

# CHINO BASIN WATERMASTER

## Summary of Proposed Engineering Services and Cost Estimates *Fiscal Year 2022/23*

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## Executive Summary

This document summarizes the Chino Basin Watermaster’s proposed engineering scope-of-work and cost estimate for fiscal year (FY) 2022/23. For each engineering task, the following information is provided:

**Cost Estimate.** This is the estimated cost to complete the task in FY 2022/23, which includes all costs for Watermaster Engineer labor, equipment rentals, laboratory analyses, travel, other subcontractors, etc. The cost estimates in this summary are derived from the detailed line-item cost estimates shown in the attached Table 1.

**Rationale.** This is a description of why the task is being proposed for FY 2022/23, including references to associated regulatory requirements, Court Orders, CEQA requirements, or agreements.

**Scope.** This is a summary description of the scope of work required to complete the task.

**Deliverables.** This is a summary of the task deliverables.

Many tasks in the Watermaster’s engineering scope-of-work are continuous or span multiple years. Annual budgets for these tasks typically increase or decrease depending on the required level of effort. Table 2 is a comparison between the estimated engineering costs for FY 2022/23 and 2021/22. Table 3 describes the reasons for the changes in cost for the tasks with large variances.

There are two new tasks that are proposed to start in FY 2022/23 that have not been performed in past years. The new tasks are:

- Support Development of 2020 OBMP CEQA Documentation, Implementation Plan, and Peace Agreement Amendment
- 2022 State of the Basin Report
- Support for the Development of a Grant-funded Chino Basin PFAS Study

The total proposed cost estimate for engineering services in FY 2022/23 is about \$3,717,800. Cost sharing contributions by IEUA (~\$214,400) reduces the estimated costs for Watermaster engineering services to about \$3,503,400, which is about \$519,800 greater than the Watermaster’s engineering costs for FY 2021/22.

The cost estimates stated in this summary are *total* cost estimates for Watermaster engineering services, including costs that will be covered by cost-sharing partners (*e.g.*, IEUA) and/or carryover budget from the prior fiscal year. Hence, the cost to the Watermaster Parties in 2022/23 will be less than the cost estimates stated herein.

**8306, 8506, 8406, 6206, 6306 – OBMP/Judgment Admin General Engineering**

**Pool, Advisory, Watermaster Meetings**

	<b>Cost Estimate</b>
Consultant Labor	\$110,924
Other Direct Costs	\$2,092
<b>Total</b>	<b>\$113,016</b>

**Rationale**

The Watermaster General Manager and/or the Watermaster Board may direct the consultant to prepare for and attend the following meetings:

- Watermaster Pool meetings (Appropriative, Agricultural, and Overlying Non-Agricultural)
- Watermaster Advisory Committee meetings
- Watermaster Board meetings

For each meeting, the Consultant will prepare engineering updates with supporting maps, charts, tables, handouts, and PowerPoint presentations, as appropriate.

**Scope of Work**

See rationale. Consultant shall also participate in conference calls with Watermaster’s General Manager and staff to prepare for the meetings. Watermaster meetings are assumed to occur in all months except December.

**Deliverables**

The consultant will deliver the following to Watermaster:

- Maps, charts, tables, handouts, and PowerPoint presentations prepared by the consultant for the meetings.
- Requested follow-up deliverables.



**6901.8, 5901.8 – OBMP/Judgment Admin General Engineering**

**Other General Meetings as Requested**

	<b>Cost Estimate</b>
Consultant Labor	\$79,584
Other Direct Costs	\$1,521
<b>Total</b>	<b>\$81,105</b>

**Rationale**

The Watermaster General Manager and/or the Watermaster Board may direct the consultant to prepare for and attend the following meetings:

- Other general meetings as requested by Watermaster’s General Manager or Board.
- Coordination conference calls with Watermaster’s General Manager and staff.

For each meeting, the Consultant will participate in conference calls to coordinate with Watermaster staff and prepare supporting maps, charts, tables, handouts, and PowerPoint presentations, as appropriate.

**Scope of Work**

See rationale. Work on this task will be performed only upon request by Watermaster’s General Manager or the Board.

**Deliverables**

The consultant will deliver the following to Watermaster:

- Maps, charts, tables, handouts, and PowerPoint presentations prepared by the consultant for the meetings.
- Requested follow-up deliverables.



**5935 – OBMP/Judgment Admin General Engineering**

**Material Physical Injury Requests, Others**

	<b>Cost Estimate</b>
Consultant Labor	\$81,472
Other Direct Costs	\$0
<b>Total</b>	<b>\$81,472</b>

**Rationale**

At the direction of the Watermaster General Manager, the consultant will conduct a material physical injury analysis for each transfer application, storage application, and recharge application, or as otherwise directed by Watermaster and pursuant to the Peace Agreement and the Rules and Regulations. Specifically, Article 10 of the Watermaster Rules and Regulations (paragraph 10.10) requires that:

“[...] Watermaster prepare a written summary and analysis (which will include an analysis of the potential for material physical injury) of the Application and provide the Parties with a copy of the written summary and advanced notice of the date of Watermaster’s scheduled consideration and possible action on any pending Applications.”

Per the Peace Agreement (page 8), material physical injury is defined as:

“[...] material injury that is attributable to Recharge, Transfer, storage and recovery, management, movement or Production of water or implementation of the OBMP, including, but not limited to, degradation of water quality, liquefaction, land subsidence, increases in pump lift and adverse impacts associated with rising groundwater.”

**Scope of Work**

This task provides engineering services to assist Watermaster staff in the evaluation of transfer, storage, and recharge applications. Occasionally, Watermaster staff requires engineering services in the evaluation of such transfers. Material physical injury analyses anticipated for FY 2022/23 will cover water transfers among the parties, recharge applications, and storage application, as directed by Watermaster.

**Deliverables**

The deliverables for this work will be defined by specific Watermaster direction for projects requiring MPI analyses.



6906.71, 5906.71 – OBMP/Judgment Admin General Engineering

Miscellaneous General Manager and Data Requests – from Watermaster Staff

	<b>Cost Estimate</b>
Consultant Labor	\$135,120
Other Direct Costs	\$300
<b>Total</b>	<b>\$135,420</b>

**Rationale**

The Watermaster General Manager and/or Watermaster staff may direct the consultant to perform specific technical analyses and/or respond to miscellaneous data requests related to Chino Basin optimum management. The recommended budget estimate is based on prior years’ experience.

**Scope of Work**

The consultant shall perform the following tasks:

- Perform ad hoc analyses requested by the Watermaster General Manager and/or Watermaster staff.
- Fulfill requests from the Watermaster General Manager, including the preparation of PowerPoint presentations, maps, charts, and technical reports.
- Fulfill requests for hydrologic data, model files, PowerPoint presentations, maps, charts, technical reports, etc., as requested by Watermaster staff.

**Deliverables**

The consultant shall deliver to Watermaster data-request deliverables as well as PowerPoint presentations, maps, charts, and technical reports, as requested.



**6906.72, 5906.72 – OBMP/Judgment Admin General Engineering**

**Miscellaneous Data Requests – from Non-Watermaster Staff, Watermaster Parties, and Non-Watermaster Entities**

	<b>Cost Estimate</b>
Consultant Labor	\$51,312
Other Direct Costs	\$0
<b>Total</b>	<b>\$51,312</b>

**Rationale**

The Watermaster General Manager and/or Watermaster staff may direct the consultant to perform specific technical analyses and/or respond to miscellaneous data requests from Watermaster parties, non-Watermaster staff, and non-Watermaster entities. The recommended budget estimate is based on prior years’ experience.

**Scope of Work**

The consultant shall perform the following tasks:

- Perform ad hoc analyses requested by Watermaster parties, non-Watermaster staff, and non-Watermaster entities, as directed by the Watermaster General Manager.
- Fulfill requests for hydrologic data, model files, PowerPoint presentations, maps, charts, technical reports, etc. requested by Watermaster parties, non-Watermaster staff, or non-Watermaster entities, as directed by Watermaster staff.

**Deliverables**

The consultant shall deliver to Watermaster the data-request deliverables as well as PowerPoint presentations, maps, charts, and technical reports, as requested.



**6901.95 – OBMP/Judgment Admin General Engineering**

**Annual Streamflow Monitoring Report for Water Rights Permit 21225**

	<b>Cost Estimate</b>
Consultant Labor	\$19,028
Other Direct Costs	\$0
<b>Total</b>	<b>\$19,028</b>

**Rationale**

This work is required in Watermaster’s permit issued by the State Water Resources Control Board (Permit No. 21225).

**Scope of Work**

This task includes engineering services to prepare a specialized hydrologic assessment of the relative impacts of the diversions of storm water for recharge by Watermaster pursuant to Watermaster’s Permit 21225 issued by the State Water Resources Control Board. A report summarizing the analysis is due each year by October 1<sup>st</sup>. This work involves estimating the discharge to the Santa Ana River from its tributaries that flow across the Chino Basin and where storm water is diverted for recharge. The discharge from these tributaries to the Santa Ana River is estimated with and without the Watermaster diversions for recharge, and the relative changes in discharge are computed. The latest version of the Chino Basin surface water model that was developed for the 2020 Safe Yield Recalculation will be used for this effort.

**Deliverables**

The consultant shall deliver the following to Watermaster:

- A letter report entitled, *Annual Streamflow Monitoring Report for Water Rights Permit 21225, Fiscal 2020/21*, which Watermaster and its attorney will review and forward to the State Water Resources Control Board by October 1, 2022:
- The draft report will be delivered to Watermaster and its Attorney for review and comment by September 16, 2022.
- The final report will be delivered to Watermaster and its Attorney by September 28, 2022.





**6901.95 – OBMP/Judgment Admin General Engineering**

**SGMA Reporting Requirement for April 1, 2022 WC Section 10720.8 (f).**

	<b>Cost Estimate</b>
Consultant Labor	\$18,286
Other Direct Costs	\$0
<b>Total</b>	<b>\$18,286</b>

**Rationale**

The Sustainable Groundwater Management Act (SGMA) has a requirement that the Watermaster or a local agency of an adjudicated basin identified in WC Section 10720.8(a) submit specific data, information, and reports for the previous water year annually to the California Department of Water Resources (DWR) by April 1 of each year. Pursuant to SGMA WC Section 10720.8(f), Watermaster is required to submit:

- (A) Groundwater elevation data unless otherwise submitted pursuant to WC Section 10932
- (B) Annual aggregated data identifying groundwater extraction
- (C) Surface water supply used for or available for use for groundwater recharge or in-lieu use
- (D) Total water use
- (E) Change in groundwater storage
- (F) The annual report submitted to the court

**Scope of Work**

The reporting period is water year 2021/22. Item (A) has already been submitted for the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, so no further data will be reported pursuant to the SGMA. Items (B) through (D) and (F) will be compiled from the appropriators, the IEUA, and Watermaster. Item (E) is a result from the Chino Basin groundwater model that will be updated with data through September 30, 2022. The change in storage will be estimated from the resulting water budget table for water year 2021/22.

The DWR has implemented an Adjudicated Basin Annual Reporting System, which is an on-line submission system that consists of specialized reporting templates for entering all the required information and provides the capability to upload supporting documents and reports. A Memorandum will be prepared for Watermaster, explicitly documenting the information for Items (A) through (F) that will be populated into the reporting templates for the April 1 submittal.

**Deliverables**

The consultant shall deliver the following to Watermaster:

- A draft memorandum that documents the information submitted to the DWR Adjudicated Basin Annual Reporting System.
  - The draft Memorandum will be submitted to Watermaster in February 2022 for Watermaster review and comment.
  - The final Memorandum will be submitted to Watermaster by March 2, 2023 for review and approval by the Watermaster Pools, Advisory Committee, and Board.

The required information and documents will be submitted to the DWR using the Adjudicated Basin Annual Reporting System by April 1, 2023.



**6906 – OBMP/Judgment Admin General Engineering**

**Project Management**

	<b>Cost Estimate</b>
Consultant Labor	\$44,180
Other Direct Costs	\$0
<b>Total</b>	<b>\$44,180</b>

**Rationale**

This task is for routine project management and the preparation of quarterly estimated-cost-at-completion reports.

**Scope of Work**

The consultant shall perform routine project management services, including:

- Update the Integrated Schedule Budget Management (ISBM) system.
- Analyze staffing requirements and make assignments for various tasks.
- Review the schedules of deliverables.
- Prepare monthly budget summary tables.
- Prepare the Estimated Cost at Completion (ECAC) and Earned Value (EV) estimates.
- Attend joint Watermaster/consultant senior staff meetings.
- Attend Watermaster budget workshops.

