SAN BERNARDINO VALLEY | A REGIONAL WATER AGENCY SINCE 1954

BOARD OF DIRECTORS WORKSHOP - RESOURCES/ENGINEERING
2:00 pm Tuesday, November 14, 2023

In Person:
380 East Vanderbilt Way
San Bernardino, CA 92408

Online via Zoom:
https://sbvmwd.zoom.us/s/82492309440
Meeting ID: 824 9230 9440
PASSCODE: 3802020

By Telephone:
Dial-in Info: (877) 853 5247 US Toll-free
Meeting ID: 824 9230 9440
PASSCODE: 3802020

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 Monday, November 13, 2023**. All public comments will be provided to the Board President and may be read into the record or compiled as part of the record.

IMPORTANT PRIVACY NOTE: 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 | A REGIONAL WATER AGENCY SINCE 1954

AGENDA

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

BOARD OF DIRECTORS' WORKSHOP - RESOURCES/ENGINEERING
2:00 PM Tuesday, November 14, 2023

CALL TO ORDER

1) INTRODUCTIONS

2) PUBLIC COMMENT
Members of the public may address the Board regarding any item within the subject matter jurisdiction of the Board; however, no action may be taken on off-agenda items except as authorized by law. Each speaker is limited to a maximum of three (3) minutes.

3) DISCUSSION AND POSSIBLE ACTION ITEMS

3.1 Update on FIRO Study and Review of Process for Potential Deviation to Seven Oaks Dam Water Control Manual (20 min) - Page 3
Staff Memo - Update on FIRO Study and Review of Process for Potential Deviation to Seven Oaks Dam Water Control Manual

3.2 Consider First Amendments to MOU and Cost Share Agreement for the Bunker Hill-B Coalition and a Professional Services Contract with WSC, Inc. for the Feasibility Study (20 min) - Page 77
Staff Memo - Consider First Amendments to MOU and Cost Share Agreement for the Bunker Hill-B Coalition and a Professional Services Contract with WSC, Inc. for the Feasibility Study
Cost Share Agreement for Bunker Hill-B Management Zone Feasibility Study with Amendment No. 1
Memorandum of Understanding for The Mitigation of Salt Loading in The Bunker Hill-B Management Zone with Amendment No. 1

3.3 Consider Adoption of Resolution No. 1181: Funding Agreement with California Department of Fish and Wildlife for the Awarded Traditional Section 6 Grant: Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring (20 min) - Page 41
Staff Memo - Consider Adoption of Resolution No. 1181: Funding Agreement with CDFW for the Awarded Traditional Section 6 Grant: Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring
Attachment 1: Resolution 1181
Attachment 2: Notice of Award: Traditional Section 6 (FY2022): Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring

4) FUTURE BUSINESS

5) CLOSED SESSION

5.1 CONFERENCE WITH LEGAL COUNSEL - ANTICIPATED LITIGATION Initiation of litigation pursuant to paragraph (4) of subdivision (d) of Govt. Code Section 54956.9: Two potential cases.

5.2 CONFERENCE WITH REAL PROPERTY NEGOTIATORS Property: APN 0264-201-31, APN 0281-041-67 Agency negotiator: Heather Dyer Negotiating parties: Diversified Pacific Development Group, LLC Under negotiation: Price and terms of payment

5.3 CONFERENCE WITH REAL PROPERTY NEGOTIATORS Property: APN 0269-171-34 Agency negotiator: Heather Dyer Negotiating parties: Riverside Highland Water Company Under negotiation: Price and terms of payment

5.4 CONFERENCE WITH LEGAL COUNSEL - EXISTING LITIGATION - Pursuant to Government Code Section 54956.9(a),(d)(1) - Endangered Habitats League v. U.S. Army Corps of Engineers - Case No. 2:16-CV-09178 (U.S. District Court, Central District of California)

6) ADJOURNMENT

SAN BERNARDINO VALLEY | A REGIONAL WATER AGENCY SINCE 1954

DATE: November 14, 2023

TO: Board of Directors' Workshop – Resources/Engineering

FROM: Greg Woodside, Chief of Planning and Watershed Resilience
Wen Huang, Chief Operating Officer/ Assistant General Manager

SUBJECT: Update on FIRO Study and Review of Process for Potential Deviation to Seven Oaks Dam Water Control Manual

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Staff Recommendations

Receive and file.

Summary

District staff continue to work with Dr. Marty Ralph of the Center for Western Weather and Water Extremes (CW3E) at the Scripps Institution of Oceanography, CW3E staff, the Army Corps, and other stakeholders to prepare the Work Plan for assessment of FIRO at Seven Oaks Dam. The Work Plan will provide the scope of work for the assessment of the viability of FIRO at Seven Oaks Dam. As requested by the Board, staff will also provide a description to the Board of steps required to request a deviation from the Water Control Manual (WCM) if or when such action might be deemed appropriate in the Seven Oaks Dam FIRO process.

Update on FIRO Study

FIRO is a reservoir-operations strategy that better informs decisions to retain or release water by integrating additional flexibility in operations policies and rules with enhanced monitoring and improved weather and water forecasts (American Meteorological Society, 2020). FIRO utilizes weather forecasting, streamflow modeling, and watershed monitoring to help water managers selectively retain or release water from reservoirs that reflects current and forecasted conditions, and that adapts to weather extremes.

The work underway by Scripps, the District, the Army Corps, and our partners for FIRO at Seven Oaks Dam includes forming a Steering Committee representing key agencies and partners, conducting Steering Committee meetings, preparing the Work Plan for the Viability Assessment of FIRO, and related technical studies.

The operation of Seven Oaks Dam and consideration of potential changes to the WCM involves multiple complex considerations. Two workshops were held in October to share information and develop the scope of work to be included in the Work Plan. An Environmental Considerations Workshop was held on October 4 and Seven Oaks Dam System Operations and Water Use Workshop was held on November 1. These workshops included a wide range of stakeholders and were very beneficial to develop the collaboration that is important to FIRO's success.

Seven Oaks Dam is owned and operated by the three flood control districts in the Santa Ana Watershed. The three flood control districts in Orange County, Riverside County and San Bernardino County are collectively referred to as the 'Local Sponsors' for the Santa Ana River Mainstem Project, which includes Seven Oaks Dam. The Local Sponsors will need to be in agreement with proposed changes to the Seven Oaks Dam WCM that are developed to implement FIRO. Additionally, the Army Corps of Engineers will need to approve the proposed changes to the WCM.

The Steering Committee for FIRO at Seven Oaks Dam will hold its third meeting on November 14, 2023. The Steering Committee includes representatives of the Local Sponsors, Army Corps, and other stakeholders. Preparation of the Work Plan is on schedule and will be completed by June 2024.

Additionally, technical studies related to meteorology are being conducted by CW3E at this time. The technical studies include analysis of atmospheric river storms impacting the Santa Ana Watershed at Seven Oaks Dam and the ability to forecast these storms and their impact on runoff.

Review of Process for Potential Deviation to Seven Oaks Dam Water Control Manual

FIRO was first implemented at Lake Mendocino on the Russian River in northern California. The initial implementation was facilitated by a deviation to the WCM for the dam that regulates discharges out of Lake Mendocino. A deviation is a temporary, short-term change to the WCM. The time period for a deviation of this type is typically between one and five years. The Army Corps and Orange County Water District are processing a deviation to test FIRO at Prado Dam.

The proposed deviation at Prado Dam will provide an opportunity to test FIRO at a relatively small scale (increasing the temporary storage space for stormwater capture by 6,000 acre-feet; the total storage volume of Prado Dam is 173,000 acre-feet).

If and when it is deemed appropriate by the technical experts involved in the FIRO testing process, the steps necessary to request and ultimately receive approval of a deviation to the Seven Oaks Dam WCM would include the following:

1. Completing sufficient technical work regarding the potential impacts of the proposed deviation (this includes dam safety, maintaining flood risk management, dam operations, environmental considerations, estimated benefits, and related evaluations).
2. Determining if a 'Minor' or 'Major' Deviation should be requested (a Minor Deviation utilizes a smaller percentage of the dam's storage volume compared to a Major Deviation).
3. Demonstrating that the proposed deviation will not impact flood risk management.
4. Developing an understanding of the additional expenses, if any, to implement the deviation.
5. If there are additional expenses, determining which agencies will fund those costs.
6. Developing cost-share agreement(s) to fund any additional expenses.
7. Reaching consensus with the Local Sponsors that they concur with the proposed deviation.
8. Preparing environmental documentation for the National Environmental Policy Act and California Environmental Quality Act; this may include a new Biological Opinion from the US Fish and Wildlife Service.
9. Review and approval of the deviation by the Army Corps South Pacific Division.

