICAL PROPOSAL AND EVALUATION CRITERIA

### 1.1 Executive Summary

**Date:** April 14, 2022      **Applicant:** Coachella Valley Water District  
**City:** Palm Desert, CA      **County:** Riverside      **State:** California

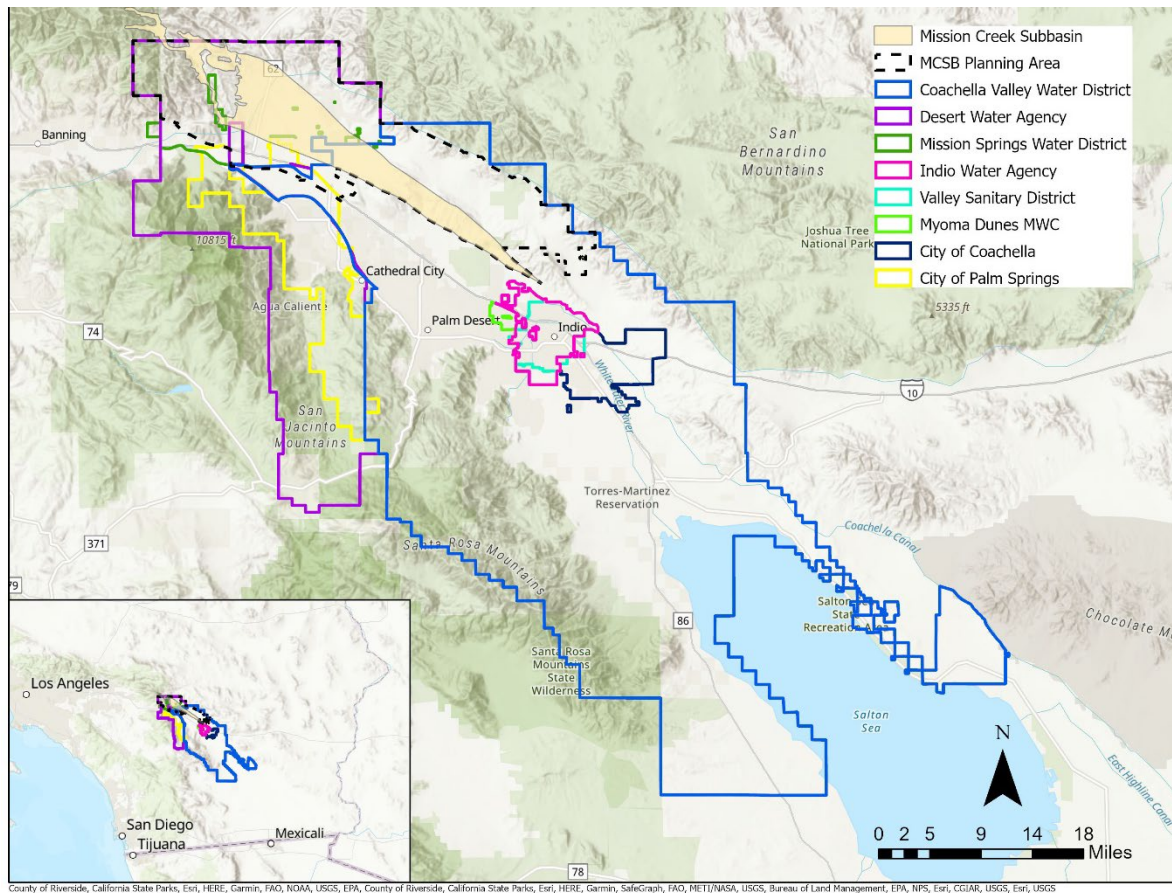
Coachella Valley Water District (CVWD) is partnering with seven other water and wastewater agencies to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP). This Mission Creek Subbasin (MCSB) Water Quality Model Project (Project) will develop water management tools to model and forecast Nitrate and Total Dissolved Solids (N/TDS) in the MCSB as part of the CV-SNMP effort. The location of the MCSB and its associated planning area in Coachella Valley are shown in **Figure 1**. The planning area includes the MCSB and portions of the Desert Hot Springs Subbasin, which are areas served by groundwater pumped from the MCSB. WaterSMART Applied Science grant funds will be used to complete work under six tasks. These tasks include characterization of the N/TDS Loading to the MCSB, characterization of the current groundwater quality, delineation of management zones and description of metrics to characterize beneficial use protection, development of a technical approach to forecast N/TDS concentrations, and development of the N/TDS forecasting tools and a baseline scenario that forecasts groundwater quality conditions into the future. Upon completion of the Project, the model and baseline scenario will be available for use by the CV-SNMP Agencies to run future scenarios, quantify the relative effectiveness of potential future CV-SNMP mitigation strategies, update the CV-SNMP, and ultimately manage water quality in the MCSB to support decision making and improve water resource resiliency in the Project area.

***The length of time and estimated completion date for the proposed project.***

The Project will begin July 1, 2022 and be completed by February 14, 2025.

***Whether or not the proposed project is located on a Federal facility.***

The Project is not located on a Federal facility.



**Figure 1: Mission Creek Subbasin Water Quality Model Project Location**

## 1.2 Technical Project Description

**Applicant Category:** CVWD is a Category A applicant, a water district in California.

**Detailed project description:** CVWD is partnering with seven other water and wastewater agencies to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP). CVWD and its partners in this effort – the City of Coachella, City of Palm Springs, Desert Water Agency, Indio Water Authority, Mission Springs Water District, Myoma Dunes Mutual Water Company, and Valley Sanitary District – are collectively referred to as the CV-SNMP Agencies. The MCSB Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project) will develop a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the MCSB of the Coachella Valley Groundwater Basin. The water quality model will be developed and the baseline scenario will be run. Upon completion of the Project, the model and baseline scenario will be available for use by the CV-SNMP Agencies to run future scenarios, quantify the relative effectiveness of potential future CV-SNMP management strategies, update the CV-SNMP, and ultimately manage water quality in the MCSB to protect beneficial uses.

Salt and nutrient management planning is included in California’s Recycled Water Policy (Policy) to help address the potential for recycled water use to impact groundwater quality

and to promote basin-wide management of salts and nutrients in groundwater. The Policy includes the intent that salts and nutrients from all sources be managed on a basin-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses through development of Salt and Nutrient Management Plans (SNMP). An approved SNMP is required to support subbasin management, which includes artificial replenishment of groundwater with Colorado River water and planned development of recycled water resources needed to meet the water needs of the MCSB. The MCSB plan area is projected to have significant population growth. The most recent Southern California Association of Governments projections forecast an 84% population increase in the MCSB from 47,883 persons in 2016 to 88,310 persons in 2045 (CVWD, DWA, MSWD, 2021).

During development of the *2022 Mission Creek Subbasin Alternative Plan Update* (CVWD, DWA, and MSWD, 2021) a three-dimensional groundwater flow model initially developed for the MCSB in 2013 was updated and calibrated to evaluate groundwater conditions and forecast water management scenarios for the MCSB. The *2022 Mission Creek Subbasin Alternative Plan Update* is a comprehensive water management plan developed to meet the water needs of the MCSB and sustainably manage groundwater resources. The updated Mission Creek Subbasin Model (MCSB Model) will be expanded through this Project to include groundwater quality fate and transport modeling.

Task 1: Project Management and Meetings consists of general project management, administration, and meetings. The technical aspects of the Project will be completed in five subsequent tasks:

- Task 2: Characterize N/TDS Loading to the Mission Creek Subbasin
- Task 3: Characterize Current Groundwater Quality
- Task 4: Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection
- Task 5: Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater
- Task 6: Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario.

The Project tasks are described in the following sections, including the technical nature of Tasks 2 through 6.

#### Task 1: Project Management and Meetings

Task 1 will be completed throughout the duration of the Project. This task will include communication, coordination, and scheduling of meetings between the CV-SNMP Agencies, TAC, Consultant Team, and CV-SNMP stakeholders. This will include preparation and execution of progress meetings within the team. Budget tracking, progress reporting, and invoicing will be completed monthly under this task.