**Deliverables**

The consultant will deliver the following to Watermaster:

- Quarterly summary of costs to date, ECACs, and estimates of progress on a task-by-task basis.
- Monthly budget summary tables.



5906.1 – OBMP/Judgment Admin General Engineering

Watermaster Model Update and Required Demonstrations

	Task 1	Task 2	Total
Consultant Labor	\$64,768	\$6,806	\$71,574
Other Direct Costs	\$100		\$100
<b>Total</b>	<b>\$64,868</b>	<b>\$6,806</b>	<b>\$71,674</b>

Rationale

Watermaster updated its groundwater models in 2007, 2013, and most recently in 2020. Watermaster applies its groundwater model to estimate net recharge and Safe Yield, to assess the state of hydraulic control, to assist with SGMA compliance, to conduct material physical injury assessments, to assist in the development of a storage framework and Storage Management Plan, and to support the development of TDS and nitrate concentration changes in the basin.

Activities historically performed in this task have included: the assessment of the adequacy of supplemental water recharge capacity pursuant to Section 7.3 of the Peace II Agreement; the evaluation of the balance of recharge and discharge; and the evaluation of the cumulative effects of transfers. Each year since 2012, a technical assessment of the adequacy of supplemental water recharge capacity was completed and reported to the Watermaster pursuant to Section 7.3 of the Peace II Agreement. The evaluation of the balance of recharge and discharge and the cumulative effects of transfers will be required in FY 2022/23.

The work anticipated for this line item in FY 2022/23 includes the evaluation of the balance of recharge and discharge and the cumulative effect of transfers and the preparation of annual finding of compliance with Section 7.3 of the Peace II Agreement.

Scope of Work

The consultant shall perform the following tasks:

- **Task 1 – Evaluate the Balance of Recharge and Discharge and the Cumulative Effects of Transfers**
  - Task 1.1—Collect, Compile, and Review Data to Update Historical Hydrology and Prepare Annual Estimate of Balance of Recharge and Discharge. The evaluation of the balance of recharge and discharge is a retrospective analysis of the water budgets in each of the five OBMP management zones (MZs) from the period of July 1, 2020 through June 30, 2022. The consultant will collect and/or compile the necessary data to replace the projection data in the 2020 Chino Valley Model (CVM) for this period, including hydrologic data, pumping data, and recharge data.
  - Task 1.2—Compile the Historical Transfers in the Chino Basin and Determine the Annual Avoided Wet-Water Replenishment. The consultant will use the Watermaster Assessment Packages to calculate the avoided wet-water replenishment by Party by year.
  - Task 1.3—Evaluate Basin Response to the Water Replenishment That Would Have Occurred in the Absence of Transfers. In this task, the consultant will create a new scenario that will be identical to the calibration run of the 2020 CVM, with imported water recharge increased to the volume that would have occurred in the absence of transfers for the period of July 1, 2000 through June 30, 2022. This scenario will be simulated and compared to the 2020 CVM calibration run (extended through June 30, 2022 in Task 1.1) and to determine the cumulative effect of transfers on the basin.
  - Task 1.4—Prepare Report. In this task, the consultant will document the work in Tasks 1.1 through 1.3.



- **Task 2 Prepare Finding of Substantial Compliance.** The work required for this task includes review and update of planning information, testing the adequacy of existing wet-water recharge capacity to meet future wet-water replenishment obligations, and preparation of a technical memorandum to document substantial compliance as required by Section 7.3 of the Peace II Agreement.

### **Deliverables**

For Task 1, the consultant will prepare a report for Watermaster documenting the evaluation of the balance of recharge and discharge and the cumulative effects of transfers.

For Task 2, the consultant will deliver a technical memorandum to Watermaster documenting the annual finding of substantial compliance.

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**6901.95 – OBMP/Judgment Admin General Engineering**

**Compliance with SWRCB Regulations Regarding Measurement and Reporting Diversion of Surface Water (Title 23 Chapters 2.7 and 2.8)**

	<b>Cost Estimate</b>
Consultant Labor	\$15,448
Other Direct Costs	\$0
<b>Total</b>	<b>\$15,448</b>

**Rationale**

Watermaster holds three diversion permits, issued by the SWRCB, that provide authorization to Watermaster to divert and recharge storm and dry-weather discharge. Presently, the amount of water diverted is estimated by the IEUA and reported to the Watermaster. Watermaster subsequently reports the amount of water recharged to the SWRCB pursuant to its permits and SWRCB regulations in Title 23, Chapter 2.7.

SB88 was signed into law by Governor Brown on June 24, 2015. Sections 15 through 18 of that law add new measurement and reporting requirements for a substantial number of diverters, including the Chino Basin Watermaster. Pursuant to the regulations, Watermaster must annually report the following in addition to prior reporting requirements:

- Information on the device or method used to calculate the amount of water diverted.
- Water diversion measurement, either direct diversion or diversion to storage, including the type of device(s) used, additional technology used, who installed the device(s), and any alternative method(s) used in measuring water diversion.

Pursuant to the regulations, Watermaster is required to provide a description of its measuring scheme, determine if it meets the specific accuracy requirements provided for in the regulations, and if it can't meet the accuracy requirements, to implement an improved diversion measuring scheme.

**Scope of Work**

The consultant shall perform the following tasks:

- Task 1.1 – Collect WY 2022 stormwater data from IEUA, including transducer information and stage measurements.
- Task 1.2 – Provide as-needed assistance to Watermaster staff to update the "Water Diversion Measurement" section of progress reports for Watermaster's water rights permits. For one of the permitted points of diversion, modeling is needed to estimate diversions. The latest version of the Chino Basin surface water model that was developed for the 2020 Safe Yield Recalculation will be used for this effort.

**Deliverables**

The consultant will deliver the following to Watermaster:

- Review of the Watermaster staff-prepared version of the "Water Diversion Measurement" section of Watermaster's annual progress reports to the SWRCB.
- Electronic data files required by SWRCB at time of filing.



6906.26 – OBMP/Judgment Admin General Engineering

Support Development of 2020 OBMP CEQA Documentation, Implementation Plan, and Peace Agreement Amendment

	Cost Estimate
Consultant Labor	\$276,399
Other Direct Costs	\$400
<b>Total</b>	<b>\$276,799</b>

**Rationale**

The 2000 OBMP and the 2000 OBMP Implementation Plan were developed during the period 1998 to 1999. The Peace Agreement was developed in 2000 to implement the OBMP and it incorporates the OBMP implementation Plan. From January 2019 to September 2020, Watermaster staff facilitated a stakeholder-driven process with the Chino Basin parties to prepare the 2020 OBMP Update. The deliverables from this process included the *2020 OBMP Update Scoping Report* and the *2020 OBMP Update Report*. The *2020 OBMP Update Report* defines the basin management plan categorized into nine program elements (PEs) for the next 20 years that is inclusive of ongoing implementation actions from the 2000 OBMP and new implementation actions defined by the parties during the 2020 OBMP Update process.

Starting in 2020, IEUA began the process of preparing CEQA documentation for the 2020 OBMP Update. The groundwater modeling that was included in the draft Subsequent Environmental Impact Report (SEIR) was based on the results of the 2018 Storage Framework Investigation (SFI) in the Chino Basin, which was based on a version of Watermaster’s groundwater model that was calibrated in 2011. The SFI was used in the development of the 2020 Storage Management Plan. During the period of 2018 through May 2020, Watermaster updated its groundwater model and prepared an updated estimate of Safe Yield for the period 2021 through 2030. The Court subsequently accepted this recommendation and ordered the Safe Yield changed. The 2020 Watermaster model, called the 2020 Chino Valley Model (2020 CVM), supersedes the model used in the development of the 2018 SFI. Watermaster and IEUA have requested that the modeling to support the CEQA documentation be updated and use the 2020 CVM.

Furthermore, to implement the 2020 OBMP Update, the parties must update the 2000 OBMP Implementation Plan and amend the Peace Agreement(s). In FY 2020/21, the parties deferred the update to the OBMP Implementation Plan and Peace Agreement amendment until further notice. In FY 2022/23, it is anticipated that Watermaster will support the Parties to update the OBMP Implementation Plan and Peace Agreement amendment for PE8 - Develop and Implement a Storage Management Plan and PE9 – Develop and Implement Storage and Recovery Programs.

**Scope of Work**

The consultant shall perform the following tasks:

- **Task 1 – Update the SFI with the 2020 CVM.** This consultant will use the 2020 CVM to simulate the five Storage and Recovery scenarios that are described in the *2018 Storage Framework Investigation Report* (WEI, 2019). The modeling work will include developing model input files, running the simulations, and post-processing the output data for each model scenario. Each scenario will be evaluated upon the same criteria that were documented in the SFI report. Following the completion of the simulations, the consultant will prepare for and conduct a meeting with IEUA and Watermaster staff to review the results of the modeling. The consultant will then prepare a draft and final report to document the results, similar to the 2018 SFI report.
- **Task 2 – As-Needed Assistance to Watermaster and IEUA Staff for CEQA Documentation.** The work required for this task will include translating the results and interpretations of the modeling work to an updated draft SEIR, coordinating with the other members of the CEQA support team, preparing for and



attending a public hearing on the draft SEIR, responding to comments on the draft SEIR, and other as-needed support.

- **Task 3 – As-Needed Assistance to Watermaster Staff for Development of the OBMP Update Implementation Plan and Peace Agreement Amendment.** The scope of work for Task 3 may include as-needed support tasks requested by Watermaster staff and legal counsel. The scope and schedule of any as-needed support tasks will be clearly defined and agreed upon by the consultant, Watermaster staff, and legal counsel.

## Deliverables

The deliverables for Task 1 include draft and final reports documenting the results and interpretations of the modeling work and charts and exhibits that the consultant will prepare for a presentation to Watermaster and IEUA staff to review the modeling results.

The deliverables for Task 2 include text, tables, and exhibits to be included in the updated draft SEIR, as well as any other as-needed deliverables to support the CEQA documentation process.

The deliverables for Task 3 will be defined by Watermaster staff on an as-requested basis.

**5945 – OBMP/Judgment Admin General Engineering**

**Assist Watermaster in Preparing the 45th Annual Report**

	<b>Cost Estimate</b>
Consultant Labor	\$15,320
Other Direct Costs	\$0
<b>Total</b>	<b>\$15,320</b>

**Rationale**

This work is required by the Chino Basin Judgment and the Sustainable Groundwater Management Act.

**Scope of Work**

This task includes support services to assist Watermaster staff in the preparation of the Watermaster's 45<sup>th</sup> Annual Report documenting Watermaster's activities and water accounting for FY 2021/22. The consultant will work closely with Watermaster staff and their contractor Martin Rauch to provide as-requested support to collect data and prepare content for the Annual Report.

**Deliverables**

The consultant's deliverables and associated schedule will be defined by Watermaster upon project kick-off in July 2022.





**6906.21 – OBMP/Judgment Admin General Engineering**

**State of the Basin Report<sup>1</sup>**

	<b>Cost Estimate</b>
Consultant Labor	\$173,040
Other Direct Costs	<u>\$2,500</u>
<b>Total</b>	<b>\$175,540</b>

**Rationale**

Pursuant to the November 15, 2001 Court Order, Watermaster prepares a State of the Basin report every two years. The State of the Basin reports are used to document how the state of the basin has changed since the implementation of the Peace Agreement in September 2000. The scope of the report includes a characterization of the time histories of: groundwater levels and quality, storage, production, recharge (replenishment and other recharge), ground level, state of hydraulic control, desalter planning and engineering, and production meter installation.

**Scope of Work**

The consultant shall perform the following tasks:

- Compile and analyze production data for FY 2020/21 and FY 2021/22 and prepare exhibits showing production activities by pool and historical trends in production.
- Compile and analyze recharge and recycled water reuse data for FY 2020/21 and FY 2021/22 and prepare exhibits showing groundwater recharge trends.
- Compile and analyze surface water, climate, and land use data and prepare exhibits that show general hydraulic conditions in the Basin.
- Analyze basin-wide water quality and prepare maps that show five-year maximum concentrations for constituents of concern in the Basin, and historical trends in TDS and nitrate by management zone.
- Prepare rasters depicting the current extent of the VOC plumes and prepare a series of associated maps.
- Analyze basin-wide groundwater levels and prepare exhibits that show historical trends in groundwater levels by management zone.
- Analyze water-level data and create groundwater elevation contours for spring 2022 for the entire basin and the HCMP area and prepare a series of associated maps.
- Perform raster calculations and comparisons of groundwater-elevation changes that occurred between spring 2000 and spring 2022 and spring 2020 and spring 2022 and prepare maps showing these changes.
- Compile and analyze ground-level monitoring data for 2021 through 2022 and prepare exhibits showing trends in vertical ground motion in MZ1 and MZ2, and time histories of groundwater pumping, aquifer recharge, groundwater levels, and ground motion in these areas.

