SPECIAL NOTICE REGARDING CORONAVIRUS DISEASE 2019 (COVID-19) AND PARTICIPATION IN PUBLIC MEETINGS

On March 4, 2020, Governor Newsom declared a State of Emergency resulting from the threat of COVID-19. Governor Newsom issued Executive Order N-25-20 (3-12-20) and Executive Order N-29-20 (3-17-20) which temporarily suspend portions of the Brown Act relative to conducting public meetings. Subsequent thereto, Governor Newsom issued Executive Order N-33-20 (3-19-20) ordering all individuals to stay at home or at their place of residence. Accordingly, it has been determined that all Board and Workshop meetings of the San Bernardino Valley Municipal Water District will be held pursuant to the Brown Act and will be conducted via teleconference. There will be no public access to the meeting venue.

BOARD OF DIRECTORS WORKSHOP - RESOURCES
THURSDAY, SEPTEMBER 2, 2021 – 2:00 P.M.

PUBLIC PARTICIPATION

Public participation is welcome and encouraged. You may participate in the September 2, 2021, meeting of the San Bernardino Valley Municipal Water District online and by telephone as follows:

Dial-in Info: (877) 853 5247 US Toll-free
Meeting ID: 979 215 700
PASSCODE: 3802020

https://sbvmwd.zoom.us/j/979215700

If you are unable to participate online or by telephone, you may also submit your comments and questions in writing for the District's consideration by sending them to comments@sbvmwd.com with the subject line "Public Comment Item #" (insert the agenda item number relevant to your comment) or "Public Comment Non-Agenda Item". Submit your written comments by 6:00 p.m. on Wednesday, September 1, 2021. All public comments will be provided to the Chair and may be read into the record or compiled as part of the record.

IMPORTANT PRIVACY NOTE: Participation in the meeting via the Zoom app is strongly encouraged. Online participants MUST log in with a Zoom account. The Zoom app is a free download.
Please keep in mind: (1) This is a public meeting; as such, the virtual meeting information is published on the World Wide Web and available to everyone. (2) Should you participate remotely via telephone, your telephone number will be your "identifier" during the meeting and available to all meeting participants; there is no way to protect your privacy if you elect to call in to the meeting.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 E. Vanderbilt Way, San Bernardino, CA 92408

BOARD OF DIRECTORS WORKSHOP - RESOURCES

AGENDA

2:00 PM Thursday, September 2, 2021

CALL TO ORDER
Chairperson: Director Hayes
Vice-Chair: Director Harrison

1) INTRODUCTIONS

2) PUBLIC COMMENT

3) SUMMARY OF PREVIOUS MEETING

3.1 August 5, 2021, Meeting(Page 3)
Summary Notes BOD Workshop - Resources 080521

4) DISCUSSION ITEMS

4.1 Consider Required 20-year Water Quality Modeling Projections for the Recharge of State Water Project Water(Page 8)
Staff Memo - Consider Required 20-year Water Quality Modeling Projections for the Recharge of State Water Project Water
Geoscience Proposal

4.2 Discuss Resolution No. 1126 to Submit a Grant Application to the Wildlife Conservation Board Public Access Program (Page 32)
Staff Memo - Discuss Resolution No. 1126 Authorizing Staff to Submit a Grant Application to the Wildlife Conservation Board Public Access Program
Invitation to Submit Full Application
Updated Budget Worksheet
Resolution No. 1126

4.3 Consideration of the USGS Data Collection Program for Fiscal Year 2021 - 2022(Page 39)
Staff Memo - Consideration of the USGS Data Collection Program for Fiscal Year 2021 -

2022
U.S. Department of the Interior U.S. Geological Survey Joint Funding Agreement For Water Resource Investigations, Agreement # 22ZGJFA03100

4.4 Consider Entering into an Agreement with ESRI for Development of a Real Time GIS Environment Configuration (Page 49)
Staff Memo - Consider Entering into an Agreement with ESRI for Development of a Real Time GIS Environment Configuration
ESRI Proposal for the Development of a Real Time GIS Environment Configuration

4.5 Consider ESRI Enterprise Advantage Program for FY 2021-22 (Page 66)
Staff Memo - Consider ESRI Enterprise Advantage Program for FY 2021-22
ESRI Enterprise Advantage Program Quote #Q-436218

5) FUTURE BUSINESS

6) ADJOURNMENT

PLEASE NOTE:
Materials related to an item on this Agenda submitted to the Board after distribution of the agenda packet are available for public inspection in the District's office located at 380 E. Vanderbilt Way, San Bernardino, during normal business hours. Also, such documents are available on the District's website at www.sbvmwd.com subject to staff's ability to post the documents before the meeting. The District recognizes its obligation to provide equal access to those individuals with disabilities. Please contact Melissa Zoba at (909) 387-9228 two working days prior to the meeting with any special requests for reasonable accommodation.

DATE: September 2, 2021

TO: Board of Directors Workshop - Resources

FROM: Staff

SUBJECT: Summary of August 5, 2021 Board of Directors Workshop – Resources

The Resources Workshop convened on August 5, 2021. Vice President Hayes chaired the meeting via video conference.

Directors Present: President Paul R. Kielhold, Vice President June Hayes, Director Gil J. Botello, Director T. Milford Harrison, and Director Susan Longville.

Staff Present:

Heather Dyer, MS, MBA – Chief Executive Officer/General Manager
Joanna Gibson, MS – Executive Director Upper SAR Habitat Conservation Program
Jose Macedo, ML, CPT-P (USA Retired) – Chief of Staff/Clerk of the Board
Cindy Saks, CPA – Deputy General Manager/Chief Financial Officer
Bob Tincher, PE, MS – Deputy General Manager/Chief Water Resources Officer
Melissa Zoba, MBA, MPA – Chief Information Officer

Adekunle Ojo, MPA – Water Resources Manager
Shavonne Turner, MPA – Water Conservation Program Manager

Members of the Public Present:

Melody McDonald, San Bernardino Valley Water Conservation District
David Raley, San Bernardino Valley Water Conservation District
Channing Hawkins, Supervisor Joe Baca's office
Kelly Malloy, East Valley Water District

Pursuant to the provisions of Executive Order N-29-20 issued by Governor Gavin Newsom on March 19, 2020 this meeting will be conducted by teleconference only.

2. Public Comment

Chair Hayes invited public comment. There was none.

3. Summary of Previous Meeting

The meeting notes from the July 1, 2021 meeting were reviewed with no comments.

4.1 Updated Cost Estimate for Sites Reservoir

Chief Water Resources Officer/Deputy General Manager Bob Tincher shared a new video from the Sites Reservoir Project.

Director Longville indicated she would like to have a better explanation of the Sites Reservoir future operation under various conditions. President Kielhold pointed out that the reservoir alone cannot deliver water but is an integral part of the State Water Project. There are other problems that need to be solved in order to get water from Sites, he said. He noted that the State Water Project has become increasingly unreliable and voiced concern that Sites Reservoir would also become increasingly unreliable due to its reliance on effective conveyance to deliver the water south of the Delta. Director Harrison pointed to the much-needed Delta Conveyance Project. Kielhold concurred that conveyance problem must be solved. Mr. Tincher acknowledged President Kielhold's point and indicated that the Sites Reservoir is being careful to assure that it is seen as separate from the Delta Conveyance but reliant upon efficient transport of water through the Delta.

Chief Executive Officer/General Manager Heather Dyer communicated the appreciation of the Sites Reservoir Authority for use of Valley District's video footage.

Mr. Tincher explained the estimation process for the project. The estimate becomes more accurate as the project is greater defined, he stated.

Director Harrison asked about percolation at the reservoir site. Mr. Tincher said it is not a recharge basin; bedrock and the area's geology, plus buildup of silt over time will keep the water in storage. This affords the flexibility not to take the water in the year in which it was diverted; it can be stored.

Director Longville reiterated the Board should understand the operation of the Reservoir and the District's processes for imported water, as things will be different in the future.

In response to President Kielhold, Mr. Tincher explained the classifications of project estimates.

Mr. Tincher reviewed the progression of cost estimates. The updated Class 4 estimate has updated design data behind it, at $3.93 billion or $800 per acre-foot. Factors contributing to

the updated estimate include COVID-19 related items such as labor, construction materials, markups, and contingencies. This could change by the time the project is built, he advised. The $800 per acre-foot is still within the range of the original cost estimate, and it is still an affordable project provided the water can be moved south, because the aqueduct is already built, he explained.

Public Comment: Mr. Channing Hawkins introduced himself and offered the assistance of Supervisor Joe Baca's office.

Action Item(s): Receive and file.

4.2 Presentation on 2019 Section 6 Habitat Conservation Planning Grant: Development of the Upper Santa Ana River HCP Long Term Monitoring and Adaptive Management Program

Executive Director Upper SAR Habitat Conservation Program Joanna Gibson shared the accomplishments resulting from the 2019 Planning Assistance Grant from the U.S. Fish and Wildlife Service. The development of a long-term monitoring and management plan is a requirement of an Incidental Take Permit and given the size of the planning area and complexity of the plan, the need for a robust and comprehensive plan for the Habitat Conservation Plan (HCP) is paramount, Gibson explained. This would require expertise from a multi-disciplinary team, she added.

Valley District applied for and received $875,000 in planning assistance funds, all of which must be used prior to the HCP finalization, she said. She described the objectives for the funding and tasks in the grant proposal.

Ms. Gibson presented highlights of the Upper Santa Ana River HCP Comprehensive Adaptive Management and Monitoring Program (CAMMP). The document will evolve and be updated as new scientific information and methodologies are developed, she noted. It was submitted to the California Department of Fish and Wildlife on July 30, 2021.

The development of a database and web-based reporting platform component of the grant was a monumental undertaking and was launched in less than five months, Gibson stated. She reviewed the website and said she would provide a more in-depth demonstration of the portal's capabilities next month. General Manager Heather Dyer noted this will also be presented at the National HCP Coalition meeting.

Director Longville asked for the link and congratulated the team.

In response to President Kielhold, Ms. Gibson said the portal will provide public outreach and each of the agencies will be able to track their projects. Additionally, it will provide transparent information on impacts and conservation, acreage that is being conserved, and avoidance and minimization measures to be implemented. It will also serve as a platform for regional discussions on how species are doing within Southern California and what monitoring and management techniques are working for the species. It will tie into a regional system, she stated. Ms. Dyer added that staff is hopeful that regulatory agencies will also use the dashboard to check in on a regular basis rather than waiting for the printed annual report. Ms. Gibson noted there is capability for each permittee to view their specific project with avoidance and minimization measures required.

Action Item(s): Receive and file.

4.3 Consider Technical Assistance Agreement with United States Geological Survey Western Ecological Research Center for Fiscal Year 2021-2022

Executive Director Upper SAR Habitat Conservation Program Joanna Gibson explained that the Technical Assistance Agreement includes scientific studies and United States Geological Survey (USGS) staff scientific review and support for the HCP and CAMMP. The USGS Western Ecological Research Center (WERC) has provided information on some of the HCP's more cryptic species, she noted, and the work has provided considerable scientific technical support on the development of the CAMMP document. She described the tasks included in the proposed agreement: updated population survey for the Santa Ana speckled dace, the mountain yellow-legged frog conservation actions within the San Bernardino National Forest, and technical support for the HCP and CAMMP. She provided details and correlated the tasks with work performed last year.

Director Harrison asked what prevents decline of species in addition to the critically endangered mountain yellow-legged frog. Ms. Gibson described procedures and issues that negatively affect the population, which is hanging on by a thread. She added that the HCP will have a rigorous non-native species management plan.

The total cost of the Technical Assistance Agreement for fiscal year 2021-22 is $863,000. The USGS will be cost sharing approximately 34 percent of the total with Valley District providing approximately 66 percent, Gibson stated. After applying the HCP partners costs

share, Valley District's share is $48,837. The proposed cost was included in the approved Fiscal Year 2021-22 budget, she noted.

Director Longville indicated she was interested in other cryptic species. Ms. Gibson noted that her use of the term refers to species that are very difficult to survey and find.

Director Botello asked about the contingency plan if there is shut down due to COVID. Ms. Gibson indicated that the USGS is able to continue doing field surveys like last year. The portions of the Technical Assistance Agreement that may be delayed would be anything that needs to be accomplished in the office or in a lab, Ms. Gibson advised. Two parts of last year's agreement needed to be extended because of the inability to run the genetic analyses in the lab, she noted. The contingency would be to provide a time extension to the agreement for the work to be finished, Ms. Gibson explained. The critical components consisting of the scientific review and support for the HCP and CAMMP document may be done from home, so there would be no delay, she concluded.

Action Item(s): The Board directed staff to place this item on an upcoming Board of Directors meeting for consideration.

5. Future Business

President Kielhold requested an update on the septic system survey within our service area.

Director Longville asked about progress on Monte Vista Water District's LAFCO application.

CEO / General Manager Heather Dyer reported that the requested disadvantaged communities SAWPA proposal presentation will be slated for the Engineering Workshop on Tuesday, August 10.

6. Adjournment

Staff Recommendation

Receive and file.

DATE: September 2, 2021

TO: Board of Directors' Workshop – Resources

FROM: Adekunle Ojo, Manager of Water Resources
Bob Tincher, Chief Water Resources Officer/Deputy General Manager

SUBJECT: Consider Required 20-year Water Quality Modeling Projections for the Recharge of State Water Project Water

Geoscience was recently selected in response to a Request for Proposals to perform the 20-year water quality modeling projections to meet the requirements of the *Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin* ("Cooperative Agreement"). This regulatory requirement must be completed by the end of the calendar year.

Background:

In January 2008, the San Bernardino Valley Municipal Water District (Valley District), Western Municipal Water District (Western), City of Corona, Eastern Municipal Water District, Elsinore Valley Municipal Water District, Orange County Water District, City of Riverside, San Bernardino Municipal Water Department, and San Gorgonio Pass Water Agency (collectively Parties) entered into a ten-year agreement with the Regional Water Quality Control Board (RWQCB).

The Cooperative Agreement was recently amended and generally requires the Parties to provide 20-year water quality modeling projections for Total Dissolved Solids (TDS) and Total Inorganic Nitrogen (TIN) every ten (10) years beginning on July 18, 2020; the amendment was not executed by the RWQCB until March 3, 2021 and the Parties were given an extension to complete the modeling. It is anticipated that the ongoing Salt and Nutrient Management Plan for the Upper

Santa Ana River Watershed, when completed, will supersede the monitoring and modeling requirements of the Cooperative Agreement.

Valley District and Western recently solicited proposals on behalf of the Parties to complete this modeling for the Bunker Hill A and B, Lytle, Rialto, Colton, Riverside and Arlington Basins using the Upper Santa Ana River Watershed Integrated Water Quality Model (Integrated WQ Model). This project must be completed by the end of calendar year 2021 and submitted to the RWQCB. Geoscience submitted the lone proposal and is uniquely qualified to perform this work due to extensive experience in the Valley District service area and within the Santa Ana River Watershed including the development of the Integrated Water Quality Model; previous work preparing Valley District's initial and second monitoring reports under this agreement; its cost competitiveness; and ability to complete the project by the deadline.

Fiscal Impact:

The $63,650 expenditure for this item is available within the current fiscal year General Fund budget in Consultant account 6360. Western Municipal Water District's share of the cost is a maximum amount of $30,585, resulting in a Valley District's net cost of $33,065.

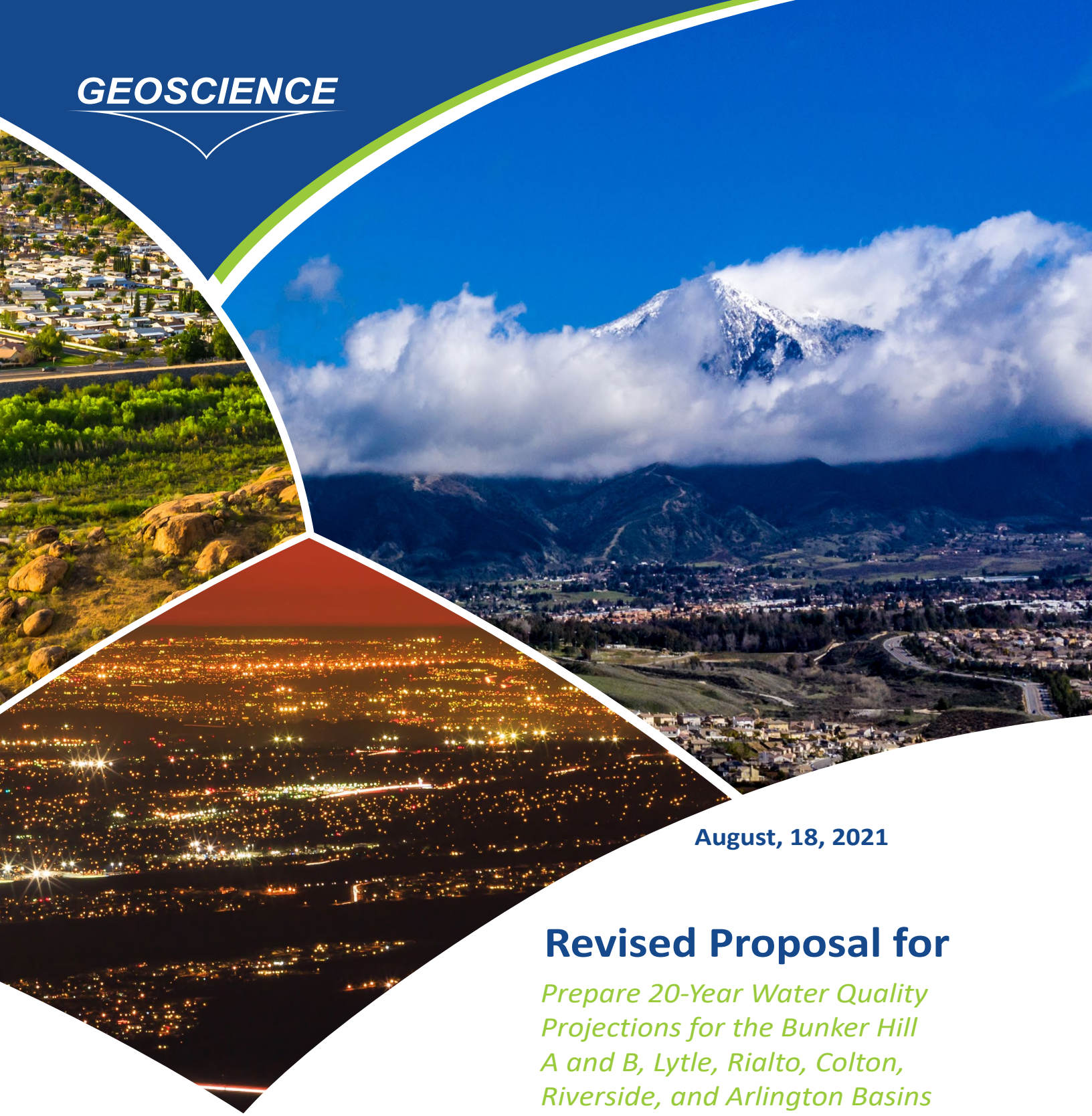
Recommended Action:

Direct Staff to place a Consulting Services Agreement with Geoscience on the next regular Board of Director's meeting for consideration.

Attachment:

Geoscience Proposal

GEOSCIENCE



August, 18, 2021

Revised Proposal for

Prepare 20-Year Water Quality Projections for the Bunker Hill A and B, Lytle, Rialto, Colton, Riverside, and Arlington Basins

Johnson Yeh, PhD, PG, CHG
Principal Groundwater Modeler

main office
160 Via Verde, Suite 150, San Dimas, CA 91773

main | 909.451.6650

jyeh@geoscience-water.com

Project Understanding

Meet Agreement Requirements

When completed, the 20-year water quality projections will meet the requirements of the "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin." (Agreement). This Agreement requires participating parties to provide 20-year water quality modeling projections for Total Dissolved Solids (TDS) and Total Inorganic Nitrogen (TIN). San Bernardino Valley Municipal Water District (Valley District) and Western Municipal Water District (Western) are soliciting letter proposals to complete this modeling for the Bunker Hill A and B, Lytle, Rialto, Colton, Riverside A through F, and Arlington Groundwater Management Zones (GMZs) using the Upper Santa Ana River Watershed Integrated Water Quality Model (Integrated WQ Model). The final report for this project must be completed by the end of December 2021.

We recognize that an aggressive schedule will be required to meet project goals and deadlines and will manage the project appropriately, to maintain effective ongoing communication with Valley District and Western and to meet the deadlines of each deliverable.

Project Approach

Meet an aggressive schedule

We propose using a numerical solute transport model approach to develop 20-year projections for TDS and nitrate concentrations for the three GMZs (Bunker Hill-A, Bunker Hill-B, and Lytle) in the San Bernardino Basin, two GMZs (Rialto and Colton) in the Rialto, six GMZs (Riverside-A through Riverside-F) in the Riverside Basin, and one GMZ (Arlington) in the Arlington Basin. Specifically, we will use the Integrated WQ Model that our team developed. The numerical solute transport model approach is a distributed-parameter model approach that distributes system properties throughout the model area and simulates groundwater flow and quality using numerical approximation methods (i.e. finite difference). The resulting data are usually varied using a grid-based model area.

The following sections discuss our proposed scope of work and deliverables.

Task 1 Obtain Integrated WQ Model

We are currently completing the Integrated WQ Model and will have the final model files versions in house once completed. As a

result, there will be no costs associated with this task. Additionally, we developed various worksheets during the flow model and water quality model development to streamline model input files preparation and analysis. This will expedite the project schedule and reduce costs.

Task 2 Data Collection

We will obtain the data necessary to update the Integrated WQ Model through calendar year 2020. We will also work closely with Valley District and Western to develop the assumptions for model scenarios including determining anticipated changes and potential new projects that may occur during the 20-year projection period.

Task 3 Complete 20-Year Modeling Projection

We will work with Valley District and Western to identify predictive scenarios to simulate using the Integrated WQ Model. for cost estimating purposes, we assume two (2) predictive scenarios. We will develop a Baseline or "No Project" scenario to serve as a reference condition to compare the predictive project scenario.

Once the assumptions for each model scenario are confirmed with Valley District and Western, predictive model scenarios for a 20-year period will be simulated using the Integrated Flow Model first using the computer code MODFLOW-NWT. Then the Integrated WQ Model will be simulated using the output from Integrated Flow Model and mass loading file to project the future TDS and nitrate-nitrogen concentrations. The model predicted TDS and nitrate-nitrogen concentrations for each of the 12 GMZs will be quantified. The model predicted underflow across the boundaries of GMZs and the model predicted TDS and nitrate-nitrogen concentrations of the underflow will also be quantified.

Optional Modeling Task

Per request and prior approval, we can provide an additional model run for a second predictive project scenario including project assumptions, input files, simulations, predicted TDS and nitrate-nitrogen concentrations, and results summarized in Draft Report, Revised Draft Report and Final Report.

Task 4 Final Report

We will prepare a draft report summarizing water quality modeling results for Valley District and Western to review by November 12, 2021. The contents of the draft report will reuse the table of contents and text from the prior reports prepared by Valley District and Western. We will also identify opportunities to streamline the text of the report.

A revised version of the draft report incorporating comments from Valley District and Western will be submitted to SAWPA Basin Monitoring Program Task Force (BMPTF) Imported Water Recharge Committee members to review by November 30, 2021. We will prepare a final version of the Report incorporating the comments provided by the SAWPA BMPTF Imported Water Recharge Committee members by December 24, 2021.