Technical work regarding dam safety, maintaining flood risk management and related items to support a deviation request will be conducted during the Preliminary Viability Assessment. If this work and related work provides favorable results, it is anticipated that a deviation request for Seven Oaks Dam could be submitted to the Local Sponsors and Army Corps during the later stages of the Preliminary Viability Assessment.

Preliminary Timeline for Implementation of FIRO

The ultimate goal of the FIRO effort is to update the WCM for FIRO to increase water supply availability for groundwater recharge in the Bunker Hill Basin and enhance environmental values.

Important milestones to reach the ultimate goal include completing the Work Plan, the Preliminary Viability Assessment, testing FIRO through a WCM deviation, and completing the Final Viability Assessment.

Table 1 presents a preliminary timeline for Seven Oaks Dam FIRO. The timeline assumes that no physical modifications are needed at the dam to implement FIRO and no unforeseen major complications arise.

Table 1
Preliminary Timeline for Seven Oaks Dam FIRO

Item	Start Date	Completion Date
Work Plan	April 2023	June 2024
Preliminary Viability Assessment	July 2024	January 2026
Submit Deviation Request	July 2025	August 2025
Review and Approval of Deviation Request	August 2025	August 2026
Final Viability Assessment	February 2026	December 2027
Update WCM	January 2027	To be determined

District Strategic Plan Application

FIRO aligns with the San Bernardino Valley Strategic Plan Foundation and Goals and Objectives by developing additional supplies for stormwater capture at Seven Oaks Dam for recharge into the Bunker Hill Basin. Implementation of FIRO supports Goal 1.1 ‘Ensure Agency facilities, infrastructure, assets, and habitat investments are resistant or resilient to impacts from changing climate conditions.’ and its related objective ‘Develop a comprehensive strategy to identify long-term uncertainties and adaptive management measures to ensure reliable water supply and protection of habitat investments under climate change conditions.’ FIRO also supports Goal 2.2 ‘Increase local water supplies.’

Fiscal Impact

None.

SAN BERNARDINO VALLEY | A REGIONAL WATER AGENCY SINCE 1954

DATE: November 14, 2023

TO: Board of Directors' Workshop – Resources/Engineering

FROM: Leo Ferrando, Assistant Chief Engineer

SUBJECT: Consider First Amendments to MOU and Cost Share Agreement for the Bunker Hill-B Coalition and a Professional Services Contract with WSC, Inc. for the Feasibility Study

Staff Recommendation

Authorize the CEO/General Manager to execute the First Amendments to the Memorandum of Understanding (MOU) and Cost Share Agreement for the Bunker Hill-B (BH-B) Coalition, respectively, and a Professional Services Contract with WSC, Inc. for the Feasibility Study.

Summary

On February 21, 2023, the BOD approved a MOU with East Valley Water District (EVWD), the City of San Bernardino Municipal Water Department (SBMWD), and the City of Redlands regarding the formation of the Coalition. During the meeting, the BOD also approved a Cost Share Agreement (Agreement) and a Professional Services Contract with Rincon Consultants, Inc. related to the Mitigation of Salt Loading in the BH-B Basin Management Zone. Under the MOU, among other things, the Parties agreed to work together in developing a Feasibility Study. The costs of these efforts will be shared equally at 25% each among the agencies.

As the administering agency on behalf of the Coalition as requested, San Bernardino Valley (Valley) prepared a request for proposals (RFP) for the Study, issued the RFP, and received three (3) proposals. Upon completing the in-depth review, discussion, and interview process, it was determined that WSC, Inc. is the best-qualified team for the Feasibility Study. The total proposal fee is $304,731, with an anticipated schedule of approximately 18 months. The updated cost has been incorporated into Amendment No.1 for the Cost Share Agreement for the BH-B Management Zone Feasibility Study.

Together with the scope and fee for the Feasibility Study, the Parties have been preparing amendments to the Agreement and MOU that include clarifications regarding the next steps in the development of regional salt mitigation in the Bunker Hill Basin where Valley will continue to serve

as a facilitator, i.e., convener, and as the Administering Agency pursuant to Agreement, thus Valley will not directly bring new capital, operational, nor maintenance investments to fund a potential future regional desalter. However, Valley will support efforts by the Parties to obtain and administer outside funding for a potential desalter, such as State or Federal grants and/or potential contributions from other basin stakeholders. Moreover, Valley will redirect Local Resource Investment Program (LRIP) payments at the request of LRIP parties. Each Party is ultimately responsible for mitigating salinity impacts from their respective recycled water projects.

On October 10, Staff provided the Board of Directors (BOD) with an update on the status of the BH-B Regional Recycled Water Coalition (Coalition) at the Resources/Engineering Workshop. At the conclusion of the discussion, Staff was directed to bring back the Amendments to the BOD for consideration after the other Coalition agencies approve the Amendments by their respective governing boards. Since then, the governing boards of EVWD and the City of Redlands have approved the Amendments during their meetings on October 25 and November 7, respectively. The SBMWD's Water Board is scheduled to consider the Amendments on November 14.

Background

The BOD approved an MOU and a cost-share Agreement on the February 21, 2023, meeting with EVWD, SBMWD, and the City of Redlands for Valley to facilitate the permitting process with the Regional Board and to meet its recycled water policy. The MOU establishes the framework for mitigating total dissolved solids (TDS, salt) loading in the Bunker Hill-B management zone. Under the MOU, among other things, the Parties also agreed to work together in developing a feasibility study with an estimated cost of between $250,000 and $350,000, which will be shared equally among the four (4) agencies.

As agreed to in the MOU, the Parties collaborated through the "Steering Committee" (Committee), comprised of the General Managers of each of the four Parties or their designees, to oversee and direct the selection of a consultant and preparation of the Feasibility Study. Valley, as the administering agency on behalf of the Coalition and, in concurrence with the rest of the Committee, issued the RFP on April 25, 2023. Following the issuance of the RFP, three proposals were received. Below is a summary of the three (3) firms that submitted proposals:

Entity	Project Schedule	Cost Estimate	Ranking
WSC, Inc.	18 Months	$304,731	1st
Firm B	15 Months	$448,618	2nd
Firm C	15 Months	$296,694	3rd

An in-depth staff review, discussion, and interview process took place by Committee members, and it was determined that WSC, Inc. was the best team for the Feasibility Study. The total proposal not-to-exceed amount is $304,731, which is proposed to be equally shared among the four agencies, or approximately $76,200 each. The timeline for completion of the Study is 18 months, with the expected completion by April 2025. The main tasks identified in this proposal are divided into five tasks, as depicted below:

Tasks	Description	Included Scope of Work
1	Project Management and Meetings	Meetings, workshops, routine coordination, updates, and progress report preparations.
2	Kickoff and Data Collection	Kickoff meeting, data collection, and related document review.
3	Alternative Salt Mitigation Strategies	Identify conceptual alternative salt mitigation strategies, refine and estimate benefit/cost analysis for alternatives.
4	Draft Feasibility Study	Compile identification and analysis of alternative salinity management strategies into a Draft Feasibility Study.
5	Final Feasibility Study	Review and incorporate Coalition comments from the Draft.

In addition to WSC's qualifications and significant experience leading regional water resources planning projects in the Santa Ana River Watershed, WSC assembled a team that includes engineering support from Trussell Technologies. This specialty sub-consultant brings expertise in membrane treatment, brine disposal, and potable reuse projects.

The Feasibility Study will analyze a range of potential salinity management alternatives, and the ultimate solution could include multiple actions that form an optimized strategy to achieve the desired outcome. For example, a possible approach could consist of the future construction of a regional desalter located at SBMWD's Tertiary Treatment System or EVWD's Sterling Natural Resource Center to reduce TDS and salts using reverse osmosis (RO) or other technology in the discharges. The location and option of a potential desalter will depend on the cost/benefit analysis performed as part of this Study. The Parties have agreed that, per the MOU, the assignment of responsibility for salt mitigation will be based on the mass loading of salts to the basin by the Parties' recycled water contributions and overall benefit to the basin.

District Strategic Plan Application

The effort is consistent with the Mission Statement to work collaboratively to provide a reliable and sustainable water supply to support the changing needs of our region's people and environment, specifically through driving science-based decision-making, proactive risk management, and effective communication and engagement.

Fiscal Impact

The estimated cost for the Feasibility Study of $304,731 was anticipated and included in the FY 2023-24 General Fund Budget under Line Item No. 6360 – Consultants, of which San Bernardino Valley's share is 25%, or approximately 76,200.