<sup>1</sup> The State of the Basin Report is prepared every two years and was last completed in FY 2020/21.



### **Deliverables**

The consultant will deliver a draft report in digital format for Watermaster’s review by June 5, 2023 and a final report in digital format by June 30, 2023 for Watermaster’s general use and for posting on Watermaster’s website. In addition, 20 hard copies of the final State of the Basin Report will be prepared and provided to Watermaster.

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**7220 – OBMP/Judgment Admin General Engineering**

**Integrated Model Meetings and Technical Review – 50% IEUA Cost Share**

	<b>Cost Estimate</b>
Consultant Labor	\$51,528
Other Direct Costs	\$500
<b>Total</b>	<b>\$52,028</b>

**Rationale**

Watermaster and IEUA participate in a task force that is developing a watershed-wide groundwater model referred to the Integrated Santa Ana River Model (ISARM). The ISARM was developed for use in evaluating the surface and groundwater impacts from a series of potential projects for which the watershed stakeholders were interested in including in the SAR watershed Habitat Conservation Plan (HCP). The HCP will support the implementation of various proposed projects throughout the watershed, including recharge projects in the Chino Basin. The task force effort is led by the San Bernardino Valley Municipal Water District (Valley District task force). The development and use of the ISARM is discussed and reviewed at periodic technical committee meetings.

The Regional Board and other non-Chino Basin stakeholders have expressed the desire for the ISARM to simulate the water quality impacts of the SNMP all the way to Prado Dam. It has been proposed by Valley District that the ISARM be extended to include water quality simulations to Prado Dam, however, the level of sophistication of the ISARM is far less than that of the Watermaster and IEUA’s 2020 Chino Basin Water Quality Model (developed in support of the Chino Basin Maximum Benefit SNMP). The Valley District’s SNMP, and the use of the ISARM to evaluate it, has the potential to impact the Chino Basin and compliance with the maximum benefit SNMP. Discussions with Valley District, the Valley District task force, and the Regional Board are ongoing as to how best to coordinate modeling efforts.

Watermaster and IEUA require as-needed technical expertise to understand the implications of the ISARM and SNMP on the Chino Basin stakeholders.

**Scope of Work**

The consultant will perform as-needed services as directed by Watermaster and IEUA. These as-needed services could include attendance at the Valley District task force or other technical meetings with stakeholders and consultants that are participating in the development of the ISARM; review of task force work products; and support for the development and implementation of an alternative modeling approach for Valley District to assess its impacts at Prado Dam, such as a “cascading” model approach where the ISARM is used upstream of the Riverside Narrows and the Chino Basin Model is used from Riverside Narrows to Prado Dam.

**Deliverables**

The consultant will attend meetings and review reports as they are produced and prepare either written or oral comments as directed by Watermaster and IEUA. The consultant’s deliverables for other as-need requests will be determined with each request.



7502, 7505 – PE1: Comprehensive Monitoring Program

Groundwater and Surface Water Quality Monitoring Program

	<b>Cost Estimate</b>
Consultant Labor	\$201,333
Other Direct Costs	<u>\$59,296</u>
<b>Total</b>	<b>\$260,630</b>

**Rationale**

The OBMP, Peace Agreements, and Implementation Plan all call for a key-well monitoring program for groundwater quality as part of Program Element 1.<sup>2</sup> The data generated in Program Element 1 are used for the Biennial State of the Basin Report, the Groundwater Model update and calibration, material physical injury assessments, the evaluation of non-point source groundwater contamination and plumes associated with point-source discharge, Hydraulic Control demonstrations, the Triennial Ambient Water Quality Recomputation<sup>3</sup>, and evaluation of groundwater/surface water interaction near riparian habitat in the Prado Basin.<sup>4</sup> The groundwater-quality and surface water monitoring programs, as currently implemented, meets the minimum requirements for all the above uses.

The Hydraulic Control Monitoring Program (HCMP)<sup>5</sup> and the Prado Basin Habitat Sustainability Program (PBHSP)<sup>6</sup> are regulatory monitoring programs with groundwater and surface water monitoring components. Data collected for the HCMP and PBHSP are also used for all other basin-wide uses.<sup>7</sup>

**Scope of Work**

The consultant shall perform the following tasks:

- Assist Watermaster staff in conducting annual sampling at approximately 31 private wells and 11 monitoring wells between July and October 2022. Sub-tasks include:
  - Annual re-evaluation of wells to sample for the key-well monitoring program.
  - Perform field work to sample all, or a portion of, the wells on an as-needed basis.<sup>8</sup>

<sup>2</sup> OBMP Program Element 1—*Develop and Implement Comprehensive Monitoring Program*

<sup>3</sup> The Hydraulic Control demonstrations and the Triennial Ambient Water Quality Recomputation are salt-management requirements of the Basin Plan: [http://www.swrcb.ca.gov/santaana/water\\_issues/programs/basin\\_plan/docs/chapter5.pdf](http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/docs/chapter5.pdf)

<sup>4</sup> Pursuant to Mitigation Measure 4.4-3 in the Peace II CEQA SEIR, the Adaptive Management Plan for the Prado Basin Habitat Sustainability Program calls for groundwater and surface water quality monitoring to ensure that Peace II Agreement activities to not adversely impact Prado Basin riparian habitat.

<sup>5</sup> The HCMP surface water and groundwater monitoring programs are maximum-benefit requirements in the Basin Plan and are more specifically described in Santa Ana Regional Water Quality Control Board (Regional Board) Order No R8-2012-0026 [http://www.swrcb.ca.gov/santaana/water\\_issues/programs/basin\\_plan/docs/chapter5.pdf](http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/docs/chapter5.pdf)

<sup>6</sup> The Adaptive Monitoring Program for the PBHSP was implemented pursuant to Mitigation Measure 4.4-3 of the Peace II CEQA SEIR to ensure that the Peace II Agreement actions will not adversely impact the Prado Basin riparian habitat.

<sup>7</sup> All 17 PBHSP monitoring wells have not been sampled for water quality for the PBHSP since 2018. In FY 2021/22, Watermaster’s groundwater quality monitoring program includes triennial monitoring at the 17 PBHSP wells as part of the basin-wide monitoring program to be used for Watermaster’s various purposes and characterization of water quality.

<sup>8</sup> An as-needed field budget is provided in the event that Watermaster staff needs assistance in completing the water quality sampling program during the target monitoring period of August 2020 through October 2020. The field work will be performed on an as-needed basis, as directed by Watermaster staff.



- Process, perform quality assurance/quality control (QA/QC), review all field and laboratory data, and upload to HydroDaVE.
- Obtain groundwater-quality and surface water-quality data routinely for about 1,100 wells and from all appropriators and cooperators in and immediately adjacent to the Chino Basin. This includes collecting data from about 35 open investigation clean-up sites in the Chino Basin with data available on the GeoTracker<sup>9</sup> and EnviroStor<sup>10</sup> websites and checking for any new sites on GeoTracker and EnviroStor with confirmed or potential impacts to groundwater quality. All data collected are checked for reasonableness and compiled into HydroDaVE's centralized database. Subtasks include:
  - Place phone calls, send emails, and attend meetings with the water quality staff of appropriators and other cooperating parties.
  - Collect, process, review, and upload hardcopy, spreadsheet, database, and laboratory electronic data deliverables to HydroDaVE.
- Obtain groundwater and surface water quality data for the HCMP. The consultant shall perform the following tasks:
  - Collect and analyze annual groundwater-quality samples from the 21 HCMP monitoring wells, and quarterly groundwater-quality samples from the two USGS National Water-Quality Assessment Program (NAWQA), and two Santa Ana River Water Company (SARWC) wells. Samples are sent to Eurofins Eaton Analytical Laboratories for analysis. Subtasks include:
    - Schedule field work and coordinate with analytical laboratory.
    - Perform field work. Field work follows the SOPs defined in the 2014 HCMP Work Plan.
    - Process, QA/QC, and upload field and laboratory data to HydroDaVE.
  - Collect and analyze quarterly surface-water quality grab samples at two specified surface-water stations on the Santa Ana River. Samples are sent to Eurofins Eaton Analytical Laboratories for analysis. Subtasks include:
    - Schedule field work and coordinate with analytical laboratory.
    - Perform field work. Field work follows the SOPs defined in the 2014 HCMP Work Plan.
    - Process, QA/QC, and upload field and laboratory data to HydroDaVE.
- Obtain groundwater data for the Prado Basin Habitat Sustainability Program (PBHSP) monitoring wells. The consultant shall perform the following tasks:
  - Perform quarterly downloads of data loggers at two sites along Chino Creek and four PBHSP monitoring wells with probes that measure specific EC, temperature, and level at 15-minute intervals. Subtasks include:
    - Schedule and perform field work. Field work follows the SOPs defined in the 2014 HCMP Work Plan.
    - Process, review, and upload 15-minute data to HydroDaVE.
  - Collect, compile, review, and upload the following surface water data to HydroDaVE twice per year:
    - Daily discharge and water quality data from POTW discharge locations upstream of Prado Dam

<sup>9</sup> <http://geotracker.waterboards.ca.gov/>

<sup>12</sup> <http://www.envirostor.dtsc.ca.gov/public/>

- Surface water discharge at six USGS gaging stations along the Santa Ana River and tributaries upstream of Prado Dam.
- Monthly water quality data from the MWD State Water Project water source at Silverwood Lake Reservoir
- As-needed support subtasks to characterize water quality, which may include:
  - Create time-history charts of water-quality constituents (e.g., total dissolved solids [TDS] and nitrate-nitrogen).
  - Create maps showing the spatial distribution of water-quality constituents from sampling or point-sources of concern.
  - Perform analysis of water-quality exceedances of Maximum Contaminate Levels (MCLs) at private wells.

### Deliverables

The consultant shall deliver the following to Watermaster no later than the date or dates indicated:

- All groundwater-quality data from the key well sampling program will be uploaded to HydroDaVE by December 1, 2022.
- All available groundwater-quality data collected from Chino Basin appropriators and cooperators for the January 1, 2022 to June 30, 2022 period will be uploaded to HydroDaVE by September 30, 2022.
- All available groundwater-quality data collected from Chino Basin appropriators and cooperators for the July 1, 2022 to December 31, 2022 period will be uploaded to HydroDaVE by April 30, 2023.
- Any as-needed groundwater-quality data support documents, such as PowerPoint presentations, maps, charts, and summary reports, will be delivered by the date agreed upon by Watermaster and the consultant.
- All annual groundwater-quality data collected at the 21 HCMP monitoring wells, during August 2022 will be uploaded to HydroDaVE by September 30, 2022.
- All quarterly groundwater-quality data collected at the two NAWQA and two SARWC wells during July 2022, October 2022, January 2023, and April 2023, will be uploaded to HydroDaVE by August 31, 2022, November 30, 2022, February 28, 2023, and May 31, 2023, respectively.
- All quarterly surface water-quality data collected at the two Santa Ana River sites during July 2022, October 2022, January 2023, and April 2023, will be uploaded to HydroDaVE by August 31, 2022, November 30, 2022, February 28, 2023, and May 31, 2023, respectively.
- All POTW surface water quality and discharge data for POTWs, and discharge data for the USGS gaging stations for January 2022 through September 2022 will be uploaded to HydroDaVE by November 30, 2022, and for October 2022 through December 2022 will be uploaded to HydroDaVE by February 28, 2023.