#### Task 2: Characterize N/TDS Loading to the Groundwater Basin

Task 2 will quantify the individual components of historical and current N/TDS loading to groundwater in the MCSB. The characterization of N/TDS loading will be performed for a recent historical period to the present to characterize seasonal variations and long-term trends in loading and generate estimates of N/TDS loads in the vadose zone. The length of the historical period will be defined as part of this task, but should be long enough to characterize the N/TDS loads in the vadose zone.

- *Data to be Collected / Reviewed:* The following historical data will be collected to build the historical model:
  - Existing groundwater-flow model data/estimates of historical recharge volumes over the model calibration periods
  - Groundwater-quality data from wells in adjacent, upgradient basins to characterize the quality of subsurface inflow
  - Water quality of subsurface inflow from the surrounding mountains and hills and streambed recharge
  - Groundwater artificial replenishment
  - Wastewater and recycled water
  - Septic systems data
  - Applied irrigation water
- *Task 2 Approach:* The Consultant team will review and evaluate the existing data available for the MCSB through a series of tables, maps, and data graphics. A historical representation of the N/TDS loading and associated N/TDS concentrations water recharging the MCSB will be estimated based on data where possible and on assumptions where necessary. This information will be distributed to the Technical Advisory Committee (TAC), established during kickoff of the CV-SNMP update process, for review and comment.

### Task 3: Characterize Current Groundwater Quality

Task 3 will characterize N/TDS concentrations in MCSB groundwater as of 2021 (i.e. current conditions). This will include an analysis of the time history of N/TDS concentrations in groundwater that led to current conditions. A draft recommendation will be prepared to describe the periods of record and the types of tables, maps, and data graphics that can be prepared to characterize current N/TDS concentrations in groundwater.

- *Data to be Collected / Reviewed:*
  - Well information (Well ID (State Well Number); Well owner; Well name; Well use; Well status; XYZ coordinates; Well screen depth intervals)
  - Historical groundwater-elevation data at wells
  - Historical water-quality data at wells for the following constituents (TDS; Nitrate; Major cations: K, Na, Ca, Mg; Major anions: Cl, SO<sub>4</sub>; Total alkalinity: HCO<sub>3</sub>, CO<sub>3</sub>, OH)
- *Task 3 Approach:* This data will be collected from the CV-SNMP Groundwater

Monitoring Network, as this network of wells is designed to be representative of Subbasin conditions. Where historical data is lacking in some wells, additional groundwater quality data will likely be necessary for this characterization using additional wells with available data beyond the established network of wells. As will be done with the historical data, a set of tables, maps, and data graphics will be developed by the Consultant team following evaluation of the current conditions in the MCSB. This information will be presented to the TAC for comment and review.

#### Task 4: Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection

Task 4 will delineate draft groundwater management zones; describe the existing and potential future beneficial uses of groundwater within each management zone; the beneficial-use thresholds for N/TDS concentrations in each management zone; and define the draft ambient water quality (AWQ) metric in each management zone that will be used to estimate ambient water quality conditions and assess beneficial use protection.

- *Data to be Collected / Reviewed:*
  - The delineation of draft management zones will be based on: Hydrogeology of the basin; Location and magnitudes of N/TDS loading; Location of hydrologically vulnerable areas; Current understanding of groundwater-flow directions and the fate and transport of N/TDS; Current N/TDS concentrations in groundwater; Existing and potential future beneficial uses of groundwater
  - Numeric regulatory standards and guidance published by the State of California on the numeric water-quality thresholds that protect the beneficial uses
  - The AWQ metric in each management zone. An AWQ metric is a method to estimate “ambient” N/TDS concentrations for groundwater in each management zone. The purpose of AWQ metrics is to enable the comparison of ambient N/TDS concentrations in groundwater versus the beneficial-use thresholds and water quality objectives, and thereby indicate the state of beneficial use protection. The appropriate AWQ metric may be different in different management zones based on the size of the management zone, the beneficial users and uses within the management zone, the location and magnitude of N/TDS loading, and the fate and transport of N/TDS.
- *Task 4 Approach:*
  - Management zones will be delineated both spatially and vertically throughout the basin. This information will be presented to the TAC for comment and review.
  - Existing and potential beneficial uses and users of groundwater will be



described along with the associated beneficial-use thresholds for N/TDS concentrations. Beneficial-use thresholds will be based on the numeric regulatory standards and guidance.

- The AWQ metric will be used to estimate the current ambient water quality conditions and assess beneficial use protection.
- The results of this task will provide the necessary information to assess the current and future protection of the beneficial uses of groundwater, and support interpretation of results in all future tasks under this proposed Project. This information will be presented to the TAC for comment and review.

#### Task 5: Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater

Task 5 will define the most appropriate and efficient technical approach to forecast N/TDS concentrations in groundwater using the MCSB Model. This will include evaluating and likely performing data-processing routines for the MODFLOW model for the MCSB. The groundwater flow model was updated as part of the *2022 Mission Creek Subbasin Alternative Plan Update* for California's Sustainable Groundwater Management Act (SGMA) compliance and will be leveraged for this task. An appropriate planning period will be defined for water quality forecasting. Procedures for simulating vadose zone processes and feedback processes will be established. Procedures for verifying the N/TDS forecasting tools will be developed. Procedures for post-processing and displaying the model results will be created.

- *Data to be Collected / Reviewed:* Model reports from the *Mission Creek Subbasin Alternative Plan Update* will be reviewed. The existing MODFLOW model will be modified to incorporate water quality fate and transport modeling using the MT3D-MS package. The water-quality model results for N/TDS concentrations in groundwater will be at the same spatial and temporal resolution as the MODFLOW model results for groundwater flow. The MODFLOW input files will be evaluated in order to develop automated routines for assigning N/TDS concentrations to recharge terms.
- *Task 5 Approach:*
  - The existing MODFLOW model will be evaluated and a technical approach will be developed to include the following new capabilities:
    - Assign a volume and N/TDS concentrations to each individual source of recharge
    - Simulate the vadose zone processes (e.g. transport and chemical transformations)
    - Simulate the feedback cycles associated with groundwater pumping, potable and recycled water use, and return flows
    - Simulate the fate and transport of N/TDS with a cascading

- approach from the MCSB Model to the Indio Subbasin Model
  - Calculate the volume-weighted N/TDS concentrations for each management zone by layer
  - Calculate N/TDS concentration at wells
  - Simulate verifiable historical groundwater-quality conditions
  - Simulate several CV-SNMP scenarios with modified input files that represent potential CV-SNMP management projects and programs
- An appropriate planning period will be defined for water quality model forecasting. Procedures for verifying the N/TDS forecasting tools and post-processing model results will be developed. The results of this task will create a workplan for the adaptation of the MCSB Model to simulate groundwater quality fate and transport. This information will be presented to the TAC for comment and review.

#### Task 6: Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario.

Task 6 will construct the water quality model and use the model to forecast N/TDS concentrations in the MCSB for a Baseline Scenario over the previously defined planning period. As part of this task, the N/TDS forecasting tools defined in Task 5, above, will be constructed and it will be used to verify the ability to reasonably simulate historical groundwater quality and vadose zone conditions; define a “baseline” planning scenario that represents the current water supply and water management plans for the MCSB (Baseline Scenario); and forecast N/TDS concentrations to determine whether beneficial uses of groundwater are protected under the Baseline Scenario.

- *Data to be Collected / Reviewed:* The Baseline Scenario will be developed based on the *Mission Creek Subbasin Alternative Plan Update*. The Baseline Scenario will establish N/TDS loading that is estimated to occur under the *Alternative Plan Update*, beginning with current (2021) groundwater quality conditions.
- *Task 6 Approach:*
  - The water quality model and associated pre- and post-processing tools established in Task 5 will be constructed, verified, and used to run the Baseline Scenario.
  - Verification of the water-quality model will be performed by running the models over a defined historical period to verify their ability to reasonably simulate historical water groundwater-quality conditions. The model verification results will be reviewed with the TAC before running the Baseline Scenario.
  - Several iterative model runs and sensitivity analyses will be needed to check for the reasonableness of the water-quality model results, and if necessary, adjust various assumptions in the initial conditions and the input datasets of the Baseline Scenario. The interim results will be reviewed with the TAC to define changes to any assumptions. Any TAC-

recommended adjustments will be implemented to the Baseline Scenario, the water-quality models and associated tools will be modified accordingly, and the next simulation run for Baseline Scenario will be conducted.