Deliverables for Task 4:

- Draft Report (by November 12, 2021)
- Revised Draft Report (by November 30, 2021)

- Final Report (by December 24, 2021)

Task 5: Meetings and Project Management

We will prepare for and attend four meetings including:

- Kickoff meeting to discuss the project goals and objectives, including schedule, work products, and assumptions for model scenarios,
- Status update meeting No. 1 to provide project status update,
- Status update meeting No. 2 to provide overview of draft report, and
- SAWPA BMPTF Imported Water Recharge Committee meeting to provide overview of the revised draft report.

Additionally, we will coordinate project activities throughout the course of the project. Project management includes any additional hours and costs to cover tasks related to any unforeseen issues or requests that arise during the Project.

Organizational Chart

Experienced Staff

Valley San Bernardino Municipal Water District

Western Municipal Water District

Johnson Yeh, PhD, PG, CHG
Principal Modeler
jyeh@geoscience-water.com

David Barnes, MEng
Senior Modeler
dbarnes@geoscience-water.com

Lauren Wicks, MS, PG
Project Geohydrologist
lwicks@geoscience-water.com

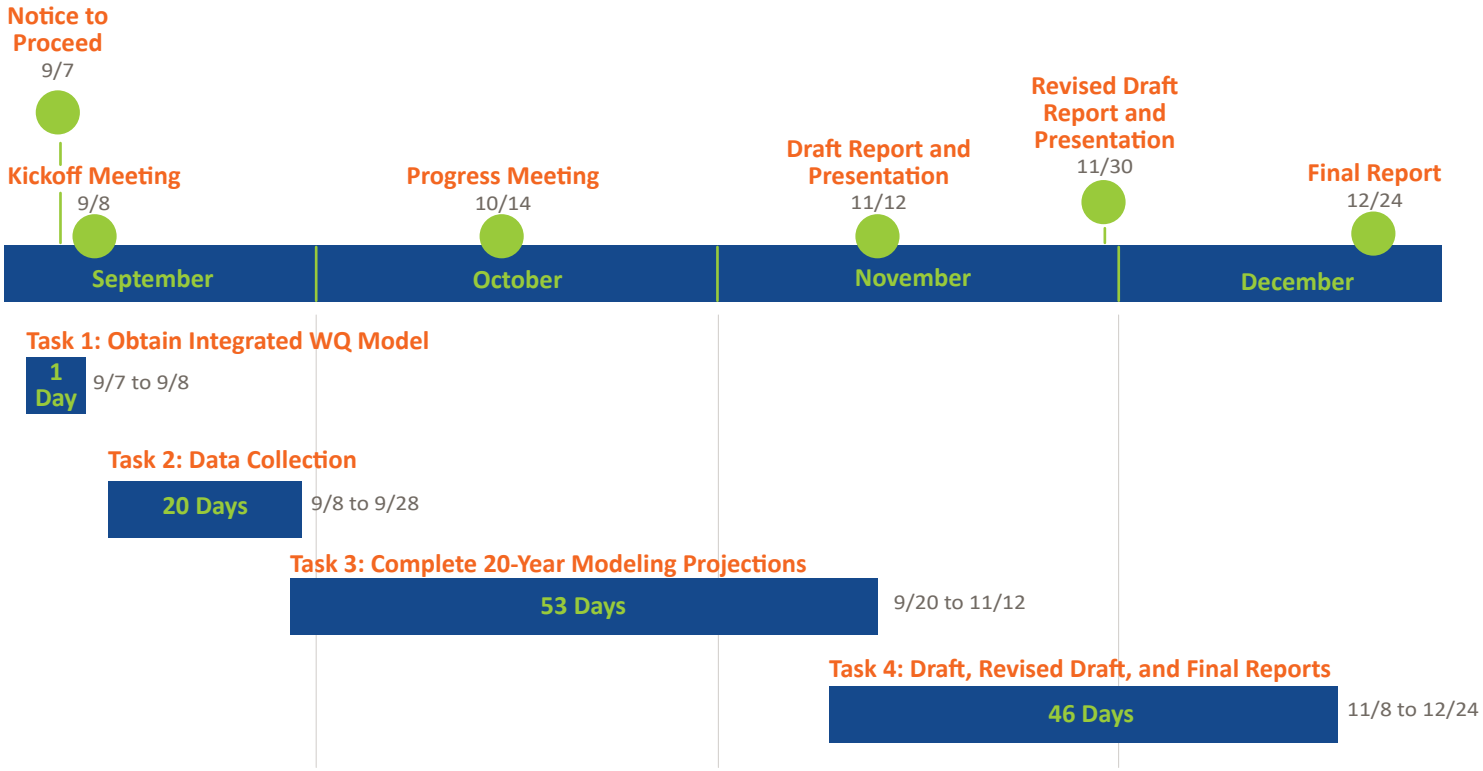
Leo Liu, MS, EIT
Senior Associate Modeler
lliu@geoscience-water.com

Si Si, MS, EIT
Senior Associate Modeler
ssi@geoscience-water.com

All team members can be reached at:
Geoscience Support Services, Inc.
160 Via Verde, Suite 150
San Dimas, CA 91773
p. (909) 451-6650
f. (909) 451-6638

Project Schedule

Meet Agreement Deadline



Other Relevant Information

Proven Team and Performance

Project Challenge	Approach to Meet Challenge	Benefit	Past Performance
Comply with cooperative agreement	• Currently possess water quality model and other relevant data • Past experience completing report	• Expedite data collection • Expedite data review • Expedite model runs • Reduced cost • Ability to correctly run model simulations to provide accurate results	• Completed initial and second report for 20-year water quality projections for the same management areas on schedule • Developed the Upper Santa Ana River Integrated Model • Developed the Riverside-Arlington Lumped-Parameter Salt Balance Model

Fee Schedule

Task	Description	Valley District (Bunker Hill A and B, Lytle, Rialto and Colton Groundwater Management Zones)									Western (Riverside A through F and Arlington Groundwater Management Zones)									Grand Total Cost
		Principal Modeler	Senior Modeler	Project Geohydro.	Senior Associate Modeler	GSI/CAD Specialist	Clerical	Labor	Reimbursable Expenses[1]	Valley District Total Cost	Principal Modeler	Senior Modeler	Project Geohydro.	Senior Associate Modeler	GSI/CAD Specialist	Clerical	Labor	Reimbursable Expenses[1]	Western Total Cost	
	Hourly Rate:	$286	$261	$207	$204	$150	$106				$286	$261	$207	$204	$150	$106				
1	**Obtain the Integrated Water Quality Model**																			
1.1	Obtain the Integrated Water Quality Model							$ -	$ -	$ -							$ -	$ -	$ -	$ -
	Task 1.0 Subtotal:	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ -**	**$ -**	**$ -**
2	**Data Collection**																			
2.1	Data Collection[2]		7		21			$ 6,111	$ -	$ 6,111		3		9			$ 2,619	$ -	$ 2,619	$ 8,730
	Task 2.0 Subtotal:	**0**	**7**	**0**	**21**	**0**	**0**	**$ 6,111**	**$ -**	**$ 6,111**	**0**	**3**	**0**	**9**	**0**	**0**	**$ 2,619**	**$ -**	**$ 2,619**	**$ 8,730**
3	**Complete 20-Year Modeling Projection**																			
3.1	Prepare and Run Groundwater Models (Two Scenario Runs)[2]	3	9		21			$ 7,491	$ -	$ 7,491	2	4		8			$ 3,248	$ -	$ 3,248	$ 10,739
3.2	Analyze Modeling Results for Each Groundwater Management Zone (for Two Runs)[3]	4	10		13			$ 6,406	$ -	$ 6,406	5	14		18			$ 8,756	$ -	$ 8,756	$ 15,162
3.3 (Optional)	Prepare and Run One Optional Model Run, Including Analyzing Modeling Results for Each Groundwater Management Zone, Summarizing Results in Draft Report, Revised Draft Report and Final Report, and Associated Project Management[5]	2	12	1	20	2		$ 8,291	$ -	$ 8,291	3	11	2	16	1		$ 7,557	$ -	$ 7,557	$ 15,848
	Task 3.0 Without Optional Task Subtotal (Tasks 3.1 and 3.2):	**7**	**19**	**0**	**34**	**0**	**0**	**$ 13,897**	**$ -**	**$ 13,897**	**7**	**18**	**0**	**26**	**0**	**0**	**$ 12,004**	**$ -**	**$ 12,004**	**$ 25,901**
	Task 3.0 With Optional Task Subtotal (Tasks 3.1, 3.2, and 3.3):	**9**	**31**	**1**	**54**	**2**	**0**	**$ 22,188**	**$ -**	**$ 22,188**	**10**	**29**	**2**	**42**	**1**	**0**	**$ 19,561**	**$ -**	**$ 19,561**	**$ 41,749**
4	**Final Report**																			
4.1	Draft Report[3]	1	2	8	5	6		$ 4,384.0	$ -	$ 4,384	2	3	10	7	9		$ 6,203	$ -	$ 6,203	$ 10,587
4.2	Revised Draft Report[3]	1	1	0	5	1		$ 1,717.0	$ -	$ 1,717	1	1	0	6	4		$ 2,371	$ -	$ 2,371	$ 4,088
4.3	Final Report[3]	0	1	0	3	2		$ 1,173.0	$ 63	$ 1,236	0	1	0	5	2		$ 1,581	$ 87	$ 1,668	$ 2,904
	Task 4.0 Subtotal:	**2**	**4**	**8**	**13**	**9**	**0**	**$ 7,274**	**$ 63**	**$ 7,337**	**3**	**5**	**10**	**18**	**15**	**0**	**$ 10,155**	**$ 87**	**$ 10,242**	**$ 17,579**
5	**Project Management and Meetings**																			
5.1	Project Management[4]	2	10				1	$ 3,288	$ -	$ 3,288	2	10				1	$ 3,288	$ -	$ 3,288	$ 6,576
5.2	Meetings (Assuming 4 Meetings)[4]	2	4		4			$ 2,432	$ -	$ 2,432	2	4		4			$ 2,432	$ -	$ 2,432	$ 4,864
	Task 5.0 Subtotal:	**4**	**14**	**0**	**4**	**0**	**1**	**$ 5,720**	**$ -**	**$ 5,720**	**4**	**14**	**0**	**4**	**0**	**1**	**$ 5,720**	**$ -**	**$ 5,720**	**$ 11,440**
	TOTAL HOURS AND COST WITHOUT OPTIONAL TASK 3.3:	**13**	**44**	**8**	**72**	**9**	**1**	**$ 33,002**	**$ 63**	**$ 33,065**	**14**	**40**	**10**	**57**	**15**	**1**	**$ 30,498**	**$ 87**	**$ 30,585**	**$ 63,650**
	TOTAL HOURS AND COST WITH OPTIONAL TASK 3.3:	**15**	**56**	**9**	**92**	**11**	**1**	**$ 41,293**	**$ 63**	**$ 41,356**	**17**	**51**	**12**	**73**	**16**	**1**	**$ 38,055**	**$ 87**	**$ 38,142**	**$ 79,498**

Notes:

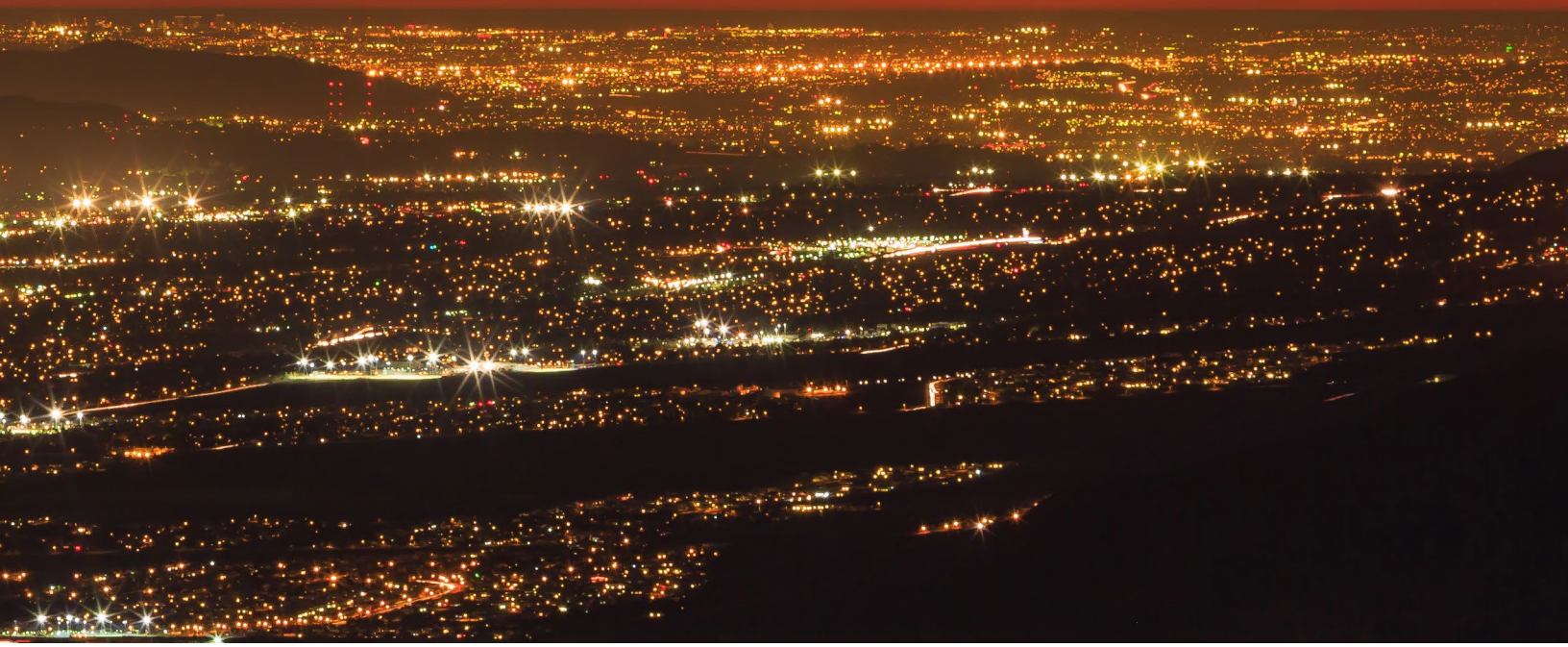
[1] Reimbursable Expenses Include Subconsultant Fees, Mileage, and report reproduction costs.
Geoscience is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. The work Geoscience performs does not fall under prevailing wage rate categories.

[2] Based on the number of recharge projects and associated modeling efforts, it is assumed that approximately 70% of the efforts for the following tasks will be dedicated to Bunker Hill A and B, Lytle, Rialto and Colton Basins (5 Management Zones by Valley District), and 30% of the effort will be dedicated to Riverside and Arlington Basins (7 Management Zones by Western).
Task 2.1: Data Collection
Task 3.1: Prepare and Run Groundwater Models

[3] Based on the number of Groundwater Management Zones, it is assumed that approximately 42% (or 5/12) of the efforts for the following tasks will be dedicated to Bunker Hill A and B, Lytle, Rialto and Colton Basins (5 Management Zones by Valley District), and 58% (or 7/12) of the efforts will be dedicated to Riverside and Arlington Basins (7 Management Zones by Western).
Task 3.2: Analyze Modeling Results for Each Groundwater Management Zones
Task 4.1: Draft Report
Task 4.2: Revised Draft Report
Task 4.3: Final Report

[4] It is assumed that the cost for Task 5.1 (Project Management) and Task 5.2 (Meetings) will be split evenly between Valley District and Western.

[5] Based on the combination of Notes 2, 3 and 4, it is assumed that approximately 52% of the efforts for the following tasks will be dedicated to Bunker Hill A and B, Lytle, Rialto and Colton Basins (5 Management Zones by Valley District), and 48% of the efforts will be dedicated to Riverside and Arlington Basins (7 Management Zones by Western).
Optional Task 3.3: Prepare and Run One Optional Model Run, Including Analyzing Modeling Results for Each Groundwater Management Zone, Summarizing Results in Draft Report, Revised Draft Report and Final Report, and Associated Project Management



Appendix A

Resumes

Resumes are provided on the following pages for all staff assigned to the project including:

- Johnson Yeh
- David Barnes
- Lauren Wicks
- Leo Liu
- Si Si

Johnson Yeh, PhD, PG, CHG
Principal Modeler

Years of Experience: 30
Years with Geoscience: 30

Education:
BS, Geology, National Taiwan University
MS, Geology National Taiwan University
PhD, Sedimentology, University of Southern California

Professional Registrations:
California Professional Geologist (No. 6371)
Certified California Hydrogeologist (No. 422)

Key qualifications...

- Specializes in groundwater modeling
- Assists USGS in testing GSFLOW model code
- Experience supporting 30+ groundwater-related litigation cases

San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model
Johnson is leading our team in an effort to use existing groundwater and surface water models to develop an integrated groundwater model using MODFLOW for the upper Santa Ana River. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels.

San Bernardino Valley Municipal Water District: Initial Report of Recharge Parties - Bunker Hill-A, Bunker Hill-B, Lytle, Colton, Rialto, and Yucaipa Management Zones
In 2008, the Regional Water Quality Control Board adopted a resolution that required that participating agencies in the Upper Santa Ana River Watershed to produce reports detailing a 20-year water quality projection that accounts for planned recharge. Johnson led our team to complete the initial report for Bunker Hill A & B, Lytle Creek, Colton, Rialto, and Yucaipa Management zones. Our team calculated the average TDS and nitrate-nitrogen concentrations for each of the management zones and predicted underflow to downgradient management zones.

San Bernardino Valley Municipal Water District: Second Report of Recharge Parties - Bunker Hill-A, Bunker Hill-B, Lytle, Colton, and Rialto Management Zones
Johnson led efforts to complete the second 20-year water quality projection report required by the cooperative agreement established by the 2008 RWQC resolution. Johnson led efforts to calculate the average TDS and nitrate-nitrogen concentrations for each of the management zones and predicted underflow to downgradient management zones.

San Bernardino Valley Municipal Water District: Second Report of Recharge Parties - Yucaipa and San Timoteo Management Zones
Johnson led efforts to complete the second 20-year water quality projection report required by the cooperative agreement established by the 2008 RWQC resolution. Johnson led efforts to calculate the average TDS and nitrate-nitrogen concentrations for each of the management zones and predicted underflow to downgradient management zones.

Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, and City of San Bernardino, Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins

Johnson led efforts to develop the Riverside-Arlington Lumped-Parameter Salt Balance Model (RALPSBM) for the parties involved in the Cooperative Agreement managing the Riverside and Arlington Groundwater Basins including Western Municipal Water District, City of Riverside, San Bernardino Valley Municipal Water District and the City of San Bernardino. The purpose of the TDS and nitrate lumped-parameter model is to meet the monitoring and reporting requirements of the cooperative agreement and to assess compliance with the Salinity Objectives projected for a 20-year predictive period.

Western Municipal Water District: Riverside-Arlington Basin Groundwater Sustainability Plan (GSP)

Johnson is overseeing modeling efforts to develop a GSP for the Riverside-Arlington Basin. The Basin is classified by DWR as a medium priority basin and is one of the district's primary sources of local water supply. Johnson is working in conjunction with our team and the district to complete all models necessary to complete a compliant GSP.

Yucaipa Valley Water District: Recycled Water Use Evaluation using the Gateway Sub-basin Focused Groundwater Model

Johnson was the senior modeler overseeing the construction of a groundwater model used to predict the impacts of recycled water spreading on groundwater quality and to downstream municipal wells.

Western Municipal Water District: Impact of Recharge on Contaminant Plumes and Modeling

Johnson was the project manager and lead ground water modeler to assess and model the area around the Riverside-Corona Feeder, to show the potential future impact of an initial operation scenario on the ground water levels and ground water quality in the San Bernardino Basin Area.

Jurupa Community Services District: Chino Basin Artificial Recharge Evaluation

Johnson led modeling efforts to modify a previously established groundwater flow model of the Chino Basin to incorporate solute transport and assess the impact of artificial recharge operations planned by the Chino Basin Watermaster on Nitrate and TDS concentrations in the southern Chino Basin.

Santa Ana Watershed Project Authority: Chino Desalter System Projects

Johnson developed a detailed analysis of the Chino Ground Water Basin that included a three-dimensional numerical ground water flow model (MODFLOW). A separate analysis was also conducted to assess potential water quality changes in project and existing wells as a result of the project.

San Bernardino Valley Municipal Water District: Remediation Strategies for Ground Water Contamination

Johnson was the project manager and lead ground water modeler to refine previous USGS models to better understand, analyze, and evaluate remediation alternatives related to ground water contamination problems.

California American Water, Monterey Peninsula Water Supply Project (MPWSP)

Johnson led efforts to update a three-dimensional variable density flow and solute transport model for the North Marina Area in 2008 and constructed a focused groundwater model near the CEMEX gravel plant in Marina, CA. Johnson helped revise and update the Salinas Valley Integrated Surface Water and Ground Water Model (SVIGSM) which are currently being used to evaluate local and regional impacts on groundwater levels and quality from MPSWP operations.

David Barnes, M.Eng.

Senior Modeler

Years of Experience: 11
Years with Geoscience: 3

Education:

BS, Hydrology and Water Resources
University of Arizona

M.Eng., Civil and Environmental Engineering, Massachusetts Institute of Technology

Key qualifications...

- Experience with groundwater studies and well design and construction—help identify and address potential issues in the field

David has more than eight years of experience performing groundwater modeling and studies for several municipal clients and public agencies. He has expertise in developing groundwater and hydrogeologic models, data processing and GIS to support modeling efforts. Additionally, David is experienced in well design and construction processes with wide-ranging experience in field hydrology, aquifer testing, and characterization methods.

Selected Project Experience

San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model
David helped develop a regional groundwater model to support a Habitat Conservation Plan in the Upper Santa Ana River Basin. He assessed the impacts of water management decisions on shallow groundwater, streamflow and riparian areas. David also presented key results and coordinated with stakeholders and members of the project's technical advisory committee.

Western Municipal Water District: Arlington Basin Groundwater Sustainability Plan
David constructed a groundwater model, analyzed historic and current water budgets, and assessed the basin's sustainable yield. He then prepared report on findings to include in the basin's Groundwater Sustainability Plan.

South Coast Water District (GHD): Geophysical Survey and Subsurface Intake Design at Doheny Beach
David updated a groundwater model using results from a geophysical survey and mapping of the coastal aquifer. He then assessed the feasibility and performance of various subsurface intakes designs including simulating subsurface intake influent water quality in various configurations using a solute transport model.

Jurupa Community Services District: Geohydrologic Analysis of Future Groundwater Production
David assessed future proposed pumping operations for a municipal wellfield. To complete the assessment, he developed a local groundwater flow model for Chino Basin using the larger regional Integrated Santa Ana River Model. David also developed a solute transport model to assess water quality including Total Dissolved Solids and nitrate in the wellfield.

San Bernardino Valley Municipal Water District: Big Bear Overflow Modeling and Assessment
David oversaw the development of a watershed model for the Seven Oaks Watershed to assess the affect of the Replenish Big Bear project on recharge activities in the lower watershed. David also prepared reports and presented key findings.

San Bernardino Valley Municipal Water District: Evaluate Recharge Capacity of Wildwood Creek Basins
David developed a groundwater model to assess the operations of a stormwater recharge basin

project. He also prepared reports and gave a presentation to stakeholders on the facility's performance and operation.