**7104.3, 7104.8, 7104.9 – PE1: Comprehensive Monitoring Program**

**Groundwater-Level Monitoring Program**

	<b>Cost Estimate</b>
Consultant Labor	\$212,310
Other Direct Costs	\$28,107
<b>Total</b>	<b>\$240,417</b>

**Rationale**

The OBMP, the Peace Agreements, and the Implementation Plan all call for a key well monitoring program for groundwater levels as part of Program Element 1. The data generated in Program Element 1 are used for the Biennial State of the Basin Report, Hydraulic Control demonstrations, land-subsidence monitoring, Groundwater Model development and recalibration, material physical injury assessments, the periodic assessment of Safe Yield, the estimation of storage change, evaluating the impacts of desalter production on nearby private wells, the California Statewide Groundwater Elevation Monitoring (CASGEM) Program,<sup>11</sup> the Triennial Ambient Water Quality Recomputation, and the monitoring of water levels near riparian habitat in Prado Basin to evaluate potential impacts from Peace II Agreement activities.<sup>12</sup> Hydraulic Control demonstrations and the Triennial Ambient Water Quality Recomputation are required by the Basin Plan.<sup>13</sup> The groundwater-level monitoring program, as currently implemented, meets the minimum requirements for all the above uses.

**Scope of Work**

The consultant shall perform the following tasks:

- Collect and compile groundwater-level measurements from about 1,200 wells. Of the 1,200 wells, about 130 wells are equipped with transducers that are visited and downloaded quarterly by the consultant and Watermaster field staff. At about 50 wells groundwater-level measurements are measured by Watermaster staff monthly. At about 1,000 wells in and immediately adjacent to the Chino Basin, groundwater-level measurements are measured by appropriators and cooperators, and the data are collected by the consultant or are provided to the consultant from the Watermaster. All data are checked for reasonableness regarding historical data at the well, converted from depth-to-water to groundwater-level elevation, and compiled into HydroDaVE’s centralized database. Sub-tasks include:
  - Schedule field work for consultant field staff.
  - Perform field work. (Field work follows the Standard Operating Procedures [SOPs] defined in the 2014 HCMP Work Plan.)

<sup>11</sup> The California Department of Water Resources (DWR) developed the CASGEM Program in accordance with California State Senate Bill SB 6, which was passed in November 2009. CASGEM is a comprehensive groundwater-elevation monitoring program that utilizes locally implemented monitoring programs to track seasonal and long-term groundwater elevations in the state’s alluvial groundwater basins and subbasins, as defined in DWR Bulletin 118. Pursuant to California Water Code Section 10927, Watermaster submitted an application to the DWR in the fall of 2010 to become the monitoring entity for the Chino and Cucamonga Groundwater Subbasins.

<sup>12</sup> Pursuant to Mitigation Measure 4.4-3 in the Peace II CEQA SEIR, monitoring described in the Adaptive Management Plan for the PBHSP is implemented to ensure that Peace II Agreement activities to not adversely impact Prado Basin riparian habitat.

<sup>13</sup> The Hydraulic Control demonstrations and the Triennial Ambient Water Quality Recomputation are salt-management requirements of the Basin Plan: [http://www.swrcb.ca.gov/santaana/water\\_issues/programs/basin\\_plan/docs/chapter5.pdf](http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/docs/chapter5.pdf)



- Perform field work on an as-needed basis<sup>14</sup> to download transducer data from 30 wells routinely downloaded by Watermaster staff.
- Review and upload manual groundwater-level measurements collected by Watermaster staff monthly to HydroDaVE.
- Process, review, and upload transducer data downloaded quarterly by consultant staff into HydroDaVE.
- Process, review, and upload cooperators groundwater-level measurements collected by the consultant to HydroDaVE.
- Review and upload transducer data downloaded quarterly by Watermaster staff, and Appropriative pool water-level measurements collected by Watermaster staff to HydroDaVE.
- Annual re-evaluation of the key well program due to abandoned and destroyed wells.
- Submittal of groundwater-level data collected at 46 wells to the Chino and Cucamonga CASGEM program<sup>15</sup> on a biennial basis (fall and spring).
- As-needed support subtasks to characterize groundwater levels may include:
  - Create time-series charts of groundwater elevations at wells.
  - Create maps showing groundwater elevation and flow directions.
  - CASGEM program support.

## Deliverables

The consultant shall deliver the following to Watermaster no later than the date or dates indicated:

- All available groundwater-level data collected manually in the field or downloaded from transducers for the period of July 1, 2022 through September 31, 2022 will be uploaded to HydroDaVE by October 15, 2022.
- All available groundwater-level data collected manually in the field or downloaded from transducers for the period of October 1, 2022 through December 31, 2022 will be uploaded to HydroDaVE by January 15, 2023.
- All available groundwater-level data collected manually in the field or downloaded from transducers for the period of January 1, 2023 through March 31, 2023 will be uploaded into HydroDaVE by April 7, 2023.
- All available groundwater-level data collected manually in the field or downloaded from transducers for the period of April 1, 2023 through June 30, 2023 will be uploaded to HydroDaVE by June 30, 2023.
- All available groundwater-level data collected from appropriators in the Chino Basin for the April 1, 2022 through June 30, 2022 period will be uploaded to HydroDaVE by August 30, 2022.
- All available groundwater-level data collected from appropriators in the Chino Basin for the July 1, 2022 through September 30, 2022 period will be uploaded to HydroDaVE by November 30, 2022.
- All available groundwater-level data collected from appropriators in the Chino Basin for the October 1, 2022 through December 31, 2022 period will be uploaded to HydroDaVE by February 28, 2023.
- All available groundwater-level data collected from appropriators in the Chino Basin for the January 1, 2023 through March 31, 2023 period will be uploaded to HydroDaVE by May 31, 2023.

<sup>14</sup> An as-needed budget is provided in the event that Watermaster staff needs assistance in completing the transducer downloads during the target monitoring period for each quarterly download event. The quarterly download of all wells should be completed during the first month at the beginning of each FY quarter—July 2021; October, 2021; January 2022; and April, 2022. Field work will be performed on an as-needed basis, as directed by Watermaster staff.

<sup>15</sup> Watermaster is the designated Monitoring Entity for the Chino and Cucamonga Basins CASGEM program. CASGEM is a mandated statewide monitoring and reporting program for the entire State of California, per the amended California State Water Code SBx7-6 in November 2009.





- All fall 2022 CASGEM data submittals will be provided to the DWR by December 31, 2022. All spring 2023 CASGEM data submittals will be provided to the DWR by June 30, 2023.
- Any as-needed groundwater-level data support documents, such as PowerPoint presentations, maps, charts, and summary reports, will be delivered by the date agreed upon by Watermaster and the consultant.

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**7402, 7403, 7406, 7408 – PE1: Comprehensive Monitoring Program**

**MZ-1 Ground-Level Monitoring Program**

	<b>Cost Estimate</b>
Consultant Labor	\$72,912
Other Direct Costs	\$124,235
<b>Total</b>	<b>\$197,147</b>

**Rationale**

Program Element 4 of the OBMP states that land subsidence and ground fissuring in MZ-1 are not acceptable and, to the extent that the cause is pumping in MZ-1, should be managed to tolerable levels. Watermaster conducts a ground-level monitoring program to support Program Element 4 per the requirements of the Peace Agreement, the subsequently developed and Court-approved Chino Basin Subsidence Management Plan, and the monitoring and mitigation requirements of the Peace II California Environmental Quality Act (CEQA) Supplemental Environmental Impact Report (SEIR).

**Scope of Work**

The consultant shall perform the following tasks:

- Maintain and replace (if necessary) the existing monitoring equipment at extensometer and well facilities in the MZ-1 Managed Area and the Areas of Subsidence Concern.
- Download, check, and store monitoring data from extensometers, wells, and recharge activities in the MZ-1 Managed Area and Areas of Subsidence Concern.
- Conduct ground-level surveys across:
  - Northwest MZ-1 Area. A vertical survey is recommended in FY 2022/23 because of the ongoing subsidence that is occurring in Northwest MZ-1 and will support the development of a subsidence management plan in Northwest MZ-1.
- Conduct InSAR monitoring of ground motion across western Chino Basin from March 2022 to March 2023 using information collected by the TerraSAR-X satellite.

**Deliverables**

The consultant shall deliver the following to Watermaster no later than the date or dates indicated:

- All ground-level monitoring data, available as of May 1, 2023, will be uploaded into Watermaster’s database by June 30, 2023.



**7302, 7306 – PE1: Comprehensive Monitoring Program**

**Prado Basin Habitat Monitoring, Data Analysis and Reporting – 50% IEUA Cost Share**

	<b>Cost</b>
	<b>Estimate<sup>16</sup></b>
Consultant Labor	\$139,328
Other Direct Costs	\$44,045
<b>Total</b>	<b>\$183,373</b>

**Rationale**

Mitigation Measure 4.4-3 of the Peace II CEQA SEIR (Biological Resources/Land Use & Planning) calls for the IEUA, Watermaster, and the Orange County Water District to form the Prado Basin Habitat Sustainability Committee (PBHSC). The purpose of the PBHSC is to ensure that the Peace II Agreement actions will not significantly or adversely impact the Prado Basin riparian habitat. The responsibilities of the PBHSC are to develop and implement an adaptive monitoring program for the Prado Basin Habitat Sustainability Program (PBHSP) and to prepare annual reports that include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured or prospective loss of riparian habitat that is attributable to the Peace II Agreement.

**Scope of Work**

The PBHSP is implemented as described in the Adaptive Management Plan and the recommendations in the 2020 Annual Report. The PBHSP includes the implementation of a monitoring program and the preparation of an annual report. The monitoring program includes monitoring of riparian habitat and all factors that can affect the riparian habitat such as changes in groundwater levels, surface water discharge, climate, and other factors.<sup>17</sup> This work includes the following:

- Collect, compile, and review the following riparian habitat data:
  - High-resolution air photo of the Prado Basin region in July 2022
  - Landsat data in the Prado Basin region over the 2022 water year
  - Perform field vegetation surveys in the summer of 2022
- Collect, compile, review, and upload the 2022 climatic data to HydroDaVE.
- Analyze data and prepare a draft and final 2022 Annual Report of the PBHSC.
- Prepare a Recommended Scope and Budget of the PBHSP for FY 2023/24.
- Prepare for and participate in PBHSC meetings.

**Deliverables**

The consultant shall deliver the following to Watermaster no later than the date or dates indicated:

- All riparian habitat and climatic data through water year 2022 uploaded to HydroDaVE by Nov 30, 2022.
- Draft Annual Report of the PBHSC by May 10, 2023.

<sup>16</sup> IEUA cost share of \$71,754 will partially fund the completion of this task.

<sup>17</sup> The groundwater and surface water monitoring components of the PBHSP are included with Tasks 7103.3 and 7104.3 because the data collected are also used for basin-wide monitoring efforts such as for the Biennial State of the Basin report, groundwater modeling, demonstration of Hydraulic Control, and the triennial Ambient Groundwater Quality Recomputation.



- Final Annual Report of the PBHSC by June 10, 2023.
- A Recommended Scope and Budget memorandum for the PBHSP for FY 2023/24.

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**7202 – PE1: Comprehensive Monitoring Program**

**Recharge and Well Monitoring Program: Review Documents for Chino Basin Recycled Water GW Recharge Program**

	<b>Cost Estimate</b>
Consultant Labor	\$30,600
Other Direct Costs	\$0
<b>Total</b>	<b>\$30,600</b>

**Rationale**

The IEUA and Watermaster are required to submit specific reports as part of the Chino Basin Recycled Water Groundwater Recharge Program (RWGRP). The RWGRP is being implemented by the IEUA and Watermaster as co-permittees. Annual reporting is performed pursuant to the requirements of the following orders:

- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2007-0039. Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, June 29, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, June 29, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2009-0057 Amending Order No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, October 23, 2009.
- California Regional Water Quality Control Board, Santa Ana Region. Revised Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water

Watermaster prepares reports pertaining to the HCMP with IEUA review. IEUA prepares reports pertaining to the RWGRP with Watermaster review.<sup>18</sup>

**Scope of Work**

The Consultant will review quarterly and annual reports prepared by the IEUA for the RWGRP as well as other reports prepared by the IEUA pursuant to the recharge permit. The Consultant will also review other reports or as needed analyses prepared by IEUA per the direction of the Regional Board and the California Department of Drinking Water (DDW), such as additional monitoring orders or required analyses to demonstrate compliance. The Consultant will provide comments and recommendations to the IEUA through the Watermaster as the co-permittee.

**Deliverables**

The consultant will provide comments on the aforementioned reports and analyses within ten days of their receipt.

<sup>18</sup> This is a component of the “Bright-Line Agreement” between Watermaster and the IEUA.