- The final simulation results of the Baseline Scenario will be evaluated to determine if CV-SNMP implementation measures are potentially necessary in the future to control N/TDS loading to protect the beneficial uses of groundwater in specific management zones.

**Goals: Discuss the preliminary goals and objectives of the Project.**

- Assist the CV-SNMP Agencies in updating the MCSB Model to simulate groundwater quality fate and transport.
- Collaborate and build off of existing groundwater modeling work in the MCSB to improve efficiency and pool resources.
- Develop a water quality fate and transport model that characterizes current conditions and future baseline management conditions that can be used to forecast and evaluate potential impacts of management scenarios to users of groundwater in the MCSB.
- Inform water suppliers and managers relying on groundwater from the MCSB as a source of supply to increase flexibility in water operations and improve water supply reliability for users throughout the subbasin.
- Strengthen integrated management of both surface water and groundwater conjunctive use and groundwater flow and quality in the MCSB.
- Meet regulatory requirements to have an approved CV-SNMP to develop recycled water resources.

### **1.3 Project Location**

The Project would develop a water quality model for the MCSB located in southern California. The boundary of the MCSB and its planning area are shown in **Figure 1**. The planning area includes the MCSB and portions of the Desert Hot Springs Subbasin, which is served by groundwater pumped from the MCSB.

### **1.4 Evaluation Criteria**

#### **1.4.1 Evaluation Criterion A—Benefits to Water Supply Reliability (40 points)**

- 1. Describe in detail the water management issue(s) that are occurring within your project area that your project will address. Describe the severity of the water management issues to be addressed with supporting details.** The Coachella Valley Groundwater Basin, including the MCSB, is central to regional local water management. The arid climate of the region has historically required reliance on importation of water from the Colorado River to supplement local groundwater supplies. In the absence of groundwater replenishment, the MCSB would be in a state of overdraft leading to undesirable results like chronic lowering

of groundwater levels, loss of storage, and potential for subsidence. Prior to the construction of groundwater replenishment facilities, the MCSB was in a state of overdraft and groundwater levels were steadily declining leading the local water agencies to develop a comprehensive water management plan. The MCSB is subject to SGMA, and as such, must be operated in balance. This cannot be achieved without supplementing limited local recharge with groundwater replenishment, and as the area is projected to grow over the next 25 years, without the development of recycled water sources. However, because both of these water resources have salt concentrations higher than those typically found in the MCSB, understanding impacts from these water management activities is critical to the sustainable management of the MCSB.

The Regional Water Quality Control Board for the Colorado River Basin (Regional Board) is requiring the development of an updated SNMP for the Coachella Valley Groundwater Basin (Basin) that considers salt loading from water management activities including replenishment with Colorado River water and recycled water projects. The objective of the CV-SNMP is to sustainably manage salt and nutrient loading in the Basin in a manner that protects its beneficial uses. The Regional Board has specifically identified the need to better understand the vertical distribution and fate and transport of salts and nutrients which will require more detailed modeling than has been undertaken for the MCSB.

Incorporating water quality modeling capabilities to support the development of the CV-SNMP is a fundamental step toward managing the MCSB sustainably, to manage the competing demands of water quality and water quantity. The groundwater system is complex and while the hydrological conceptual model of the MCSB and groundwater flow is well developed, groundwater quality modeling has yet to be done and will be key to a successful SNMP as identified in the CV-SNMP Development Workplan prepared by the CV-SNMP Agencies and approved by the Regional Board.

**2. Explain how your project will address the water management issues identified in your response to the preceding bullets and provide support for your response. For example, will your project improve water management by supporting: water supply reliability, management of water deliveries, water marketing activities, drought management activities, conjunctive use of ground and surface water, water rights administration, ability to meet endangered species requirements, watershed health, restore a natural feature or use a nature-based feature to reduce water supply and demand imbalances or the risk of drought or flood, conservation and efficiency, or other improvements to water supply reliability? In your response, be sure to explain how your project will improve any of the above.**

Through the coordination of modeling and water supply management efforts completed as part of SGMA compliance and new modeling and water quality management proposed under this Project as part of CV-SNMP update, CVWD and partnering agencies will be

able to improve management of the MCSB in a more sustainable, resilient, and reliable way. Specifically, the completion of this Project will support the following:

- 
- Drought Management Activities: In the arid Coachella Valley, imported water supplies are integral to the region's water management strategy. Imported water is replenished when these supplies are available and used during periods of drought. The CV-SNMP and the proposed modeling tools in this Project will provide water managers with a plan to manage groundwater quality while continuing their successful water management strategies.
  - Conjunctive Use of Ground and Surface Water: Conjunctive use of ground and surface water is the cornerstone of sustainable management in the MCSB. Two major objectives are met through conjunctive use: (1) addressing local supply imbalances due to limited natural recharge and (2) replenishing the subbasin with surface water supplies when they are available which can then be used during drought periods. This Project will support the continued use of this approach by providing modeling tools that water managers can use to manage water quality while continuing replenishment activities and developing additional recycled water sources.

**3. Describe to what extent your project will improve water management. Describe the significance or magnitude of the benefits of your project, either quantitatively or qualitatively, in improving water management, with supported details.**

The Project will improve water management within the MCSB planning area and by the CV-SNMP Agencies by allowing for the recommendation of numeric objectives for TDS, a primary task of the CV-SNMP. Numeric objectives will demonstrate that beneficial uses are protected, allow for quantifying assimilative capacity for salt and nutrient loading, and provide a technical basis for the Regional Board to allocate the use of assimilative capacity. Water quality model simulation results will help define/refine key metrics and thresholds for specific Management Zones, whether those be predicted average concentrations within each zone, shallow vs. deep aquifer concentrations, specific concentrations at indicator wells, percent increases/decreases in concentrations, or other metrics. The Project will provide the technical foundation for updating the CV-SNMP, compliance with SGMA, and compliance with the Recycled Water Policy, while providing transparency and credibility integral to developing a solution that supports both water supply reliability and

water quality management as required by the Regional Board and California Department of Water Resources (DWR).

- 4. Explain how your project complements other similar efforts in the area where the project is located. Will your project complement or add value to other, similar efforts in the area, rather than duplicate or complicate those efforts? Are there other similar efforts in the area that have used a similar methodology successfully which can be complimented? Applicants should make a reasonable effort to explore and briefly describe related ongoing projects. Consider efforts by any Federal, State, local agency, or non-governmental organizations.***

The Project will complement various ongoing water management efforts in the MCSB including groundwater management, SGMA compliance, and salt and nutrient management planning. Local water agencies have been actively managing water resources for years—developing and implementing monitoring programs, investigating hydrogeology, determining the water balance, and importing water to replenish the basin, reverse overdraft, and prevent subsidence. In 2013, local water agencies completed the Mission Creek/Garnet Hill Water Management Plan (now the SGMA MCSB Alternative Plan) to address overdraft and other associated undesirable results. The MCSB Alternative Plan was accepted by DWR to comply with SGMA. DWR provided recommendations in its acceptance of the Alternative Plan which included the development and incorporation of an approved SNMP. Similarly, the Regional Board has emphasized its concerns that the region needs to better quantify the impacts from replenishment and other water management activities like the development of recycled water on groundwater quality.

In 2022, the *Mission Creek Subbasin Alternative Plan Update* (CVWD, DWA, and MSWD, 2021) was completed following a multi-year update process which considered projected growth in the region, recurring drought, and climate change. The Alternative Plan Update demonstrates that continued groundwater replenishment with imported Colorado River water is needed to sustainably manage the basin, as well as the development of new recycled water sources.

The Project will complement the ongoing SGMA compliance process within the subbasin to ensure future sustainability. Numeric objectives developed for SNMP requirements with support from the Project can be made compatible with groundwater sustainability goals of SGMA. Fate and transport modeling using the MCSB Water Quality Model will be used to forecast future changes in groundwater quality for comparison against the recommended objectives. The Project will also help the agencies develop appropriate mitigation measures as needed and support a technically sound shared understanding of the management of the subbasin.