Attachments

1. Cost Share Agreement for Bunker Hill-B Management Zone Feasibility Study with Amendment No. 1
2. Memorandum of Understanding for The Mitigation of Salt Loading in The Bunker Hill-B Management Zone with Amendment No. 1

COST SHARE AGREEMENT FOR BUNKER HILL-B MANAGEMENT ZONE FEASIBILITY STUDY

This Cost Sharing Agreement for the preparation of a Feasibility Study related to the Mitigation of Total Dissolved Solids (TDS, Salt) Loading in the Bunker Hill-B Management Zone is entered into and effective on the 9th day of March 2023 among the following listed Signatories: San Bernardino Valley Municipal Water District ("Valley District"), East Valley Water District ("EVWD"), City of San Bernardino Municipal Water Department ("San Bernardino"), and City of Redlands ("Redlands"), collectively referred to as the "Parties".

Recitals

WHEREAS, the State Water Resources Control Board's Recycled Water Policy encourages public agencies to recycle municipal wastewater, including in the development of groundwater recharge projects, to enhance the State's existing water supply; and

WHEREAS, the Parties, together with a number of other water agencies, are working together to develop a collaborative regional plan – the Upper Santa Ana River Watershed Salt & Nutrient Management Plan – that increases the use of recycled water for groundwater replenishment and other purposes, while also managing groundwater quality to provide the maximum benefits to the State; and

WHEREAS, the Parties believe that through their cooperative work, they can treat and discharge recycled water in a manner that will maximize benefits to the Bunker Hill-B Groundwater Management Zone, the Parties, and their ratepayers; and

WHEREAS, using recycled water to replenish the Bunker Hill-B Groundwater Management Zone provides a drought tolerant water supply that improves water supply reliability for the Parties and the region and also provides a drought buffer for those agencies in the event of a prolonged drought; and

WHEREAS, the Parties will collaborate on a Feasibility Study (conceptual design and engineering, benefits analysis, economic modeling for cost share) for a regional desalter, to be completed by September 2024; and

WHEREAS, the Parties believe that there is potential to pursue and apply for available and qualifying grants, such as the WaterSMART FY2023 Water Recycling and Desalination Planning Grant Program.

WHEREAS, the Feasibility Study is expected to serve as supporting documentation for future funding pursuits; and

WHEREAS, the Parties wish to establish and agree to a framework for sharing costs associated with the preparation of the Feasibility Study and related facilitation services.

Agreements

NOW, THEREFORE, the Parties agree as follows:

1. Term. This Agreement shall be effective on the date of the last signature to this agreement, and shall remain in effect until December 31, 2024, unless terminated earlier as provided herein. Termination or expiration of this Agreement will not excuse any Party from payment of costs incurred under this Agreement prior to the termination or expiration date.

2. Feasibility Study Steering Committee. The Parties will collaborate via committee made up of the General Managers of each of the four Parties, or their designees ("Steering Committee"), the purpose of which to be shall oversee and direct the selection of a consultant and preparation of the Feasibility Study. To support the work of the committee, the Parties intend to engage a consultant to provide facilitation services. The costs of the Feasibility Study preparation and of the associated facilitation services will be shared equally among the parties. All decisions shall be made on a unanimous basis.

3. Agreement to Share Costs. Each Party will be responsible for 25% of the invoiced costs associated with the development of the Feasibility Study, the associated facilitation services, and grant assistance services. Upon selection of final consultants for this work product, this Agreement will be amended to include as an exhibit the final scope of work and estimated budget for each of those consultant services.

4. Administering Agency: An Administering Agency will be appointed by the members of the Steering Committee by unanimous agreement of each Party's designated representative. The Administering Agency will be responsible for day-to-day oversight of the consultant, invoicing of costs, and providing progress reports to the Steering Committee. Valley District will be the initial Administering Agency.

5. Contracting for Feasibility Study. The Administrating Agency shall, in cooperation with the Steering Committee, prepare a Request for Proposals, identify appropriate consultant(s), and enter into a contract for the preparation of the Feasibility Study.

6. Contracting for Grant Assistance. The Parties agree to pursue qualifying grants to assist with potential funding for planning, design, and future construction of the regional desalter project. The Parties agree to apply any potentially awarded grants towards the costs of the regional desalter project.

7. Invoicing and Payment of Costs. The Administering Agency will submit invoices to each of the Parties for work based on the cost-share percentages specified in Section 3 of this Agreement. Invoices will be provided to the Parties quarterly, and are payable within 30 days of receipt.

8. Amendment. This Agreement may be amended from time to time. No alteration, amendment, or variation of this Agreement shall be valid unless made in writing and signed by all Parties.

9. Notice. All notices, requests, demands, or other communications required or permitted under this Agreement shall be addressed as follows:

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
Heather Dyer, General Manager
380 East Vanderbilt Way
San Bernardino, CA 92408
heatherd@sbvmwd.com

EAST VALLEY WATER DISTRICT
Michael Moore, General Manager/CEO
31111 Greenspot Road
Highland, CA 92346
mmoore@eastvalley.org

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
Miguel Guerrero, General Manager
PO Box 710
San Bernardino, CA 92402
Miguel.Guerrero@sbmwd.org

CITY OF REDLANDS
John Harris, Director, Municipal Utilities & Engineering Department
35 Cajon St Suite 15A
Redlands, Ca 92374

10. Attorneys' Fees. In the event of a civil action to enforce any obligation under this Agreement, the prevailing party shall be entitled to an award of reasonable attorneys' fees and costs (including but not limited to reasonable expert witness fees and costs) incurred in connection with such litigation.

11. Entire Agreement. This instrument constitutes the entire agreement and understanding between the Parties with respect to the subject matters hereof, and supersedes and replaces any prior agreements and understandings, whether oral or written, by and between them with respect to such matters.

12. Arms Length Negotiation. The Parties acknowledge and agree that this Agreement is the product of mutual arms-length negotiations and accordingly, the rule of construction, which provides that the ambiguities in a document shall be construed against the drafter of that document, shall have no application to the interpretation and enforcement of this Agreement.

13. Titles & Captions. Titles and captions are for convenience of reference only and do not define, describe or limit the scope of the intent of the Agreement or any of its terms. Reference to section numbers are to sections in the Agreement unless expressly stated otherwise.

14. No Third Party Beneficiary. Nothing contained in this Agreement shall be deemed or construed by the Parties or by any third person to create the relationship of principal and agent, or partnership or joint venture, or any association between the Parties, and none of the provisions contained in this Agreement or any act of the Parties shall be deemed to create any relationship other than as specified herein, nor shall this Agreement be construed, except as expressly provided herein, to authorize either Party to act as the agent for the other

15. Counterparts. This Memorandum may be executed in any number of counterparts, each of which shall be deemed to be an original instrument, but all of which together shall constitute one and the same instrument.

16. Authority to Execute. Each person executing this Agreement represents and warrants that he or she is duly authorized and has legal authority to execute and deliver this Agreement for or on behalf of the parties to this Agreement. Each Party represents and warrants to the other(s) that the execution and delivery of the Agreement and the performance of such Party's obligations hereunder have been duly authorized.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the Effective Date set forth above.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Name: Heather Dyer
Date: 3/9/2023

EAST VALLEY WATER DISTRICT

By: _____
Name: Michael Moore, General Manager/CEO
Date: 3/8/2023

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By: _____
Name: Miguel J. Guerrero, P.E., General Manager
Date: February 28, 2023

CITY OF REDLANDS

By: _____
Name: Charles M. Duggan Jr., City Manager
Date: 3/7/23

COST SHARE AGREEMENT FOR BUNKER HILL-B MANAGEMENT ZONE FEASIBILITY STUDY – AMENDMENT 01

Amendment 01 for this Cost Sharing Agreement for the preparation of a Feasibility Study related to the Mitigation of Total Dissolved Solids (TDS, Salt) Loading in the Bunker Hill-B Management Zone is entered into and effective on the 17th day of October 2023 among the following listed Signatories: San Bernardino Valley Municipal Water District ("Valley District"), East Valley Water District ("EVWD"), City of San Bernardino Municipal Water Department ("San Bernardino"), and City of Redlands ("Redlands"), collectively referred to as the "Parties".

WHEREAS, the Parties entered into Cost Sharing Agreement for the Bunker Hill-B Management Zone Feasibility Study, dated March 9, 2023 ("Agreement"), which provides for a 25% cost share of the invoiced costs associated with the development of the Feasibility Study; and

WHEREAS, Section 1 of the Agreement establishes the expiration date of the agreement as December 31, 2024; and

WHEREAS, Section 3 of the Agreement directs that upon selection of final consultants for this work product, this Agreement will be amended to include as an exhibit the final scope of work and estimated budget for each of those consultant services; and

WHEREAS, on June 21, 2023, the Parties selected WSC/Trussell as the final consultant team for development of the Feasibility Study. The Parties and WSC/Trussell agreed to a final cost of $304,731 for consultant services. The consultant team has estimated a project delivery timeline of November 2023 – April 2025.