**5925 – PE1: Comprehensive Monitoring Program**

**Agricultural Production Estimation**

	<b>Cost Estimate</b>
Consultant Labor	\$38,552
Other Direct Costs	\$19,000
<b>Total</b>	<b>\$57,552</b>

**Rationale**

The Court’s April 28, 2017 order regarding the 2011 Safe Yield reset (Court Order) contains a requirement for annual data collection and evaluation (Court Order p. 16-17). The Consultant drafted a proposed process to comply with this and other requirements of the Court Order, which Watermaster presented for comment to the Pools and Advisory Committee in August 2020. Part of the proposed data collection and documentation included the following proposal for documenting groundwater pumping records and estimates:

- Initially, Watermaster will document its process to ensure that all active wells are metered, and if wells cannot be metered, explain why, and describe the alternative methodology used to estimate pumping at these wells. This documentation will include exhibits that, for every known pumping well in the Basin, characterize its attributes (owner, location, well construction, pumping capacity, other information) and the pumping estimate method (metering or other methods). Annually, the document will be updated with tables and charts that characterize: existing and new wells added during the reporting year (owner, location, start of service, well construction, pumping capacity, other information); wells that went out of service (owner, end of service, abandoned or destroyed, other information); pumping estimates developed from meters and other methods; and a list of challenges in obtaining information on wells (access to well site for inspection and meter testing, failure by Parties to report pumping, others).

This work commenced in fiscal year 2020/21. In fiscal year 2021/22, the Consultant developed and documented updated water duty methods to estimate pumping in the agricultural pool. With approval from Watermaster staff, the Consultant hired a subconsultant (Land IQ) to assist with crop surveys and water use estimation for the irrigated crop areas in the Chino Basin. The subconsultant will be retained for fiscal year 2022/23.

**Scope of Work**

In FY 2022/23, the Consultant will continue to assist Watermaster staff in the development of new information and collection of data from Watermaster parties, CIMIS, Land IQ, and other sources required to estimate agricultural and other Pool 1 parties pumping to implement the water duty method documented in fiscal year 2021/22. This will involve meetings, as-needed consulting and coordination with Land IQ to implement the water duty estimating procedure, and review of Watermaster staff pumping estimates. The scope of this task does not include the data collection review meetings that will be conducted as part of Watermaster’s work to implement the April 28, 2017 Court Order.

**Deliverables**

The Consultant will provide guidance to Watermaster staff on implementing the water duty computing procedure, attend meetings, reviewing Watermaster staff pumping estimates as they are produced, and prepare either written or oral comments as directed by Watermaster staff. The Consultant’s deliverables for as-need requests will be determined with each request.



**5965 – PE1: Comprehensive Monitoring Program**

**Support for Implementation of Improved Data Collection and Management Process**

	<b>Cost Estimate</b>
Consultant Labor	\$14,568
Other Direct Costs	\$0
<b>Total</b>	<b>\$14,568</b>

**Rationale**

Watermaster collects and manages multiple datasets from the Watermaster Parties (Parties) and the IEUA to support the management of the Chino Basin pursuant to the 1978 Judgement, the ongoing implementation of the OBMP, and the regulatory requirements of State and local agencies. Additionally, the IEUA requests and collects analogous datasets from some of the Parties located within IEUA’s service area. As such, the Parties sometimes receive duplicate requests for data and information, and the datasets collected separately by Watermaster and the IEUA can contain discrepancies.

In FY 2019/20, Watermaster requested WEI to develop a recommendation for an improved data collection and management process to eliminate duplicate data requests, avoid discrepancies between collected datasets, and create a centralized location for Watermaster and IEUA to access the data. The recommended process includes a structured system where data are collected and managed by Watermaster monthly or annually using uniform data templates customized for each Party and is made accessible at a centralized location for Watermaster and the IEUA. In FY 2020/21 and 2021/22, Watermaster began development and implementation of the improved process by developing an online Data Portal for data collection and management, developing data templates for Parties to upload monthly data (production, water levels, water supply), and beta testing the of the Data Portal with some agencies. In FY 2022/23 the Watermaster will continue develop and implement the Data Portal for use by all parties to submit monthly data and for the collection and verification of annual data needed to support modeling work, such as water use projections and well pumping capacities.

**Scope of Work**

This task includes support services to assist Watermaster staff in the implementation of the improved data collection and management process. The Consultant will work closely with Watermaster staff to provide as-needed support for the continued development and implementation of the Data Portal and process in FY 2022/23 including development and review of data-collection templates, and assistance for describing the new process to the Parties. The Consultant will also assist with analyzing the collected data to confirm that the improved process meets the needs of Watermaster’s and IEUA’s management and regulatory requirements.

**Deliverables**

The deliverables and associated schedule will be defined by Watermaster staff upon task kick-off.



**7202.2 – PE2: Comprehensive Recharge Program**

**General Engineering Services**

	<b>Cost Estimate</b>
Consultant Labor	\$57,016
Other Direct Costs	\$1,300
<b>Total</b>	<b>\$58,316</b>

**Rationale**

Watermaster and the IEUA began implementing the 2013 Amendment to the 2010 Recharge Master Plan (RMPU) in FY 2014/15. The services anticipated in FY 2022/23 include technical support (numerical model simulations, hydraulic calculations, project refinement, conceptual integrity review, etc.) to assist Watermaster and the IEUA in the start-up of the 2013 RMPU projects and evaluate non-2013 RMPU projects, monthly meetings with IEUA and Watermaster staff to review the progress of the RMPU projects, and collecting and cataloguing MS4 data from the Parties. At Watermaster’s request, the consultant will attend quarterly GRCC and RIPComm meetings.

**Scope of Work**

- Attend GRCC, RIPComm and other meetings with Watermaster and IEUA staffs.
- Perform as-requested technical support for the start-up of the 2013 RMPU projects.
- Collect MS4 data from the Parties.

**Deliverables**

Identified in rationale and scope-of-work above.





**7202.2 – PE2: Comprehensive Recharge Program**

**Engineering Services for Other Recharge Improvement Projects**

	<b>Cost</b>
	<b>Estimate<sup>19</sup></b>
Consultant Labor	\$95,586
Other Direct Costs	\$414
<b>Total</b>	<b>\$96,000</b>

**Rationale**

Watermaster and the IEUA began implementing the 2013 Amendment to the 2010 Recharge Master Plan (RMPU) in FY 2014/15. The construction of the five 2013 RMPU projects is expected to be completed in 2021. In 2019, the Groundwater Recharge Operator identified potential improvements at three basins to ensure that the 2013 RMPU projects operate as intended. These improvements were not included in the 2013 RMPU.

IEUA operates three (3) groundwater recharge basins where improvements are recommended: Etiwanda, San Sevaine, and Jurupa Basins. The recommended improvements are:

- **Conservation berms.** There is an existing conservation berm within each of the three basins that contains the runoff from lower flow events for recharge while allowing higher flow runoff to pass over the berm and fill the basin. These existing conservation berms are subject to damage, requiring frequent maintenance. Additionally, there is a potential to increase the amount of storage for recharge by increasing the height of the berms. The Watermaster and IEUA propose to investigate improved berm designs to increase recharge.
- **Trash collection system.** The Jurupa Basin has an existing pump station. The Watermaster and IEUA propose to modify this intake to improve trash and debris collection.
- **Basin-floor reconfiguration.** The Jurupa Basin has relatively low infiltration rates. According to a geophysical study conducted by Ramboll, the infiltration rate of the basin may increase with depth in certain areas. The Watermaster and IEUA propose to increase recharge by re-grading the Jurupa Basin such that the higher infiltration rates are maximized.

The objective of this task is to analyze various methods to construct a more stable conservation berm; compare life cycle costs of alternatives for conservation berm reconstruction to the existing condition (a no-project alternative); and review alternatives to improve trash collection at the Jurupa Basin pump station inlet and compare the cost of these alternative methods.

In FY 2020/21, the engineering scope was defined with input from IEUA and Watermaster staff. It was determined that (1) no work would be completed to address the basin floor configuration at the Jurupa Basin; and (2) the first projects to be analyzed in were the conservation berm and trash collection system at the Jurupa Basin. This analysis was completed in FY 2021/22. The remainder of the projects – the conservation berms at San Sevaine 1 and Etiwanda Debris Basin – will be analyzed in FY 2022/23.

**Scope of Work**

The following is a list of the key tasks necessary to perform this proposed Scope of Services:

- Task 1. Meetings and Project Management
- Task 2. Review of Alternative Conservation Berm Cross Sections
- Task 3. Prepare Cost Estimates and Life Cycle Cost Comparisons

<sup>19</sup> Carryover funds of \$96,000 will fund the completion of this task.



- Task 4. Prepare Technical Memorandum

### Deliverables

The deliverables for this task will include a technical memorandum summarizing the results of the analyses:

- Documentation of the operation of the two basins and the condition of the existing conservation berm in each basin.
- Figures illustrating the range of flows/storage/water levels at the Etiwanda and San Sevaine basins.
- Figures showing alternative cross sections for new or improved conservation berms.
- Evaluation of the advantages and disadvantages of the alternative berm cross sections, including a no-project alternative.
- Preliminary construction and life cycle costs for berm alternatives, including a no-project alternative.
- Recommendation of a preferred alternative for the conservation berms.
- Recommendation on next implementation steps.

DRAFT

**7208 – PE2 – Recharge Basin O&M Expenses:**

**SB88 Specification to Ensure Compliance with Regulations – GRCC/IEUA Cost Share**

	<b>Budget<sup>20</sup></b>
Consultant Labor	\$71,040
Other Direct Costs	\$36,985
<b>Total</b>	<b>\$108,025</b>

**Rationale**

Watermaster holds three diversion permits, issued by the SWRCB, that provide authorization to Watermaster to divert and recharge storm and dry-weather discharge. Presently, the amount of water diverted is estimated by the IEUA and reported to the Watermaster. Watermaster subsequently reports the amount of water recharged to the SWRCB pursuant to its permits and SWRCB regulations in Title 23, Chapter 2.7.

Watermaster holds three diversion permits, issued by the State Water Resources Control Board (SWRCB), that authorize it to divert and recharge storm and dry-weather discharge. Presently, the amount of water diverted is calculated by the IEUA and reported to Watermaster.

SB88 was signed into law by Governor Brown on June 24, 2015, adding new measurement, reporting, and accuracy requirements for a substantial number of diverters, including the Chino Basin Watermaster, and the SWRCB created new regulations to implement SB88. Watermaster reports the amount of water recharged to the SWRCB pursuant to its permits, Title 23, Division 3, Chapter 2.7 – Water Rights Diversion and Use Reports, and Title 23, Division 3, Chapter 2.8 – Measuring and Monitoring (SB88).

From October 2015 through April 2016, Watermaster engineer collaborated with IEUA staff to evaluate their methods to calculate stormwater capture considering the new SB88 requirements. During this evaluation, Watermaster engineer identified data and analysis challenges and the need for data acquisition and methodological improvements to calculate stormwater capture, including the maintenance plans of water-level sensors, the methodology used in the absence of water-level sensors, sensor reference elevations, and others.

In FY 2020/21, Watermaster engineer collaborated with IEUA and Watermaster staff to further evaluate the existing methodology to estimate stormwater diversions and recharge in the Chino Basin and developed recommendations to improve the accuracy of the methodology. The scope of work is to provide as-needed support in the implementation of the recommended actions to improve stormwater diversion and recharge estimates.

**Scope of Work**

This task provides engineering services to assist Watermaster and IEUA staff in the in the implementation of the recommended actions to improve stormwater diversion and recharge estimates, as directed by Watermaster.

**Deliverables**

Identified in rationale and scope-of-work above.

<sup>20</sup> IEUA cost share of \$54,694 and Carryover funds of \$54,694 will fund the completion of this task.



**7210 – PE2: Comprehensive Recharge Program**

**2023 Recharge Master Plan Update**

	<b>Cost Estimate</b>
Consultant Labor	\$212,920
Other Direct Costs	\$0
<b>Total</b>	<b>\$212,920</b>

**Rationale**

Pursuant to the Peace II Agreement, Watermaster and the IEUA must update and/or amend the Recharge Master Plan for the Chino Basin no less than every five years. The most recent update, the 2018 Recharge Master Plan, was completed and submitted to the Court in October 2018. The next Recharge Master Plan update (RMPU) must be completed and submitted to the Court in October 2023.

During FY 2020/21, the stakeholders determined that they do not want to evaluate new recharge projects in the 2023 RMPU. Thus, the 2023 RMPU will have a similar to scope as that of the 2018 RMPU.