#### **1.4.2 Evaluation Criterion B—Need for Project and Applicability of Project Results (20 points)**

***Will the project result in an applied science tool(s) or information that is readily applicable, and highly likely to be used by water resource managers in the West?***

Yes. The Project will produce a crucial tool – the MCSB Water Quality Model – that will be used to fulfill requirements under the California Recycled Water Policy regulatory requirement through the CV-SNMP update. It will be readily applicable to ongoing water management in the MCSB, including salt and nutrient management planning efforts, and will be used immediately upon project completion by the CV-SNMP Agencies.

***Explain who has expressed the need and describe how and where the need for the project was identified (even if the applicant is the primary beneficiary of the project). For example, was the need identified as part of a prior water resources planning effort, determined through the course of normal operations, or raised by stakeholders? Provide support for your response (e.g., identify the entities that have expressed a need or cite planning or other documents expressing a need for the project).***

The Regional Board is requiring the development of an updated SNMP for the Coachella Valley Groundwater Basin that considers salt loading from water management activities, including replenishment with Colorado River water and recycled water projects. The Regional Board has specifically identified the need to better understand the vertical distribution and fate and transport of salts and nutrients which will require more detailed modeling. In addition, DWR provided recommendations in its 2019 acceptance of the MCSB Alternative Plan which included the development and incorporation of an approved SNMP. In response to the identified need, the CV-SNMP Agencies developed the CV-SNMP Development Workplan which details how the CV-SNMP will be updated to address current needs. The CV-SNMP Development Workplan was approved by the Regional Board and has a defined scope of work and compliance schedule for updating the CV-SNMP. This Project will support the CV-SNMP effort by creating a groundwater quality model that will be used to characterize current water quality conditions and forecast water quality conditions in the future for MCSB.

***Who will be involved in the project as project partners? What will each partner or stakeholder's role in the project be? How will project partners and stakeholder be engaged in the project and at what stages? If you are a Category B applicant, be sure to explain how your Category A partners will be engaged in the project.***

CVWD (a Category A applicant) will be the primary beneficiary of the grant to complete the scope of work for this Project. However, all CV-SNMP Agencies will be partners in the Project. CV-SNMP Agencies will be involved in quality control and assurance of the MCSB water quality model. The CV-SNMP Agencies will provide information and data needed for Project completion, review draft deliverables, participate in meetings with CVWD and

consultants, assist in making decisions related to model development and Project completion, and participate for the entire duration of the Project.

***Will the results of your project inform water resource management actions and decisions immediately upon completion of the project, or will additional work be required?***

The results of this Project can be immediately used to support water management efforts once the management zones are drafted and the N/TDS Baseline Scenario is developed. The model produced as a result of the Project will be used to contribute to the larger, longer-term salt and nutrient management planning process and be immediately available to model alternative management scenarios and develop the CV-SNMP update.

***If applicable, will the results of your project be transferrable to other users and locations? Note: not all water management solutions are transferrable.***

Yes. The incorporation of fate and transport modeling into existing groundwater flow modeling completed through the MCSB Alternative Plan Update (and associated SGMA compliance) can be transferable to any groundwater basin in California that has not yet created such a tool. Managed aquifer recharge (MAR) is a water management strategy being developed and utilized in many subbasins in the West to meet shortfalls in groundwater supplies and maintain a water balance. Yet MAR can have both positive and negative impacts on water quality that need to be understood to find a balanced management approach that yields water supply reliability, while protecting beneficial uses with respect to water quality. The Project will demonstrate how groundwater modeling can be used to evaluate MAR with reclaimed water, stormwater, and imported surface water supplies. Work done as part of this Project will serve as an example of first, integrated management of groundwater supply and quality through the use of compatible tools and second, through efficiencies created by meeting two regulatory requirements (SNMP planning and SGMA) with these same compatible tools.

### **1.4.3 Evaluation Criterion C—Project Implementation (20 points)**

- 1. Briefly describe and provide support for the approach and methodology that will be used to meet the objectives of the project. You do not need to repeat the full technical project description included in Section D.2.2.4 under the Technical Project Description. However, you should provide support for your chosen methodology, including use of any specific models, data, or tools.***

The MCSB MODFLOW Model has already been developed for groundwater sustainability planning, has been well-received by local water managers in the MCSB, and is already in use in the Project area. The MCSB flow model uses the MODFLOW, the USGS's modular hydrologic model. It is considered the international standard for simulating and predicting groundwater conditions and groundwater/surface-water interactions. Further, the proposed water quality modeling component to be added through this Project, MT3D, is an excellent choice for modeling water quality in regional aquifers. As part of Tasks 2-5,



the project team will gather and evaluate substantial data to describe all major sources of N/TDS loading. The final result will be well calibrated to model historical groundwater quality and vadose zone processes, and therefore be well-equipped to develop a baseline scenario to forecast conditions under different management scenarios. This tool will allow water managers to better evaluate water management actions on water quality in the MCSB.

**2. Describe the work plan for implementing the proposed scope of work. Such plans may include, but are not limited to: an estimated project schedule that shows the stages and duration of the proposed work, milestones for each major task, start and end dates for each task and milestones, and costs for each task**

The tasks included in the Project work plan are summarized in **Table 1**. The Project is estimated to cost \$404,000 and be completed by February 14, 2025. Work on Tasks 1 through 3 is anticipated to begin prior to the award date of February 14, 2023. The purpose of the work on these tasks is to progress the Project forward and allow the CV-SNMP Agencies to compile the background data on N/TDS loading and current groundwater conditions that will establish the basis for developing MCSB Model capabilities to simulate water quality. The MCSB Model expansion will add the fate and transport component necessary to understand salt and nutrient loading and processes associated with water supply and management activities, and define necessary management strategies. The *CV-SNMP Development Workplan* (CV-SNMP Agencies, 2021) has been approved by the Regional Board and has a schedule for completion of the entire planning process by end of 2026, thus Tasks 1 through 3 are anticipated to begin prior to the anticipated award date of February 2023. The tasks that will be completed to implement the Project are described in detail in Section 1.2.

**Table 1: Project Work Plan Summary**

<b>Task</b>	<b>Budget</b>	<b>Anticipated Start Date</b>	<b>Anticipated End Date</b>
Task 1: Project Management and Meetings	\$66,000	July 1, 2022	February 14, 2025
Task 2: Characterize N/TDS Loading to the Groundwater Basin	\$52,000	July 1, 2022	October 31, 2022
Task 3: Characterize Current Groundwater Quality	\$23,000	November 1, 2022	March 31, 2023
Task 4: Delineate Draft Management Zones and Describe Metrix to Characterize Beneficial Use Protection	\$37,000	April 3, 2023	September 30, 2023
Task 5: Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater	\$52,000	October 2, 2023	February 29, 2024

Task	Budget	Anticipated Start Date	Anticipated End Date
Task 6: Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario	\$174,000	March 4, 2024	February 14, 2025
<b>Total</b>	<b>\$404,000</b>	<b>May 11, 2022</b>	<b>February 14, 2025</b>

**3. Provide a summary description of the products that are anticipated to result from the project. These may include data, metadata, digital or electronic products, reports, and publications. Note: using a table to list anticipated products is suggested.**

A summary description of the anticipated products that will be produced by the Project are listed in **Table 2**.

**Table 2: Summary Description of Project Products**

Product Type	Product Description
Model	Mission Creek Subbasin Water Quality Model, which is expansion of MCSB MODFLOW model
Model Scenario	Baseline scenario of the Mission Creek Subbasin Water Quality Model
Technical Memorandum	Summary technical memorandum describing all work completed under Tasks 2-6.