WHEREAS, the Feasibility Study seeks to:

1. Complete a robust analysis of feasible salinity management strategies to inform confident decisions making,

2. Achieve strong consensus and alignment on the preferred strategy to enable effective implementation, and

3. Define a lasting solution with a clear path forward that can adapt to changing conditions, which may include a regional desalter.

NOW, THEREFORE, the Parties agree as follows:

1. Section 1 of the Agreement shall extend the effective date of this agreement to December 31, 2025 to allow for completion of the Feasibility Study and submittal of follow-up materials to the Santa Ana Regional Water Quality Control Board.

2. The final scope of work and estimated budget for WSC/Trussell's services attached hereto shall be incorporated into the Cost Sharing Agreement as Exhibit A.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the Effective Date set forth above.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Name:
Date:

EAST VALLEY WATER DISTRICT

By: _____
Name:
Date:

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By: _____
Name:
Date:

CITY OF REDLANDS

By: _____
Name:
Date:

Exhibit A

Feasibility Study Final Scope and Cost Estimate

Scope of Work

The following Scope of Work is consistent with the scope of services included in the RFP and includes refinements and additional detail where needed.

Task 0 Project Management Meetings

0.1 Project Management

- Manage project efforts including budget and schedule updates.
- Conduct internal project coordination and manage resources.
- Prepare monthly invoices and progress reports.
- Project duration is assumed to be 18 months, with the Final Feasibility Study complete within 16 months followed by two months of limited work during USBR review.

0.2 Routine Coordination with Coalition

- Conduct one hour, monthly virtual meetings with the Coalition to provide updates on project progress, discuss project methodologies, review data needs, present interim results, and other coordination needs. The budget is based on 11 monthly meetings; additional Coalition meetings during the project will be used for workshops scoped in other tasks.
- Conduct 30 minute bi-weekly check-in meetings with the Project Manager to discuss project status and coordination needs. The budget is based on 32 check-in meetings.

0.3 Alternatives Refinement Workshop

Conduct a three-hour in-person Alternatives Refinement Workshop with the Coalition. The purpose of the workshop will be to:

- Review and discuss preliminary alternatives developed in Task 2.1.
- Discuss potential refinements to preliminary alternatives and identify new preliminary alternatives, as needed.
- Select up to five alternatives for further evaluation and review data needs and identify data sources that may be needed for further evaluation of alternatives.
- Develop a comprehensive list of evaluation criteria and associated numerical scoring rubric to be applied during the alternatives analysis in Task 2.2.

0.4 Alternatives Screening Workshop

Conduct a three-hour in-person Alternatives Screening Workshop with the Coalition. The purpose of the workshop will be to:

- Review and discuss results of the Draft Alternatives Analysis developed in Task 2.2. Discuss potential refinements to the Draft Alternatives Analysis, as needed.
- Review preliminary results of alternatives evaluation scoring and discuss whether adjustments to scoring or weighting factors are needed to calibrate the evaluation.
- Discuss alternative weighting factors to be used for a sensitivity analysis, if desired.

0.5 Alternatives Selection Workshop

Conduct a two-hour in-person Alternatives Selection Workshop with the Coalition. The purpose of the workshop will be to:

- Review and discuss the Updated Alternatives Analysis developed in Task 2.2, incorporating feedback from the Alternatives Screening Workshop.
- Review results of updated alternatives evaluation scoring and sensitivity analysis.
- Select a preferred alternative to be carried forward.
- For the selected alternative, discuss options for adaptive management and potential offramps to other strategies in response to actual future conditions, as appropriate.

0.6 Draft Feasibility Study Review Workshop

Conduct a two-hour in-person Draft Feasibility Study Review Workshop with the Coalition. The purpose of the workshop will be to review the content of the Draft Feasibility Study and receive comments and feedback from the Coalition.

0.7 Stakeholder Meetings

Prepare presentation materials and conduct up to six (6) meetings with regional stakeholders. Meetings are assumed to be one-hour virtual meetings. The purpose and agenda of the meetings will be defined in collaboration with the Coalition but could be conducted at key project milestones. It is assumed that the Facilitator will coordinate strategy and schedule meetings and the WSC Team will prepare and present slides with technical content.

0.8 QA/QC

Perform comprehensive quality control of all work items being prepared for delivery to the Coalition.

Task 1 Kickoff and Data Collection

1.1 Kickoff Meeting

- Participate in a one-hour virtual kickoff meeting. Prepare short presentation on strategy for project delivery, data request, and other relevant items.
- Key outcomes of the meeting will be:
  - Shared goals and objectives for the project, including salt removal targets/ranges.
  - Preliminary list of conceptual salinity management alternatives to be explored.

1.2 Data Collection

- Review materials associated with the project, including Bunker Hill Basin Regional Recycled Water Coalition Memorandum of Understanding, Cost Share Agreement, Cumulative Antidegradation Analysis, SNRC Engineering Report and Report of Waste Discharge (ROWD), San Bernardino Water Reclamation Plant ROWD, Redlands Water Reclamation Plant ROWD, and other documents as provided.

Task 2 Alternative Salt Mitigation Strategies

1.2 Alternatives Development

- Beginning with preliminary alternatives discussed at the Kickoff Meeting, identify conceptual alternative salt mitigation strategies for consideration by the Coalition, including, but not limited to, construction of a regional recycled water advanced water treatment (AWT) facility, disposal of brine, expansion of surface water recharge, creation of regional pretreatment program, and others.
- Develop preliminary planning-level concepts for each alternative, including potential location, sizing, infrastructure, treatment technology, brine disposal requirements, and phasing/timing. Articulate the specific objective and water supply and water quality benefits from the implementation of each alternative.
- Compile explanatory charts, maps and graphics to support the discussion and refinement of alternatives at the Alternatives Refinement Workshop.

Deliverables: Preliminary alternative materials will be provided to the Coalition for review two weeks prior to the Alternatives Refinement Workshop.

2.2 Alternatives Analysis

- Refine alternatives as discussed in the Alternatives Refinement Workshop.
- Complete benefit/cost analysis for up to four (4) alternatives, including planning level cost estimates for capital costs, annual operation (including brine disposal fees), maintenance, replacement cost estimate, and life cycle costs.
- Applying the evaluation criteria developed in the Alternatives Refinement Workshop, evaluate and score the various alternatives to support selection of the preferred alternative moving forward.
- Update the Draft Alternatives Analysis to incorporate feedback from the Alternatives Screening Workshop.

Deliverables: Provide the Draft Alternatives Analysis to the Coalition for review two weeks prior to the Alternatives Screening Workshop.

Deliverables: Provide the Updated Alternatives Analysis to the Coalition for review two weeks prior to the Alternative Selection Workshop.

Task 3 Draft Feasibility Study

Due to potential grant funding for the project from the United States Bureau of Reclamation (USBR), the Feasibility Study will be prepared in compliance with the USBR Reclamation Manual, Directives and Standards (WTR 11-01). Compile identification and analysis of alternative salinity management strategies into a Draft Feasibility Study.

The Feasibility Study will include the following components:

- **Introduction**. Identification of project sponsors and description/definition of study area showing the regional recycled water systems.
- **Statement of Problems and Needs**. Describe key water resource management problems and needs for which the regional project will solve. Describe current and projected water supplies, including water rights, and potential sources of additional water other than the project.

Describe current and projected water demands, including imbalances. Describe water quality concerns for the current and projected recycled water supply and recharge activities.