**Scope of Work**

The following is a list of the key tasks necessary to perform this proposed Scope of Services through completion of the RMPU in October 2023:

- Evaluate recharge needs to ensure future replenishment capacity, balance of recharge and discharge and to meet other OBMP requirements. This includes evaluating the availability and reliability of supplemental water sourced for recharge and replenishment.
- Describe existing recharge facilities. This includes reviewing and describing legislative and regulatory requirements for stormwater management, historical operations and performance of existing spreading facilities and ASR wells, in-lieu recharge operations and performance for existing facilities, etc.
- Develop a renewal/replacement plan for the existing facilities. This includes developing a complete inventory of existing facilities including estimates of value and remaining useful life, developing replacement forecasts based on age, and developing a roadmap for implementing a renewal/replacement plan. This will be conducted in coordination with IEUA’s asset management process.
- Prepare 2023 RMPU
- Prepare for and participate at steering committee meetings

**Deliverables**

Draft sections of the 2023 RMPU report related to: changed conditions from the 2018 RMPU; groundwater response to projected pumping, recharge, and replenishment; existing and planned recharge facilities; and a renewal/replacement plan for the existing facilities. The draft and final 2023 RMPU reports will be completed in FY 2023/24.



**7303 – PE3/5: Water Supply Plan – Desalters**

**Engineering Services**

	<b>Cost Estimate</b>
Consultant Labor	\$19,776
Other Direct Costs	\$0
<b>Total</b>	<b>\$19,776</b>

**Rationale**

The 2004 Basin Plan Amendment approved by the Regional Board and the State Water Resources Control Board established the “maximum benefit” objectives and established certain milestones that must be achieved by Watermaster and the IEUA. To demonstrate compliance with the Regional Board order, Watermaster and the IEUA agreed to achieve Hydraulic Control. The well fields of the Chino Basin Desalter Authority (CDA) are critical to the achievement and maintenance of Hydraulic Control and the demonstration of maximum benefit. The CDA periodically submits status reports to Watermaster regarding CDA operations, which are important information to the evaluation of Hydraulic Control. Furthermore, the CDA sometimes requests from the Watermaster technical assistance, data, information, and attendance at meetings with regulators to support desalter expansion, and the development and implementation of a monitoring and reporting plan for the CDA clean-up project funded by Prop 1 Grant Agreement No. D1712507.

**Scope of Work**

The consultant shall perform the following tasks at the discretion of the Watermaster General Manager:

- Review and prepare comments on CDA status reports.
- Perform ad hoc analyses requested by the Watermaster General Manager or the CDA.
- Fulfill requests for hydrologic data, model files, PowerPoint presentations, maps, charts, technical reports, etc., as requested by the CDA or its consultants.
- Attend meetings and conference calls, as requested by the CDA or its consultants.

**Deliverables**

The consultant shall deliver the following, at the discretion of the Watermaster General Manager:

- Written comments on the CDA status reports, as requested by the Watermaster general manager.
- PowerPoint presentations, maps, charts, model files, data, technical reports, and recommendations as requested by the CDA.
- Written summaries of meetings.



**7402 – PE4: Management Zone Strategies**

**MZ-1: Data Analyses, Reports, Meetings, and Administration**

	<b>Cost Estimate</b>
Consultant Labor	\$131,748
Other Direct Costs	\$12,447
<b>Total</b>	<b>\$144,195</b>

**Rationale**

Program Element 4 of the OBMP states that land subsidence and ground fissuring in MZ-1 are not acceptable and, to the extent that the cause is pumping, should be managed to tolerable levels. Watermaster conducts a ground-motion monitoring program to support this Program Element per the requirements of the Peace Agreement, the subsequently developed Court-approved MZ-1 Subsidence Management Plan (MZ-1 Plan) and its revisions (2015 Chino Basin Subsidence Management Plan), and the monitoring and mitigation requirements of the Peace II CEQA SEIR. The Subsidence Management Plan calls for the annual evaluation of data derived from the monitoring program and revisions to the Subsidence Management Plan and/or the monitoring program if necessary.

**Scope of Work**

The consultant shall perform the following tasks:

- Prepare the draft FY 2021/22 Annual Report of the Ground Level Monitoring Committee (GLMC).
- Finalize the FY 2021/22 Annual Report of the GLMC based on comments received from the GLMC.
- Analyze all data collected during FY 2022/23 under the ground-motion monitoring program in preparation of the FY 2022/23 Annual Report of the GLMC. These data include groundwater levels, groundwater production, aquifer recharge, aquifer-system deformation, tectonic deformation, pumping test results, ground-level surveys, horizontal strain, and InSAR.
- Conduct meetings with the GLMC to review the data and analyses and develop a list of potential activities and cost estimates for FY 2023/24.

**Deliverables**

The consultant shall deliver the following to Watermaster no later than the date or dates indicated:

- The FY 2021/22 Annual Report of the GLMC by November 1, 2022, featuring charts and maps of monitoring data, conclusions regarding the protective nature of the Subsidence Management Plan, the Watermaster-approved activities for the next fiscal year (FY 2022/23), and the revised Subsidence Management Plan, if revisions are necessary.



## 7402.1 – PE4: Management Zone Strategies

### MZ-1: Develop a Subsidence Management Plan for Northwest MZ-1

	Cost Estimate <sup>21</sup>
Consultant Labor	\$172,000
Other Direct Costs	\$138
<b>Total</b>	<b>\$172,138</b>

#### Rationale

The MZ-1 Subsidence Management Plan (MZ-1 Plan) states that if data from existing monitoring efforts in the Areas of Subsidence Concern indicate the potential for adverse impacts due to subsidence, Watermaster will revise the MZ-1 Plan in an attempt to avoid adverse impacts. Land subsidence in Northwest MZ-1 was first identified as a concern in the MZ-1 Summary Report (2006) and in the MZ-1 Plan (2007). Since then, Watermaster has been monitoring subsidence in this area via InSAR, leveling surveys, and groundwater-levels with pressure transducers at selected wells. Of particular concern, subsidence in Northwest MZ-1 has occurred differentially across the San Jose Fault—the same pattern of differential subsidence that occurred in the MZ1 Managed Area during the time of ground fissuring. Watermaster, consistent with the Ground Level Monitoring Committee’s (GLMC) recommendation, determined that the MZ-1 Plan needs to be updated to include a *Subsidence Management Plan for Northwest MZ-1* with the long-term objective of minimizing or abating the occurrence of the differential land subsidence.

Developing a Subsidence Management Plan for Northwest MZ-1 is a multi-year effort. The GLMC has recommended a work plan<sup>22</sup> to execute this effort. The scope of work below describes the next year of the work plan.

#### Scope of Work

The consultant shall perform the following tasks to implement the work plan to develop a Subsidence Management Plan for Northwest MZ-1:

- Monitoring.** The monitoring of piezometric levels and pumping at wells in Northwest MZ-1 will continue through various techniques, including: (i) SCADA-based monitoring by the Monte Vista Water District; (ii) monitoring of piezometric levels via sonar; (iii) monitoring of piezometric levels via pressure transducers at City of Pomona production wells; and (iv) manual measurements of piezometric levels. The Pomona Extensometer (PX) facility will measure and record piezometric and aquifer-system-deformation data. These data will improve the understanding of the hydrogeology in Northwest MZ-1, will be used to develop the Subsidence Management Plan for Northwest MZ-1, and will be used to update the plan in the future as appropriate.
- Refine and evaluate the Subsidence-Management Alternatives.** This task will help answer the question: What are potential methods to manage the land subsidence in Northwest MZ-1 over the planning horizon? The 1D compaction models at MVWD-28 and PX will be used to characterize the mechanical response of the aquifer-system to a Baseline Management Alternative (BMA). A draft TM will be prepared that summarizes the evaluation of the BMA, particularly, the ability of the BMA to raise and hold piezometric levels above the estimated pre-consolidation stresses. The draft TM may also include a recommendation for the Initial Subsidence Management Alternative (ISMA) if the BMA is not successful at minimizing or abating land subsidence over the planning horizon. The assumptions of the ISMA, including the groundwater production and replenishment plans of the Chino Basin parties, will be described and must be

<sup>21</sup> Carryover funds of \$89,096 will partially fund the completion of this task.

<sup>22</sup> [CBWM. 2015. Workplan to Develop a Subsidence Management Plan for the Northwest MZ-1 Area.](#)



agreed upon by the GLMC. A GLMC meeting will be held to review the model results and evaluation of the BMA, review the recommended ISMA, and to receive feedback on the draft TM.

After the recommended ISMA is agreed upon by the GLMC, the Watermaster's MODFLOW model will be updated to run the ISMA and will be used to estimate the hydraulic head response to the ISMA at the MVWD-28 and PX locations. The projected hydraulic heads generated from the MODFLOW model using the ISMA will be extracted from the MODFLOW model results at the MVWD-28 and PX locations and will be used as input files for both 1D compaction models. The 1D compaction models will then be run to characterize the mechanical response of the aquifer-system to the ISMA at both the MVWD-28 and PX locations.

A draft TM will be prepared that summarizes the evaluation of the ISMA, particularly, the ability of the ISMA to raise and hold piezometric levels above the estimated pre-consolidation stresses. The draft TM may also include a recommendation for a second Subsidence-Management Alternative (SMA-2), if the ISMA is not successful at raising and holding hydraulic heads above the estimated pre-consolidation stresses. The assumptions of the SMA 2, including the groundwater production and replenishment plans of the Chino Basin parties, will be described, and must be agreed upon by the GLMC. A GLMC meeting will be held to review the model results and evaluation of the ISMA, review the recommended SMA-2, and to receive feedback on the TM.

If necessary and recommended by the GLMC, additional subsidence management alternative scenarios may be run in FY 2023/24. It is currently envisioned by the GLMC that, based on the results of the 1D compaction model results, the GLMC may recommend an update to the Watermaster's Subsidence Management Plan in FY 2023/24 to minimize or abate the future occurrence of land subsidence in Northwest MZ-1.

## Deliverables

The consultant shall deliver the following to Watermaster:

- Two draft technical memorandums will be prepared to document the evaluation of BMA and ISMA. The draft technical memoranda will be distributed to the GLMC for review and comment. Final technical memorandums will be prepared that incorporate the feedback and comments from the GLMC.



**7502 – PE6/7: Cooperative Efforts/Salt Management**

**As-needed consulting for water quality, plumes, and Maximum Benefit Annual Reporting**

	<b>Cost Estimate</b>
Consultant Labor	\$145,704
Other Direct Costs	\$700
<b>Total</b>	<b>\$146,404</b>

**Rationale**

In the Judgment, Watermaster is provided with discretionary powers to address water quality issues in the basin: “Watermaster, with the advice of the Advisory and Pool Committees, is granted discretionary powers in order to develop an optimum basin management program for Chino Basin, including both water quantity and quality considerations.” In the Implementation Plan of the Peace Agreement, Watermaster committed to certain responsibilities under Program Elements 6 and 7.<sup>23</sup>

Pursuant to Program Element 6, Watermaster can improve water quality management in the Basin by committing resources to:

- Identify water-quality anomalies through monitoring.
- Assist the Regional Board in determining sources of the water quality anomalies.
- Establish priorities for clean-up jointly with the Regional Board; and seek funding from outside sources to accelerate detection and cleanup efforts.
- Remove organic contaminants through regional groundwater treatment projects in the southern half of the Basin.
- Conduct investigations to assist the Regional Board in accomplishing mutually beneficial objectives.

Pursuant to Program Element 7, and to satisfy the requirements of the Basin Plan<sup>24</sup>, the Watermaster prepares the Maximum Benefit Annual Report. The report describes the status of compliance with the nine maximum benefit commitments defined in the Basin Plan. The commitments are salt management requirements of the Watermaster and IEUA for the application of less-stringent TDS and nitrate-nitrogen maximum-benefit objectives. The Basin Plan states: “If the Regional Board determines that the maximum benefit program is not being implemented effectively in accordance with the schedule shown in Table 5-8a, then maximum benefit is not demonstrated, and the ‘antidegradation’ TDS and nitrate-nitrogen objectives for the Chino 1, 2, and 3 and Cucamonga Management Zones apply.” In this situation, the Regional Board will require mitigation for TDS and nitrate-nitrogen discharges to these management zones that took place in excess of the limits, based on the “antidegradation” objectives, and applied retroactively to January 2004. The annual report is due by April 15<sup>th</sup> each year.

<sup>23</sup> Program Element 6 – Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management. Program Element 7 – Salt Management Program.