Kingdom of Saudi Arabia: Detailed Study of the Western Coastal Plain*

David developed basin-scale hydrologic models for thirty nine basins in Saudi Arabia. Gathered meteorologic data, delineated basins, constructed a database, performed statistical analysis of basin meteorology/hydrology. Utilized remotely-sensed rainfall data from NASA's Tropical Rainfall
Measurement Mission. Developed customized programs (shell, Fortran) to integrate HEC-HMS hydrologic models with MODFLOW groundwater models. Developed HECRAS hydraulic models. Developed regional groundwater models. Prepared hydrologic, hydraulic and groundwater models and prepared reports.

Big Cypress Seminole Indian Reservation: Review of S-190 Control Structure Operations*

David analyzed historical operating data from a control structure on the L-28 Interceptor Canal on the Big Cypress Seminole Reservation. Investigated the impact of lower operating stages on adjacent groundwater levels. Prepared a technical report and presented the findings to stakeholders. Reviewed proposed changes to operating rules in advance of significant storms (pre-storm draw down criteria).

Big Cypress Seminole Indian Reservation: Surface Water/ Groundwater Interaction Study*

David analyzed hydrologic data from monitoring wells, piezometers, weirs and control structures. Developed a site water budget and assessed interaction of surface water and groundwater. Prepared report summarizing site hydrology.

Lee County: Groundwater Flow Modeling to Support Land Use Permitting*

David developed MODFLOW models for a number of proposed mines in Lee County to assess the influence of shallow excavation in the surficial aquifer on the water budget and on groundwater levels in the area. Developed utility programs to edit model files and process results binaries. Prepared modeling reports.

Seminole Tribe Environmental Resource Management Department: Groundwater Model Review*

David provided expert review of groundwater modeling submitted to ERMD. Prepared a detailed report documenting the model, and issues identified in the review. Presented the findings of the report to the Tribe and stakeholders.

City of Hialeah: RO Deep Injection Well and Production Well Construction*

David supervised the simultaneous drilling of two 3500 ft. deep Class I injection wells and a dual-zone monitor well. Provided construction oversight during drilling of eight Floridan Aquifer production wells for raw water supply. Sampled cuttings, described lithology, performed core sampling and description, packer testing, injection testing, report writing, and ensured compliance with the FDEP permit conditions. Analyzed packer and injection test data for characterization of aquifer properties.

City of Cape Coral: Injection Well Construction*

David supervised the drilling of an additional deep Class I injection well at the City of Cape Coral Southwest Water Treatment Plant. Provided construction oversight during drilling. Sampled cuttings, described lithology, performed core sampling and description, packer testing, injection testing, report writing, and ensured compliance with the FDEP permit conditions.

Brighton Seminole Reservation: Biscayne Well Design and Construction*

David oversaw design and construction of two Upper Floridan Aquifer production wells. Supervised drilling operations, well construction and pump testing. Sampled cuttings and described lithology. Prepared well completion report.

*** Project completed prior to employment by Geoscience**

Lauren Wicks, MS, PG

Project Geohydrologist

Years of Experience: 9
Years with Geoscience: 8

Education:

BS, Geology, Cal Poly Pomona

BS, Integrated Earth Studies, Cal Poly Pomona

MS, Hydrology, University of Idaho

Professional Registrations:

California Professional Geologist (No. 9531)

What Lauren brings to the project...

- Experience supporting groundwater models, sustainable yield studies, and calculating water budgets—help provide more accurate and thorough models and studies to inform options to improve basin sustainability
- Detail oriented—help provide accurate data and high-quality deliverables

Lauren has experience with groundwater and environmental investigations performed for numerous municipalities, state agencies, and private clients throughout California. She performs groundwater flow and transport modeling, hydrogeologic investigations, groundwater basin and water quality studies, artificial recharge projects, and has experience in GIS mapping, watershed management, database development and management. Lauren can support your team by developing accurate and complete written reports and documents, and by performing quality reviews on data.

Selected Project Experience

San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model

This joint effort involved a peer review by the USGS and other consulting firms, and sought to understand how potential effects of proposed projects may impact surface flow in the Santa Ana River (SAR) and groundwater levels for the entire Upper SAR Watershed. During this project, Lauren helped develop the Integrated SAR Model. She directed efforts to produce technical memorandums summarizing the approach, process, and results of each project task, helped develop assumptions for predictive model runs, and prepared meeting minutes. She was a point of contact for project communications with the different agencies involved in the project and presented results and project assumptions at progress meetings and model workshops.

San Bernardino Valley Municipal Water District: Second Report of Recharge Parties - Bunker Hill-A, Bunker Hill-B, Lytle, Colton, and Rialto Management Zones

Lauren supported efforts to complete the second 20-year water quality projection report required by the cooperative agreement established by the 2008 RWQC resolution. Lauren helped calculate the average TDS and nitrate-nitrogen concentrations for each of the management zones and predicted underflow to downgradient management zones.

San Bernardino Valley Municipal Water District: Second Report of Recharge Parties - Yucaipa and San Timoteo Management Zones

Lauren supported efforts to complete the second 20-year water quality projection report required by the cooperative agreement established by the 2008 RWQC resolution. Lauren helped calculate the average TDS and nitrate-nitrogen concentrations for each of the management zones and predicted underflow to downgradient management zones.

Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, and City of San Bernardino, Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins

Lauren supported efforts to develop the Riverside-Arlington Lumped-Parameter Salt Balance Model (RALPSBM) for the parties involved in the Cooperative Agreement managing the Riverside and Arlington Groundwater Basins including Western Municipal Water District, City of Riverside, San Bernardino Valley Municipal Water District and the City of San Bernardino. The purpose of the TDS and nitrate lumped-parameter model is to meet the monitoring and reporting requirements of the cooperative agreement and to assess compliance with the Salinity Objectives projected for a 20-year predictive period.

San Bernardino Municipal Water District: Joint Groundwater Model for the Rialto-Colton Groundwater Basin

Lauren prepared a technical memorandum comparing previous groundwater models covering the Rialto-Colton area to identify the strengths and weaknesses of each model and helped develop subsequent model construction and calibration reports. She aided in compiling a well database with locations, construction information, lithologic information, and water level/water quality data availability. Additional modeling and reporting support included preparing technical memoranda summarizing model construction, calibration, and predictive scenarios.

South Coast Water District: Geophysical Survey and Design of Subsurface Intakes at Doheny Beach

As part of a planned ocean desalination facility, Geoscience is helping South Coast Water District develop and construct subsurface slant well intakes to provide feed water to the desalination facility. The slant wells are traditional wells constructed at an angle that draw salty groundwater from beneath the ocean floor, eliminating impacts to marine life. Lauren supported reporting efforts and provided support during the project's environmental impact review.

Yucaipa Valley Water District: Wilson Creek Recharge Tracer Study

Lauren is currently helping to develop a tracer testing protocol and workplan to support a groundwater recharge project using recycled water. The test will help determine the amount of time it takes recycled water to flow underground from the point of recharge to the nearest groundwater production well, meeting permitting requirements.

Jurupa Community Services District: Geohydrologic Analysis of Future Groundwater Production

Lauren is supporting efforts to complete a geohydrologic analysis to determine future groundwater production potential. Currently, Lauren is developing data requests to forward to local agencies and groundwater producers within the basin. Once data collection is complete, Lauren will support data analysis and reporting tasks.

Santa Ana Watershed Project Authority - Santa Ana River Waste Load Allocation Model Update

As part of the effort to estimate the projected total dissolved solids and nitrate-N concentrations of the Santa Ana River recharge water and discharge at Prado Dam, Lauren helped develop model scenario assumptions. She also produced technical memorandums summarizing the results and findings of each project task, directed the creation of supporting figures and tables, responded to questions and comments from reviewers, and attended Basin Management Program Task Force meetings to provide project status updates and present results.

Leo Liu, MS, EIT

Senior Associate Modeler

Years of Experience: 7
Years with Geoscience: 6

Education:

BS, Environmental Engineering, Tianjin Institute of Urban Construction, China

MS, Environmental Engineering, University of Southern California

Professional Registrations:

Engineer-in-Training

Key qualifications...

- Experience supporting groundwater models, sustainable yield studies, and calculating water budgets—help provide more accurate and thorough models and studies

Leo has more than five years of experience with ground water and environmental investigations performed for numerous municipalities, state agencies, and private clients throughout California. He routinely performs ground water flow and solute transport modeling, hydrogeologic investigations, ground water basin and water quality studies, watershed modeling and management, artificial recharge projects, and has experience in GIS applications, database development and management, and well design.

Selected Project Experience

San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model

Leo is supporting efforts to use existing groundwater and surface water models to develop an integrated watershed model for the upper Santa Ana River. The resulting Upper SAR Integrated Model (or Integrated SAR Model), will be used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels.

Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, and City of San Bernardino, Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins

Leo updated Groundwater Flow Model input packages to incorporate recharge and discharge components (i.e., flux terms) measured during the period from January 1965 through December 2007. He developed a lumped-parameter model for the period from 1965 to 2007 and calibrated through varying the anthropogenic return flow mass loading and initial TDS and nitrate concentration. Leo then developed and ran predictive model runs for the period of 2015 through 2034 under four different scenarios.

San Bernardino Valley Municipal Water District: Yucaipa Groundwater Basin Annual Storage Change Calculation

Leo measured ground water level and collected pumping, spreading data, and climatological data annually. He also digitized water level data from 2005 to 2013 for the Yucaipa area using GIS software. Leo then used groundwater elevation contours from each year to calculate groundwater storage capacity.

City of San Bernardino: US EPA Model

Leo prepared the SBBA HSPF watershed model input data including land use, channel type and evapotranspiration data and run model.

San Bernardino Valley Municipal Water District: Rialto Colton Model

Leo collected and digitized water data from 1945, and 2011 using GIS software. He calculated the

water budget including underflow from Lytle Basin, underflow from Bunker Hill Basin, artificial recharge of imported water, ungaged runoff and subsurface inflow from the San Gabriel Mountains and Badlands, stream bed percolation from the Santa Ana River and Warm Creek, groundwater pumping, and evapotranspiration.

Los Angeles County: Raymond Basin Ground Water Flow Model

Leo performed a regression analysis on Arroyo Seco spreading based on annual and monthly flow data from City of Pasadena, Devils' Gate Dam, and precipitation.

Castaic Lake Water Agency: Santa Clara River Valley East Sub-basin Salt and Nutrient Management Plan

Leo developed and calibrated for the salt loading model for the period from 2001 to 2011. He provided assistant with determining surface water, groundwater and salt balance and incorporating proposed mitigation projects for the salt and nutrient management plant. Leo then ran predictive model runs for the period of 2012 through 2035, and analyzed modeling results under No Project, Single Project and, All Project conditions.

East Valley Water District: Sterling Natural Resource Center Study

Leo developed a surface flow spreadsheet model to quantify recycled water percolation. He also ran a solute transport model to evaluate predicted recycled water travel distance, distribution of percent recycled water, retention time, and recycled water concentration at the nearest active municipal wells.

Jurupa Community Services District: Geohydrologic Analysis of Future Groundwater Production

Leo supported efforts to complete a geohydrologic study to help determine future groundwater production. He exported the Chino Basin Groundwater Model from the recently-completed Integrated Santa Ana River Model, and ran model scenarios to analyze the groundwater balance.

Mojave Water Agency: Groundwater Model

Leo supported efforts to update a groundwater flow model and analyze water balance for a planned groundwater recharge project. To complete the model, he extended the MODFLOW-NWT model with data from 2005 to 2017.

Santa Ana Watershed Project Authority - Santa Ana River Waste Load Allocation Model Update

Leo helped update the Santa Ana River Waste Load Allocation Model, which is used by multiple agencies to assess water quality throughout the watershed. Leo collected and analyzed wastewater flow, water quality, and precipitation data to update and calibrate the model. Once completed, he then ran and evaluated waste load allocation scenarios in major stream segments in the watershed.

Rancho California Water District (Kennedy Jenks): Recycled Water Project

Leo ran groundwater flow modeling scenarios to evaluate potential recycled water recharge locations and determine recycled water retention time. He also helped prepare the draft and final project report.

Rancho California Water District: Safe Yield Calculation in the Northern Murrieta Valley Area

Leo helped calculate the amount of groundwater that could safely be pumped from the Northern Murrieta Valley Area. He updated the safe yield calculation using Zero Net Draft and developed a water balance for the basin. At the conclusion of the project, Leo prepared the draft and final report.

Rancho California Water District: Upper Valle De Los Caballos Recovery Wells

Rancho California Water District has operated a groundwater recharge facility in the Upper Valle De Los Caballos (UVDC) basin for more than two decades. The aquifer is relatively shallow, limiting the district's ability to recover recharge water. Leo helped complete modeling to evaluate additional recovery wells and placement. He developed and calibrated the UVDC focused model and ran model scenarios to evaluate potential slant well and vertical well locations.

Si Si, MS, EIT
Senior Associate Modeler

Years of Experience: 8
Years with Geoscience: 6

Education:

BS, Environmental Science, Ocean University of China

MS, Environmental Engineering, University of Southern California

Professional Registrations:

Engineer-in-Training

Key qualifications...

- Experience supporting groundwater models, sustainable yield studies, and calculating water budgets—help provide more accurate and thorough models and studies

Si Si has more than eight years of experience in groundwater and environmental investigations performed for numerous municipalities, state agencies, and private clients throughout California. She regularly performs ground water flow and solute transport modeling, hydrogeologic investigations, ground water basin and water quality studies, watershed modeling and management, groundwater waste discharge permitting, GIS mapping, and database development and management.

Selected Project Experience

San Bernardino Valley Municipal Water District: Santa Ana River Integrated Model

Si is supporting efforts to combine existing groundwater and surface water models to develop an integrated watershed model for the upper Santa Ana River. The resulting integrated model will be used to determine what factors may contribute to declines river flows and assess cumulative effects on surface flows and groundwater levels. Si developed the watershed model component of the integrated model. She also calibrated the watershed model using data from 1966 through 2016 to simulate runoff generated within the watershed and quantify runoff inputs for the integrated model.

City of Oceanside: Feasibility of Seawater Desalination in the Mission Narrows

Si incorporated two previous developed models, the Mission Basin Model and the Camp Pendleton Desalination Groundwater Model, the Oceanside Harbor Groundwater Flow Model was developed to assess desalination impacts on coastal and inland areas. Used SEAWAT solute transport model for predictive scenarios to evaluate percentage of ocean water pumped during the Project, in terms of the concentration of TDS, and salinity changes at various locations in the model area.

City of San Bernardino: US EPA Model

Si prepared the SBBA HSPF watershed model input data and run model; prepared recharge packages regarding stream bed percolation, mountain front runoff and areal recharge for Groundwater Flow Model based on water balance analysis from HSPF.

Elsinore Valley Municipal Water District: Hydrogeologic Study of the Warm Springs Groundwater Basin

Si developed HSPF model based upon the available data of precipitation, land use and soil types, calibrated HSPF model with adjacent or nearby streamflow gages, quantify the groundwater storage and safe yield of the Warm Springs Basin.

California American Water: Monterey Peninsula Water Supply Project

Si, prepared cross-sections based on well logs, revised NMGWM and CEMEX Model layers, calculated and summarized hydraulic conductivity form grading analysis in CEMEX and Moss Landing Sites, mapped soil size distribution in dune sand aquifer and 180-foot aquifer equivalent, prepared weekly/monthly monitoring reports for Test Slant Well and surrounding monitoring wells, analyzed groundwater elevation changes and calibrated CEMEX focused groundwater model, calculated slant well feed-water supply, impacts and mitigation approaches.

Yucaipa Valley Water District: Recycled Water Use Evaluation - Gateway Subbasin of Yucaipa GW Basin

Si developed focused groundwater model for the unconsolidated sediments of the Gateway Subbasin and solute transport model MT3DMS, evaluated the effects, including travel times and percent contribution, of recharging recycled water at the Wilson Creek Spreading Basin under various recharge scenarios.

City of Oceanside: Mission Basin Model Update and Evaluation of Indirect Potable Reuse (IPR) for the City of Oceanside

Si is supporting efforts to update the Mission Basin Model to evaluate a planned IPR project. She updated the model to add a solute transport component and performed model calibration. Si then used the model to help evaluate potential recharge locations and determine recycled water travel time and concentrations in groundwater at selected locations.

Elsinore Valley Municipal Water District: Hydrogeologic Study of The Warm Springs Groundwater Subbasin

Si helped complete a hydrogeologic study in the Warm Springs Groundwater Subbasin to asses future production potential. She developed a watershed model of the subbasin to quantify basin inflow and outflow.

Yucaipa Valley Water District: Calculation of Annual Water Budgets and Validation of Annual Change in Storage Using the Yucaipa Watershed and Groundwater Models

Si helped update the existing Yucaipa Valley Watershed Model by adding additional recharge terms including areal recharge, mountain front runoff, and streamflow.

Imperial Irrigation District: Seepage Recovery Investigation

Si supported a seepage recovery investigation along the All-American Canal. She collected and analyzed historic hydrogeologic data to help build and calibrate a groundwater model. She then used the model to estimate water loss caused by canal seepage at different locations and assessed various seepage recovery scenarios.

Santa Ana Watershed Project Authority: Santa Ana River Waste Load Allocation Model Update

Si helped update and recalibrate the existing Waste Load Allocation Model. She then evaluated waste load allocation scenarios for major stream segments and estimated off-channel recharge from natural precipitation. She then ran the updated model using historic discharge data to estimate the quantity and quality of the recharge that actually occurred. Si also compiled the waste load allocation model into a run-time software simulation package.

San Bernardino Valley Municipal Water District: Big Bear Overflow Modeling and Assessment

Si developed and calibrated the Seven Oaks Watershed model to estimate additional releases from Big Bear Lake and the resulting amount of additional water available for recharge projects.

Newport Pacific Land: Floriani Ranch Safe Yield and Hydrogeological Study

Si supported efforts to complete a safe yield and hydrogeological study by characterizing current and historic hydrogeologic conditions at the Strata Verde Innovation Park. Si also developed surface and groundwater flow models to help evaluate the basin's sustainable yield including historic and future water budgets. She then conducted modeling scenarios to assess project impacts on Sustainable Groundwater Management Act sustainability indicators.

Appendix B

Similar Projects

Project descriptions and reference information is provided on the following pages for the following projects:

- San Bernardino Valley Municipal Water District, Upper Santa Ana River Integrated River Model
- San Bernardino Valley Municipal Water District, Initial Report of Recharge Parties – Bunker Hill-A, Bunker Hill-B, Lytle, Colton, Rialto and Yucaipa Management Zones
- San Bernardino Valley Municipal Water District, Second Report of Recharge Parties – Bunker Hill-A, Bunker Hill-B, Lytle, Colton, and Rialto Management Zones
- San Bernardino Valley Municipal Water District, Second Report of Recharge Parties – Yucaipa and San Timoteo Management Zones
- Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, and City of San Bernardino, Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins

San Bernardino Valley Municipal Water District, Upper Santa Ana River Integrated Model

San Bernardino and Riverside Counties, CA

The Santa Ana River (SAR) watershed is the largest in Southern California and home to some of the fastest population growth in the country. The communities in the upper watershed from the Seven Oaks Dam upstream, to the Prado Dam downstream, rely on groundwater for much of their water supply. San Bernardino Valley Municipal Water District formed a joint effort with multiple agencies to develop a integrated model for the Upper SAR Valley to determine baseline hydrological conditions and the potential effects of proposed projects. Our team was tasked with constructing a groundwater model for the Upper Santa Ana Valley Groundwater Basin by integrating existing groundwater and surface water models.

The goals of the project are:

- Help riparian habitat and endangered species protection efforts
- Identify impacts to shallow groundwater caused by current and proposed projects
- Enhance the Habitat Conservation Plan (HCP) baseline condition to include both streamflow and groundwater levels
- Better understand how current projects impact SAR flow and groundwater levels
- Predict project impacts in the SAR and groundwater levels in the area

The Integrated SAR Flow Model was completed in September 2020. The resulting Upper SAR Integrated Groundwater Flow Model (or Integrated Flow Model), was used to determine what factors may contribute to declines SAR flows, and assess cumulative effects on SAR surface flows and groundwater levels from approved, outstanding, and proposed projects, including Upper SAR Habitat Conservation Plan Covered Activities. We are currently in the process of completing the Upper SAR Integrated Water Quality Model (or Integrated WQ Model). The Integrated WQ Model conjunctive with the Integrated Flow Model will be used for the San Bernardino Basin Salt and Nutrient Management Plan Project and the 20-Year Water Quality Projections for the San Bernardino, Rialto-Colton, Riverside-Arlington Basins.

Details at a Glance:

Client: San Bernardino Valley Municipal Water District
Client Contact: Bob Tincher, Chief Water Resources Officer/Deputy GM
Phone: (909) 387-9215
Email: btincher@sbvmwd.com
Date: 2017 to 2020

Staff Assigned:

- Johnson Yeh
- David Barnes
- Lauren Wicks
- Leo Liu
- Si Si

Portion of the Santa Ana River North of Riverside

San Bernardino Valley Municipal Water District, Initial Report of Recharge Parties – Bunker Hill-A, Bunker Hill-B, Lytle, Colton, Rialto and Yucaipa Management Zones

San Bernardino County, CA

To meet increasing demand, water providers in the Santa Ana River watershed use imported water to recharge groundwater basins within the region. However, long-term recharge and conjunctive use can affect groundwater quality. To protect local groundwater supplies, the Regional Water Quality Control Board (RWQCB) requires that local water providers manage groundwater quality to meet objectives for Total Dissolved Solids (TDS) and nitrogen. In 2008, the RWQCB adopted a resolution (No. R8-2008-0019) to allow participating agencies to monitor and improve water quality objectives within the watershed. The resolution also required that participating agencies produce reports detailing a 20-year water quality projection that accounts for planned recharge.

Geoscience was tasked with completing the initial report for Bunker Hill A & B, Lytle Creek, Colton, Rialto, and Yucaipa Management zones. The Refined Basin Flow Model (RBFM) developed jointly by the City of San Bernardino Municipal Water Department (SBMWD) and Valley District was used as a predictive tool for the Bunker Hill-A, Bunker Hill-B and Lytle Management Zones. Geoscience added a water quality component for Valley District under USEPA Grant X-97957701-0. To use the Rialto-Colton Groundwater Model, developed by the USGS, (Woolfenden and Koczot, 2001) for the Rialto and Colton Management Zones our team added a water quality component to the USGS model.

Our team then calculated the average TDS and nitrate-nitrogen concentrations for each of the management zones at the end of the 20-year period using the models. We also quantified the predicted volumes and TDS and nitrate-nitrogen concentrations of underflow to the downgradient management zones.

Details at a Glance:

Client: San Bernardino Valley Municipal Water District
Client Contact: Douglas Headrick (Retired)
Client Contact: Bob Tincher, Chief Water Resources Officer/Deputy GM
Phone: (909) 387-9215
Email: btincher@sbvmwd.com
Date: 2009

Staff Assigned:

- Johnson Yeh

San Bernardino Valley Municipal Water District, Second Report of Recharge Parties – Bunker Hill-A, Bunker Hill-B, Lytle, Colton, and Rialto Management Zones

San Bernardino County, CA

To complete the report, we used the same methodology as the initial report (i.e. Refined Basin Flow Model) as a predictive tool for the Bunker Hill-A, Bunker Hill-B and Lytle Management Zones. As with the initial report, we used Rialto-Colton Groundwater Model developed by the USGS (Woolfenden and Koczot, 2001) for the Rialto and Colton Management Zones. Our team calculated the average TDS and nitrate-nitrogen concentrations for each of the management zones at the end of the 20-year period using the models. We also quantified predicted volumes and TDS and nitrate-nitrogen concentrations of underflow to the downgradient management zones.