- **Water Reuse Opportunities**.
  - Identify the sources of water available for reclamation in the study area, including the three planned recycled water projects in the regional program. Describe or categorize all uses for recycled water and identify associated water quality and treatment requirements. Summarize the current water market available, including existing and potential users, expected use, peak use, on-site conversion costs and, if necessary, desire to use reclaimed water, any consultation with potential reclaimed water customers, and the market assessment procedures used for the three projects.
    - Assumption: the Regional Recycled Water Concept Study and the respective ROWDs will be used to provide this content and that no additional analysis of recycled water markets is needed.
  - Discuss water quality considerations of what may prevent implementation of the proposed recycled water recharge, as well as water quality improvements (TDS and other constituents of concern) that may accrue from a regional salinity management program.
  - Identify methods or community incentives for salinity management associated with water reclamation and methods to eliminate obstacles which will inhibit the recharge of reclaimed water.
  - Identify all jurisdictional water and wastewater agencies in the service area and the role they might play in salinity management.
  - Describe any current salinity management in the study area and the projected wastewater and disposal options.
  - Summarize current water reclamation and demineralization technology in use in the study area and opportunities for the development of improved technologies.
- **Description of Alternatives**.
  - Describe the range of salinity management alternatives considered in Task 2.1. State the specific objectives all alternatives are designed to address, including groundwater replenishment, reuse, and water quality improvement. Quantify the water supply and water quality benefits of the alternatives, including TDS and other constituents of concern as applicable.
    - Assumption: Groundwater replenishment alternatives and benefits will be based on the SNMP modeling scenario results and new model runs will not be performed for this project.
  - Describe the proposed project including cost estimate, annual operation, maintenance, replacement cost estimate, and life cycle costs. Estimated costs to be presented in terms of dollars per million gallons (MG), and/or dollars per acre-foot of capacity, to facilitate comparison of alternatives. Describe any necessary waste-stream discharge treatment and disposal requirements. Describe one or more alternative technologies, including emerging technologies.
- **Economic Analysis**. Analyze the proposed project relative to other water supply alternatives that could be implemented by the Coalition in lieu of a salt mitigation project needed to support groundwater recharge with reclaimed water. Describe conditions that exist in the area and provide future projections with and without the project. Provide a cost comparison of salt

mitigation alternatives. Describe other salt mitigation alternatives with appraisal level cost estimates. Provide a description of the qualitative benefits of the project.

- **Selection of the Proposed Project**. Include justification of why the proposed project is the selected salinity management alternative. Analysis of whether the proposed project would address the reduction, postponement, or elimination of development of new or expanded water supplies; reduction or elimination of the use of existing diversions from natural watercourses or withdrawals from aquifers; reduction of demand on existing Federal water supply facilities; and reduction, postponement, or elimination of new or expanded wastewater facilities.
- **Environmental Consideration and Potential Effects**. Include sufficient information to assess the compliance with National Environmental Protection Act, Endangered Species Act, and Clean Water Act. Discuss how the project will affect water supply and quality. Discuss public involvement and potential effects the project will have on historical resources, including mitigation measures.
    - Assumption: Existing environmental documents for the recycled water projects and the Upper SAR HCP will be referenced to provide the information needed for this section. If supplementary environmental information is needed, WSC can obtain the support of an environmental subconsultant.
- **Legal and Institutional Requirements**. Identify any legal or institutional, state, and/or local requirements or barriers to implement the salinity management project. Analysis of any water rights issues potentially resulting from implementation of the project. Discuss the need for multi- jurisdictional or interagency agreements, any coordination undertaken, and any planned coordination activities. Discuss permitting procedures. Describe any unresolved issues associated with implementation and how and when such issues will be resolved. Identify current and projected wastewater discharge requirements. Describe rights to wastewater discharges.
    - Assumption: It is assumed that there will be no water rights issues resulting from the implementation of the project. Should potential water rights issues be identified, it is assumed that legal counsel for the Coalition members can provide legal support to inform this section of the Feasibility Study.
- **Financial Capability of Sponsor**. Demonstrate financial capability of the Coalition prior to construction. Proposed schedule and milestones for project implementation. Describe the willingness of the Coalition partners to each pay for its share of capital costs and the full operation, maintenance, and replacement costs. Describe the funding plan including analysis of the project's construction, operation, maintenance, and replacement costs. Describe all Federal and non-Federal sources of funding and any restrictions on such sources.
    - Assumption: WSC will coordinate with the Coalition's Facilitator to incorporate the results of their funding and financing evaluation.
- **Research Needs**. Describe any research needs and objectives to be accomplished for the salt mitigation project. Describe the basis for Reclamation participation. Identify parties who will administer and conduct research. Identify the research timeframe.

Deliverables: Provide the Draft Feasibility Study to the Coalition for review three weeks prior to the Draft Feasibility Study Review Workshop.

Task 4 Final Feasibility Study

4.1 Final Feasibility Study

- Review and incorporate Coalition comments on the Draft Feasibility Study. Prepare and circulate a Final Feasibility Study for review and approval by USBR for funding under the Title XVI Water Reclamation and Reuse Program.
- Provide additional information and/or necessary additions should USBR staff deem the Feasibility Study inconsistent or incomplete during their review.
- Coordinate with USBR staff as needed to facilitate the submission and review of the Feasibility Study.
- It is assumed that any final edits from the Coalition or USBR comments will be discussed at one of the routine meetings in Task 0.2 and that a separate Final Feasibility Study Review Workshop will not be needed.

Deliverables: Provide the Final Feasibility Study to the Coalition for review prior to submitting it to USBR.

Deliverables: If comments are received from USBR, update the Feasibility Study and provide a Revised Final Feasibility Study to the Coalition and USBR.

Task No.	Task Description	WSC												Trussell		ALL FIRMS			
		Principal in Charge	Project Manager	Deputy Project Manager	Regulatory/Basin Context	QA/QC	Regulatory Support	Engineering Support	Engineering Support	Feasibility Study Support	Project Admin	Graphics Support	WSC Labor Fee	Labor Hours	Labor Fee	Total Labor Hours	Total Labor Fee	Expenses	Total Fee
		Jeffery Szytel	Laine Carlson	Aaron Morland	Michael Cruikshank	Robert Morrow	Antonia Estevez-Olea	Patricia Parks	Heather Freed	Justin Sutton	Kay Merrill	Frederick Franklin							
	Billing rates, $/hr	*$380*	*$335*	*$185*	*$295*	*$335*	*$220*	*$175*	*$220*	*$220*	*$170*	*$140*							
0	**Project Management and Meetings**																		
0.1	Project Management	6	12	40							20		**$ 17,100**			**78**	**$ 17,100**	**$ -**	**$ 17,100**
0.2	Routine Coordination with Coalition		46	60	6								**$ 28,280**	16	$ 3,696	**128**	**$ 31,976**	**$ -**	**$ 31,976**
0.3	Alternatives Refinement Workshop		10	20	10							4	**$ 10,560**	12	$ 3,607	**56**	**$ 14,167**	**$ 1,200**	**$ 15,367**
0.4	Alternatives Screening Workshop		10	20	10							4	**$ 10,560**	12	$ 3,607	**56**	**$ 14,167**	**$ 1,200**	**$ 15,367**
0.5	Alternative Selection Workshop		10	20	10							4	**$ 10,560**	8	$ 2,452	**52**	**$ 13,012**	**$ 1,200**	**$ 14,212**
0.6	Draft Feasibility Study Review Workshop		8	12	4							4	**$ 6,640**	8	$ 2,452	**36**	**$ 9,092**	**$ 1,200**	**$ 10,292**
0.7	External Stakeholder Coordination		12	12	12								**$ 9,780**	8	$ 2,310	**44**	**$ 12,090**	**$ -**	**$ 12,090**
0.8	QA/QC					12							**$ 4,020**			**12**	**$ 4,020**	**$ -**	**$ 4,020**
	SUBTOTAL	**6**	**108**	**184**	**52**	**12**	**0**	**0**	**0**	**0**	**20**	**16**	**$ 97,500**	**64**	**$ 18,123**	**462**	**$ 115,623**	**$ 4,800**	**$ 120,423**
1	**Kickoff and Data Collection**																		
1.1	Kickoff Meeting		6	4	6							2	**$ 4,800**	13	$ 3,035	**31**	**$ 7,835**	**$ -**	**$ 7,835**
1.2	Data Collection		6	6	6								**$ 4,890**	3	$ 809	**21**	**$ 5,699**	**$ -**	**$ 5,699**
	SUBTOTAL	**0**	**12**	**10**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**$ 9,690**	**16**	**$ 3,843**	**52**	**$ 13,533**	**$ -**	**$ 13,533**
2	**Alternative Salt Mitigation Strategies**																		
2.1	Alternatives Development		22	32	20		24						**$ 24,470**	64	$ 15,152	**162**	**$ 39,622**	**$ -**	**$ 39,622**
2.2	Alternatives Analysis		32	64	22		20		8				**$ 35,210**	70	$ 15,414	**216**	**$ 50,624**	**$ -**	**$ 50,624**
	SUBTOTAL	**0**	**54**	**96**	**42**	**0**	**44**	**0**	**8**	**0**	**0**	**0**	**$ 59,680**	**134**	**$ 30,566**	**378**	**$ 90,246**	**$ -**	**$ 90,246**
3	**Draft Feasibility Study**																		
3.1	Draft Feasibility Study		16	60	8		12	40		12		16	**$ 33,340**	120	$ 27,216	**284**	**$ 60,556**	**$ -**	**$ 60,556**
	SUBTOTAL	**0**	**16**	**60**	**8**	**0**	**12**	**40**	**0**	**12**	**0**	**16**	**$ 33,340**	**120**	**$ 27,216**	**284**	**$ 60,556**	**$ -**	**$ 60,556**
4	**Final Feasibility Study**																		
4.1	Final Feasibility Study		8	24	6		6	8		4		8	**$ 13,610**	29	$ 6,363	**93**	**$ 19,973**	**$ -**	**$ 19,973**
	SUBTOTAL	**0**	**8**	**24**	**6**	**0**	**6**	**8**	**0**	**4**	**0**	**8**	**$ 13,610**	**29**	**$ 6,363**	**93**	**$ 19,973**	**$ -**	**$ 19,973**
	COLUMN TOTALS	**6**	**198**	**374**	**120**	**12**	**62**	**48**	**8**	**16**	**20**	**42**	**$ 213,820**	**363**	**$ 86,111**	**1269**	**$ 299,931**	**$ 4,800**	**$ 304,731**