<sup>24</sup>[http://www.swrcb.ca.gov/santaana/water\\_issues/programs/basin\\_plan/docs/chapter5.pdf](http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/docs/chapter5.pdf)



## Scope of Work

The consultant shall perform the following tasks:

- **As-needed consulting for the Chino Airport Plume, South Archibald Plume, and other point sources of concern.** This task provides for as-needed consulting services in the analysis of various point-source contaminant plumes, including the South Archibald VOC plume and the Chino Airport VOC plume.
  - South Archibald Plume. Subtasks include:
    - Prepare semi-annual plume status reports for the Watermaster Pools, Advisory Committee, and Board meetings.
    - Assist Watermaster with coordination and negotiation with the South Archibald plume parties and Regional Board.
    - Provide technical oversight and review of plume investigation and remediation reports.
    - Prepare as-requested technical analyses, such as analyze groundwater-elevation and quality data, develop revised VOC plume maps, and/or perform groundwater model runs to demonstrate the capture of the plume by the desalter well fields.
  - Chino Airport Plume. Subtasks include:
    - Prepare semi-annual plume status reports for the Watermaster Pools, Advisory Committee, and Board meetings.
    - Assist Watermaster with coordination and negotiation with the Chino Airport plume responsible party.
    - Provide technical oversight and review of plume investigation and remediation reports.
    - Prepare as-requested technical analyses, such as analyze groundwater-elevation and quality data, develop revised VOC plume maps, and/or perform groundwater model runs to estimate plume capture, and provide the CDA design engineers with estimated influent concentrations of TDS, nitrate, trichloroethene (TCE), and 1,2,3-trichloropropane (1,2,3-TCP).
  - Other point sources of concern. Other point sources of concern include but are not limited to, the General Electric Flatiron Facility, General Electric Test Cell Facility, Rialto-Colton perchlorate plume, the Alumax Recycling Facility, Kaiser Steel Mill, Milliken Landfill, and the Stringfellow site. Subtasks could include:
    - Provide technical oversight and review of investigations and remediation reports.
    - Prepare annual plume status report for the Watermaster Pools, Advisory Committee, and Board meetings.
    - Prepare as-requested technical analyses, such as analyze groundwater-elevation and quality data, review potential impacts to Chino Basin water quality, and/or develop revised plume delineations.
- **As-needed consulting for non-point sources of contamination:**
  - In FY 2021/2022, Watermaster and the Regional Board began discussions on the need for a grant-funded investigation on the emerging contaminants per and polyfluoroalkyl substances (PFAS) in the Chino Basin that would benefit the Regional Board and the Chino Basin stakeholders with the imminent regulation of PFAS in water. In FY 2022/2023, Watermaster will help develop a scope-of-work for a PFAS study based on recommendations by the Regional Board and provide support to the IEUA with their efforts to prepare and submit a grant application for this study.
  - Prepare as-requested technical analyses of water quality.

- **Prepare the 2022 Maximum Benefit Annual Report.** This includes:
  - Analyze and interpret the data and compare with metrics. All data required for reporting in the 2022 Maximum Benefit Annual Report shall be analyzed by the consultant and used to support the demonstration of compliance with the Maximum-Benefit commitments contained in the Basin Plan.
  - Reporting. The consultant shall prepare a draft 2022 Maximum Benefit Annual Report. This report will be submitted to Watermaster and the IEUA for review. Comments will be incorporated, and the consultant shall prepare the final 2022 Maximum Benefit Annual Report for submittal to the Regional Board. The consultant will respond to comments from the Regional Board, the Orange County Water District, and other stakeholders, as necessary.
  - Ad-hoc meetings. Prepare for and attend meetings with Watermaster staff, IEUA staff, and/or Regional Board staff, as requested, to present the draft and final 2022 Maximum Benefit Annual Reports.

## Deliverables

The consultant shall deliver the following to Watermaster:

- Maps, charts, tables, handouts, PowerPoint presentations, technical memorandums, and reports, as specified.
- Annual plume status reports for the Watermaster Pools, Advisory Committee, and Board meetings in October 2022 by October 6, 2022.
- Semi-annual plume status reports for the Watermaster Pools, Advisory Committee, and Board meetings in October 2022 by October 6, 2022.
- Semi-annual plume status reports for the Watermaster Pools, Advisory Committee, and Board meetings in April 2023 by April 6, 2023.
- Scope of work for a grant-funded PFAS investigation in the Chino Basin.
- Ad-hoc analysis of water quality for point and non-point contamination.
- Draft Annual 2022 Maximum Benefit Annual Report by April 2, 2023.
- Final Annual 2022 Maximum Benefit Annual Report by April 15, 2023.

**7510 – PE6/7: Cooperative Efforts/Salt Management**

**Update IEUA’s Recycled Water Permits/Maximum Benefit Salinity Management Plan for the Chino Basin – IEUA Cost Share**

	<b>Cost</b>
	<b>Estimate<sup>25</sup></b>
Consultant Labor	\$60,284
Other Direct Costs	\$0
<b>Total</b>	<b>\$60,284</b>

**Rationale**

In 2004, The Regional Board amended the Basin Plan to incorporate the maximum benefit SNMP for the Chino Basin to incorporate numerically higher, maximum-benefit-based TDS and nitrate objectives for the Chino-North groundwater management zone. The maximum benefit objectives created assimilative capacity for TDS and increased the nitrate objective to enable the cost-efficient, maximum reuse of recycled water for irrigation and recharge. The SNMP includes nine maximum benefit commitments that Watermaster and the IEUA must implement to obtain continued access to the maximum-benefit objectives. Maximum benefit commitment number 6, specifies:

“Within 60 days after the IEUA 12-month running average effluent concentration (measured as an average for all IEUA wastewater treatment facilities) for TDS exceeds 545 mg/L for 3 consecutive months, or the 12-month running average total inorganic nitrogen (TIN) concentration (measured as an average for all IEUA wastewater treatment facilities) exceeds 8 mg/L in any month, the IEUA shall submit to the Regional Board a plan and time schedule for implementation of measures to insure that the 12-month running average agency wastewater effluent quality does not exceed 550 mg/L and 8 mg/L for TDS and TIN, respectively. The Plan and schedule are to be implemented upon Regional Board approval.”

In 2015, the TDS concentration in recycled water produced by the IEUA approached but did not reach the regulatory limits that would require the IEUA and Watermaster to submit a plan and schedule to manage recycled water TDS concentrations. Although the TDS concentration declined from the 2015 peak before exceeding the regulatory limit, it was an important indicator that the TDS concentration of recycled water is likely to approach or exceed the discharge limitation and trigger the planning for recycled water quality improvements during the next prolonged dry period. Given the potential cost of implementing recycled water quality improvements for what might only be short-term exceedances of the 12-month running average limitation, the IEUA and Watermaster are interested in modifying the recycled water permits and the Basin Plan to allow for a longer-term averaging period for TDS concentrations.

To obtain approval from the Regional Board for the Basin Plan modifications, and any associated permit modifications, the IEUA and Watermaster must perform a detailed evaluation of the TDS and nitrate concentration impacts to Chino Basin groundwater. The objective of the evaluation is to compare the relative water quality and economic impacts of the existing and proposed regulatory compliance strategies. The objectives of the WEI scope of work to support the Basin Plan amendment are: to develop and use updated modeling tools to evaluate the TDS and nitrate concentrations of the Chino Basin; to define alternative salinity management scenarios and perform an antidegradation analysis; to use the results to develop a regulatory compliance strategy that includes a longer-term average period for recycled water TDS concentrations; to support the negotiation of a final compliance strategy with the Regional Board; and to provide required assistance to the Regional Board to prepare a Basin Plan amendment.

The tasks to complete the work are:

- Task 1 – Develop Planning Data

<sup>25</sup> IEUA cost share of \$115,366 and Carryover funds of \$73,975 will fund the completion of this task.



- Task 2 – Develop Planning Alternatives
- Task 3 – Develop Solute Transport Model Based on the 2017 Chino Basin Watermaster Model and Evaluate Baseline Planning Scenario
- Task 4 – Evaluate Planning Scenarios
- Task 5 – Develop Salinity Management Proposal
- Task 6 – Provide Support to IEUA/ Watermaster in Communicating the Salinity Management Proposal to Their Stakeholders
- Task 7 - Provide Technical Support to IEUA/ Watermaster in Negotiating the Salinity Management Proposal with the Regional Board
- Task 8 - Support Development of a Basin Plan Amendment to Formalize the Salinity Management Proposal
- Task 9 – Meetings and Project Management

Watermaster and the IEUA began implementing this scope of work in FY 2017/18. Tasks 1 through 5 are complete as of June 30, 2021 and Tasks 6 through 9 are ongoing until the Regional Board accepts the Salinity Management Proposal and approves it for incorporation into the Basin Plan.

### Scope of Work

The consultant shall perform the following tasks in FY 2022/23:

- Attend meetings with Regional Board Staff to review and finalize the proposal.
- Attend meetings to present the proposal to stakeholders.
- Prepare updates to the Salinity Management Proposal based on Regional Board feedback and finalize.
- Support CEQA consultant in preparing the Substitute Environmental Document (SED).
- Support the Regional Board in applying for the State Board's peer review process.
- Support the Basin Plan amendment process by preparing the Staff Report, Economic Analysis, and other supporting documentation at the request of Regional Board staff.
- Perform monthly project management activities, including participate in progress status calls with Watermaster and IEUA staff.

### Deliverables

The FY 2022/23 deliverables for this work include:

- Final salinity management proposal and update of Maximum Benefit commitments.
- PowerPoint presentations and handout materials for project team, Regional Board, and stakeholder meetings.
- Basin Plan amendment support documents, including the SED, Staff Report, Economic Analysis, and other supporting documentation.

**7511 – PE6/7: Cooperative Efforts/Salt Management**

**As-requested services to support Watermaster in its participation in and review of work performed by the Santa Ana Watershed Basin Monitoring Program Task Force**

	<b>Cost Estimate</b>
Consultant Labor	\$23,328
Other Direct Costs	\$581
<b>Total</b>	<b>\$23,909</b>

**Rationale**

The Santa Ana Regional Water Quality Control Board’s (Regional Board) Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) contains a salt and nutrient management plan (SNMP) for the Santa Ana River Watershed. The Basin Plan SNMP requires the periodic performance of certain technical analyses to evaluate the impacts of recycled water reuse on the surface and ground waters in the Santa Ana River Watershed. Most of the technical analyses performed for compliance with the Basin Plan SNMP are done so collaboratively through the Basin Monitoring Program Task Force (Task Force), which is administered by the Santa Ana Watershed Project Authority (SAWPA). IEUA and Watermaster are members of the Task Force.

The key activities performed by the Task Force include:

- Collection and compilation of data used to support the Basin Plan SNMP.
- Preparation of the Annual Report of Santa Ana River water quality.
- Periodic recomputation of ambient water quality for the Santa Ana River Watershed groundwater management zones (GMZs).
- Periodic review and evaluation of the wasteload allocation for recycled water discharges to the Santa Ana River and its tributaries.
- Periodic assessment and/or review of proposed changes to the Basin Plan SNMP.
- Monthly Task Force meetings to review and discuss current and future Basin Plan SNMP implementation activities.

The Task Force contracts with technical and policy consultants to implement the Basin Plan SNMP activities. The technical and policy work is reviewed at monthly Task Force meetings. The outcomes of the work performed by the Task Force have direct implications for the salt and nutrient management planning activities of the Watermaster and IEUA parties.

During FY 2022/23, the Task Force will be performing the following activities:

- Monthly Task Force meetings to review and discuss current and future Basin Plan SNMP implementation activities.
- Implement a scope of work to update the Basin Plan SNMP to comply with the State Board’s 2018 Recycled Water Policy.
- Begin the 2021 recomputation of ambient water quality.
- Preparation of the 2022 Annual Report of Santa Ana River water quality.
- Other as-needed work to support the Task Force’s mission and objectives.



## Scope of Work

The consultant will perform as-requested services to support the Watermaster and IEUA's participation in the Task Force activities. The budget anticipates the following as-requested services for FY 2022/23:

- Attendance at up to 12 Task Force meetings.
- Preparation of Task Force meeting summaries.
- Review and comment on interim and final project deliverables prepared by the Task Force or its consultants.
- Coordination with Watermaster and IEUA staff on Task Force activities.

## Deliverables

The FY 2022/23 deliverables for this work could include:

- Task Force meeting summaries.
- Draft and final review comments on interim and final deliverables prepared by the Task Force or its consultants.
- Other as-requested deliverables defined by Watermaster.