Details at a Glance:

Client: San Bernardino Valley Municipal Water District
Client Contact: Sam Fuller (Retired)
Client Contact: Bob Tincher, Chief Water Resources Officer/Deputy GM
Phone: (909) 387-9215
Email: btincher@sbvmwd.com
Date: 2013

Staff Assigned:

- Johnson Yeh
- Lauren Wicks

San Bernardino Valley Municipal Water District, Second Report of Recharge Parties – Yucaipa and San Timoteo Management Zones

San Bernardino County, CA

Geoscience developed a TDS and nitrate lumped-parameter model for the Yucaipa and San Timoteo Management Zones to meet the cooperative agreement's monitoring and reporting requirements and to assess compliance with the Salinity Objectives projected for a 20-year predictive period. We calculated the average TDS and nitrate-nitrogen concentrations for each of the management zones at the end of the 20-year period using the models. We also calculated the predicted volumes and TDS and nitrate-nitrogen concentrations of underflow to the downgradient management zones.

Details at a Glance:

Client: San Bernardino Valley Municipal Water District
Client Contact: Sam Fuller (Retired)
Client Contact: Bob Tincher, Chief Water Resources Officer/Deputy GM
Phone: (909) 387-9215
Email: btincher@sbvmwd.com
Date: 2012

Staff Assigned:

- Johnson Yeh
- Lauren Wicks

Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, and City of San Bernardino, Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins

Riverside, CA

Geoscience developed the Riverside-Arlington Lumped-Parameter Salt Balance Model (RALPSBM) for the parties involved in the Cooperative Agreement managing the Riverside and Arlington Groundwater Basins including Western Municipal Water District, City of Riverside, San Bernardino Valley Municipal Water District and the City of San Bernardino. The purpose of the TDS and nitrate lumped-parameter model is to meet the monitoring and reporting requirements of the cooperative agreement and to assess compliance with the Salinity Objectives projected for a 20-year predictive period.

The RALPSBM is an integrated streamflow and groundwater lumped-parameter model that was developed for streams and the valley-fill aquifer of the Riverside and Arlington Basins. The RALPSBM was constructed as a spreadsheet model to incorporate the conceptual model on an annual calendar year time scale. Due to the complex interactions of the fluxes in the seven management zones (Riverside A through Riverside F and Arlington), our team used the existing Riverside-Arlington Groundwater Flow Model (RAGFM) to determine the underflow fluxes between the Basins and management zones as input to the RALPSBM for historical and predictive simulations. We calculated the average TDS and nitrate-nitrogen concentrations for each of the management zones at the end of the 20-year period. Additionally, we calculated the predicted volumes and TDS and nitrate-nitrogen concentrations of underflow to the downgradient management zones.

Details at a Glance:

Client: Western Municipal Water District, San Bernardino Valley Municipal Water District, City of Riverside, City of San Bernardino
Client Contact: Fakhri Manghi (Retired)
Client Contact: Ryan Shaw, Director of Water Resources
Phone: (951) 571-7256
Email: rshaw@wmwd.com
Date: 2015

Staff Assigned:

- Johnson Yeh
- Lauren Wicks
- Leo Liu

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: September 2, 2021

TO: Board of Directors Workshop - Resources

FROM: Chris Jones, Preserve System Program Manager
Joanna Gibson, Executive Director Upper SAR HCP Program

SUBJECT: Discuss Resolution No. 1126 Authorizing Staff to Submit a Grant Application to the Wildlife Conservation Board Public Access Program

---

Staff is requesting the Board discuss Resolution No. 1126 that would authorize staff to submit a grant application to the Wildlife Conservation Board (WCB) Public Access Program (https://wcb.ca.gov/Programs/Public-Access). The Resolution would authorize Valley District, on behalf of the Louis Robidoux Parkland and Pecan Grove (LRPPG) Consortium and the Upper Santa Ana River Habitat Conservation Plan (HCP) funding partners, to apply for $357,500 of grant funding from the WCB and commit $1,153,500 matching funds, should Valley District be selected to receive grant funds. Additional background and details associated with the grant application and resolution are provided below.

Background

The LRPPG Consortium (Consortium), of which Valley District is a member, resumed operation and management responsibilities at the LRPPG Property in fall of 2020. Since that time Consortium members have begun investigating potential funding options for various individual and collective responsibilities on the site. The Consortium is comprised of the Inland Empire Resource Conservation District (IERCD), Valley District on behalf of the HCP,

Orange County Water District (OCWD), Sunshine Haven Animal Rescue and Wildlife Rehabilitation (Sunshine Haven), and Huerta del Valle.

Master Plan for LRPPG

The Consortium is currently in the initial stages of planning for the development of a Master Plan for the LRPPG site. As part of this effort, Valley District has been reviewing grant funding opportunities to help offset associated costs. A grant with considerable applicability that was recently released was the Wildlife Conservation Board's Public Access Grant. Under this grant program, planning monies are available for the development of master plans with public access components, including, but not limited to trails, interpretive signage, wildlife viewing platforms, education facilities, and other facilities like bathrooms and parking lots. The funding can also be used to prepare environmental documents and associated permits.

Pre-Application Submission

On June 29, 2021, we submitted a pre-application proposal responsive to the WCB's Call for Concepts.

Included in our pre-application proposal submission were the following tasks (planning, design, and permitting):

- Historic and Existing Conditions Analysis
- Opportunities and Constraints Analysis
- Development of Master Plan
- Development of Plans and Specifications Package
- Public Outreach
- Permitting and Environmental Compliance

Staff estimated the overall budget for items included in the pre-application to be approximately $1,511,000. Of this amount, Staff requested $357,500 in grant funding, corresponding to approximately 24% of the overall budget based on the guidance of the grant administrator.

Invitation to Submit Full Application

Valley District, as the lead agency on the potential grant opportunity, was informed that the Project was invited to provide a full application on August 2, 2021. A requirement of the full application is a Resolution, approved by the Board of Directors, authorizing the grant application. A template resolution was supplied by WCB as part of the grant application materials. House legal counsel has reviewed and deemed this template acceptable for use by Valley District. This template was developed into Resolution No. 1126. Resolution No. 1126 would commit Valley District to the following:

1. Authorization of staff to submit an application for grant funding from the WCB;
2. Certification that our application will comply with all federal, state and local environmental, public health, and other appropriate laws and regulations;
3. Commitment of the District to the terms and conditions specified in the grant agreement; and
4. Appointment of a designated person as a representative of Valley District to conduct negotiations, execute, submit and sign all documents.

Project Benefits to Valley District

If successful, the grant would contribute funding to evaluate, design, and permit a master plan with public access components for the LRPPG site. The funding would help defray costs for the Consortium, and would help shine a spotlight on the project, highlighting the benefits of the project to the surrounding community, and the region as a whole.

Project Timeline

The planning, design, and environmental tasks of the Project described in the grant application must be completed within three years. The performance period for the grant is expected to run through 2024. The exact dates are dependent upon potential date of award. The full application is due on September 16, 2021.

Fiscal Impact

The budget included in the pre-application, as well as the budget that is being developed for the full application, are based on estimates from previous projects with similar tasks for projects of a similar scale. The total cost of the Project, proposed for inclusion in the full

application for the WCB's Public Access grant is approximately $1,511,000. Staff is requesting $357,500 in grant funding for this planning effort. Valley District would commit to funding approximately $1,153,500 over the three-year period of performance related to this effort. Since the conservation-based education and access components of this effort are vital to conveying the importance of the HCP it is considered a component of the HCP conservation strategy and the cost-share associated with the HCP and its partners would apply to the matching funds obligation. Therefore, Valley District's share would be approximately 40% (approximately $461,400), and the HCP Partners would reimburse the District 60% (approximately $692,100). Staff has included funding for this project in the line item titled, "Sunnyslope Creek Louis Robidoux Nature Center Master Plan Creek Design" in the Environmental/HCP Implementation line item of the approved FY21/22 General Fund Budget.

Valley District is also continuing to investigate additional means to fund the planning, design, and environmental compliance portions of this Project to further reduce the cost to Valley District, the other Consortium members, and the HCP partners.

Staff Recommendation:

Staff recommends the Board direct staff to place Resolution No. 1126 on the next Board of Directors regular meeting agenda for consideration.

Attachments:

Invitation to Submit Full Application
Updated Budget Worksheet
Resolution No. 1126

From:	McIntire, Heather@Wildlife
To:	Chris Jones
Cc:	intern1; Kirsten Wallace; Joanna Gibson; Kai Palenscar
Subject:	WCB Public Access Program -- Application
Date:	Monday, August 2, 2021 12:00:24 PM
Attachments:	2021 Public Accss Full Application.docx Appendix B Budget rev 2.xlsx

Congratulations! The WCB's Public Access Program is pleased to invite a full application for the proposal titled: **Louis Rubidoux Parkland and Pecan Grove Public Access Project.**

Please contact me to make an appointment for consultation to discuss comments on the Concept application and to assist you with full application development.

The full application and budget files are attached. Refer to the PSN for application instructions.

Please submit the application in Microsoft Word format only. The full application deadline is extended to September 16th, 2021. All applications and associated documents are **due by 5:00 pm on September 16th, 2021**. Applications received after 5:00 pm will not be considered.

The 2021 Public Access Program solicitation process received more than 70 proposals, totaling $27 million in WCB funding requests. Up to $5 million is available for award through the current solicitation, resulting in a very competitive selection process. WCB expects to release another PSN for the Program in 2022.

Sincerely
Heather

Heather McIntire

Public Access Program Manager
Wildlife Conservation Board
(916) 926-9585

Tasks	Task Costs	Grant Cost %	Grant Ask	Valley District Cost %	Valley District Cost
Existing Conditions Analysis	$300,000	35%	$105,000	65%	$195,000
Opps & Constraints Report	$100,000	35%	$35,000	65%	$65,000
Conceptual Designs and Basis of Design Report	$125,000	35%	$43,750	65%	$81,250
Plans and Specifications	$125,000	35%	$43,750	65%	$81,250
CEQA/NEPA	$200,000	35%	$70,000	65%	$130,000
Permitting	$100,000	35%	$35,000	65%	$65,000
Project Management	$100,000	10%	$10,000	90%	$90,000
Public Outreach	$100,000	15%	$15,000	85%	$85,000
Site Safety	$361,000	0%	$0	100%	$361,000
TOTALS	**$1,511,000**	**24%**	**$357,500**	**76%**	**$1,153,500**
HCP Split					
Valley District (40%)					**$461,400**
HCP Partners (60%)					**$692,100**

SAMPLE AUTHORIZING RESOLUTION

RESOLUTION NUMBER: 1126

RESOLUTION OF THE *BOARD OF DIRECTORS* OF *THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT* APPROVING THE APPLICATION FOR GRANT FUNDS FROM THE WILDLIFE CONSERVATION BOARD FOR *THE LOUIS ROBIDOUX PARKLAND AND PECAN GROVE (LRPPG) PUBLIC ACCESS PROJECT*.

WHEREAS funds were made available to the Wildlife Conservation Board for the enhancement or restoration of fish and wildlife habitat and for the development of public access facilities for hunting, fishing or other wildlife-oriented recreational uses.

WHEREAS: *The San Bernardino Valley Municipal Water District* intends to conduct planning, design, permitting and environmental compliance activities that will support the development of public access and conservation related educational programming and facilities at the LRPPG and vicinity..

NOW, THEREFORE, BE IT RESOLVED that the S*an Bernardino Valley Municipal Water District* herby:

1. Approves the filing of an application for funding from the Wildlife Conservation Board; and

2. Certifies that said Applicant will comply with all federal, state and local environmental, public health, and other appropriate laws and regulations applicable to the project and will obtain or will ensure that the other project partners obtain all appropriate permits applicable to the project; and

3. Further commits to the terms and conditions specified in the grant agreement; and

4. Appoints Heather Dyer, CEO/General Manager, as a representative(s) of the San Bernardino Valley Municipal Water District to conduct negotiations, execute, submit and sign all documents including but not limited to applications, agreements, amendments, payment requests, and other documents which may be necessary for the completion of the proposed project.

APPROVED AND ADOPTED the __ day of _____, 20__.

I herby certify that the foregoing Resolution Number ____ was adopted by the Board of Directors of the San Bernardino Valley Municipal Water District.

_____

(*Print name and title*)

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: September 2, 2021

TO: Board of Directors' Workshop - Resources

FROM: Matthew Howard, Water Resources Senior Planner

SUBJECT: Consideration of the USGS Data Collection Program for Fiscal Year 2021 – 2022

Staff is recommending approval of Valley District's annual contract with the United States Geological Survey (USGS) for data collection and monitoring in support of the Western-San Bernardino Watermaster, Santa Ana River Watermaster, and the Habitat Conservation Plan at a total cost of $1,124,370. The USGS is contributing a total of $159,000 leaving a remainder of $965,370 to be paid by Valley District and its partners. Valley District will be reimbursed $222,265 resulting in Valley District's net cost of $743,105, which is within the approved budget.

BACKGROUND

For decades Valley District has been a "cooperator" with the United States Geological Survey (USGS). As a cooperator, Valley District has shared, or cooperated, in the cost for the USGS to monitor streamflow's in the upper portion of the Santa Ana River watershed along with precipitation levels and groundwater levels in the Valley District's service area. The cost sharing arrangement between Valley District and USGS has fluctuated over the years based upon the amount Congress allocates to the USGS in the federal budget. The data collected under this program is utilized by both the Santa Ana River Watermaster and the Western-San Bernardino Watermaster to fulfill their court-ordered responsibilities. The data is also used to support various Valley District's projects, the Upper Santa Ana River Habitat Conservation Plan (HCP), and the development of the Basin Technical Advisory Committee (BTAC) Annual Regional Water Management Plan.

The Federal Government's fiscal year runs from October 1 through September 30, which aligns with the California Water Year but runs three (3) months later than Valley District's fiscal year.

As a result, the standard practice has been for Valley District to include a line item in its fiscal year budget for this work and then to present the proposed contract to the Board for consideration at a later date.

This year's program includes a modest cost increase due to last year's one-time reduced program monitoring period of 11 months from November 1, 2020 to September 30, 2021 to align with the Federal Fiscal and California Water years in the future beginning on October 1. Comparison of this year's data collection program to the 2019-2020 program, which represents a full 12-month monitoring period, results in a 0.6% increase in overall costs. The form of the agreement is essentially the same as previous versions, which was reviewed by House Counsel and approved as to form.

Fiscal Impact:
$1.2 million was budgeted in the FY 2021-22 Valley District General Fund Budget Line Item 6350, which is sufficient to cover the total cooperator cost of $1,124,370. After taking into consideration the USGS contribution and reimbursement from our partners, Valley District's net cost will be $743,105.

Recommendation:
Staff recommends forwarding the Joint Funding Agreement to the next Board of Directors' meeting for consdideration.

Attachment:
U.S. Department of the Interior U.S. Geological Survey Joint Funding Agreement for Water Resource Investigations, Agreement # 22ZGJFA03100

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
California Water Science Center
6000 J Street, Placer Hall
Sacramento, CA 95819

August 25, 2021

Mrs. Heather Dyer
Chief Executive Officer/General Manager
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Dear Mrs. Dyer:

This letter finalizes the costs of the cooperative water resources program outlined in the attached Table during the period October 1, 2021 through September 30, 2022 in the amount of in the amount of $965,370 from your agency. Pending the availability of cooperative water funds, U.S. Geological Survey contributions for this agreement are $159,000 for a combined total of $1,124,370. If you are in agreement with this proposed program, please return the fully executed electronically signed copy to CAgageADMIN@usgs.gov (preferred) or send one fully executed paper copy to the address in the letter head.

Federal law requires that we have a signed agreement before we start or continue work. Please return the signed agreement by **October 1, 2021**. If, for any reason, the agreement cannot be signed and returned by the date shown above, please contact Jonathan Newby by phone number (909) 798-3272 or email jnewby@usgs.gov to make alternative arrangements.

This is a fixed cost agreement to be billed quarterly via Down Payment Request (automated Form DI-1040). Please allow 30-days from the end of the billing period for issuance of the bill. If you experience any problems with your invoice(s), please contact Helen Houston at hhouston@usgs.gov.

The results of all work performed under this agreement will be available for publication by the U.S. Geological Survey. We look forward to continuing this and future cooperative efforts in these mutually beneficial water resources studies.

Sincerely,

ERIC REICHARD Digitally signed by ERIC REICHARD
Date: 2021.08.25 14:31:29 -07'00'

Eric Reichard
Director, USGS California Water Science Center

Enclosure
22ZGJFA03100

FY 2022 **USGS Cooperative Water Program**

Agreement Period Oct 1, 2021 - Sept 30, 2022

Agreement # 22ZGJFA03100

8/17/2021

USGS Contact:
Jonathan Newby

San Bernardino Valley Municipal Water District
Heather Dyer (Chief Executive Officer/General Manager)
380 East Vanderbilt Way
San Bernardino, CA 92408

Data Section Total = $1,124,370
USGS Cooperative Matching Funds = $159,000
Cooperator Total = $965,370

Table 1: Watermaster Data-Collection Program

Table 1 Total = $508,690
USGS Cooperative Matching Funds = $113,640
Cooperator Total = $395,050

Type	Station Number	Station Name	Activity	Activity Cost	USGS Funds	Cooperator Funds	
SW	11051499	Santa Ana R nr Mentone CA (RIVER ONLY)	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	Data quarterly to Watermaster
SW	11051502	Sar Supp Gage nr Mentone CA	Streamflow, Partial Range (CMF)	$ 14,540	$ 4,750	$ 9,790	Data quarterly to Watermaster
SW	11055000	Mill C nr Mentone CA	Discharge measurement	$ 12,240	$ -	$ 12,240	24
SW	11055500	Plunge C nr East Highlands CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11055700	City Creek Water Co Canal near Highland CA	Streamflow, Partial Range (CMF)	$ 14,540	$ 4,750	$ 9,790	
SW	11055800	City C nr Highland CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11058500	E Twin C nr Arrowhead Springs CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11058600	Waterman Canyon Creek nr Arrowhead Springs CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SED	11059300	Santa Ana River at E Street near San Bernardino CA	Periodic seasonal suspended sediment	$ 17,190	$ -	$ 17,190	
SW	11060400	Warm C nr San Bernardino CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11061000	Fontana Water Co Infiltration Line near Fontana CA	Streamflow record, full - review	$ 5,920	$ 1,850	$ 4,070	
SW	11062399	Fontana Water Co Surface Div Weir 2 near Fontana CA	Streamflow, continuous- fixed Geometry	$ 9,200	$ -	$ 9,200	Data quarterly to Watermaster
SW	11062400	Fontana Water Co Surface Div near Fontana CA	Streamflow, continuous- fixed Geometry	$ 9,200	$ -	$ 9,200	Data quarterly to Watermaster
SW	11062450	Fontana PH Forebay Spillway near Fontana CA	Streamflow, Partial Range	$ 15,800	$ -	$ 15,800	Data quarterly to Watermaster
SW	11062700	Lytle Creek Diversion to Fontana Powerhouse AVM near Fontana CA	Discharge, AVM quality assurance check/review	$ 1,430	$ -	$ 1,430	Data furnished annually by So Cal Edison
SW	11062800	Fontana Water Company Spill Channel from Afterbay nr Fontana	Streamflow, Partial Range	$ 15,800	$ -	$ 15,800	Data quarterly to Watermaster
SW	11063510	Cajon C bl Lone Pine C nr Keenbrook CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11063680	Devil Cyn C nr San Bernardino CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11066320	Rix Outflow a Santa Ana R nre Grand Terrace CA	Water Level/Reservoir, continuous	$ 9,200	$ -	$ 9,200	
SW	11065000	Lytle C a Colton CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11066460	Santa Ana R A MWD Crossing CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	Data quarterly to Watermaster
SW	11066460	Santa Ana R A MWD Crossing CA	Discharge measurement (CMF)	$ 12,000	$ 2,590	$ 9,410	24 Data quarterly to Watermaster
QW	11066460	Santa Ana R A MWD Crossing CA	TDS Sample - biweekly	$ 12,700	$ 4,410	$ 8,290	24 Samples/year
SW	11071900	Temescal Creek at Corona Lake nr Corona CA	Streamflow, Partial Range	$ 15,800	$ -	$ 15,800	
SW	11072100	Temescal Creek above Main St nr Corona CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	
SW	11073360	Chino Creek at Shaefer Avenue nr Chino CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	Data quarterly to Watermaster
SW	11073495	Cucamonga Creek nr Mira Loma CA	Streamflow, continuous (CMF)	$ 24,230	$ 7,330	$ 16,900	Data quarterly to Watermaster
SW	340526116561301	Mill Creek Precipitation nr Forest Falls CA	Precipitation, continuous	$ 9,380	$ -	$ 9,380	
SW	340742117161701	Gilbert Street Precipitation Gage at San Bernardino CA	Precipitation, continuous	$ 9,380	$ -	$ 9,380	
SW	341429116583101	Big Bear Lake Precipitation near Big Bear CA	Precipitation, continuous	$ 9,380	$ -	$ 9,380	

Summary of Monitoring Conducted for Other Agencies

SW	11057500	San Timoteo Creek near Loma Linda	Streamflow, continuous	USGS Federal Priority Streamgage	
SW	11062000	Lytle Creek near Fontana	Streamflow, continuous	USGS Federal Priority Streamgage	
SW	11074000	Santa Ana River below Prado Dam	Streamflow, continuous	USGS Federal Priority Streamgage	Data quarterly to Watermaster
SW	11074000	Santa Ana River below Prado Dam	Discharge measurement - 2 per month	Orange County Water District	Data quarterly to Watermaster
SW	11074000	Santa Ana River below Prado Dam	Specific Conductance and temp, continuous	Orange County Water District	Data quarterly to Watermaster

SW	11074000	Santa Ana River below Prado Dam	TDS (bi weekly)	Orange County Water District	Data quarterly to Watermaster
SW	11074000	Santa Ana River below Prado Dam	Specific Conductance Computation	Orange County Water District	Data quarterly to Watermaster
SW	11077500	Santiago Creek near Santa Ana CA	Streamflow, continuous	Orange County Water District	
SW	11078000	Santa Ana River at Santa Ana CA	Streamflow, continuous	USGS Federal Priority Streamgage	Data quarterly to Watermaster
SW	341509117312601	Middle Fork Lytle Creek Precipitation Gage near Lytle Creek	Precipitation, continuous	USGS Federal Priority Streamgage	

Table 2. Groundwater Level Monitoring Program

Table 2 Total =	$615,680
USGS Cooperative Matching Funds =	$45,360
Cooperator Total =	$570,320