**4. Identify staff with appropriate credentials and experience and describe their qualifications. Describe the process and criteria that will be used to select appropriate staff members for any positions that have not yet been filled. Describe any plans to request additional technical assistance from Reclamation or via a contract. Please answer the following:**

**a. Have the project team members accomplished projects similar in scope to the proposed project in the past either as a lead or team member?**

CVWD is in the process of retaining a consultant who has the required and proven experience to complete the Project. Any material produced by the selected consultant will be reviewed for completion and quality by CVWD staff. Zoe Rodriguez del Rey, CVWD's Water Resources Manager, will oversee the Project, consultant, and project team as Project Manager. Zoe Rodriguez del Rey has 20 years of experience in water resources management that includes leading water resources modeling projects such as the update and application of a CE-QUAL W2 model as tool for reservoir water release and temperature management on the Bull Run River, OR and development of the Pathogen Budget Catchment Model for the Bull Run Reservoirs to support selection of a regulatory strategy for the *Cryptosporidium* treatment requirements of the Longterm 2 Enhanced Surface Water Treatment Rule. Locally, she served as the Project Manager for both the MCSB Alternative Plan Update and Indio Subbasin Alternative Plan Update, which involved updating and refining the two existing MODFLOW models, and in the

development of the CV-SNMP Development Workplan. The CVWD Project Manager will be supported by CVWD staff Melanie Garcia, Water Resources Associate, who served in a similar role for the Indio and Mission Creek Subbasin Alternative Plan updates and development of the CV-SNMP Development Workplan. Water managers from the other partner agencies and the TAC will also be providing technical input and review of all work products.

***b. Is the project team capable of proceeding with tasks within the proposed project immediately upon entering into a financial assistance agreement? If not, please explain the reason for any anticipated delay.***

The Project team is capable of proceeding with the Project tasks immediately upon entering into a financial assistance agreement. CVWD intends to begin work on the Project July 1, 2022, prior to the anticipated award date.

**1.4.4 Evaluation Criterion D—Dissemination of Results (10 Points)**

***Describe how the tools, frameworks, or analyses developed under the proposed scope of work will be disseminated, communicated, or made available to water resources managers who may be interested in the results.***

The primary water resources managers who will be interested in the results of the Project include the eight CV-SNMP Agencies which include the City of Coachella, City of Palm Springs, Desert Water Agency, Indio Water Authority, Mission Springs Water District, Myoma Dunes Mutual Water Company, and Valley Sanitary District. These agencies will meet monthly regarding the Project as described in the next question/answer. They will also convene a CV-SNMP Technical Advisory Committee (TAC) that will include technical experts comprised of representatives of the CV-SNMP Agencies, technical consultants chosen by the CV-SNMP Agencies, and at least one neutral technical expert, such as a U.S. Geological Survey hydrogeologist all of whom contribute to water management in California. This regional modeling effort will include broad participation by all water managers in the Coachella Valley and the model developed as part of the Project will be available to the water managers within the MCSB planning area.

***If the applicant is the primary beneficiary of the project, explain how the project results will be communicated internally, and to interested stakeholders and interested water resources managers in the area, if appropriate.***

Monthly meetings among the CV-SNMP Agencies—which is comprised of CVWD and the other local water resources managers in Coachella Valley—will be held virtually to communicate Project results, share progress, and receive feedback. These meetings will be attended by the CV-SNMP Agencies staff, which include engineering and water resources managers of the eight water and wastewater agencies that comprise the project team. Regular updates will also be presented to CVWD Board of Directors during Board meetings which are open to the public and any interested stakeholder.

Development of the CV-SNMP will be a stakeholder-driven process with ample opportunities to communicate with interested stakeholders and tribes. The CV-SNMP Agencies will convene a CV-SNMP Stakeholder Group which may include agricultural community groups, golf course industry groups, tribal groups, regional water management groups, wastewater agencies, and other interested groups. The Stakeholder Group will provide a forum to provide Project updates and garner participation from other salt and nutrient contributors to groundwater.

Additionally, CV-SNMP agencies will create and maintain a CV-SNMP website that is available to the public with information on the water quality model and the CV-SNMP development.

***If the applicant is not the primary beneficiary of the project describe how project results will be communicated to project partners and interested water resources managers in the area.***

As described above, project results will be communicated through monthly meetings among the CV-SNMP Agencies—which is comprised of CVWD and the other local water resources managers in the Coachella Valley. All meetings and deliverables associated with the Project will be attended and reviewed by the eight water and wastewater agencies that comprise the CV-SNMP Agencies. The MCSB Water Quality Model will contribute to better groundwater basin management by the eight partner agencies.

***Describe how the project results will be shared with other water managers in the West that could use the information to support water management objectives.***

If selected for funding, CVWD will participate in one Reclamation-sponsored webinar to share Project results with other water managers in the West. CVWD will prepare a presentation that details the successes of the MCSB Water Quality Model, the results of the identified Project tasks and deliverables, and any lessons learned. Additionally, CVWD will provide regular Project updates to the CV-SNMP Stakeholder Group. These meetings are open to the public, thus other water managers in the West can attend and learn about the Project if interested. In addition, the consultant hired to complete the Project will be encouraged to present results at an applicable conference and/or publish a paper in a journal with a focus on water in the West.

#### **1.4.5 Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points)**

##### **1.4.5.1 Sub-criterion No. E1. Climate Change**

***Please describe how the project will address climate change, including the following:***

- 1. Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.***

As identified in the 2022 MCSB Alternative Plan Update, climate change is expected to impact water supply reliability in the MCSB in two potential ways: 1) The availability of

local mountain front runoff and subsequent recharge and 2) The availability of imported water from the Colorado River used for groundwater replenishment. As climate change impacts are realized and local supplies become more scarce, it will be even more crucial to replenish the MCSB with imported water when available, and increase recycled water use, a drought-proof supply. The Project will support these water management strategies while ensuring that any impacts from these activities do not contribute to significant and unreasonable water quality degradation, that beneficial uses of the MCSB are protected, and that appropriate mitigation strategies can be developed. This Project would allow the expansion of existing work by contributing water quality fate and transport forecasting capabilities. Furthermore, water quality forecasting in conjunction with water quantity forecasting will be especially useful as the climate warms and evaporation becomes an increasingly important factor in planning. The MCSB Water Quality Model developed as a result of the Project will provide CVWD, the local water managers, and the CV-SNMP Agencies a tool to better manage the MCSB in times of drought and under various climate changes scenarios.

***2. Does this proposed project strengthen water supply sustainability to increase resilience to climate change?***

As population in the MCSB planning area increases over the next two decades and imported water supplies become increasingly strained due to climate change, it will be imperative that the local water managers in Coachella Valley maximize recycled water use to offset potable water supplies. With the addition of recycled water through in-lieu uses and/or groundwater recharge and replenishment strategies, there is the potential for increased salinity within the MCSB. The Project will develop the MCSB Water Quality Model which can be used to forecast scenarios related to increased recycled water use and help to mitigate potential impacts to groundwater quality while maximizing water supply reliability.

***3. Does the proposed project contribute to climate change resiliency in other ways not described above?***

The Project will develop a forecasting tool – the MCSB Water Quality Model – expanding upon the existing groundwater flow model which will allow water managers to better manage imported and local supplies and support development of alternative management scenarios. Developing and evaluating alternative management scenarios will allow water managers to mitigate and adapt to climate change by understanding and helping to effectively manage water supplies as climate change impacts are realized. The project will support future alternatives analysis in the CV-SNMP process that will aid in the selection of management approaches by providing the tool to weigh the cost and benefit of different management strategies with regards to water supply reliability, water quality, while including consideration of other impacts like GHG emissions.

### 1.4.5.2 Sub-criterion No. E2. Disadvantaged or Underserved Communities

1. Please describe in detail how the community is disadvantaged or underserved based on a combination of variables that may include criteria listed in the NOFO.