MEMORANDUM OF UNDERSTANDING FOR THE
MITIGATION OF SALT LOADING IN THE BUNKER HILL-B MANAGEMENT ZONE
BY AND BETWEEN
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT, EAST VALLEY WATER DISTRICT,
CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT, AND CITY OF REDLANDS

This Memorandum of Understanding (MOU) for the Mitigation of Total Dissolved Solids (TDS, Salt) Loading in the Bunker Hill-B Management Zone is entered into and effective on the 25th day of January 2023 among the following listed Signatories: San Bernardino Valley Municipal Water District ("Valley District"), East Valley Water District ("EVWD"), City of San Bernardino Municipal Water Department ("San Bernardino"), and City of Redlands ("Redlands"), collectively referred to as the "Parties".

Recitals

A. In 2009, the State Water Resources Control Board adopted a Recycled Water Policy that encourages public agencies to recycle municipal wastewater as it becomes an increasingly valuable source of water for the State. The Recycled Water Policy was amended in 2018 to encourage development of groundwater recharge projects using recycled water.

B. The Recycled Water Policy requires evaluation and management of salt and nutrient loading to groundwater as a result of basin-wide recycled water use for irrigation and/or recharge. Groundwater recharge project proponents are required to participate in applicable salt and nutrient management planning efforts.

C. The Recycled Water Policy also requires Antidegradation Analysis (State Water Resources Control Board Resolution 68-16) for all groundwater recharge projects to determine if assimilative capacity is available for projected salt and nutrient loading. Individual projects are permitted to consume up to 10% of available assimilative capacity in a basin, while multiple projects may consume up to 20% of available assimilative capacity.

D. Valley District is constructing the Regional Recycled Water Facilities which includes a recycled water conveyance system and a groundwater recharge facility known as the Weaver Basins. The conveyance system will allow recycled water to be conveyed from EVWD and San Bernardino facilities to the Weaver Basins.

E. EVWD is constructing Sterling Natural Resource Center, a new water reclamation facility that will recycle wastewater from EVWD's service area and recharge it via Weaver Basins into Bunker Hill-B Groundwater Management Zone.

F. San Bernardino is developing the Tertiary Treatment System, which will produce recycled water from the San Bernardino Water Reclamation Plant (WRP) with the intent of beneficially using in and around WRP for general plant use and irrigation. Valley District's recycled conveyance system will convey recycled water from the WRP and will also convey recycled water produced by EVWD via a future pipe connection to Valley District's conveyance system for recharge via Weaver Basins into Bunker Hill-B Groundwater Management Zone.

G. Redlands has existing Waste Discharge Requirements for treatment and discharge of recycled water from its service area into Bunker Hill-B Groundwater Management Zone. Phase 2 expansion of its Redlands Wastewater Treatment Facility will increase recycled water discharges via Redlands Basins.

H. The Parties believe that through their cooperative work, they can treat and discharge recycled water in a manner that will maximize benefits to the Bunker Hill-B Groundwater Management Zone, the Parties, and their ratepayers.

I. Using recycled water to replenish the Bunker Hill-B Groundwater Management Zone provides a drought tolerant water supply that improves water supply reliability for the Parties and the region and also provides a drought buffer for those agencies in the event of a prolonged drought.

J. The Parties, together with a number of other water agencies, are working together to develop a collaborative regional plan – the Upper Santa Ana River Watershed Salt & Nutrient Management Plan – that supports increasing the use of recycled water for groundwater replenishment and other purposes, while also managing groundwater quality to provide the maximum benefits to the people of the State.

K. The Upper Santa Ana River Watershed Salt & Nutrient Management Plan is a multi-year effort and will not be complete before the Parties – namely EVWD's Sterling Natural Resources Center, and potentially San Bernardino's Tertiary Treatment System and Redlands' Phase 2 expansion of its Redlands Wastewater Treatment Facility – require executed Waste Discharge Requirements for the recycled water discharge projects listed above. This MOU is intended to establish and implement salt mitigation commitments for the Parties, to be reflected in the Upper Santa Ana River Watershed Salt & Nutrient Management Plan. Salt mitigation commitments may include regional groundwater quality monitoring, brine line discharge for high-TDS industries, optimized chemical use at wastewater treatment/reclamation facilities, a regional recycled water desalter, and enhanced upstream recharge of low-TDS water.

L. The Parties wish to establish and agree to a framework for their working collaboratively toward mitigation of salt loading that will occur due to all the Parties' recycled water recharge operations within the Bunker Hill-B Groundwater Management Zone, prior to the implementation of the Upper Santa Ana River Watershed Salt & Nutrient Management Plan.

Agreements

1. The Parties agree that they will work together in good faith to develop and implement a regional approach to salt mitigation in Bunker Hill-B Groundwater Management Zone, prior to the implementation of the Upper Santa Ana River Watershed Salt & Nutrient Management Plan. This may include a regional recycled water desalter and associated brine line, enhanced upstream recharge of low-TDS water, or other regional project constructed via partnership between all Parties that contribute salt loading to the basin.

2. The Parties agree that assignment of responsibility for salt mitigation shall be based on mass loading of salts to the basin by the Parties' recycled water contributions and overall benefit to the basin and its stakeholders, as calculated through a mutually agreeable Antidegradation Analysis or similar effort.

3. The Parties will continue to participate in the development of the Upper Santa Ana River Watershed Salt & Nutrient Management Plan to manage salt and nutrient loading in the broader San Bernardino Basin Area and will support mitigation strategies for Bunker Hill-B Groundwater Management Zone in accordance with the responsibility structure set forth in paragraph 2.

4. The Parties will conduct collaborative reporting and assessment to document the assimilative capacity that is consumed by the Parties' recycled water recharges. Annually, each Party shall provide total discharge volumes and TDS concentrations to a mutually agreeable third party who shall calculate mass loading by each Party and calculate use of available assimilative capacity, both individually and cumulatively.

5. The Parties will collaborate on a Feasibility Study (conceptual design and engineering, alternative salt mitigation strategies, benefits analysis, economic modeling for cost share) for a regional recycled water desalter, to be completed by December 2024. The regional recycled water desalter will be defined in this Feasibility Study to serve as supporting documentation for funding pursuits.

6. The Parties agree to develop and execute a Funding Agreement for cost share of the Feasibility Study in Item 5 by March 2023.

7. Wastewater that goes through advanced water treatment processes (reverse osmosis) and is recharged to the Bunker Hill basin has additional regional benefits by contributing to removal of multiple water quality constituents that may be of concern to the Parties. The Parties shall also consider these regional benefits in the design of the regional recycled water desalter or other salt mitigation strategy.

8. The Parties will collaborate on development of a Salt Mitigation Implementation Plan for Bunker Hill-B Groundwater Management Zone, to be completed and submitted to Santa Ana Regional Water Quality Control Board by June 2025, which defines the selected mitigation strategy, operations, roles and responsibilities, cost share, and schedule.

9. The Parties will use 285 mg/L ambient TDS concentration as an "action limit" – once 10% of available assimilative capacity (5 mg/L increase over 280 mg/L ambient condition[1]) is used in Bunker Hill-B Groundwater Management Zone, based on the collaborative reporting and assessment completed annually, the Parties shall begin implementation (final design and construction) of the regional desalter. Based on current modeling results, with implementation of a regional desalter, the action limit is expected to be reached in year 2027.

10. The Parties will ensure that the salt mitigation measures are constructed and operational by the time 20% of available assimilative capacity (10 mg/L increase over 280 mg/L ambient condition[2]) is consumed. Based on current modeling results, prior to construction and start-up of the regional desalter, total allowable assimilative capacity is expected to be reached in 2031. Construction of

[1] Santa Ana Watershed Project Authority's 2020 *Recomputation of Ambient Water Quality in Santa Ana River Watershed for the Period 1999-2018*
[2] Ibid.

the regional recycled water desalter or other salt mitigation strategy will be completed by the end of 2031, with operation beginning in January 2032. With implementation of a regional recycled water desalter, cumulative TDS loading from the four regional partners will not exceed total allowable assimilative capacity within the model timeframe (60 years).