Type	Station Number	Station Name	Activity	Full Year Cost	USGS Funds	Cooperator Funds	
GW	340046117020801	002S002W12H001S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Yucaipa Enc. 5 Equestrian Park
GW	340046117020802	002S002W12H002S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Equestrian Park
GW	340046117020803	002S002W12H003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Equestrian Park
GW	340046117020804	002S002W12H004S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Equestrian Park
GW	340130117054901	002S002W04L002S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Yucaipa Enc. 5 Dunlap Acres
GW	340130117054902	002S002W04L003S	Groundwater level measurement, bimonthly	$ 1,620	$ 280	$ 1,340	Yucaipa Enc. 5 Dunlap Acres
GW	340130117054903	002S002W04L004S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Dunlap Acres
GW	340130117054904	002S002W04L005S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Dunlap Acres
GW	340130117054905	002S002W04L006S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Dunlap Acres
GW	340136117033901	002S002W02F002S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Yucaipa Enc. 5 6th and F
GW	340136117033902	002S002W02F003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 6th and F
GW	340136117033903	002S002W02F004S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 6th and F
GW	340136117033904	002S002W02F005S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 6th and F
GW	340136117033905	002S002W02F006S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 6th and F
GW	340248117020901	001S002W36A002S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Yucaipa Enc. 5 Wilson Creek
GW	340248117020902	001S002W36A003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Wilson Creek
GW	340248117020903	001S002W36A004S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Wilson Creek
GW	340248117020904	001S002W36A005S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Yucaipa Enc. 5 Wilson Creek
GW	340316117174101	001S004W27M001S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Bunker Hill Enc. 3 Rich Dauer Park
GW	340316117174102	001S004W27M002S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 3 Rich Dauer Park
GW	340316117174103	001S004W27M003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 3 Rich Dauer Park
GW	340317117190401	001S004W29K001S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg2
GW	340317117190402	001S004W29K002S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg2
GW	340317117190403	001S004W29K003S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg2
GW	340317117190404	001S004W29K004S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg2
GW	340317117190405	001S004W29K005S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg2
GW	340321117153801	001S004W25E005S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Bunker Hil Enc. 3 Elmer Digneo Park
GW	340321117153802	001S004W25E006S	Groundwater level measurement, bimonthly	$ 1,620	$ 280	$ 1,340	Bunker Hil Enc. 3 Elmer Digneo Park
GW	340321117153803	001S004W25E007S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hil Enc. 3 Elmer Digneo Park
GW	340326117185301	001S004W29H004S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg1
GW	340326117185302	001S004W29H005S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg1
GW	340326117185303	001S004W29H006S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg1
GW	340326117185304	001S004W29H007S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg1
GW	340326117185305	001S004W29H008S	Groundwater level measurement, monthly	$ 3,240	$ 280	$ 2,960	Rialto/Colton Enc. 4 Fogg1
GW	340408117165301	001S004W22J001S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Bunker Hill Enc. 2 Commerce Center West
GW	340408117165302	001S004W22J002S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 2 Commerce Center West
GW	340408117165303	001S004W22J003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 2 Commerce Center West
GW	340408117165304	001S004W22J004S	Groundwater level measurement, bimonthly	$ 1,620	$ 280	$ 1,340	Bunker Hill Enc. 2 Commerce Center West
GW	340414117190201	001S004W20H001S	Groundwater level, continuous	$ 9,200	$ 280	$ 8,920	Bunker Hill Enc. 2 Colton Plunge Park
GW	340414117190202	001S004W20H002S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 2 Colton Plunge Park
GW	340414117190203	001S004W20H003S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 2 Colton Plunge Park
GW	340414117190204	001S004W20H004S	Groundwater level, continuous (ea additl well in cluster)	$ 2,700	$ 280	$ 2,420	Bunker Hill Enc. 2 Colton Plunge Park

GW	340414117190205	001S004W20H005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Colton Plunge Park
GW	340433117171201	001S004W22B009S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc.3 Treatment Plant
GW	340433117171202	001S004W22B010S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc.3 Treatment Plant
GW	340433117171203	001S004W22B011S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc.3 Treatment Plant
GW	340439117173902	001S004W22D002S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 2 SBVWD (MUNI Yard)
GW	340439117173904	001S004W22D004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 SBVWD (MUNI Yard)
GW	340439117173905	001S004W22D005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 2 SBVWD (MUNI Yard)
GW	340439117173906	001S004W22D006S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 SBVWD (MUNI Yard)
GW	340439117173907	001S004W22D007S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 2 SBVWD (MUNI Yard)
GW	340503117104101	001S003W15K001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc.2 Riverview
GW	340503117104102	001S003W15K002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc.2 Riverview
GW	340503117104103	001S003W15K003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc.2 Riverview
GW	340503117104104	001S003W15K004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc.2 Riverview
GW	340503117104105	001S003W15K005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc.2 Riverview
GW	340508117163301	001S004W14E008S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Mill Center
GW	340508117163302	001S004W14E009S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Mill Center
GW	340508117163303	001S004W14E010S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Mill Center
GW	340508117163304	001S004W14E011S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Mill Center
GW	340508117163305	001S004W14E012S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Mill Center
GW	340508117163306	001S004W14E013S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Mill Center
GW	340509117172401	001S004W15F006S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Orange Show
GW	340509117172402	001S004W15F007S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Orange Show
GW	340509117172403	001S004W15F008S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Orange Show
GW	340521117212001	001S005W13B001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Rialto High School
GW	340521117212002	001S005W13B002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto High School
GW	340521117212003	001S005W13B003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto High School
GW	340521117212004	001S005W13B004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto High School
GW	340521117212005	001S005W13B005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto High School
GW	340524117182801	001S004W16C005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 San Bernadino Valley Coll
GW	340524117182802	001S004W16C006S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 San Bernadino Valley Coll
GW	340524117182803	001S004W16C007S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 San Bernadino Valley Coll
GW	340538117171401	001S004W10K001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Burbank Elementary
GW	340538117171402	001S004W10K002S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Burbank Elementary
GW	340538117171403	001S004W10K003S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Burbank Elementary
GW	340541117074401	001S002W07Q001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 2 Cone Camp
GW	340541117074402	001S002W07Q002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Cone Camp
GW	340541117074403	001S002W07Q003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Cone Camp
GW	340541117074404	001S002W07Q004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Cone Camp
GW	340541117074405	001S002W07Q005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Cone Camp
GW	340541117074406	001S002W07Q006S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Cone Camp
GW	340546117182901	001S004W09L002S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Lytle Creek Park
GW	340546117182902	001S004W09L003S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Lytle Creek Park
GW	340546117182903	001S004W09L004S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Lytle Creek Park
GW	340546117182904	001S004W09L005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Lytle Creek Park
GW	340555117161201	001S004W11K002S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Lena Road
GW	340555117161202	001S004W11K003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Lena Road
GW	340555117161203	001S004W11K004S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Lena Road
GW	340555117161204	001S004W11K005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Lena Road
GW	340555117161205	001S004W11K006S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Lena Road
GW	340555117161206	001S004W11K007S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Lena Road
GW	340555117161207	001S004W11K008S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Lena Road
GW	340559117194501	001S004W08E001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Rialto Avenue
GW	340559117194502	001S004W08E002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto Avenue
GW	340559117194503	001S004W08E003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto Avenue
GW	340559117194504	001S004W08E004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto Avenue
GW	340606117223801	001S005W11F001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Lilac Park

GW	340606117223802	001S005W11F002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Lilac Park
GW	340606117223803	001S005W11F003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Lilac Park
GW	340606117223804	001S005W11F004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Lilac Park
GW	340615117170902	001S004W10B002S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 2 Meadowbrook Park
GW	340615117170903	001S004W10B003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Meadowbrook Park
GW	340615117170904	001S004W10B004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Meadowbrook Park
GW	340632117170501	001S004W03Q001S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Bunker Hill Enc. 2 Heap Well
GW	340633117174001	001S004W03N002S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 3 Feldheym Library
GW	340633117174002	001S004W03N001S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Feldheym Library
GW	340633117174003	001S004W03N003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Feldheym Library
GW	340633117174004	001S004W03N004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Feldheym Library
GW	340633117174005	001S004W03N005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 3 Feldheym Library
GW	340633117174006	001S004W03N006S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 3 Feldheym Library
GW	340655117184004	001S004W04E004S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 2 Garner Street Wells
GW	340655117184005	001S004W04E005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Bunker Hill Enc. 2 Garner Street Wells
GW	340655117184006	001S004W04E006S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 2 Garner Street Wells
GW	340707117162706	001S004W02D006S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Bunker Hill Enc. 2 Sierra High School
GW	340707117162707	001S004W02D007S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Sierra High School
GW	340707117162708	001S004W02D008S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Bunker Hill Enc. 2 Sierra High School
GW	340716117230601	001S005W03A003S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340716117230602	001S005W03A004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340716117230603	001S005W03A005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340716117230604	001S005W03A006S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340716117230605	001S005W03A007S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340716117230606	001S005W03A008S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Cactus Reservoir
GW	340800117235901	001N005W34D001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Rialto Airport
GW	340800117235902	001N005W34D002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto Airport
GW	340800117235903	001N005W34D003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Rialto Airport
GW	340800117235904	001N005W34D004S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Rialto Airport
GW	340804117221601	001N005W35B001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Easton Reservoir
GW	340804117221602	001N005W35B002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Easton Reservoir
GW	340804117221603	001N005W35B003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Easton Reservoir
GW	340804117221604	001N005W35B004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Easton Reservoir
GW	340814117253501	001N005W29Q001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 County Landfill
GW	340814117253502	001N005W29Q002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 County Landfill
GW	340814117253503	001N005W29Q003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 County Landfill
GW	340814117253504	001N005W29Q004S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 County Landfill
GW	340814117253505	001N005W29Q005S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 County Landfill
GW	340826117224201	001N005W26L001S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Hughbanks School
GW	340828117240102	001N005W28J002S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Vinyard/Linden
GW	340828117240103	001N005W28J003S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Vinyard/Linden
GW	340829117284301	001N006W26K002S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Rialto/Colton SW
GW	340829117284302	001N006W26K003S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Rialto/Colton SW
GW	340851117281901	001N006W26A001S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Rialto/Colton NE
GW	340851117281902	001N006W26A002S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Rialto/Colton NE
GW	340851117281903	001N006W26A003S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Rialto/Colton NE
GW	340854117235102	001N005W27D002S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Highway 30
GW	340854117235104	001N005W27D004S	Groundwater level measurement, monthly	$	3,240	$	280	$ 2,960	Rialto/Colton Enc. 4 Highway 30
GW	340914117234901	001N005W22N001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Linden Ponds
GW	340914117234902	001N005W22N002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Linden Ponds
GW	340914117234903	001N005W22N003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Linden Ponds
GW	340914117234904	001N005W22N004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Linden Ponds
GW	340914117234905	001N005W22N005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Linden Ponds
GW	340914117234906	001N005W22N006S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Linden Ponds
GW	340927117242201	001N005W21K001S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Upper Linden Ponds
GW	340927117242202	001N005W21K002S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Upper Linden Ponds

GW	340927117242203	001N005W21K003S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Upper Linden Ponds
GW	340927117242204	001N005W21K004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Upper Linden Ponds
GW	341013117253901	001N005W17L001S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Via Bello
GW	341013117253902	001N005W17L002S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Via Bello
GW	341013117253903	001N005W17L003S	Groundwater level, continuous	$	9,200	$	280	$ 8,920	Rialto/Colton Enc. 4 Via Bello
GW	341013117253904	001N005W17L004S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Via Bello
GW	341013117253905	001N005W17L005S	Groundwater level, continuous (ea additl well in cluster)	$	2,700	$	280	$ 2,420	Rialto/Colton Enc. 4 Via Bello
GW	341013117253906	001N005W17L006S	Groundwater level measurement, bimonthly	$	1,620	$	280	$ 1,340	Rialto/Colton Enc. 4 Via Bello

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000809
Agreement #: 22ZGJFA03100
Project #: ZG00GZV
TIN #: 95-6005196

Fixed Cost Agreement YES[X] NO[ ]

THIS AGREEMENT is entered into as of the October 1, 2021, by the U.S. GEOLOGICAL SURVEY, California Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the San Bernardino Valley Municipal Water District party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Water Resource Investigations (per attachment), herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of $0.00

(a) $159,000 by the party of the first part during the period October 1, 2021 to September 30, 2022

(b) $965,370 by the party of the second part during the period October 1, 2021 to September 30, 2022

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $0

Description of the USGS regional/national program:

(d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (https://www.usgs.gov/about/organization/science-support/science-quality-and-integrity/fundamental-science-practices).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000809
Agreement #: 22ZGJFA03100
Project #: ZG00GZV
TIN #: 95-6005196

9. Billing for this agreement will be rendered **quarterly**. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name:	Jonathan Newby
	Supervisory Hydrologic Technician
Address:	1653 Plum Lane
	Redlands, CA 92374
Telephone:	(909) 798-3272
Fax:	(909) 335-3407
Email:	jnewby@usgs.gov

Customer Technical Point of Contact

Name:	Heather Dyer
	Chief Executive Officer/General Manager
Address:	380 East Vanderbilt Way
	San Bernardino, CA 92408
Telephone:	(760) 397-7756
Fax:	
Email:	heatherd@sbvmwd.com

USGS Billing Point of Contact

Name:	Helen Houston
	Budget Analyst
Address:	2730 N. Deer Run Road
	Carson City, NV 89701
Telephone:	(775) 887-7605
Fax:	(775) 887-7629
Email:	hhouston@usgs.gov

Customer Billing Point of Contact

Name:	Cindy Saks
	Chief Financial Officer
Address:	380 East Vanderbilt Way
	San Bernardino, CA 92408
Telephone:	(909) 387-9224
Fax:	(909) 387-9247
Email:	cindys@sbvmwd.com

U.S. Geological Survey
United States
Department of Interior

ERIC REICHARD

Digitally signed by ERIC REICHARD
Date: 2021.08.25 14:32:22 -07'00'

Signature

By_____ **Date: 08/25/2021**
Name: Eric Reichard
Title: Director, USGS California Water Science Center

San Bernardino Valley Municipal Water District

Signatures

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: September 2, 2021

TO: Board of Directors Workshop - Resources

FROM: Melissa Zoba, Chief Information Officer

SUBJECT: Consider Entering into an Agreement with ESRI for Development of a Real Time GIS Environment Configuration

---

Staff is requesting the Board consider entering into a professional services agreement with ESRI to develop a real time GIS environment configuration. The project would create the GIS environment that would support the collection, integration, and dissemination of water delivery data. The cost of the project is a not-to-exceed amount of $34,515.

Background

The District's water delivery data is collected on a daily basis and serves as the foundation for numerous reports, accounting processes, and decision support systems. Currently, data is extracted from the SCADA system and maintained in several different formats, such as an Excel spreadsheet, depending on the needs of the user. While this methodology has historically met the needs of staff, as part of the ongoing effort to evaluate existing business practices and determine where greater efficiencies can be gained, staff enlisted the expertise of ESRI to assess and propose a system in which the data could be accessed from a centralized environment and easily integrated into current or future technology platforms.

As proposed by ESRI, the real time GIS environment would serve as a conduit from the SCADA data acquisition and enables real-time event-based data feeds to be integrated as data sources in the District's enterprise GIS. Event data can be filtered, processed, and sent to multiple output destinations, and allows connection with virtually any type of streaming data. As the District moves forward with new large scale and complex projects, the need to access data easily and accurately will be critical.

Developing the data-driven dashboards and data portals to reliably plan, inform, and disseminate this information will also rely heavily on these types of event based data feeds.

The proposed solution is a not-exceed amount of $34,515 with the anticipated completion date of no later than December 31, 2021.

Fiscal Impact

The total not-to-exceed amount for the proposed scope of work is $34,515. Funds for this expenditure are included in the approved 2021-2022 General Fund Budget under Line Item 6360, Consultants.

Recommendation

Direct staff to place the proposed Professional Services Agreement for the Development of a Real Time GIS Environment Configuration on a future Board of Director's meeting for consideration.

Attachments

1. ESRI Proposal # P21-30766

AN ESRI
PROPOSAL

March 23, 2021

Proposal for Real Time GIS Environment Configuration

Prepared for:

Melissa Zoba, Manager Information Systems and Technology
San Bernardino Valley Municipal
380 E Vanderbilt Way
San Bernardino, CA 92408-3593

Esri Proposal # P21-30766

380 New York Street
Redlands, California 92373-8100 USA
909 793 2853
info@esri.com
esri.com

esri | THE SCIENCE OF WHERE™

Table of Contents

1.0 Introduction

Environmental Systems Research Institute, Inc. (Esri) is pleased to present San Bernardino Valley Municipal Water District (Valley District) with this proposal to support the install and configuration of a real time GIS environment using ArcGIS GeoEvent Server.

ArcGIS GeoEvent Server enables real-time event-based data feeds to be integrated as data sources in your enterprise GIS. Event data can be filtered, processed, and sent to multiple destinations, allowing you to connect with virtually any type of streaming data and automatically alert personnel when specified conditions occur, all in real-time. GeoEvent Server changes your everyday GIS applications into frontline decision applications, helping you respond faster with increased awareness whenever and wherever change occurs.

A detailed description of the role and tasks Esri will perform, including the associated deliverables, are described in Section 2.0.

2.0 Scope of Work

2.1 Work Plan

Please refer to Appendix A of this proposal for general assumptions and Valley District responsibilities that apply to this Scope of Work.

Activity 1 Project Kickoff

Esri will conduct a remote Project Kickoff Meeting which will cover the following:

- Introduction of team members and identification of project roles
- Review contract scope of work and project schedule

Esri will provide an agenda for the Project Kickoff Meeting five days prior to the meeting. Upon completion of the Project Kickoff Meeting, Esri will provide a summary document to Valley District, which will summarize the discussions and agreed upon action items from the meeting.

Esri Responsibility

- Provide up to four hours of remote consulting as described above.

Activity 2 Requirements Verification and Solution Design

Esri will provide up to 40 hours of remote technical consulting, including preparation and documentation time, to conduct the requirements verification and solution design meetings following Task 1. Two Esri consultants will lead up to two four-hour workshops to gather solution requirements and facilitate discussions. It is anticipated that consulting services will include the following activities:

- High level review of Valley District's existing GIS environment.
- Review of the technical requirements for ArcGIS GeoEvent.
- Identify up to three water asset tag information to be processed and made available to ArcGIS Environment via text file (CSV) export from Wonderware SCADA.
- Define SCADA text file and geodatabase feature class schema.
- Identify up to three information products (maps, apps or dashboard) to be configured once SCADA data is available in ArcGIS.

Based on the results of the meeting, Esri will prepare a draft and final Requirements Specification and Solution Design document that will include the detailed solution requirements.

Esri Responsibility

- Provide up to 40 hours of remote technical consulting as described above.

Activity 3 ArcGIS Environment for Real Time GIS

Esri will provide up to 64 hours of remote technical consulting, including preparation time, to install and configure the following ArcGIS platform components to support the real time pilot in Valley District's designated GIS environment:

- Install and configure ArcGIS Enterprise 10.8.1 components required to support Real Time GIS, including ArcGIS GeoEvent.
- Configure an Input Connector to watch a folder for new CSV files and an Output Connector to write data to the appropriate data store.
- Configure information products identified in the Requirements Specification and Solution Design document.
- Provide Technical knowledge transfer with Valley District staff on ArcGIS GeoEvent capabilities:
    - Using GeoEvent Manager
    - Creating and configuring GeoEvent service components
    - Working with Filters, GeoFences, and Processors
    - Working with Field Calculator and Field Mapper
- Post installation remote technical support.

Esri Responsibilities

- Provide up to 64 hours of remote technical consulting as described above.

	Valley District is responsible for the configuration of the SCADA data export to CSV file prior to the start of Activity 3.

3.0 Schedule

The schedule will be mutually agreed upon between Valley District and Esri within ten days after contract award with an anticipated end date of no later than December 31, 2021.

4.0 Pricing

Esri is pleased to provide the following pricing to Valley District to provide the Geographic Information Systems services stated above. Pricing provided below has been estimated based upon an anticipated award of a Time-and-Materials (T&M) contract. The required labor hours and other direct cost (ODC) items have been estimated based upon prior experience with work of a similar nature. The total not-to-exceed (NTE) price for the proposed Scope of Work is **$34,515**. By purchasing these services, the customer agrees to the Professional Services Agreement G363CT, the "Agreement" attached hereto as Appendix B, which will take precedence over any other terms and/or customer ordering documents. This proposal is valid for a period of 90 days from the submittal date above. Pricing is provided exclusive of any applicable state and/or local taxes, for which Esri may collect and the customer shall remain responsible. Payment terms are contingent upon approval of credit.

Esri anticipates using staff from the labor categories outlined in the table below. Depending on the level of expertise required to perform certain activities during this engagement, Esri may be required to utilize other Esri staff members with a different skill set and labor category.

Cost Description	CY Hourly Rates	Estimated Hours	Total (USD)
	2021	2021	
Technology Consultant/Engineer (S1)	$252		$0
Senior Technology Consultant/Engineer (S2)	$326	75	$24,450
Principal Technology Consultant/Engineer (S3)	$400		$0
Consultant/Project Manager (M1)	$305	33	$10,065
Senior Consultant/Project Manager (M2)	$385		$0
Principal Consultant/Program Manager (M3)	$507		$0
Total Not-to-Exceed Price			**$34,515**

T&M consulting services will be conducted under the following conditions:

In the event Esri completes the Scope of Work for less than the NTE budget, Valley District will only be invoiced for the actual hours expended plus the burdened cost for any ODC items expended.

In the event Esri reaches the NTE budget limit before the Scope of Work is completed, Valley District will have the option to either (a) increase the contract funding in order to allow the work to continue; or (b) instruct Esri to stop work. If Valley District chooses to stop work, Esri will do so without incurring additional cost to the project.

Esri reserves the right to reallocate the project funding between Scope of Work activities and/or ODC items, as necessary to facilitate the work effort, provided the overall contract price is not exceeded.

All work will be accomplished in accordance with the Scope of Work with the deliverable being consulting time. If additional work is requested by Valley District in writing and is beyond the scope of this proposal, Esri will provide an updated proposal. Valley District will be invoiced on a monthly basis for services provided by Esri during the previous 30-day period. Monthly invoices for services shall be calculated on the basis of actual hours expended during the previous month, multiplied by the appropriate labor rate, plus other direct burdened costs. Invoices are to be paid within 30 days of receipt.

Purchasing:

To order these services as proposed, please email the following items to Fred Souza at fsouza@esri.com.

1. Purchase Order:
    - In the amount of the Total NTE Price above
    - Referencing acceptance of this Proposal No. P21-30766, dated March 23, 2021
2. A copy of this Proposal.

When Esri receives the required documents, as stated above, Esri will contact you to discuss staff assignments and travel arrangements. We look forward to supporting you.

Contact:

Fred Souza
Consultant/Project Manager
Esri Professional Services - Water Practice
1202 Richardson, Ste. 405
Richardson, TX 75080
(972) 699-0014 x6109
fsouza@esri.com | www.esri.com

Appendix A Responsibilities, Assumptions, and Deliverable Review and Acceptance

A.1. General Valley District Responsibilities

- Coordinate and ensure the participation of appropriate Valley District staff in all project-related activities. Activities include, but are not limited to:
    - Meetings.
    - Webcasts.
    - Training.
    - Testing.
    - Installation.
- Provide Esri with access to the following items during the project, as needed:
    - Background materials.
    - Source documents.
    - Data.
    - Meeting facilities.
    - Hardware and software environments (directly, or via VPN).
- Unless otherwise specified in the Scope of Work, procure and/or license all necessary hardware, data, Esri COTS Software, and third-party software prior to commencement of the project, if not provided under this contract.
- Install and configure Valley District-provided hardware and software environments according to specifications provided by Esri.
- Provide access to and facilitate interactions between Esri and any Valley District customers and/or stakeholders.
- Communicate project needs and priorities to the Esri project manager.