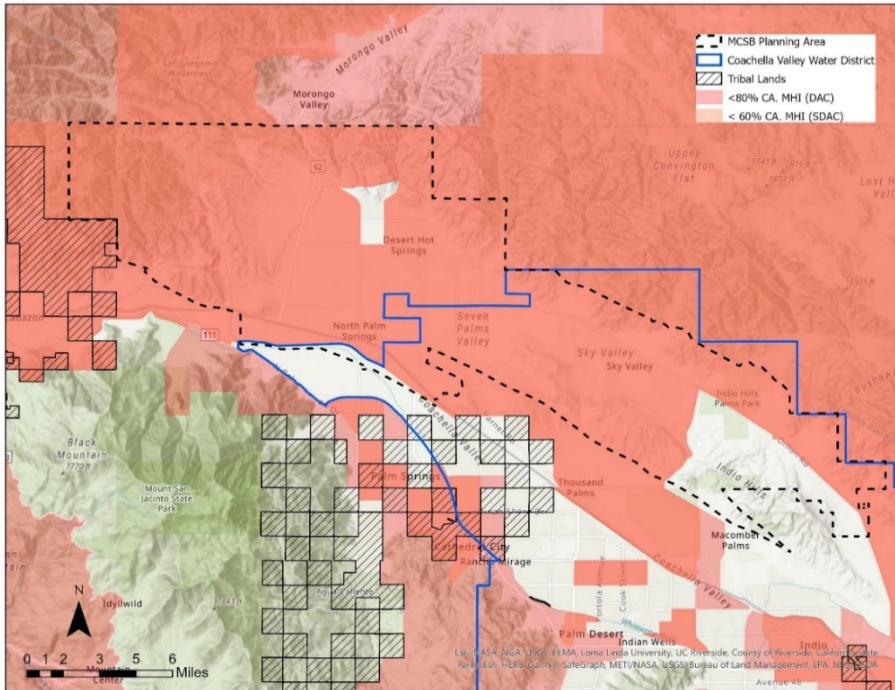


Figure 2: DACs and Tribes within MCSB Planning Area

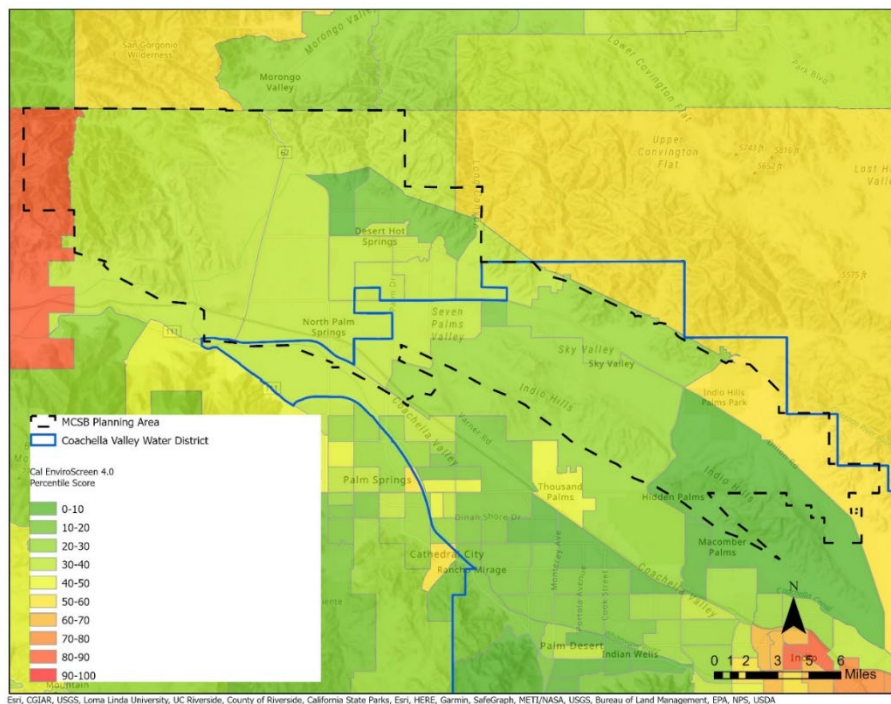


Figure 3: CalEnviroScreen 4.0 Results in MCSB Planning Area

DWR defines disadvantaged communities (DACs) as communities with an annual median household income (MHI) less than 80% of the statewide annual MHI, and severely disadvantaged (SDACs) as communities with an annual MHI less than 60% of the statewide MHI. The 2018 MHI data indicates MHIs within the MCSB planning area range from approximately \$24,954 to \$42,723. The California statewide MHI is \$75,235, which indicates that most of the MCSB planning area is severely disadvantaged. As shown in **Figure 2**, the Mission Creek Subbasin has significant DAC and SDAC areas based on the 2018 MHI. The CalEnviroScreen 4.0 mapping tool was developed by the State of California Environmental Protection Agency’s Office of Environmental Health Hazard. The tool identifies California communities that are most impacted by sources of pollution and where communities are vulnerable to pollution effects. As shown in **Figure 3**,



significant portions of the MCSB planning area scored between the 40<sup>th</sup> and 50<sup>th</sup> percentile, while an area in the western portion of the planning area scored between the 90<sup>th</sup> and 100<sup>th</sup> percentile, indicating the population is vulnerable to the effects of pollution.

**1. Please describe how and the extent to which the proposed project will serve or benefit a disadvantaged or historically underserved community.**

The objective of the Project is to develop the MCSB Water Quality Model. The model will benefit DACs in the Project area because CV-SNMP agencies will be able to run future scenarios, quantify the relative effectiveness of potential future CV-SNMP mitigation strategies, update the CV-SNMP report, and manage water quality in the Mission Creek Subbasin to protect beneficial uses. CV-SNMP agencies will have a better understanding of the groundwater in the subbasin; therefore, ensuring that DACs will have safe and reliable groundwater to use for years to come.

**1.4.5.3 Sub-criterion No. E.3. Tribal Benefits**

***Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for an Indian Tribe?***

As shown in **Figure 2**, there are tribally owned lands within CV-SNMP Agencies' boundaries, but there are no tribal lands in the MCSB planning area. However, reservation lands of five Native American tribes are located within the Indio Subbasin directly downstream of the MCSB (the Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, and Twenty-Nine Palms Band of Mission Indians). Understanding and characterizing the water quality of subsurface inflows to that portion of the Indio Subbasin will support management of groundwater throughout the Subbasin.

***Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?***

As a result of the Project, the tribes located in Indio Subbasin directly downstream of the MCSB will have an improved understanding of the water quality of subsurface inflows to that portion of the Indio Subbasin which will support management of groundwater throughout the Subbasin during normal and dry years, and when climate change impacts are realized.

**2. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE**

***Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.***

This section is not applicable to this Project because the Project will develop a water resources management tool to be used by water managers to make more effective decisions in the future. No earth-disturbing activities will take place. As a result of the Project, no work completed as a part of this Project will affect the air, water, or animal habitat in the Project area.

***Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?***

No activities as part of this Project would affect any of the habitat conservation areas because there will be no earth-disturbing activities.

***Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.***

No activities as part of this Project would affect any wetlands or other surface waters that potentially fall under Clean Water Act jurisdiction as "Waters of the United States" because there will be no earth-disturbing activities.

***When was the water delivery system constructed?***

No activities as part of this Project would affect any conveyance infrastructure because there will be no earth-disturbing activities.

***Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.***

The Project will not result in any modification of or effects to any feature of an irrigation system because there will be no earth-disturbing activities as part of the Project.

***Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.***

No activities as part of this Project would affect any buildings, structures, or features that may be listed or eligible for listing on the National Register of Historic Places because there will be no earth-disturbing activities.

***Are there any known archeological sites in the proposed project area?***

No activities as part of this Project would affect any archeological sites because there will be no earth-disturbing activities.

***Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?***



This Project will have no negative impact on low-income or minority populations. Instead, the Project will benefit low-income populations as described in Evaluation Criterion E2, above.

***Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?***

There are no tribal lands in the MCSB Project area, as described in Section 1.4.5.3. In addition, the Project does not include any earth-disturbing activities and thus, would not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

***Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?***

No. The Project will not contribute to the introduction, continued existence, or spread of any species because the Project does not include any earth-disturbing activities.

### **3. REQUIRED PERMITS AND APPROVALS**

There are no permits or approvals required in order to implement the Project.

### **4. PROJECT BUDGET**

#### **Funding Plan and Letters of Funding Commitment**

The total project cost is \$404,000 to complete Tasks 1-6. These costs are for items associated with work that will be completed from July 1, 2022 through February 14, 2025. CVWD is requesting \$200,000 from Reclamation under this NOFO. The remaining \$204,000 will be provided by CVWD local funds as non-federal cost share. The project cost estimate listed by task is included in **Table 3**.