11. Should the Upper Santa Ana River Watershed Salt & Nutrient Management Plan analysis and findings be accepted by regulatory agencies in the future, and with consensus of the Regional Water Quality Control Board, the Parties may amend this MOU to revise the "mitigation strategies" in Paragraph 1 and/or "action limits" identified in Paragraphs 9 and 10 in order to be consistent with the Plan.

12. The Parties will collaborate via committee made up of the General Managers of each of the four Parties, or their designees. All decisions shall be made on a unanimous basis.

13. The Parties hereby authorize their respective General Managers or designees to develop administrative and operating rules and procedures that may be needed to implement the terms of this MOU.

14. All notices, requests, demands, or other communications required or permitted under this MOU shall be addressed as follows:

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
Heather Dyer, General Manager
380 East Vanderbilt Way
San Bernardino, CA 92408
heatherd@sbvmwd.com

EAST VALLEY WATER DISTRICT
Michael Moore, General Manager/CEO
31111 Greenspot Road
Highland, CA 92346
mmoore@eastvalley.org

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
Miguel Guerrero, General Manager
PO Box 710
San Bernardino, CA 92402
Miguel.Guerrero@sbmwd.org

CITY OF REDLANDS
John Harris, Director, Municipal Utilities & Engineering Department
35 Cajon St Suite 15A
Redlands, Ca 92374

In witness whereof, the Parties have caused this MOU to become effective by their respective endorsements below:

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Name: Heather Dyer
Date: 3/9/2023

EAST VALLEY WATER DISTRICT

By: _____
Name: Michael Moore, General Manager/CEO
Date: 3/8/2023

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By: _____
Name: Miguel J. Guerrero, P.E., General Manager
Date: February 28, 2023

CITY OF REDLANDS

By: _____
Name: Charles M. Duggan Jr., City Manager
Date: 3/7/23

MEMORANDUM OF UNDERSTANDING FOR THE
MITIGATION OF SALT LOADING IN THE BUNKER HILL-B MANAGEMENT ZONE
AMENDMENT 01

Amendment 01 for this Memorandum of Understanding (MOU) for the Mitigation of Salt Loading in the Bunker Hill-B Management Zone is entered into and effective on the 17th day of October 2023 among the following list of Signatories: San Bernardino Valley Municipal Water District ("Valley District"), East Valley Water District ("EVWD"), City of San Bernardino Municipal Water Department ("San Bernardino"), and City of Redlands ("Redlands"), collectively referred to as the "Parties".

WHEREAS, the Parties entered into the MOU, dated January 25, 2023, in which the Parties agreed that they would work together in good faith to develop and implement a regional approach to salt mitigation in Bunker Hill-B Groundwater Management Zone; and

WHEREAS, Agreement 2 of the MOU states that the Parties agree that assignment of responsibility for salt mitigation shall be based on mass loading of salts to the basin by the Parties' recycled water contributions and overall benefit to the basin and its stakeholders, as calculated through a mutually agreeable Antidegradation Analysis or similar effort; and

WHEREAS, Agreement 5 of the MOU states that the Parties will collaborate on a Feasibility Study for a regional recycled water desalter and other salt mitigation strategies to be completed by December 2024, Agreement 6 of the MOU states that the Parties will develop and execute a Funding Agreement for cost share of the Feasibility Study, and Agreement 8 of the MOU states that the Parties will complete a submit a Salt Mitigation Implementation Plan to the Santa Ana Regional Water Quality Control Board by June 2025; and

WHEREAS, the Parties entered into Cost Sharing Agreement for the Bunker Hill-B Management Zone Feasibility Study, dated March 9, 2023, which provides for a 25% cost share of the invoiced costs associated with the development of the Feasibility Study; and

WHEREAS, since execution of the MOU, the Parties have developed Partnership Principles to outline the decision-making process among the Parties, articulate guiding principles for group conduct, describe how consultants will be managed, and explain how new partners can be added as the Parties embark on beneficial projects and processes to serve the Bunker Hill-B Management Zone.

NOW, THEREFORE, the Parties agree as follows:

1. Agreement 5 shall be revised to extend completion of the Feasibility Study to June 2025.

2. Agreement 8 shall be revised to extend completion of a Salt Mitigation Implementation Plan for submittal to Santa Ana Regional Water Quality Control Board to December 2025.

3. The Partnership Principles agreed upon by the Parties attached hereto shall be incorporated into the MOU as Exhibit A.

4. Valley District will continue to serve as a facilitator and the Administering Agency pursuant to the Cost Sharing Agreement. Valley District will not directly bring new capital, operational, nor maintenance investments to fund a potential future regional desalter. However, Valley District will support and facilitate efforts by the Parties to obtain and administer outside funding such as state or federal grants, and/or potential contributions from other basin stakeholders. Valley District will

redirect Local Resource Investment Program (LRIP) payments at the request of LRIP parties. Each Party is ultimately responsible for mitigating salinity impacts from their respective recycled water projects.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the Effective Date set forth above.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

By: _____
Name:
Date:

EAST VALLEY WATER DISTRICT

By: _____
Name:
Date:

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

By: _____
Name:
Date:

CITY OF REDLANDS

By: _____
Name:
Date:

Exhibit A

Partnership Principles

Partnership Principles

Bunker Hill Basin Regional Recycled Water Coalition

July 14, 2023

1.0 Purpose

The purpose of this Partnership Agreement for the Bunker Hill Basin Regional Recycled Water Coalition (Coalition) is to outline the decision-making process among the agencies, articulate guiding principles for Coalition conduct, describe how consultants will be managed, and explain how new partners can be added as the partner agencies embark on beneficial projects and processes to serve the Bunker Hill-B Groundwater Management Zone (GMZ).

The Guiding Principles derive from and include by reference the Memorandum of Understanding for the Mitigation of Salt Loading in the Bunker Hill-B Management Zone by and Between San Bernardino Valley Municipal Water District, East Valley Water District, City of San Bernardino Municipal Water Department, and the City of Redlands (Coalition MOU).

This Partnership Agreement is valid through submittal of the Salt Mitigation Implementation Plan to Santa Ana Regional Water Quality Control Board, anticipated to occur in June 2025. Following submittal of the Salt Mitigation Implementation Plan, the Coalition shall revisit the Partnership Agreement and either amend the existing agreement or create a new agreement to best capture the next phases of the Coalition's efforts and corresponding commitments.

2.0 Coalition Partners

The Coalition is made up of the following four agencies:

- San Bernardino Valley Municipal Water District (San Bernardino Valley)
- East Valley Water District (EVWD)
- City of San Bernardino Municipal Water Department (SBMWD)
- City of Redlands (Redlands)

The core parties that make up the Coalition are described below.

Coalition Boards/Councils

The respective legislative bodies of the four agencies have designated representatives as Steering Committee members.

Coalition Steering Committee

The Steering Committee is responsible for determining appropriate salinity management strategies for the Bunker Hill-B GMZ. The following describes the current recycled water recharge operations of each Steering Committee agency.

- San Bernardino Valley is constructing the Regional Recycled Water Facilities which includes a recycled water conveyance system and a groundwater recharge facility known as the Weaver Basins. The conveyance system will allow recycled water to be conveyed from EVWD and SBMWD facilities to the Weaver Basins.

- EVWD is constructing Sterling Natural Resource Center, a new water reclamation facility that will recycle wastewater from EVWD's service area, convey it through San Bernardino Valley's recycled water conveyance infrastructure, and recharge it via Weaver Basins into Bunker Hill-B GMZ.
- SBMWD is developing the Tertiary Treatment System, which will produce recycled water from the San Bernardino Water Reclamation Plant (WRP) for beneficial use in and around the WRP (plant use and irrigation). Recycled water will also be conveyed through San Bernardino Valley's recycled conveyance system for recharge via Weaver Basins into Bunker Hill-B GMZ.
- Redlands has existing Waste Discharge Requirements for treatment and discharge of recycled water from its service area into Bunker Hill-B GMZ. Phase 2 expansion of its Redlands Wastewater Treatment Facility will increase recycled water production for distribution to recycled water end users and/or discharge to the Redlands Basins.

The Coalition believes that through their cooperative work, they can treat and discharge recycled water in a manner that will maximize benefits to the Bunker Hill-B GMZ, their agencies, and their ratepayers.