A.2. General Assumptions

General

- Unless otherwise stated in the Scope of Work, work will be performed remotely from an Esri office.

- Unless otherwise stated in the Scope of Work, remote work will be provided via telephone, email, and/or webcast and only during normal Esri business hours, Monday–Friday, 8:00 a.m. to 5:00 p.m. Pacific time, excluding Esri holidays.
- References to days in the Scope of Work refer to consecutive business days.
- Esri will be provided with internet and VPN access to all project-related Valley District environments.
- Esri will be provided with system administration rights to Valley District environments, as required.
- Valley District end users are already knowledgeable in the use of ArcGIS software, or will complete the training classes recommended by Esri, if included in this proposal.
- All work will be accomplished using ArcGIS COTS Software functionality. No custom development will be performed for this project Scope of Work.

Hardware / Software

- All work will be performed on the latest version of Esri products, unless otherwise specified in the Scope of Work.
- Documentation for ArcGIS COTS is available in ArcGIS help online and is not included in any project-specific documentation; nor is documentation for third-party software or Hardware.
- Unless otherwise specified in the price section, this proposal does not include the costs of any Esri COTS software, third-party software, or hardware.

Data

- Unless otherwise specified in this proposal, Esri will not be responsible for data cleaning.
- Existing errors in the source data will not be corrected by Esri as part of any data upload.

Appendix B Professional Services Agreement (G363CT)

The remainder of this page intentionally left blank.

Professional Services Agreement

This Professional Services Agreement ("Agreement") is between the Customer (**"Customer"**) and **Environmental Systems Research Institute, Inc.** (**"Esri"**), a California corporation with a place of business at 380 New York Street, Redlands, California 92373-8100 USA.

1. DEFINITIONS

"COTS Software" means all or any portion of Esri's proprietary commercial off the shelf software technology accessed or downloaded from an authorized Esri website or delivered on any media, in any format, including backups, updates, service packs, patches, hot fixes, or permitted merged copies, available under license to the general public.

"Deliverable(s)" means anything that Esri delivers to Customer as a result of performance of Services.

"Ordering Document" means a purchase order or other ordering document identifying the proposal or quote for Services that Customer orders. For purposes of a Disaster Response Support Service Package, Ordering Document can also be an Authorization to Proceed (ATP) letter.

"Services" means any Professional Service development or consulting services that Esri provides to Customer.

"Service Package(s)" means a predefined unit of Services including travel related expenses provided at a firm fixed price.

2. OWNERSHIP AND GRANT OF LICENSE

Except as specifically granted in this section, Esri owns and retains all rights, title, and interest in Deliverables provided under this Agreement. In consideration of Customer's payment of all applicable fees in accordance with this Agreement, Esri grants to Customer a nonexclusive, nontransferable right and license or subscription to access and use Deliverables as set forth in the applicable specifications and Esri's proposal. Esri authorizes Customer to copy and make derivative works of the Deliverables for Customer's own internal use in conjunction with Customer's authorized use of Esri's COTS Software. The grants of rights in this section continue for the duration of the subscription or applicable term or perpetually if no term is applicable or identified in Esri's proposal. Customer will not: (i) sell, rent, lease, sublicense, distribute or assign services or Deliverables; (ii) reverse engineer, decompile, or disassemble any Deliverables delivered in compiled form, (iii) remove or obscure any Esri or its licensors' patent, trademark, proprietary rights notices, or legends contained or affixed to any Deliverables. All rights not specifically granted in this Agreement are reserved.

3. COMPENSATION AND INVOICING

For Service Packages, Esri will perform and invoice services on a firm fixed price basis. Esri will invoice Customer for all Service Packages ordered upon receipt of a valid Ordering Document. The Ordering Document will confirm the quantity and price of the Service Packages ordered, as described in Esri's proposal or quotation and will reference Customer acceptance of the applicable quote or proposal. Esri's obligation for completion of the services proposed is limited to the hours, days, or weeks outlined in the Service Package descriptions within Esri's proposal. Esri may, at its sole discretion, stop work to avoid exceeding the total allotted time specified. Unused labor time or travel remaining after the performance of a Service Package will expire and not be available for performance later. If funded Service Packages have not been performed within the term stated in the proposal or quote or within twelve (12) months of the Ordering Document issue date, the Service Package will expire, and no refund will be provided.

For Firm Fixed Price engagements, Esri will prepare and submit monthly invoices based on the percent complete for each Deliverable as of the end of the preceding month or after the completion of each milestone, as specified in Esri's proposal. Upon acceptance of all Deliverables under this Agreement, the unpaid balance of the total Agreement value will be due.

For Time and Material based engagements, Esri will perform and invoice Services on a time and materials basis using the labor categories and rates specified for the performance period. Labor, including travel time, will be invoiced on a monthly basis for actual hours expended during the previous month or for actual workdays expended. Daily rates are based on eight (8) hours of labor and a partial day will be adjusted and invoiced accordingly. Meals will be invoiced on a "per diem" basis in accordance with the full daily limits specified on the government General Services Administration (GSA) website at https://www.gsa.gov/. Other direct costs (ODCs), including travel-related expenses and meal per diem, will include a fifteen percent (15%) burden. Esri may reallocate authorized funding between activities, labor categories, and ODCs as necessary to facilitate the work effort, provided the overall authorized funding is not exceeded. If Esri reaches the not-to-exceed funding limit, Customer may increase the order funding to allow additional work to be performed, or Esri may stop work without further obligation or liability. If Customer requires Services beyond the term stated in the proposal, Esri reserves the right to escalate labor rates up to five percent (5%) per calendar year.

Customer will pay each invoice no later than thirty (30) days after receipt and will send payment to the Esri address identified on the invoice.

4. ACCEPTANCE

For Service Packages and Time and Material engagements, Deliverables are consultation time only. Services are subject to the not-to-exceed funding limit and will be deemed accepted unless Customer notifies Esri within ten (10) days after performance. Customer may purchase additional Service Packages as needed to complete Customer's work requirements.

For Firm Fixed Price engagements, Customer will complete its acceptance review within ten (10) business days of

receiving each Deliverable. Customer may accept or reject Deliverables as follows:

A. "Deliverable Accepted" means a Deliverable conforming to the Scope of Work with no more than minor nonconformities.
B. "Deliverable Accepted with Rework" means a Deliverable substantially conforming to the Scope of Work but having a significant number of identified nonconformities and accepted subject to rework by Esri. Esri will rework the Deliverable to repair the identified nonconformities and resubmit the Deliverable within thirty (30) calendar days. Customer will rerun its acceptance review for the nonconformities detected in the initial review within ten (10) business days of such resubmission and will reclassify the deliverable as either Deliverable Accepted or Deliverable Rejected.
C. "Deliverable Rejected" means a Deliverable that fails to substantially conform to the applicable Scope of Work. Esri will rework the Deliverable and resubmit it to Customer within thirty (30) calendar days, at which time Customer will have ten (10) business days to rerun its acceptance review and reclassify the deliverable as either Deliverable Accepted or Deliverable Rejected.

Customer will not use any Deliverable in its business operations before acceptance as described in A or B above. If Esri does not receive written notice that the Deliverable is either Accepted, Accepted with Rework, or Rejected in accordance with A, B, or C above within ten (10) business days after delivery, or if Customer uses the Deliverable in its business operations, the Deliverable will be deemed, as of the first occurrence of either of these events, to have been accepted.

5. LIMITED WARRANTY AND DISCLAIMER OF WARRANTIES

Esri warrants for a period of ninety (90) days from the date of acceptance of a Deliverable that the Deliverable will materially comply with to the applicable written specifications referenced in the proposal or quote. If a Deliverable does not substantially conform to these standards or specifications, Esri will reperform the Deliverable at no additional cost to Customer.

Disclaimer of Warranties. Except for the limited warranty set forth in this section, Esri disclaims all warranties or conditions of any kind, express or implied, including, without limitation, warranties of merchantability, fitness for a particular purpose, or noninfringement of intellectual property rights. Esri does not warrant that Deliverables, or Customer's operation of the same, will be uninterrupted, error free, fault tolerant, or fail-safe or that all nonconformities can or will be corrected. Deliverables are not designed, manufactured, or intended for use in environments or applications that may lead to death, personal injury, or physical property or environmental damage. Customer should not follow any navigational route suggestions that appear to be hazardous, unsafe, or illegal. Any such uses will be a Customer's own risk and cost.

6. LIMITATION OF LIABILITY AND EXCLUSIVE REMEDY

Neither Customer nor Esri will be liable for any indirect, special, incidental, or consequential damages; lost profits; lost sales; loss of goodwill; costs of procurement of substitute goods or services; or damages exceeding the Agreement value. The limitations and exclusions of liability do not apply to Customer's infringement, misuse, or misappropriation of Esri's or Esri's licensors' intellectual property rights, gross negligence, willful misconduct, or violations of the Export Compliance clause of this Agreement or any applicable law or regulation. In no event will Esri's total cumulative liability exceed the amount actually paid by Customer for services from which the liability directly arose under this Agreement.

7. EXPORT COMPLIANCE

Each party will comply with all applicable export laws and regulations, including the US Department of Commerce's Export Administration Regulations (EAR), the US Department of State's International Traffic in Arms Regulations (ITAR), and other applicable export laws. Customer will not export, reexport, transfer, release, or otherwise dispose of, in whole or in part, or permit access to or transfer or use of Services to any United States embargoed countries or denied entities or persons except in accordance with all then-current applicable US government export laws and regulations. Customer will not export, reexport, transfer, or use Services for certain missile, nuclear, chemical, or biological activities or end uses without proper authorization from the US government. Customer shall immediately notify Esri in writing if any US government entity or agency denies, suspends, or revokes Customer's export privileges. Customer will not upload, store, or process in Cloud Services any Customer Content that (i) has an Export Control Classification Number (ECCN) other than EAR99 or (ii) is controlled for export from the United States under ITAR. Customer will notify Esri in advance if Esri's performance of any is related to any defense article, defense service, or technical data, as defined under the ITAR Sections 120.6, 120.9, and 120.10, respectively; Esri will not perform any such Services until Esri obtains any necessary export license from the US government. Customer will reasonably assist Esri in applying for and obtaining an export license if needed.

8. GENERAL PROVISIONS

8.1 Use of Subcontractors. Esri reserves the right to utilize technically qualified subcontractor resources to support work contracted under this agreement. Esri will remain responsible for the quality of all work performed by an Esri subcontractor resource.

8.2 Taxes. Services are quoted exclusive of all state, local, value-added, or other taxes; customs; duties; or other charges (other than income taxes payable by Esri). In the event such taxes and/or charges become applicable to Esri's services or Deliverables, Customer will pay the applicable tax upon receipt of written notice that it is due.

8.3 Order of Precedence. These terms and conditions will take precedence over any Customer terms and conditions included in Customer ordering or authorizing documents, such as purchase orders. Any additional terms or conditions in

Customer ordering or authorizing documents will be void unless a written amendment signed by both parties is incorporated.

8.4 Equitable Relief. Either party will have the right to seek an injunction, specific performance, or other equitable relief in any court of competent jurisdiction without the requirement of posting a bond or proving injury as a condition for relief.

8.5 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of California and, as applicable, U.S. federal law without reference to their conflict of laws principles.

8.6 Entire Agreement. This Agreement is the sole and entire agreement of the parties for services and supersedes any previous agreements, understandings, and arrangements between the parties relating to the subject matter.

8.7 Agreement Term. This Agreement is effective as of the date on the Ordering Document and will expire as provided for in the proposal or quote. If no date is provided, this Agreement shall expire at the end of the calendar year for Time and Material or Firm Fixed Price work or twelve (12) months from the effective date for Service Packages.

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: September 2, 2021

TO: Board of Directors Workshop - Resources

FROM: Melissa Zoba, Chief Information Officer

SUBJECT: Consider ESRI Enterprise Advantage Program for FY 2021-22

Staff is requesting the Board consider entering into an Enterprise Advantage Program (EAP) agreement with ESRI. The annual contract is one that serves to plan and develop a flexible and scalable framework to accomplish the business information strategies of the District. The cost of the annual EAP is $52,100.

Background

One of the key objectives of the Business Information Systems department is to assess current and future business practices and enterprise goals and develop the tools and resources to accomplish these goals. Key to the development of these resources is ensuring there is infrastructure in place to support the short-term and long-term business initiatives. Technology and data management platforms should also be integrated to gain maximum efficiency, consistency, and accuracy.

GIS leader and long-term District partner, ESRI, offers an annual Enterprise Advantage Program that assists organizations in assessing, defining and prioritizing applications that align business objectives with appropriate technology strategy. The program is designed to provide enterprise-wide visioning and geospatial enablement through technical advisory, an annual planning meeting, a collaboratively developed technical work plan, and access to exclusive quarterly technology webcasts. The program also provides access to a combination of consulting, premium support, and training services.

As the District moves forward with key regional programs and projects, the EAP would serve to define how best to develop and integrate technological tools essential for the management of programs such as Watershed Connect, Synario financial model, HCP regional water bank and compensatory mitigation

bank, an enterprise resource planning system, water resource dashboards, and other business initiatives.

The EAP includes 50 technical advisor hours and 50 learning credits. The EAP is not designed for ESRI to provide project-specific professional services such as custom application or database development. Specific tasks to support the technical work plan will be brought to the Board as required.

Fiscal Impact:

The cost of the annual ESRI EAP is $52,100. Funds for this expenditure are included in the approved 2021-2022 General Fund Budget under Line Item 6360, Consultants.

Recommendation:

Direct staff to place the proposed ESRI Enterprise Advantage Program contract for FY 2021-22 on a future Board of Director's meeting for consideration.

Attachments:

1. ESRI EAP Quotation # Q-436219

Quotation # Q-436218

Date: August 26, 2021

Environmental Systems Research Institute, Inc.
380 New York St
Redlands, CA 92373-8100
Phone: (909) 793-2853 Fax: (909) 307-3049
DUNS Number: 06-313-4175 CAGE Code: 0AMS3

Customer # 1606 Contract #

San Bernardino Valley Municipal
Water District
380 E Vanderbilt Way
San Bernardino, CA 92408-3593

ATTENTION: Melissa Zoba
PHONE: (909) 387-9200
EMAIL: melissaz@sbvmwd.com

To expedite your order, please attach a copy of this quotation to your purchase order.
Quote is valid from: 2/22/2021 To: 10/21/2021

Material	Qty	Term	Unit Price	Total
161877	1	Year 1	$52,100.00	$52,100.00

Small Government and Local Utility EA Esri Enterprise Advantage Program (EEAP): 50 Technical Advisor Hours/ 50 Learning and Services Credits - Annual subscription designed to provide enterprise-wide visioning and geospatial enablement through technical advisory, an annual planning meeting, a collaboratively developed technical work plan, and access to exclusive quarterly technology webcasts. The program also provides access to a combination of consulting, premium support, and training services. This configuration includes a one day annual planning session; up to 50 Technical Advisor hours; Quarterly Technology Webcasts and 50 Learning and Services Credits. The Esri Advantage Program terms and conditions shall apply. If not attached, or already incorporated into an existing and current Esri master contract, these terms and conditions can be viewed on the web at https://www.esri.com/en-us/legal/terms/services. All travel specified in this quote is subject to Esri's business continuity measures regarding COVID-19, including the most current Federal, State, and Local Government restrictions and Centers for Disease Control and Prevention (CDC) travel advisory recommendations. All proposed project schedules are tentative and will be adjusted based on the most current COVID-19 information available, and mutual agreement of the parties.

Subtotal:	$52,100.00
Sales Tax:	$0.00
Estimated Shipping and Handling (2 Day Delivery):	$0.00
Contract Price Adjust:	$0.00
Total:	$52,100.00

Esri may charge a fee to cover expenses related to any customer requirement to use a proprietary vendor management, procurement, or invoice program.

For questions contact:	Email:	Phone:
Suzanne Timani	stimani@esri.com	(909) 793-2853 x1627

The items on this quotation are subject to and governed by the terms of this quotation, the most current product specific scope of use document found at https://assets.esri.com/content/dam/esrisites/media/legal/product-specific-terms-of-use/e300.pdf, and your applicable signed agreement with Esri. If no such agreement covers any item quoted, then Esri's standard terms and conditions found at https://go.esri.com/MAPS apply to your purchase of that item. If any item is quoted with a multi-year payment schedule, then unless otherwise stated in this quotation, Customer is required to make all payments without right of cancellation. Third-party data sets included in a quotation as separately licensed items will only be provided and invoiced if Esri is able to provide such data and will be subject to the applicable third-party's terms and conditions. If Esri is unable to provide any such data set, Customer will not be responsible for any further payments for the data set. Federal government entities and government prime contractors authorized under FAR 51.1 may purchase under the terms of Esri's GSA Federal Supply Schedule. Supplemental terms and conditions found at https://www.esri.com/en-us/legal/terms/state-supplemental apply to some state and local government purchases. All terms of this quotation will be incorporated into and become part of any additional agreement regarding Esri's offerings. Acceptance of this quotation is limited to the terms of this quotation. Esri objects to and expressly rejects any different or additional terms contained in any purchase order, offer, or confirmation sent to or to be sent by buyer. Unless prohibited by law, the quotation information is confidential and may not be copied or released other than for the express purpose of system selection and purchase/license. The information may not be given to outside parties or used for any other purpose without consent from Esri. Delivery is FOB Origin.

Quotation # Q-436218

Date: August 26, 2021

Customer # 1606 **Contract #**

Environmental Systems Research Institute, Inc.
380 New York St
Redlands, CA 92373-8100
Phone: (909) 793-2853 **Fax: (909) 307-3049**
DUNS Number: 06-313-4175 **CAGE Code: 0AMS3**

San Bernardino Valley Municipal
Water District
380 E Vanderbilt Way
San Bernardino, CA 92408-3593

To expedite your order, please attach a copy of this quotation to your purchase order.
Quote is valid from: 2/22/2021 To: 10/21/2021

ATTENTION: Melissa Zoba
PHONE: (909) 387-9200
EMAIL: melissaz@sbvmwd.com

If you have made ANY alterations to the line items included in this quote and have chosen to sign the quote to indicate your acceptance, you must fax Esri the signed quote in its entirety in order for the quote to be accepted. You will be contacted by your Customer Service Representative if additional information is required to complete your request.

If your organization is a US Federal, state, or local government agency; an educational facility; or a company that will not pay an invoice without having issued a formal purchase order, a signed quotation will not be accepted unless it is accompanied by your purchase order.

In order to expedite processing, please reference the quotation number and any/all applicable Esri contract number(s) (e.g. MPA, ELA, SmartBuy, GSA, BPA) on your ordering document.

BY SIGNING BELOW, YOU CONFIRM THAT YOU ARE AUTHORIZED TO OBLIGATE FUNDS FOR YOUR ORGANIZATION, AND YOU ARE AUTHORIZING ESRI TO ISSUE AN INVOICE FOR THE ITEMS INCLUDED IN THE ABOVE QUOTE IN THE AMOUNT OF $_____, PLUS SALES TAXES IF APPLICABLE. DO NOT USE THIS FORM IF YOUR ORGANIZATION WILL NOT HONOR AND PAY ESRI'S INVOICE WITHOUT ADDITIONAL AUTHORIZING PAPERWORK.

Please check one of the following:

___ I agree to pay any applicable sales tax.

___ I am tax exempt, please contact me if exempt information is not currently on file with Esri.

_____ _____
Signature of Authorized Representative **Date**

_____
Name (Please Print)

_____
Title

Any estimated sales and/or use tax reflected on this quote has been calculated as of the date of this quotation and is merely provided as a convenience for your organization's budgetary purposes. Esri reserves the right to adjust and collect sales and/or use tax at the actual date of invoicing. If your organization is tax exempt or pays state tax directly, then prior to invoicing, your organization must provide Esri with a copy of a current tax exemption certificate issued by your state's taxing authority for the given jurisdiction.

Esri may charge a fee to cover expenses related to any customer requirement to use a proprietary vendor management, procurement, or invoice program.

For questions contact:	**Email:**	**Phone:**
Suzanne Timani	stimani@esri.com	(909) 793-2853 x1627

The items on this quotation are subject to and governed by the terms of this quotation, the most current product specific scope of use document found at https://assets.esri.com/content/dam/esrisites/media/legal/product-specific-terms-of-use/e300.pdf, and your applicable signed agreement with Esri. If no such agreement covers any item quoted, then Esri's standard terms and conditions found at https://go.esri.com/MAPS apply to your purchase of that item. If any item is quoted with a multi-year payment schedule, then unless otherwise stated in this quotation, Customer is required to make all payments without right of cancellation. Third-party data sets included in a quotation as separately licensed items will only be provided and invoiced if Esri is able to provide such data and will be subject to the applicable third-party's terms and conditions. If Esri is unable to provide any such data set, Customer will not be responsible for any further payments for the data set. Federal government entities and government prime contractors authorized under FAR 51.1 may purchase under the terms of Esri's GSA Federal Supply Schedule. Supplemental terms and conditions found at https://www.esri.com/en-us/legal/terms/state-supplemental apply to some state and local government purchases. All terms of this quotation will be incorporated into and become part of any additional agreement regarding Esri's offerings. Acceptance of this quotation is limited to the terms of this quotation. Esri objects to and expressly rejects any different or additional terms contained in any purchase order, offer, or confirmation sent to or to be sent by buyer. Unless prohibited by law, the quotation information is confidential and may not be copied or released other than for the express purpose of system selection and purchase/license. The information may not be given to outside parties or used for any other purpose without consent from Esri. Delivery is FOB Origin.

Advantage Program Agreement

Agreement No. _____

This Advantage Program Agreement ("**Agreement**") is between the entity shown below (**"Customer"**) and **Environmental Systems Research Institute, Inc.** (**"Esri"**), a California corporation with a place of business at 380 New York Street, Redlands, California 92373-8100 USA.

This Agreement sets forth the terms under which Esri provides the Advantage Program to the Customer. This Agreement does not apply to Software, Online Services, Data, or Maintenance, or to development Professional Services. The terms of use for these Esri Offerings are set forth in the applicable signed master agreement or, if the Customer has no such agreement, the terms of Esri's Master Agreement found at https://www.esri.com/legal/software-license.

This Agreement is the sole and entire agreement of the parties as to the subject matter of this Agreement and supersedes any previous agreements, understandings, and arrangements relating to such subject matter. Neither party has relied on any statement, representation, or warranty not expressly stated in this Agreement. This Agreement comprises this signature page, the terms and conditions that begin on the following page, and all referenced attachments. Except for Product or Service descriptions, quantities, pricing, and delivery instructions, or as agreed in an Ordering Document signed by both parties, all terms included in any Ordering Document are void and of no effect. Any modification(s) or amendment(s) to this Agreement must be in writing and signed by both parties.

The parties may sign this Agreement in counterparts or via electronic signatures; such execution is valid even if an original paper document bearing both parties' original signatures is not delivered. This Agreement is executed and effective as of the last date signed below.

The authorized representatives of each party accept and agree to the terms of this Agreement by signing below:

_____ (Customer)	ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE, INC. (Esri)
Legal Address: _____	380 New York Street, Redlands, CA 92373-8100
By: _____ Authorized Signature	By: _____ Authorized Signature
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Customer Contact Information

Contact: _____	Telephone: _____
Address: _____	Fax: _____
City, State, ZIP: _____	Email: _____

Attachment A contains definitions of capitalized terms used throughout this Agreement. Each section of this Agreement may include additional definitions that are used exclusively within that section.