**Table 3: Project Cost Estimate by Task**

<b>Task</b>	<b>Budget</b>
Task 1: Project Management and Meetings	\$66,000
Task 2: Characterize N/TDS Loading to the Groundwater Basin	\$52,000
Task 3: Characterize Current Groundwater Quality	\$23,000
Task 4: Delineate Draft Management Zones and Describe Metrix to Characterize Beneficial Use Protection	\$37,000
Task 5: Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater	\$52,000
Task 6: Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario	\$174,000
<b>Total</b>	<b>\$404,000</b>

The Budget Proposal section below describes the funding sources CVWD will provide to meet the non-federal cost share requirement. The Budget Narrative section that follows has a breakdown of the total costs and a description of each cost type.

## Budget Proposal

The summary of funding sources that will contribute to the Project are listed in **Table 4**. These include both funding sources from Non-Federal entities that will be used to meet the 50% match requirement and the total funding requested from Reclamation under this NOFO (\$200,000).

**Table 4: Summary of Non-Federal and Federal Funding Sources**

<b>Funding Sources – Non-Federal Entities</b>	<b>Amount</b>
1. CVWD Domestic Water Fund and MCSB Replenishment Fund	\$204,000
<b>Non-Federal Subtotal</b>	<b>\$204,000</b>
<b>Requested Reclamation Funding</b>	<b>\$200,000</b>

### *Non-Federal Cost Share Funding Sources*

The non-federal cost share funding source is from CVWD. Specifically, the Project cost-share will use funds from enterprise funds benefiting from an updated CV-SNMP including Domestic Water and MCSB Replenishment funds. The detailed budget for all costs associated with the project is shown in **Table 5**.

**Table 5: Proposed Project Budget**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	Total Cost
	\$/Unit	Quantity of Hours		
<b>Salaries and Wages</b>				
<i>Included in consultant costs</i>				
<b>Fringe Benefits</b>				
<i>Included in consultant costs</i>				\$ -
<b>Travel</b>				
<i>Included in consultant costs</i>				\$ -
<b>Equipment</b>				
<i>Included in consultant costs</i>				\$ -
<b>Supplies and Materials</b>				
<i>Included in consultant costs</i>				\$ -
<b>Contractual</b>				
Consultant Fee	Varies	1706	Hours	\$ 404,000
<b>Third-Party In-Kind Contributions</b>				
<i>Not applicable</i>				\$ -
<b>Environmental Compliance</b>				
<i>Not applicable</i>				\$ -
<b>Total Direct Costs</b>				<b>\$ 404,000</b>
<b>Indirect Costs</b>				
<i>Not applicable</i>				\$ -
<b>Total Estimated Project Costs</b>				<b>\$ 404,000</b>

**Budget Narrative**

This section contains a narrative for each item included in **Table 3**. All funds provided by Reclamation (\$200,000) would be included under the contractual costs category. The remaining costs will serve as non-federal cost share and sourced from the funds listed in **Table 2**.

*Salaries and Wages*

CVWD staff will complete the Project as part of its normal staff responsibilities and costs will be accounted for as normal operating costs. CVWD staff will not be tracking or submitting staff time for match or reimbursement. Contractor salaries and wages are included in the contractor costs, under the Contractual section of the budget. Key Personnel for the Project will include staff from CVWD, along with project managers for the consultant(s) hired to support the Project. The CVWD Project Manager for the Project is Zoe Rodriguez del Rey, Water Resources Manager at CVWD. Anticipated labor for CVWD staff is summarized in **Table 6**.

**Table 6: Anticipated CVWD Staff Labor**

<b>Title</b>		<b>Role</b>	<b>Hourly Rate</b>	<b>Hours</b>
CVWD Project Manager	Zoe Rodriguez del Rey	Project Management and consultant oversight	\$115.55	200
Water Resources Associate	Melanie Garcia	Data management, QA/QC, inter-agency communication, and other technical support	\$77.69	250
Financial Analyst II	Laura Kleeman	Reclamation grant administration (invoicing, reporting)	\$85.67	96

*Fringe Benefits*

Like salaries and wages, fringe benefits for employees as they relate to the Project will be accounted for by the City through normal operating costs. As a result, incurred fringe benefit costs related to the Project will not be sourced from grant funds. Contractor fringe benefits are incorporated into contractor billing rates under the Contractual/Construction section of the proposed budget.

*Travel*

Travel costs related to the Project will not be sourced from Reclamation grant funds. All CVWD staff travel costs incurred over the duration of the Project will be incurred by CVWD as normal operating costs. Contractor travel costs are incorporated into contractor costs under the Contractual section of the budget. All reimbursable travel costs will be reimbursed at a rate consistent with federal allowance. Travel costs are anticipated to be limited to mileage as a result of the use of local contractors and consultants.

Travel costs for CVWD staff will include attendance at meetings away from CVWD offices. These trips will be taken in CVWD-owned vehicles or reimbursed to staff using personal vehicles at a rate consistent with federal allowances, though travel costs for CVWD staff will not be charged to the Project and are therefore not included in the budget.

The consultant will conduct meetings with CVWD virtually. However, any in person meetings that incur travel expenses are incorporated into consultants' fee estimates, and any travel costs billed to the grant would be consistent with applicable state or federal rates.

*Equipment*

No equipment beyond what will be included in the contract with the consultant will be required to complete the Project.

### *Supplies and Materials*

No supplies and materials beyond what will be included in the contract with the consultant will be required to complete the Project.

### *Contractual*

The staffing planned for the consultant team that CVWD will hire to complete the Project is included under Contractual costs. This consultant fee includes salaries and wages for a Principal, Project Manager, a Modeling Lead, staff and administrative support. The RFP for this contract has been released, but a consultant has not yet been chosen. A potential fee estimate and breakdown of hours and hourly wages by staff type is provided in **Appendix C**.

### *Third-Party In-Kind Contributions*

No third-party in-kind contributions are expected as part of the Project.

### *Environmental and Regulatory Compliance Costs*

No environmental and regulatory compliance costs are expected as part of the Project.

### *Indirect Costs*

No indirect costs are included in the Project.

## **5. LETTERS OF SUPPORT AND LETTERS OF PARTICIPATION**

Letters of support for the Project were provided by the following entities and are included in Appendix A.

- City of Palm Springs
- Desert Water Agency
- Indio Water Authority
- Myoma Dunes Water Company
- Mission Springs Water District
- Valley Sanitary District
- Coachella Water Authority

Letters of participation are not required since the applicant, CVWD, is a Category A applicant.

## **6. OFFICIAL RESOLUTION**

The official resolution was adopted by CVWD's Board of Directors on March 22, 2022 and is included in Appendix B. The resolution is a commitment to the financial and legal obligations associated with the receipt of a financial assistance award under this funding opportunity.

## **7. REFERENCES**

- CV-SNMP Agencies. 2021. "Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan."
- CVWD, DWA, and MSWD. 2021. "Mission Creek Subbasin Alternative Plan Update." Available at: [http://www.missioncreeksubbasinsgma.org/wp-content/uploads/2022/01/Vol\\_I\\_MCSB\\_AltPlanUpdate\\_Report\\_Final\\_112321f.pdf](http://www.missioncreeksubbasinsgma.org/wp-content/uploads/2022/01/Vol_I_MCSB_AltPlanUpdate_Report_Final_112321f.pdf).

## **Appendix A – Letters of Project Support**



# City of Palm Springs

Development Services Department  
Engineering Division

3200 East Tahquitz Canyon Way • Palm Springs, California 92262  
Tel: (760) 323-8253 • Fax: (760) 322-8360 • Web: [www.palmspringsca.gov](http://www.palmspringsca.gov)

March 23, 2022

To Whom It May Concern,

The City of Palm Springs is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). The City of Palm Springs is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for the City of Palm Springs and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater.

The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP.

This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients.

Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, the City of Palm Springs supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,

Joel Montalvo, City Engineer  
City of Palm Springs

[Joel.Montalvo@palmspringsca.gov](mailto:Joel.Montalvo@palmspringsca.gov)



March 23, 2022

**Re: WaterSMART: Applied Science Grant FY22 Submittal for Mission Creek Subbasin Water Quality Model (Coachella Valley Salt and Nutrient Management Plan)**

To Whom It May Concern,

Coachella Water Authority (CWA) is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Sub-basin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). Coachella Water Authority is one of eight Coachella Valley water and wastewater agencies collaborating with CWA to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for CWA and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, CWA supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,



Gabriel D. Martin, Ph.D.  
Executive Director

Kristin Bloomer, President (Division 5)  
James Cioffi, Vice President (At large)  
Joseph K. Stuart, Secretary-Treasurer, (At large)  
Patricia G. Oygar, Director (At large)  
Paul Ortega, Director (Division 4)



Mark S. Krause, General Manager-Chief Engineer  
Best, Best & Krieger, General Counsel  
Krieger & Stewart, Consulting Engineers

March 10, 2022

To Whom It May Concern,

Desert Water Agency is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). Desert Water Agency is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for Desert Water Agency and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, Desert Water Agency supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,

A handwritten signature in blue ink that reads "Mark S. Krause".

Mark S. Krause  
MKrause@dwa.org  
General Manager – Chief Engineer  
Desert Water Agency



83-101 Avenue 45, Indio, CA 92201 (760) 391-4038

March 14, 2022

**Re: WaterSMART: Applied Science Grant FY22 Submittal for Mission Creek Subbasin Water Quality Model (Coachella Valley Salt and Nutrient Management Plan)**

To Whom It May Concern,

Indio Water Authority (IWA) is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). IWA is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for IWA and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the Subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the Subbasin.

In conclusion, IWA supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,

Bryan H. Montgomery  
Executive Director

Cc: Reymundo Trejo, IWA General Manager  
Michelle Tse, IWA Administrative Services Manager





79-050 Ave 42, Bermuda Dunes, CA 92203  
Ph | 760-772-1967 Fax | 760-772-0955  
Pay bill by phone: 1 (855) 899-8833  
Email: [info@myomawater.com](mailto:info@myomawater.com)  
[www.myomawater.com](http://www.myomawater.com)

Match 14, 2022

Subject: Coachella Valley Water District's 2022 WaterSMART Applied Science Grant

To Whom It May Concern,

Myoma Dunes Mutual Water Company is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). Myoma Dunes Mutual Water Company is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for Myoma Dunes Mutual Water Company and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, Myoma Dunes Mutual Water Company supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,

Michele Donze  
General Manager



66575 Second Street, Desert Hot Springs, CA 92240 • [www.mswd.org](http://www.mswd.org) • p 760.329.5169 • f 760.329.2482

March 11, 2022

Department of the Interior  
Bureau of Reclamation

**Re: WaterSMART: Applied Science Grants FY 2022 for  
Mission Creek Subbasin Water Quality Model**

To Whom It May Concern,

Mission Springs Water District (MSWD) is pleased to submit this letter of support and partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). MSWD is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for MSWD and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update. The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, MSWD supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Sincerely,

A handwritten signature in blue ink, appearing to read "Arden Wallum".

Arden Wallum  
General Manager/Chief Engineer  
Mission Springs Water District

cc. MSWD Board of Directors

*Water, the Jewel of the Desert – Treas*



Mission Springs Water District is a Groundwater Guardian Affiliate



Directors:

*Scott Sear, President*

*Debra Canero, Vice President*

*Dennis Coleman, Secretary/Treasurer*

*Mike Duran, Director*

*William Teague, Director*

General Manager:

**Beverli A. Marshall**

March 12, 2022

Subject: Coachella Valley Water District's 2022 WaterSMART Applied Science Grant

To Whom It May Concern,

Valley Sanitary District is pleased to submit this letter of support/partnership for Coachella Valley Water District's (CVWD) 2022 WaterSMART Applied Science Grant application for the development of the Mission Creek Subbasin Water Quality Model for the Coachella Valley Salt and Nutrient Management Plan (Project). Valley Sanitary District is one of eight Coachella Valley water and wastewater agencies collaborating with CVWD to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP), collectively, CV-SNMP Agencies.

This Project is vital to development of the updated CV-SNMP, which is required for Valley Sanitary District and the other CV-SNMP Agencies to comply with the State Water Resources Control Board's 2018 Recycled Water Policy. Recycled Water is an important source of supply that will be further developed in the future to meet local water needs and sustainably manage groundwater. The Project will result in a Nitrate/Total Dissolved Solids (N/TDS) forecasting tool for the Mission Creek Subbasin of the Coachella Valley Groundwater Basin to be used in preparation of the CV-SNMP update.

The water quality model developed by the Project will be used to evaluate baseline and future N/TDS loading scenarios as part of the CV-SNMP. This will allow the CV-SNMP Agencies to quantify the relative effectiveness of potential future CV-SNMP scenarios to manage water quality in the subbasin and protect beneficial uses, as well as develop management strategies to help minimize the impacts from salts and nutrients. Development of the Mission Creek Subbasin Water Quality Model will inform water suppliers and managers relying on groundwater as a source of supply, resulting in increased flexibility in water operations and improved water supply reliability for users throughout the subbasin.

In conclusion, Valley Sanitary District supports CVWD's 2022 WaterSMART Applied Science Grant application and encourages the Bureau of Reclamation to fully fund the grant request.

Respectfully,



Beverli A. Marshall, ICMA-CM, CSDM  
General Manager  
Valley Sanitary District  
[bmarshall@valley-sanitary.org](mailto:bmarshall@valley-sanitary.org)

## **Appendix B – Official Resolution**





**Coachella Valley Water District  
Board of Directors  
Resolution No: 2022-13**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
COACHELLA VALLEY WATER DISTRICT  
AUTHORIZING THE GENERAL MANAGER TO ENTER INTO AGREEMENT WITH  
THE UNITED STATES BUREAU OF RECLAMATION FOR WATERSMART-  
APPLIED SCIENCE GRANTS FOR FISCAL YEAR 2022 PER NOTICE OF FUNDING  
OPPORTUNITY NO. R22AS00165**

*WHEREAS*, Coachella Valley Water District (CVWD) is in the process of implementing the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP) with the CV-SNMP Agencies; and

*WHEREAS*, the United States Bureau of Reclamation (Reclamation) is soliciting applications for WaterSMART- Applied Science Grants for Fiscal Year 2022 per Notice of Funding Opportunity No. R22AS00165; and

*WHEREAS*, the District is preparing a grant application under this Program for the Project with an application due date of April 14, 2022 as the Project is eligible for up to \$200,000 in grant funding; and

*WHEREAS*, Reclamation has directed applicants to include in its application an official resolution adopted by the applicant's Board of Directors to: (1) identify the official with legal authority to enter an agreement, (2) confirm the application has been reviewed and supported by the Board, (3) CVWD can match the maximum grant award of \$200,000, (4) CVWD will work with Reclamation to meet established deadlines for entering into this grant agreement.

*NOW, THEREFORE, BE IT RESOLVED* by the Board of Directors of the District

**Coachella Valley Water District  
Board of Directors**

**Resolution No: 2022-13**

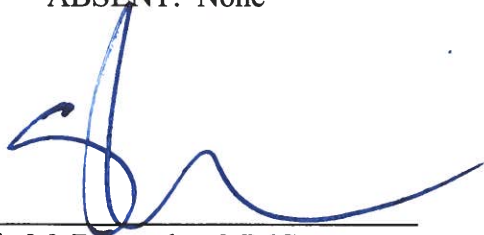
as follows: 1) CVWD's General Manager, or his designee, has legal authority to enter into an agreement with Reclamation to receive a grant; 2) The Board of Directors has reviewed and supports the application that will be submitted; 3) CVWD is able to provide the minimum 50 percent funding match specified in the funding plan for the application; and 4) CVWD will work with Reclamation to meet established deadlines required for entering into a cooperative agreement to obtain the aforementioned grant funding.

***PASSED AND ADOPTED*** by the Coachella Valley Water District Board of Directors during a regular meeting on this 22<sup>nd</sup> day of March 2022, by the following vote:

AYES: Powell, Nelson, Aguilar, Bianco, Estrada

NOES: None

ABSENT: None



---

Sylvia M. Bermudez, MMC  
Clerk of the Board  
Coachella Valley Water District



## **Appendix C – Detailed Project Fee Estimate**