**7508 – Loss of Hydraulic Control Mitigation Plan Update**

**As-needed support for the final updated plan for the mitigation of temporary loss of Hydraulic Control – IEUA Cost Share**

	<b>Cost Estimate</b>
Consultant Labor	\$21,532
Other Direct Costs	\$500
<b>Total</b>	<b>\$22,032</b>

**Rationale**

Pursuant to Program Element 7, and to satisfy the requirements of the Basin Plan<sup>26</sup>, the Watermaster and the IEUA have implemented the Maximum Benefit salt and nutrient management plan for the Chino Basin (maximum benefit SNMP). The maximum benefit SNMP defines nine-maximum-benefit commitments that the Watermaster and IEUA must implement to enable the reuse and recharge of recycled water in the Chino Basin. Maximum-benefit commitment number 8 requires that Watermaster and IEUA achieve and maintain “hydraulic control” of groundwater outflow from the Chino Basin. The objective of hydraulic control is to operate the Chino Basin Desalter Authority (CDA) desalter wells in a manner that either eliminates groundwater discharge from the Chino Basin or controls the discharge to *de minimis* levels. Commitment 8 also requires that Watermaster and IEUA to have a Mitigation Plan in place to describe how Watermaster and IEUA would address any temporary failure to achieve or maintain hydraulic control. The Mitigation Plan was submitted to the Regional Board on March 3, 2005.

Based on the information provided in the *2020 Maximum Benefit Annual Report* and in response to the request to allow and define operational flexibility of the CDA desalter well operations, the Regional Board has formally requested that Watermaster and IEUA submit an update to the 2005 Mitigation Plan. Given the recent reduction in pumping by the CDA due to water quality regulations, the Regional Board seeks assurance that the Watermaster and IEUA are prepared to quantify and mitigate the impacts from the loss of hydraulic control. As such, the Regional Board has requested that a new Mitigation Plan for the Temporary Loss of Hydraulic Control be prepared that takes into consideration the latest CDA operations, hydrologic data, and analysis tools to assess hydraulic control. The updated Mitigation Plan must, at a minimum, include the following elements:

- A description of the potential challenges that could cause CDA pumping to be reduced below the required capacity (e.g., specify the CDA wells that will be offline for a foreseeable time period) and that could impact the ability to maintain hydraulic control.
- A model analysis (supported by groundwater monitoring data) to demonstrate the Basin response and state of hydraulic control when the CDA desalter wells are operating at reduced capacity. The model analysis must include multiple planning scenarios of the CDA desalter well pumping reductions and timing to quantify the range of potential mitigation requirements when hydraulic control is lost.
- A proposed definition of the minimum pumping required at the CCWF to maintain outflows to the PBMZ to *de minimis* levels.
- A proposed definition of operational flexibility around the 40,000 afy required pumping for the aggregate CDA facilities that ensures hydraulic control is maintained.
- An updated plan and schedule for mitigation of any temporary loss of hydraulic control.

<sup>26</sup>[http://www.swrcb.ca.gov/santaana/water\\_issues/programs/basin\\_plan/docs/chapter5.pdf](http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/docs/chapter5.pdf)





## Scope of Work

The Mitigation Plan is due to the Regional Board by June 30, 2022. In FY 2022/23, Watermaster and IEUA will coordinate with the Regional Board on their review and approval of the Mitigation Plan and perform any ad-hoc demonstrations or analysis to support the Regional Board's approval and adoption of the Mitigation Plan.

The scope of work to prepare the Mitigation Plan includes:

- Ad-hoc meetings. Prepare for and attended meetings with Watermaster staff, IEUA staff, CDA staff and/or Regional Board staff, as requested
- Ad-hoc demonstrations or analysis requested by the Regional Board to support the approval and adoption of the Mitigation Plan

## Deliverables

The Consultants deliverables for as-needed support will be determined if there is a request from the Regional Board.

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**7610 – PE8/9: Storage Management/Conjunctive Use**

**Support Implementation of the 2020 Storage Management Plan**

	<b>Cost</b>
	<b>Estimate<sup>27</sup></b>
Consultant Labor	\$42,728
Other Direct Costs	\$492
<b>Total</b>	<b>\$43,220</b>

**Rationale**

Watermaster developed the 2020 Storage Management Plan (SMP) as part the 2020 OMBPU, and Watermaster staff began implementing it in FY 2020/21. Watermaster will need technical support to develop a new Storage and Recovery Program application process and related forms and other as-needed assistance to implement the 2020 SMP.

**Scope of Work**

The work required in FY 2022/23 is to provide as-needed support to Watermaster in defining: the information required for a complete Storage and Recovery Program application; the processes to evaluate an application; and the new application forms. The work may include other related tasks as requested by Watermaster.

**Deliverables**

The Consultant’s deliverables for as-needed support will be determined by the General Manager with each request.

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<sup>27</sup> Carryover funds of \$43,220 will fund the completion of this task.



**7614 – PE8/9: Storage Management/Conjunctive Use**

**Support Implementation of the Safe Yield Court Order**

	<b>Cost Estimate</b>
Consultant Labor	\$473,441
Other Direct Costs	<u>\$2,200</u>
<b>Total</b>	<b>\$475,641</b>

**Rationale**

The Safe Yield of the Chino Basin was recalculated in May 2020 pursuant to the methodology approved by the Court on April 28, 2017. The Court adopted a Safe Yield of 131,000 acre-feet per year for the period of fiscal year 2020/21 through 2029/30. The Court-approved methodology was outlined in a Court Order from April 28, 2017 (2017 Court Order). The Court Order also included the following requirements, listed below verbatim (p. 16-17):

- *4.4 – Safe Yield Reset Methodology. The Safe Yield has been reset effective July 1, 2010 and shall be subsequently evaluated pursuant to the methodology set forth in the Reset Technical Memorandum [2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement (WEI, 2015)]. [...] In furtherance of the goal of maximizing the beneficial use of the waters of the Chino Basin, Watermaster, with the recommendation and advice of the Pools and Advisory Committee, may supplement the Reset Technical Memorandum’s methodology to incorporate future advances in best management practices and hydrologic science as they evolve over the term of this order.*
- *4.5 – Annual Data Collection and Evaluation. In support of its obligations to undertake the reset in accordance with the Reset Technical Memorandum and this order, Watermaster shall annually undertake the following actions:*
  - a. Ensure that, unless a Party to the Judgment is excluded from reporting, all production by all Parties to the Judgment is metered, reported, and reflected in Watermaster’s approved Assessment Packages;*
  - b. Collect data concerning cultural conditions annually with cultural conditions including, but not limited to, land use, water use practices, production, and facilities for the production, generation, storage, recharge, treatment, or transmission of water;*
  - c. Evaluate potential need for prudent management discretion to avoid or mitigate undesirable results including, but not limited to, subsidence, water quality degradation, and unreasonable pump lifts. Where evaluation of available data suggests that there has been or will be a material change from existing and projected conditions or threatened undesirable results, then a more significant evaluation, including modeling, as described in the Reset Technical Memorandum, will be undertaken; and,*
  - d. As part of its regular budgeting process, develop a budget for the annual data collection, data evaluation, and any scheduled modeling efforts, including the methodology for the allocation of expenses among the Parties to the Judgment. Such budget development shall be consistent with section 5.4(a) of the Peace Agreement.*
- *4.6 – Modeling. Watermaster shall use the Basin Model to be updated and a model evaluation of the Safe Yield, in a manner consistent with the Reset Technical Memorandum, to be initiated no later than January 1, 2024, in order to ensure that the same may be completed by June 30, 2025.*
- *4.7 – Peer Review. The Pools shall be provided with reasonable opportunity, no less frequently than annually, for peer review of the collection of data and the application of data collected in regard to the activities described in Paragraphs 4.4, 4.5, and 4.6 above.*



## Scope of Work

The consultant began the work to implement the 2017 Court Order in fiscal year 2021/22. This work included initiating the update of the Safe Yield Reset methodology (p. 16, first paragraph of the 2017 Court Order) and the first annual data collection and evaluation process (p. 16, paragraphs 2-4 and p. 17, paragraphs 1-2 of the 2017 Court Order), including the required peer review. The work required in fiscal year 2022/23 will include completing and gaining Court approval of the updated Safe Yield Reset methodology, completing the annual data collection and evaluation, and beginning the update of the model and reevaluation of the Safe Yield (p. 17, third paragraph of the 2017 Court Order), and the associated peer review. This scope is broken down into the following tasks:

- **Task 1 – Update Safe Yield Reset methodology.** Pursuant to the first paragraph of page 16 of the 2017 Court Order, the consultant began updating the methodology in fiscal year 2021/22 based on the state-of-the-art and comments provided during the 2020 SYR and reset process. In fiscal year 2022/23, Task 1 includes the remaining work to finalize the updated Safe Yield Reset methodology and gain Court approval of the update, including the following:
  - The consultant will conduct up to two additional workshops with stakeholders to review the detailed TM documenting the proposed methodology and associated technical work, including the steps, cost, and schedule to implement it. Following the final workshop, the consultant will respond to questions and comments received at the meetings and respond to them in the final TM.
  - Following the finalization of the detailed TM documenting the updated methodology, the consultant will develop a summary TM describing the proposed methodology that will be submitted to the Court for approval. The consultant will review interim drafts of the summary TM with Watermaster Staff.
  - The consultant will perform as-needed tasks to support the Court approval of the updated methodology, which may include preparing declarations, reviewing legal documents, and attending meetings or Court hearings.
- **Task 2 – Annual data collection and evaluation.** Pursuant to pages 16 and 17 of the Court Order, Task 2 includes collecting data from the Parties and other sources and analyzing the data in the context of the consultant’s groundwater modeling. Data collection will begin on July 1, 2022 for fiscal year 2021/22. The scope of Task 2 assumes the following:
  - Existing data collection efforts (e.g., groundwater pumping measurements) will be collected via other Watermaster efforts and are not included in this scope.
  - The consultant will follow the data collection and evaluation process that was conducted in fiscal year 2021/22, incorporating the feedback from the Parties.
  - The consultant will develop exhibits to compare the collected data to previous historical and modeling data as necessary to document the data collection in an annual report and present the data to the Peer Review committee.
  - The consultant will prepare a draft and final data collection report. The draft report will be reviewed with the Peer Review committee, comments will be incorporated, and the final report will be submitted to the Court no later than June 30, 2023.
- **Task 3 – Update Hydrogeologic Conceptual Model.** Pursuant to page 17 of the 2017 Court Order, Task 3 is the first step of the work necessary to update Watermaster’s groundwater model (i.e., the 2020 Chino Valley Model) to reevaluate the Safe Yield by June 30, 2025. The complete scope of the model update and reevaluation of the Safe Yield through FY 2024/25 includes the following subtasks:
  - 3.1 Update Hydrogeologic Conceptual Model
  - 3.2 Update Model Input Data for Historical Period
  - 3.3 Recalibrate Groundwater Model to Generate Calibrated Realizations
  - 3.4 Develop Planning Scenarios

- 3.5 Conduct Planning Simulations to Update Projections of Net Recharge, Identify Undesirable Results and Associated Mitigation Measures, and Reevaluate Safe Yield
- 3.6 Prepare Safe Yield Reevaluation Report

The scope of work in FY 2022/23 includes completing subtask 3.1 and beginning subtasks 3.2 and 3.4. The Consultant will conduct one workshop to present the results of the subtask 3.1 in FY 2022/23. Subtask 3.2 leverages some of the work completed in other routine data collection and model update efforts. The Consultant will conduct one workshop for subtask 3.4 in FY 2022/23 to gather feedback to develop multiple supply and demand planning scenarios.

## Deliverables

- The Consultant’s primary deliverables will be the following draft technical memoranda/reports:
  - A draft and final TM describing one or more proposed Safe Yield Reset methodologies and the associated technical work, including the steps, cost, and schedule to implement it.
  - A draft and final TM describing the proposed updated Safe Yield Reset methodology that will be submitted to the Court.
  - A draft and final report documenting the data collection process and the data collected for fiscal year 2021/22.
- The Consultant will prepare other deliverables as needed to support the technical workshops and meetings in Tasks 1-3.

## Future Work

In FY 2021/22, several Watermaster Parties indicated interest in using the CVM to improve understanding of the effects of pumping patterns on the Chino Basin with the goal of optimizing Safe Yield. Watermaster recommends pursuing this during the reevaluation of the SY.