1.0 GENERAL GRANT OF RIGHTS AND RESTRICTIONS

1.1 Grant of Rights. In consideration of Customer's payment of all applicable fees and in accordance with this Agreement, Esri

a. Provides Services as set forth in this Agreement;
b. Grants to Customer a nonexclusive, nontransferable right and license or subscription to access and use Esri Offerings as set forth in the Specifications and applicable Ordering Documents; and
c. Authorizes Customer to copy and make derivative works of the Documentation for Customer's own internal use in conjunction with Customer's authorized use of Esri Offerings. Customer will include the following copyright attribution notice acknowledging the proprietary rights of Esri and its licensors in any derivative work:

> "Portions of this document include intellectual property of Esri and its licensors and are used under license. Copyright © [*Customer will insert the actual copyright date(s) from the source materials*.] Esri and its licensors. All rights reserved."

The grants of rights in this section (i) continue for the duration of the subscription or applicable Term or perpetually if no Term is applicable or identified in the Ordering Documents and (ii) are subject to additional rights and restrictions in this Agreement including Attachment B.

1.2 Consultant or Contractor Access. Customer may authorize its consultants or contractors to (i) host Esri Offerings for Customer's benefit and (ii) use Esri Offerings exclusively for Customer's benefit. Customer will be solely responsible for its consultants' and contractors' compliance with this Agreement and will ensure that each consultant or contractor discontinues use of Esri Offerings upon completion of work for Customer. Access to or use of Esri Offerings by consultants or contractors that is not exclusively for Customer's benefit is prohibited.

1.3 Reservation of Rights. All Esri Offerings are the copyrighted works of Esri or its licensors; all rights not specifically granted in this Agreement are reserved.

1.4 Customer Content. Esri does not acquire any rights in Customer Content under this Agreement other than as needed to provide Esri Offerings and Services to Customer.

2.0 PROFESSIONAL SERVICES

2.1 Definitions. The following definitions supplement the definitions provided in Attachment A:

a. **"Invention(s)"** means a patentable invention, discovery, innovation, or improvement, excluding Deliverables, relating to the subject matter of a Task Order.
b. **"Inventor(s)"** means a party's principal, employee, consultant, or independent contractor that solely or jointly develops Inventions during Esri's performance under a Task Order.
c. **"Professional Service Package(s)"** means a predefined unit of Professional Services, including travel-related expenses, provided at a firm fixed price.

2.2 Permitted Uses. Customer may use, copy, and modify Deliverables solely in conjunction with Customer's authorized use of Products.

2.3 Task Orders and Project Schedule.

a. Esri will provide Professional Services and Deliverables as specified in the Task Order.
b. Each Task Order will reference this Agreement and specify the commencement date and, if known, the period of performance.
c. Task Orders may have the format shown in Attachment C or any other agreed-upon format.

d. Each party will identify, in writing, the project manager who is responsible for Professional Services and Deliverables described in Task Orders. By written notice to the other party's technical administrator, either party may replace the project manager at any time with a similarly qualified person.
e. Other than pricing and descriptions of Professional Services to be performed, terms and conditions in a Task Order are not binding unless both parties have signed the Task Order. The terms of a signed Task Order take precedence over conflicting terms in this Agreement.

3.0 ESRI MANAGED CLOUD SERVICES

3.1 Definitions. The following definitions supplement the definitions provided in Attachment A:

a. **"Esri Managed Cloud Services Environment"** means the hardware, Software, Data, and network platform that Esri or its third-party supplier provides as part of Esri Managed Cloud Services.
b. **"Hosting"** means the business of housing and making accessible Customer Content via the Internet.

3.2 Provision of Esri Managed Cloud Services.

a. **General Terms.** Use of Esri Managed Cloud Services is subject to the Cloud Services terms found in Attachment B of this Agreement.
b. **Requirements Planning.** It is Customer's responsibility to plan for and address with Esri changes to Customer's requirements, such as the need for additional capacity, the update of an application or dataset, or increased level of system availability.
c. **Compensation and Expenses.** Esri will invoice Customer for the one-time setup fee upon Task Order execution. Thereafter, Esri will invoice Customer monthly for the Esri Managed Cloud Services to be provided the following month. Customer will pay invoices within 30 days of receipt. Customer is responsible for any shipping or temporary storage costs incurred during the delivery of Customer Content to Esri or removal of Customer Content from the Esri Managed Cloud Services Environment. This paragraph does not apply to Esri Managed Cloud Services provided under the Advantage Program (see the section entitled "Advantage Program" in this Agreement).
d. **Risk of Loss.** Risk of loss for all Customer Content shall at all times remain with Customer, and it is Customer's sole responsibility to maintain regular backups of Customer Content. Risk of loss for the Esri Managed Cloud Services Environment shall at all times remain with Esri.
e. **Personally Identifiable Information.** Prior to providing any Customer Content under this Agreement, Customer shall notify Esri if Customer Content includes personally identifiable information.
f. **Public Software.** Customer may not use, and may not authorize its end users or contractors to combine or use any Esri Offerings with any software (including any underlying dependencies), documentation, or other material distributed under an open source or other similar licensing or distribution model that requires as a condition of such model that any component of the Esri Offering to be (1) disclosed or distributed in source code form, (2) made available free of charge to third parties, or (3) modifiable without restriction by third parties.
g. **Monitoring.** Customer will provide information and other materials related to its Customer Content as reasonably requested by Esri or its Hosting partner to verify Esri's or Customer's compliance with this Agreement. Esri or its Hosting partner, as applicable, may browse, index, or otherwise monitor the external interfaces of any Customer Content solely for the purpose of verifying compliance with this Agreement.

4.0 TRAINING

4.1 Definitions. The following definitions supplement the definitions provided in Attachment A:

a. **"Customer-Supplied Training Data"** means any digital dataset(s) including, but not limited to, geographic vector data, coordinates, raster data reports, or associated tabular attributes supplied by Customer for use in training.
b. **"Esri Academy LMS Integration Subscription"** means an optional term-limited subscription to Esri Academy enabling a specific number of unique Customer student(s) access to Self-Paced E-Learning through the Customer's learning management system.

c. **"Esri E-Learning Content (SCORM Format) License"** means an optional term-limited license that provides Esri customers with Esri's e-learning content in SCORM (Shareable Content Object Reference Model) format to import into their learning management system.
d. **"Esri Mobile Lab"** means a service in which Esri will deliver and set up a training environment at the Customer's site for use in conjunction with scheduled Esri Training Events only. The Esri Mobile Lab will include certain hardware, software, power cords, and network switches necessary for the instructor to set up the environment.
e. **"Esri Training Event(s)"** means an Esri site class, Esri instructor-led online class, a Customer site/private class, workshop, or coaching services.
f. **"Esri Training Event Assistant"** means Customer's primary Esri liaison in organizing private Esri Training Events.
g. **"Student(s)"** means a Customer employee or agent who is a registered participant in a specific Esri Training Event or Training-related services. If Customer is an individual, then Student means Customer.
h. **"Training Pass"** means a nonrefundable, nontransferable block of prepaid training days with a fixed price per day training price throughout the Term of the Training Pass.
i. **"Esri Mobile Router"** means a service in which Esri will deliver and setup a mobile router at the Customer's site for use in conjunction with a scheduled Esri Training Event only. The mobile router provides high-speed wireless internet access needed to run the Esri Training Event.

4.2 Permitted and Prohibited Uses.

a. Esri provides Training Materials for Training purposes only and for the exclusive use of the Student who attends the Training course for which the Training Materials are provided.
b. Customer may reproduce copies of Training Materials for registered Students.
c. Customer may not and may not permit any Student to (i) separate the component parts of Training Materials for any use or (ii) use audio or video recording equipment during an Esri Training Event.
d. Esri may issue temporary Product authorizations if Customer has an insufficient number of Products available for Training. Customer may use such Products as Training Materials under the terms of this Agreement. Customer will uninstall all deployed Products and return any media provided by Esri upon conclusion of the Esri Training Event.
e. Customer will retain ownership of any Customer-Supplied Training Data.

4.3 Esri's Responsibilities.

Esri will

a. Provide an instructor qualified to conduct Training;
b. Provide all necessary Training Materials for Student; and
c. Confirm Esri Training Events approximately 10 business days prior to the scheduled start date. Esri will only confirm Student registrations that include a payment method. Registrations without a confirmed payment method are placed on the reservation waiting list. All reservations on the waiting list are subject to availability. Customer site/Private class and coaching services confirmation is also dependent on receipt of the completed Customer site training request form.

4.4 Customer's Responsibilities.

Customer will

a. Ensure that all Students have received confirmation from Esri to participate in an Esri Training Event. Esri reserves the right to disconnect any Student who permits unregistered student access to an online classroom Esri Training Event. In such case, the full Esri Training Event fee will be invoiced and payable;
b. Ensure that all Students meet the minimum prerequisites for the applicable Esri Training Event as listed on Esri's training website;
c. Submit Student registrations with payment method information at least 15 business days before the scheduled start date;

d. Provide the Esri Training Event Assistant with a list of names and email addresses of any Students who are to attend an Esri Training Event at least 3 business days before the scheduled start date, for compliance with the US embargoed country lists and the various US Government Lists of Parties of Concern or Specially Designated Nationals lists;
e. For classes held at the Customer-designated facility, complete a client-site training request form; consult with Esri personnel to determine classroom, computer, and network requirements; and provide all such required classrooms, computers, and network access;
f. Ensure that Student use of Training Materials provided by Esri complies with the terms of this Agreement; and
g. Assume full liability and responsibility for Student attending Training course(s) under this Agreement.
h. If the Esri Mobile Lab or Mobile Router is used, Customer will

    1. Take delivery of the Esri Mobile Lab or Mobile Router from the shipping agent, and keep it in a secure, locked area at all times;
    2. Immediately report any previously damaged Esri Mobile Lab or Mobile Router equipment to the Esri Training Event Assistant upon receipt of the shipment; and
    3. Be financially responsible for loss of, damage to, or theft of Esri Mobile Lab or Mobile Router equipment while in Customer's possession.

4.5 Student Registration and Training Event Change Policy.

a. Customer will provide advance written notice to Esri Customer Service at service@esri.com to reschedule or cancel any Esri Training Event or to substitute a student in a scheduled Esri Training Event.
b. A replacement Student must be from the same Customer organization as the Student being replaced.
c. If Customer reschedules an Esri Training Event three or fewer days before the scheduled start date, Esri will charge Customer 50 percent of the fee plus the cost of the rescheduled Esri Training Event.
d. If Customer (i) cancels an Esri Training Event 3 or fewer days before the scheduled start date without concurrently rescheduling or (ii) is absent without notice from the Esri Training Event, Customer will be liable for the full Esri Training Event fee.
e. If cancellation of an Esri Training Event is necessary due to causes beyond the party's reasonable control, the affected party may reschedule or cancel the Esri Training Event without incurring any liability.
f. *Termination of Agreement.* Students who are currently registered for an Esri Training Event as of the date of termination of this Agreement may attend the scheduled Esri Training Event, subject to the terms and conditions of this Agreement.

4.6 Invoicing; Prepaid Fees.

a. Esri will invoice Customer upon completion of the Esri Training Event or on purchase of a Training Pass. On Customer request, Esri will invoice in advance for an Esri Training Event.
b. If Customer is invoiced and pays that invoice prior to the scheduled Esri Training Event, then Customer has 1 year from the date of the invoice to consume training days. For a multiyear order, training days must be consumed by the end date specified on the Esri quotation. Thereafter, all prepaid fees are forfeited.
c. Training Pass redemption rates are described at https://www.esri.com/training/training-for-organizations/.

This section 7.6 does not apply to Training provided under the Advantage Program.

4.7 Availability and General Provision of Wireless Service.

a. Esri will not be liable for any failure of or delay in the performance of this Agreement for the period that such failure or delay is due to wireless service interruptions or unavailability.

4.8 Esri E-Learning in the Customer's Learning Management System.

a. Esri E-Learning Content (SCORM format) License, specific terms of use incorporated by reference are found at https://www.esri.com/en-us/legal/overview.
b. Esri Academy LMS Integration Subscription, specific terms of use incorporated by reference are found at https://www.esri.com/en-us/legal/overview.

5.0 ADVANTAGE PROGRAM

5.1 Definitions. The following definitions supplement the definitions provided in Attachment A:

a. **"Activity Description"** means a mutually agreed upon written statement that confirms the number of Learning and Services Credits that Esri estimates is required to perform an activity and authorizes Esri to begin work based on such estimate. The Activity Description serves as the Task Order for Services provided under the Advantage Program.
b. **"Advantage Program"** means either Advantage Program, as described at www.esri.com/services/eeap/components, or the Advantage Program for Partners, as described at www.esri.com/partners/bpap/components.
c. **"Authorized Contact"** means Customer's point of contact for the Advantage Program identified below.
d. **"Learning and Services Credits"** means a contracted unit of exchange that Customer may use to acquire Professional Services, Training, PSS, Esri Managed Cloud Services, or related travel expenses as described below.
e. **"Premium Support Services"** or **"PSS"** means a prioritized incident management and technical support program further described at https://support.esri.com/en/support/premium.
f. **"Advisor"** means an Esri consultant assigned to work with Customer to provide Professional Services such as advising Customer on GIS strategies, facilitating annual planning, and developing and coordinating a collaborative work plan under the Advantage Program.

5.2 Advantage Program Description. The Advantage Program is provided on an order-by-order, annual subscription basis and provides strategy and planning support in addition to a menu of items including Professional Services, Training, PSS, and Esri Managed Cloud Services that Customer can select to best meet its needs with guidance from Advisor. The Advantage Program may change from time to time. The Advantage Program includes the following:

a. **Advisor.** Customer will receive up to the number of Advisor hours ordered. Customer may elect to retain additional Advisor hours for a supplemental price.
b. **Annual Planning Meeting.** A 1-day annual planning meeting is included.
c. **Work Plan.** A collaboratively developed document is designed to drive the program's implementation through definition of Customer's GIS vision, goals, and objectives.
d. **Learning and Services Credits.** Customer will receive the number of Learning and Services Credits ordered. Customer may use the credits toward any combination of Professional Services, Training, PSS, Esri Managed Cloud Services, or related travel expenses. Customer may order, for an additional price, additional Learning and Services Credits. Learning and Services Credits may be exchanged as described at the applicable Advantage Program website. Esri will provide a monthly report outlining usage of Learning and Services Credits to date to the Authorized Contact.
e. **Technology Webcasts.** Esri will provide an email invitation to the Authorized Contact for webcasts presenting business and technical information related to enterprise GIS.
f. **No Project Services.** The Advantage Program is not designed for Esri to provide project-specific Professional Services such as custom application or database development for solutions or applications. Esri will not provide these types of Professional Services under the Advantage Program and does not warrant that Deliverables provided under an Advantage Program will comply with Specifications.

5.3 Authorized Contact Information. Customer identifies the following person as its initial Authorized Contact.

(to be completed by Customer):

Contact Name: _____
Address: _____
City, State, ZIP: _____
_____
Email: _____
Telephone: _____
Fax: _____

5.4 Current on Maintenance. Customer must remain current on standard Software Maintenance during the Advantage Program term.

5.5 Authorization of Learning and Services Credits Use. Customer will contact its account manager or Advisor to consume Learning and Services Credits for a particular request. Esri will submit an Activity Description by email to Customer for confirmation and authorization to use Learning and Services Credits. Customer may authorize the consumption of Learning and Services Credits by submitting an email. Esri will begin work and deduct the estimated credit amount stated in the Activity Description from the unused Learning and Services Credits available.

5.6 Activity Descriptions for Esri Managed Cloud Services. The Activity Description for Esri Managed Cloud Services orders must include the following:

a. **The Esri Managed Cloud Services Term.** The time period in which Esri provides the Esri Managed Cloud Services to Customer. The Esri Managed Cloud Services term does not begin until setup and deployment of the data and application are complete.
b. **Targeted System Availability.** The minimum percentage of time that Customer has external access to the application and associated Customer Content through the Internet. Examples of supported levels of system availability are 95 percent, 99 percent, and 99.9 percent. Not all Esri Managed Cloud Services offerings include a Targeted System Availability.
c. **Number of Anticipated Requests.** A The number of requests made by an end user through a client (e.g., desktop computer, web application, mobile device) and sent to a server(s) that is set up in the Esri Managed Cloud Services Environment by Esri and performs computational tasks on behalf of the end user. An example of a common request used in a GIS is a map request. A map request is made every time a user pans, zooms, or queries a map service.
d. **Amount of Data Storage.** The storage capacity required to retain digital data, which is to be used and consumed in Customer GIS applications or Cloud Services.
e. **Learning and Services Credits Consumption.** The price for the Esri Managed Cloud Services in Learning and Services Credits.

The Data storage location may be defined in the Activity Description.

5.7 Travel and Per Diem Expenses. Any Esri travel and per diem expenses will be quoted separately. Travel expenses will include a 15 percent burden, and per diem will be determined in accordance with the full daily limits specified on the government General Services Administration (GSA) website at https://www.gsa.gov/. Customer will use Learning and Services Credits for travel and per diem expenses.

5.8 Notification of Consumed Credits. Esri will notify Customer if the authorized Learning and Services Credits are consumed prior to completion of the requested work. Customer may elect to direct the use of additional Learning and Services Credits, if available; procure additional Learning and Services Credits; or notify Esri to stop work on such requested work. Esri reserves the right to stop work if Customer has consumed all its Learning and Services Credits.

5.9 Review of Proposed Activities. Any activities proposed to be completed under the Advantage Program will be subject to Esri's review and approval to ensure alignment with the intent of the program.

5.10 Invoicing.

a. Esri shall invoice Customer as quoted for the Advantage Program subscription, additional Learning and Services Credits, or Advisor services upon receipt of Customer's order. Subsequently, Esri will invoice annually at least 30 days in advance of the Advantage Program subscription expiration date. Esri will extend the Advantage Program subscription for a subsequent annual term upon receipt of Customer's payment of the renewal invoice. Esri will invoice fees for additional Learning and Services Credits or Advisor services upon receipt of Customer's order.
b. Pricing for program renewals and new or additional Services will be in accordance with Esri's standard pricing at the time of purchase or renewal.

5.11 Termination and Expiration. Upon termination or expiration of an Advantage Program subscription:

a. Services will end as of the expiration or termination date stated; and
b. Unless either party terminates the Advantage Program subscription for cause, Customer may apply any unused Learning and Services Credits toward any Professional Services, Training, PSS, or related travel expenses that are scheduled as of the termination or expiration date, provided that the Learning and Services Credits are used within 3 months after the termination or expiration date. Any other unused Learning and Services Credits will expire 30 days after the expiration or termination date; if Customer renews the Advantage Program subscription within this time period, any unused Learning and Services Credits will remain valid for up to 2 years from the purchase date or termination of this Agreement, whichever comes first.

ATTACHMENT A
GLOSSARY OF TERMS

The following glossary of terms applies to all Esri Offerings and Services that Esri may provide to its customers. Certain Esri Offerings or Services may not be within the scope of this Agreement. Please disregard any terms that are not applicable to Esri Offerings or Services offered under this Agreement.

"Affiliate" means any entity that directly or indirectly (i) Controls; (ii) is Controlled by; or (iii) is under common Control with a party, where "Control" means having more than 50 percent of the voting stock or other voting interest in the Controlled entity.

"API" means application programming interface.

"ArcGIS Website" means www.arcgis.com and any related or successor websites.

"Authorization Code(s)" means any key, authorization number, enablement code, login credential, activation code, token, user name and password, or other mechanism required for use of Esri Offerings.

"Beta" means any alpha, beta, or other prerelease version of a Product.

"Cloud Services" means Online Services and Esri Managed Cloud Services.

"Content" means data, images, photographs, animations, video, audio, text, maps, databases, data models, spreadsheets, user interfaces, graphics components, icons, software, and other resources used in connection with Esri Offerings and Services.

"Control" means having more than 50 percent of the voting stock or other voting interest in the Controlled entity.

"Customer Content" means any Content that Customer provides, uses, or develops in connection with Customer's use of Esri Offerings or Services, including Value-Added Applications. Customer Content excludes any feedback, suggestions, or requests for improvements that Customer provides to Esri.

"Data" means any commercially available digital dataset(s) including, but not limited to, geographic vector data, raster data reports, or associated tabular attributes that Esri bundles with other Esri Offerings or delivers independently.

"Deliverables" means anything that Esri delivers to Customer as a result of performance of Professional Services.

"Documentation" means all user reference documentation that Esri provides with a Deliverable or an Esri Offering.

"Esri Managed Cloud Services" means a Customer-specific cloud infrastructure, Software, Data, and network platform that Esri hosts, manages, and makes available to Customer or Customer's end users via the Internet.

"Esri Offering(s)" means any Product or Documentation. If Esri provides Training or Professional Services directly to Customer, then Esri Offerings also include Deliverables and Training Materials. Esri Offerings exclude Services and Third-Party Content.

"GIS" means geographic information system.

"Maintenance" means a subscription program that Esri provides and that entitles Customer to Product updates and other benefits such as access to technical support and self-paced, web-based learning resources.

"Malicious Code" means software viruses; worms; time bombs; Trojan horses; or any other computer code, files, denial of service, or programs designed to interrupt, destroy, or limit the functionality of any computer software, hardware, or telecommunications equipment.

"Online Services" means any commercially available, Internet-based geospatial system that Esri provides, including applications and associated APIs for storing, managing, publishing, and using maps, data, and other information. Online Services exclude Data and Content.

"Ordering Document(s)" means a sales quotation, Maintenance renewal quote, purchase order, proposal, Task Order, or other document identifying Esri Offerings, updates, or Services that Customer orders.

"Perpetual License" means a license to use a version of the Esri Offering for which applicable license fees have been paid, indefinitely, unless terminated by Esri or Customer as authorized under this Agreement.

"Product(s)" means Software, Data, and Online Services.

"Professional Services" means any development or consulting services that Esri provides to Customer.

"Sample(s)" means sample code, sample applications, add-ons, or sample extensions of Products.

"Service(s)" means Maintenance. If Esri provides Esri Managed Cloud Services, Training, or Professional Services directly to Customer, then Services also include Esri Managed Cloud Services, Training, and Professional Services.

"Software" means any proprietary commercial off-the-shelf software, excluding Data, accessed or downloaded from an Esri-authorized website or that Esri delivers on any media in any format including backups, updates, service packs, patches, hot fixes, or permitted merged copies.

"Specification(s)" means (i) the Documentation for Software and Online Services, (ii) the scope of work set forth in any Task Order, or (iii) Esri's published course descriptions for Training.

"Task Order(s)" means an Ordering Document for Services.

"Term License" means a license for use of an Esri Offering for a limited time period ("**Term**").

"Third-Party Content" means any Content that Customer may obtain from a third-party website or that persons other than Esri employees, suppliers, or contractors may directly contribute to Esri's website.

"Training" means (i) Product training or (ii) related training that Esri provides under this Agreement.

"Training Materials" means digital or printed Content required to complete Training, which may include, but is not limited to, workbooks, data, concepts, exercises, assessments, and exams.

"Value-Added Application(s)" means an application developed by Customer for use in conjunction with the authorized use of any Software, Data, or Online Services.

ATTACHMENT B
GENERAL TERMS AND CONDITIONS

The following general terms and conditions apply to all Esri Offerings and Services that Esri may offer to its customers. Certain Esri Offerings or Services may not be available under this Agreement. Please disregard any terms that are not applicable to Esri Offerings or Services offered under this Agreement.

ARTICLE B.1—GENERAL USE RESTRICTIONS

Except as expressly permitted in this Agreement, Customer will not

a. Sell, rent, lease, sublicense, distribute, lend, time-share, or assign Services or Esri Offerings;
b. Distribute or provide direct access to Services or Esri Offerings to third parties, in whole or in part, including, but not limited to, extensions, components, or DLLs;
c. Distribute Authorization Codes to third parties;
d. Reverse engineer, decompile, or disassemble any Product or Deliverable delivered in compiled form;
e. Make any attempt to circumvent the technological measure(s) that controls access to or use of Esri Offerings;
f. Store, cache, use, upload, distribute, or sublicense Content or otherwise use Esri Offerings in violation of Esri's or a third-party's rights, including intellectual property rights, privacy rights, nondiscrimination laws, export laws, or any other applicable law or regulation;
g. Remove or obscure any Esri or its licensors' patent, copyright, trademark, proprietary rights notices, or legends contained in or affixed to any Esri Offerings, output, metadata file, or online or hard-copy attribution page of any Data or Documentation;
h. Unbundle or independently use individual or component parts of Esri Offerings;
i. Incorporate any portion of Esri Offerings into a product or service for third-party use that competes with the Esri Offerings;
j. Publish or in any other way communicate the results of benchmark tests run on Beta Products without the prior written permission of Esri and its licensors; or
k. Use, incorporate, modify, distribute, provide access to, or combine any Esri Offerings in a manner that would subject any Esri Offering to open-source or open-database license terms (e.g. GPL) that require any part of the Esri Offering to be subject to additional terms, for example

    1. Disclosed in source code form to third parties;
    2. Licensed to third parties for the purpose of making derivative works; or
    3. Redistributable to third parties at no charge; or

l. Generate revenue by providing access to Software or Online Services through a Value-Added Application.

These restrictions will not apply to the extent that they conflict with applicable law or regulation.

ARTICLE B.2—TERM AND TERMINATION

B.2.1 Customer may terminate this Agreement or any Esri Offerings license or subscription at any time upon written notice to Esri. Termination without cause does not entitle Customer to receive any refund of fees paid. Any right to terminate pending Services engagements for convenience is set forth in the applicable section in the body of this Agreement. Either party may terminate this Agreement or any license or subscription for a material breach that is not cured within 30 days of written notice to the breaching party. Upon any termination of this Agreement for breach, Esri will stop providing Services. Any licenses in Esri Offerings that survive termination of this Agreement continue under the terms of this Agreement.

B.2.2 If Esri terminates this Agreement following Customer's breach, then Esri may also, at its election, terminate Customer's licenses or subscriptions to Esri Offerings. If Customer terminates this Agreement for cause or convenience, then Customer may, at its election, also terminate Customer's licenses or subscriptions to Esri Offerings.

B.2.3 Upon any termination or expiration of a license or subscription, Customer will

a. Stop accessing and using the terminated or expired Esri Offerings;
b. Clear any client-side data cache derived from the terminated or expired Cloud Services; and
c. Stop using and uninstall, remove, and destroy all copies of the terminated or expired Esri Offerings in Customer's possession or control, including any modified or merged portions thereof, in any form, and execute and deliver evidence of such actions to Esri or its authorized distributor.

Esri may stop performing Services immediately upon written notice to Customer if a bankruptcy or insolvency proceeding is commenced by or against Customer until the trustee cures any existing defaults and provides adequate assurance of future performance under this Agreement. This Agreement terminates upon the insolvency, liquidation, or dissolution of either party.

ARTICLE B.3—LIMITED WARRANTIES AND DISCLAIMERS

B.3.1 Limited Warranties. Except as disclaimed below, Esri warrants to Customer that (i) Products and Training will substantially comply with the applicable Specifications and (ii) Services will substantially conform to the professional and technical standards of the industry. The warranty period for Esri Offerings offered under a Perpetual License and for Services runs for 90 days from the date of delivery or from the date of acceptance if this Agreement provides an acceptance period. The warranty period for Esri Offerings offered under a subscription or Term License basis runs for the lesser of (i) the duration of the subscription or term or (ii) 90 days from delivery or acceptance if this Agreement provides an acceptance period.

B.3.2 Special Disclaimer. Third-Party Content; Data; Samples; hot fixes; patches; updates; Online Services provided at no charge; and trial, evaluation, and Beta Products are delivered "as is" and without warranty of any kind.

B.3.3 General Disclaimer. Except for the express limited warranties set forth in this Agreement, Esri disclaims all other warranties or conditions of any kind, whether express or implied, including, but not limited to, warranties or conditions of merchantability, fitness for a particular purpose, and noninfringement of intellectual property rights. Esri is not responsible for any nonconformities with Specifications or loss, deletion, modification, or disclosure of Customer Content caused by Customer's modification of any Esri Offering other than as specified in the Documentation. Esri does not warrant that Esri Offerings, or Customer's operation of the same, will be uninterrupted, error free, fault tolerant, or fail-safe or that all nonconformities can or will be corrected. Esri Offerings are not designed, manufactured, or intended for use in environments or applications that may lead to death, personal injury, or physical property or environmental damage. Customer should not follow any navigational route suggestions that appear to be hazardous, unsafe, or illegal. Any such uses will be at Customer's own risk and cost.

B.3.4 Disclaimers.

a. Internet Disclaimer. Neither party will be liable for damages under any theory of law related to the performance or discontinuance of operation of the Internet or to regulation of the Internet that might restrict or prohibit the operation of Cloud Services.
b. Third-Party Websites; Third-Party Content. Esri is not responsible for any third-party website or Third-Party Content that appears in or is referenced by Esri Offerings or Esri websites, including www.esri.com and www.arcgis.com. Providing links to third-party websites and resources does not imply an endorsement, affiliation, or sponsorship of any kind.

B.3.5 Exclusive Remedy. Customer's exclusive remedy and Esri's entire liability for breach of the limited warranties in this section will be to replace any defective media and to (i) repair, correct, or provide a workaround for the applicable Esri Offering or Services or (ii) at Esri's election, terminate Customer's right to use and refund the fees paid for Esri Offerings or Services that do not meet Esri's limited warranties.

ARTICLE B.4—LIMITATION OF LIABILITY

B.4.1 Disclaimer of Liability. Neither Customer, Esri, nor any Esri distributor or third party licensor will be liable for any indirect, special, incidental, or consequential damages; lost profits; lost sales; loss of goodwill; costs of procurement of substitute goods or services; or damages exceeding the applicable license fees, or current subscription fees, or Services fees paid or owed to Esri for the Esri Offerings or Services giving rise to the cause of action.

B.4.2 The limitations and exclusions of liability in the preceding paragraph do not apply to Customer's infringement, misuse, or misappropriation of Esri's or Esri's licensors' intellectual property rights, either party's indemnification obligations, gross negligence, willful misconduct, or violations of the Export Compliance clause of this Agreement or any applicable law or regulation.

B.4.3 Applicability of Disclaimers and Limitations. Esri or its authorized distributor has set its fees and entered into this Agreement in reliance on the disclaimers and limitations in this Agreement; the fees reflect an allocation of risk that is an essential basis of the bargain between the parties. **These limitations will apply whether or not a party is aware of the possibility of any damage and notwithstanding any failure of essential purpose of any exclusive, limited remedy.**

B.4.4 The foregoing disclaimers, limitations, and exclusions may be invalid in some jurisdictions and apply only to the extent permitted by applicable law or regulation in Customer's jurisdiction. Customer may have additional rights that may not be waived or disclaimed. Esri does not seek to limit Customer's warranty or remedies to any extent not permitted by law.

ARTICLE B.5—INDEMNIFICATIONS

B.5.1 Definitions. The following definitions supplement the definitions provided in Attachment A:

a. **"Claim"** means any claim, action, or demand by a third party.
b. **"Indemnitees"** means Customer and its directors, officers, and employees.
c. **"Infringement Claim(s)"** means any Claim alleging that Customer's use of or access to any Esri Offering or Service infringes a patent, copyright, trademark, or trade secret.
d. **"Loss(es)"** means expenditure, damage award, settlement amount, cost, or expense, including awarded attorneys' fees.

B.5.2 Infringement Indemnity.

a. Esri will defend, hold all Indemnitees harmless from, and indemnify any Loss arising out of an Infringement Claim.
b. If Esri determines that an Infringement Claim is valid, Esri may, at its expense, either (i) obtain rights for Customer to continue using the Esri Offerings or Services or (ii) modify the Esri Offerings or Services while maintaining substantially similar functionality. If neither alternative is commercially reasonable, Esri may terminate Customer's right to use the Esri Offerings or Services and will refund any (a) license fees that Customer paid for the infringing Esri Offerings or Services acquired under a Perpetual License, prorated on a 5-year, straight-line depreciation basis beginning from the initial date of delivery or (b) unused portion of fees paid for Term Licenses, Subscriptions, and Maintenance.
c. Esri has no obligation to defend an Infringement Claim or to indemnify Customer to the extent the Infringement Claim arises out of (i) the combination or integration of Esri Offerings or Services with a product, process, system, or element that Esri has not supplied or specified in the Specification; (ii) alteration of Esri Offerings or Services by anyone other than Esri or its subcontractors; (iii) compliance with Customer's specifications; or (iv) use of Esri Offerings or Services after Esri either provides a modified version to avoid infringement or terminates Customer's right to use the Esri Offerings or Services.

B.5.3 General Indemnity. Esri will defend and hold all Indemnitees harmless from, and indemnify any Loss arising out of, any Claim for bodily injury, death, or tangible or real property damage brought against any of the Indemnitees to the extent arising from any negligent act or omission or willful misconduct by Esri or its directors, officers, employees, or agents performing Services while on Customer's site.

B.5.4 Conditions for Indemnification. As conditions for indemnification, Indemnitee will (i) promptly notify Esri in writing of the Claim, (ii) provide all available documents describing the Claim, (iii) give Esri sole control of the defense of any action and negotiation related to the defense or settlement of any Infringement Claim, and (iv) reasonably cooperate in the defense of the Infringement Claim at Esri's request and expense.

B.5.5 This section sets forth the entire obligation of Esri, its authorized distributor, and its third party licensors regarding any Claim for which Esri must indemnify Customer.

ARTICLE B.6—INSURANCE

If Esri is providing Services, Esri will carry, at a minimum, the following coverage:

a. Comprehensive general liability or commercial general liability with a minimum coverage of $1,000,000.00 (US dollars) combined single limit per occurrence for bodily injury, including death, and property damage liability to include the following:

    1. Premises and operations;
    2. Blanket contractual liability;
    3. Broad form property damage;
    4. Independent contractors;
    5. Personal injury, with employee exclusion deleted; and
    6. Completed operations.

b. Workers' compensation insurance, with waiver of subrogation, in an amount that complies with statutory limits.

ARTICLE B.7—SECURITY AND COMPLIANCE

B.7.1 Security. Esri publishes its security capabilities at https://trust.arcgis.com. Customer may give Esri personnel access to Customer systems or to Customer or third-party personal information, controlled information, or sensitive data if access is essential for Esri's performance of Services and if Esri expressly agrees to such access. Esri will use reasonable administrative, technical, and physical safeguards to protect such data and guard against unauthorized access. Customer bears responsibility to (i) confirm that Esri's published security and privacy controls meet all applicable legal requirements for protection of Customer Content and (ii) upload or share Customer Content through Cloud Services only when it is legal to do so. Esri is not responsible to review Customer Content to ensure compliance with applicable laws and regulations. Customer must contact Esri at securesupport@esri.com for further instruction before providing any Customer Content that requires security measures other than Esri's published security capabilities.

B.7.2 Malicious Code. Esri will use commercially reasonable efforts to ensure that Esri Offerings will not transmit any Malicious Code to Customer. Esri is not responsible for Malicious Code that Customer introduces to Esri Offerings or that is introduced through Third-Party Content.

B.7.3 Export Compliance. Each party will comply with all applicable export laws and regulations, including the US Department of Commerce's Export Administration Regulations (EAR), the US Department of State's International Traffic in Arms Regulations (ITAR), and other applicable export laws. Customer will not export, reexport, transfer, release, or otherwise dispose of, in whole or in part, or permit access to or transfer or use of Services or Esri Offerings to any United States embargoed countries or denied entities or persons except in accordance with all then-current applicable US government export laws and regulations. Customer will not export, reexport, transfer, or use Services or Esri Offerings for certain missile, nuclear, chemical, or biological activities or end uses without proper authorization from the US government. Customer shall immediately notify Esri in writing if any US government entity or agency denies, suspends, or revokes Customer's export privileges. Customer will not upload, store, or process in Cloud Services any Customer Content that (i) has an Export Control Classification Number (ECCN) other than EAR99 or (ii) is controlled for export from the United States under ITAR. Customer will notify Esri in advance if Esri's performance of any Services or provision of any Esri Offerings is related to any defense article, defense service, or technical data, as defined under the ITAR Sections 120.6, 120.9, and 120.10, respectively; Esri will not perform any such Services or provide any such Esri Offerings until Esri obtains any

necessary export license from the US government. Customer will reasonably assist Esri in applying for and obtaining an export license if needed.

B.7.4 Privacy. Esri will process personal data according to the terms of the Data Processing Addendum available at https://www.esri.com/en-us/privacy/overview.

ARTICLE B.8—CLOUD SERVICES

B.8.1 Prohibited Uses. Customer shall not provide Customer Content or otherwise access or use Cloud Services in a manner that

a. Creates or transmits spam, spoofings, or phishing email or offensive or defamatory material; or stalks or makes threats of physical harm;
b. Stores or transmits any Malicious Code;
c. Violates any law or regulation;
d. Infringes or misappropriates the rights of any third party;
e. Probes, scans, or tests the vulnerability of Cloud Services or breach any security or authentication measures used by Cloud Services without written approval from Esri's product security officer; or
f. Benchmarks the availability, performance, or functionality of Cloud Services for competitive purposes.

B.8.2 Service Interruption. System failures or other events beyond Esri's reasonable control may interrupt Customer's access to Cloud Services. Esri may not be able to provide advance notice of such interruptions.

B.8.3 Customer Content.

a. Customer grants Esri and its subcontractors a nonexclusive, nontransferable, worldwide right to host, run, modify, and reproduce Customer Content as needed to provide Cloud Services to Customer. Esri will not access, use, or disclose Customer Content without Customer's written permission except as reasonably necessary to support Customer's use of Cloud Services. Except for the limited rights granted to Esri under this Agreement, Customer retains all its rights, title, and interest in the Customer Content.
b. If Customer accesses Cloud Services with an application provided by a third party, Esri may disclose Customer Content to such third party as necessary to enable interoperation between the application, Cloud Services, and Customer Content.
c. Esri may disclose Customer Content if required to do so by law or regulation or by order of a court or other government body, in which case Esri will reasonably attempt to limit the scope of disclosure.
d. When Customer's use of Cloud Services ends, Esri will either

    1. Make Customer Content available to Customer for download for a period of 30 days unless Customer requests a shorter window of availability or Esri is legally prohibited from doing so; or
    2. Download all Customer Content in Esri's possession to a medium of Customer's choosing and deliver such Customer Content to Customer.

    Esri will have no further obligations to store or return Customer Content at the conclusion of the Cloud Services.

B.8.4 Removal of Customer Content. Esri may remove or delete Customer Content if there is reason to believe that uploading Customer Content to or using it with Cloud Services materially violates this Agreement. If reasonable under these circumstances, Esri will notify Customer before removing Customer Content. Esri will respond to any Digital Millennium Copyright Act takedown notices in accordance with Esri's copyright policy, available at www.esri.com/legal/dmca_policy.

B.8.5 Service Suspension. Esri may suspend access to Cloud Services (i) if Customer materially breaches this Agreement and fails to timely cure the breach; (ii) if Esri reasonably believes that Customer's use of Cloud Services will subject Esri to immediate liability or adversely affect the integrity, functionality, or usability of the Cloud Services; (iii) for scheduled maintenance; (iv) to enjoin a threat or attack on Cloud Services; or (v) if Cloud Services become prohibited by law or regulated to a degree that continuing to provide them would impose a

commercial hardship. When feasible, Esri will notify Customer of any Cloud Services suspension beforehand and give Customer reasonable opportunity to take remedial action.

Esri is not responsible for any damages, liabilities, or losses that may result from any interruption or suspension of Cloud Services or removal of Customer Content as described above.

B.8.6 Notice to Esri. Customer will promptly notify Esri if Customer becomes aware of any unauthorized use of Customer's subscription or any other breach of security regarding Cloud Services.

ARTICLE B.9—GENERAL PROVISIONS

B.9.1 Payment. Customer will pay each correct invoice no later than 30 days after receipt and will remit payment to the address stated on the invoice. Customers outside the United States will pay the distributor's invoices in accordance with the distributor's payment terms.

B.9.2 Feedback. Esri may freely use any feedback, suggestions, or requests for Product improvement that Customer provides to Esri.

B.9.3 Patents. Customer may not seek, and may not permit any other user to seek, a patent or similar right worldwide that is based on or incorporates any Products. This express prohibition on patenting will not apply to Customer's software and technology except to the extent that Products, or any portion thereof, are part of any claim or preferred embodiment in a patent application or a similar application.

B.9.4 Restrictions on Solicitation. Neither party will solicit for hire any employee of the other party who is associated with the performance of Services during the performance of the Services and for a period of 1 year thereafter. This does not restrict either party from publicly advertising positions for hire in newspapers, professional magazines, or Internet postings.

B.9.5 Taxes and Fees; Shipping Charges. Pricing of Esri Offerings and Services that Esri quotes to Customer is exclusive of any and all applicable taxes or fees including, but not limited to, sales tax, use tax, or value-added tax (VAT); customs, duties, or tariffs; shipping and handling charges; and vendor enrollment fees. Esri will add any fees that it is required to pay to the total amount of its invoice to Customer. Esri may include estimated taxes and shipping and handling charges in its quotations but may adjust these fees on invoicing. For Customers outside the United States, the distributor may quote taxes or fees in accordance with its own policies.

B.9.6 Compliance Review. Customer will keep accurate and complete records and accounts pertaining to its compliance with its obligations under this Agreement. Esri or its authorized distributor may conduct a compliance review of these records and accounts with no less than 14 business days' written notice or may appoint an independent third party to conduct such a compliance review on its behalf. Customer will promptly correct any noncompliance identified during the compliance review. Neither Esri nor Esri's distributor may conduct a compliance review of Customer within 12 months after the conclusion of any prior compliance review that does not reveal any material Customer noncompliance.

B.9.7 No Implied Waivers. The failure of either party to enforce any provision of this Agreement is not a waiver of the provisions or of the right of such party thereafter to enforce that or any other provision.

B.9.8 Severability. If any provision of this Agreement is held to be unenforceable for any reason, (i) such provision will be reformed only to the extent necessary to make the intent of the language enforceable, and (ii) all other provisions of this Agreement will remain in effect.

B.9.9 Successor and Assigns. Customer will not assign, sublicense, or transfer Customer's rights or delegate Customer's obligations under this Agreement without Esri's and its authorized distributor's prior written consent, and any attempt to do so without consent will be void. This Agreement will be binding on the respective successors and assigns of the parties to this Agreement. Notwithstanding, a contractor under contract to the government to deliver Products may assign this Agreement and Products acquired for delivery to its government customer upon written notice to Esri, provided the government customer assents to the terms of this Agreement.

Upon mutual agreement, Esri's Affiliates may provide Services under the terms of this Agreement; in such cases, the Ordering Documents will identify the Affiliate as the party that provides the Services. Esri's distributors are not Affiliates of Esri.

B.9.10 Survival of Terms. The Glossary of Terms and provisions of the following Articles of these General Terms and Conditions will survive the expiration or termination of this Agreement: "Limited Warranties and Disclaimers," "Limitation of Liability," "Indemnifications," and "General Provisions."

B.9.11 US Government Customer. The Products are commercial items, developed at private expense, provided to Customer under this Agreement. If Customer is a US government entity or US government contractor, Esri licenses or provides subscriptions to Customer in accordance with this Agreement under FAR Subparts 12.211/12.212 or DFARS Subpart 227.7202. Esri Data and Online Services are licensed or subscribed under the same DFARS Subpart 227.7202 policy as commercial computer software for acquisitions made under DFARS. Products are subject to restrictions, and this Agreement strictly governs Customer's use, modification, performance, reproduction, release, display, or disclosure of Products. Agreement provisions that are inconsistent with federal law regulation will not apply. A US government Customer may transfer Software to any of its facilities to which it transfers the computer(s) on which it has installed such Software. If any court, arbitrator, or board holds that a US government Customer has greater rights to any portion of Products under applicable public procurement law, such rights will extend only to the portions affected. ArcGIS Online has been granted FedRAMP tailored low authorization but does not meet higher security requirements including those found in DFARS 252.239-7010.

B.9.12 Governing Law. This Agreement is not subject to the United Nations Convention on Contracts for the International Sale of Goods.

a. **Government Entities.** If Customer is a government entity, the applicable laws of Customer's jurisdiction govern this Agreement.
b. **Nongovernment Entities.** US federal law and the law of the State of California exclusively govern this Agreement, excluding their respective choice of law principles.

B.9.13 Dispute Resolution. The parties will use the following dispute resolution processes:

a. **Equitable Relief.** Either party will have the right to seek an injunction, specific performance, or other equitable relief in any court of competent jurisdiction without the requirement of posting a bond or proving injury as a condition for relief.
b. **US Government Agencies.** This Agreement is subject to the Contract Disputes Act of 1978, as amended (41 USC 601–613).
c. **Other Government Entities.** Esri will comply with mandatory dispute resolutions under applicable law.
d. **Arbitration.** Except as noted above, the parties will submit to binding arbitration to resolve any dispute arising out of or relating to this Agreement that cannot be settled through negotiation. If Customer is in the United States or one of its territories or outlying areas, the Commercial Arbitration Rules of the American Arbitration Association will govern the arbitration proceedings. If Customer is outside the United States, the Rules of Arbitration of the International Chamber of Commerce will govern the proceedings. The parties will select a single arbitrator in accordance with the applicable arbitration rules. The language of the arbitration will be English. Arbitration will be at an agreed-upon location. Either party will, at the request of the other, make available documents or witnesses relevant to the major aspects of the dispute.

B.9.14 Force Majeure. A party will not be liable for any failure of or delay in the performance of this Agreement for the period that such failure or delay is due to causes beyond the party's reasonable control. Such causes may include, but are not limited to, acts of God, war, strikes, labor disputes, cyber attacks, laws, regulations, government orders, or any other force majeure event.

B.9.15 Independent Contractor. Esri is and at all times will be an independent contractor. Nothing in this Agreement creates an employer/employee, principal/agent, or joint venture relationship between Esri or its authorized distributor and Customer. No party has any authority to enter into contracts on behalf of another party or otherwise act on behalf of another party.

B.9.16 Notice. Customer may send notices required under this Agreement to Esri at the following address:

Environmental Systems Research Institute, Inc.
Attn.: Contracts and Legal Department
380 New York Street
Redlands, CA 92373-8100
USA
Tel.: 909-793-2853
Email: LegalNotices@esri.com