A map of the three recycled water projects located in the Bunker Hill basin is included as Figure 1.

Coalition Administrator

San Bernardino Valley has been determined as the Administrating Agency for the Coalition by the members of the Steering Committee. San Bernardino Valley will coordinate among the four agencies in development of a Bunker Hill Basin Regional Recycled Water Feasibility Study (Feasibility Study).

3.0 Responsibilities

The primary responsibilities of each party of the Coalition are identified below.

Coalition Boards/Councils

Each respective legislative body for the four Coalition agencies will be responsible for:

- Receiving updates on the Feasibility Study and directing its Steering Committee members as it deems appropriate.
- Approving an updated Memorandum of Understanding (or similar arrangement) outlining the Coalition's next steps following completion of the Feasibility Study.

Coalition Steering Committee

The Steering Committee shall be responsible for:

- Participating in execution of this Partnership Agreement and development and implementation of an Outreach Strategy for Coalition activities.
- Selecting an engineering firm to prepare the Feasibility Study.

- Collaborating on the Feasibility Study for a regional approach to salinity management in Bunker Hill-B GMZ, to be completed by June 2025.
- Reviewing and providing comments on the Feasibility Study.
- Considering and approving any potential scope enhancements to the Feasibility Study, and sharing the additional costs equally at 25 percent, if any.
- Collaborating on development of a Salt Mitigation Implementation Plan for Bunker Hill-B GMZ to be completed and submitted to Santa Ana Regional Water Quality Control Board by December 2025.

Coalition Administrator

San Bernardino Valley will be responsible for:

- Serving as point-of-contact for coordinating with Coalition consultants, including managing any necessary Request for Proposals and procurement processes, as well as entering into an agreement with each of the Coalition consultants.
- Day-to-day oversight of the Coalition consultants (grant writer, facilitator, engineer, and others as needed).
- Tracking and invoicing of costs associated with consultant work, along with billing of equal share (25 percent each) to Coalition parties.
- Coordinating with consultants on monthly progress reports to the Steering Committee.
- Ensuring Title XVI planning grant obligations are met and reimbursements received (if awarded).

4.0 Decision Making

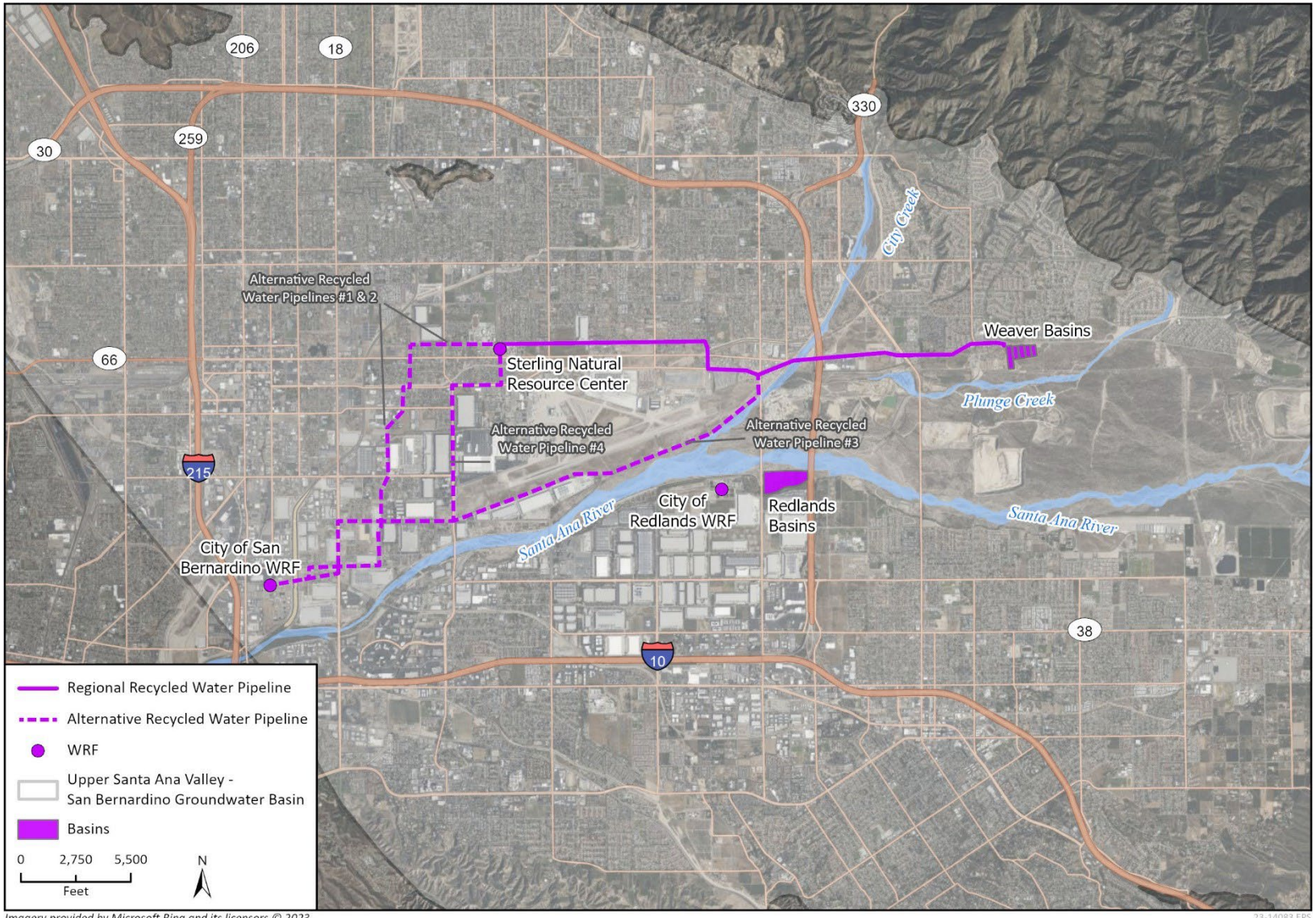
The Steering Committee will seek to make decisions through consensus. Consensus is a form of decision-making that concludes only when all participants reach agreement. This does not mean that all participants must provide an unqualified "yes" on a decision; however, all parties must agree to support and implement it.

To facilitate decision-making discussions when consensus is not immediately met, the following levels of consensus can be referenced to communicate how comfortable Steering Committee members are with moving forward with a decision.

1. I can say an unqualified "yes"!
2. I can accept the decision.
3. I can live with the decision.
4. I do not fully agree with the decision, however, I will not block it and will support it.
5. I do not agree with the decision and feel the need to stand in the way of this decision being accepted.

If any members communicate that they are a level four or five on the consensus scale, the Steering Committee shall take the time to hear and consider additional ideas and reasoning.

Figure 1: Map of Regional Recycled Water Projects



Imagery provided by Microsoft Bing and its licensors © 2023.
Additional sources provided by CA DWR, 2019; USGS, 2022.

23-14083 EPS
Fig 1 Project Location

In support of consensus-based decision-making, the Coalition parties agree to come to discussions with an open mind, view differences of opinions as helpful rather than harmful, and avoid changing their mind only to reach an agreement and avoid conflict.

In the event a decision cannot be made through consensus and a majority vote is required, each agency will receive one vote, all of which will be weighted equally, and the decision with the most votes will move forward.

5.0 Membership

Should an existing Coalition partner choose to exit the Coalition prior to completion of the Salt Mitigation Implementation Plan in December 2025, all monetary contributions from the date of execution of the Coalition MOU shall be forfeited. The Coalition MOU and Cost Share Agreement shall be amended to reflect the new Coalition membership.

Should a new water or recycled water agency in the Bunker Hill Basin desire to join the Coalition during this timeframe, that new partner shall pay an equal share of all monetary contributions from the date of execution of the Coalition MOU. This share shall be held by the Coalition Administrator for use in Coalition-directed activities or redistribution among the existing partners as a reimbursement for early phase work. The Coalition MOU and Cost Share Agreement shall be amended to reflect the new Coalition membership.

6.0 Success Factors and Barriers to Success

In April 2023, the Coalition partners identified how to define success for the Coalition's efforts and anticipated challenges the group will face. The following categories were used to define both the success factors and barriers:

- Governance/Decisions Making
- Stakeholder/Outreach
- Technical
- Regulatory
- Schedule
- Funding

The activity responses were discussed at the Steering Committee meeting on April 20, 2023, and have been used to develop the Guiding Principles discussed below.

7.0 Guiding Principles

Members agree to the following guiding principles to inform and guide Steering Committee deliberations, foster constructive discussions, promote a clear and shared set of expectations, and encourage collaboration.

Dedicated Participation and Respectful Engagement

Commitment to Collaborate. All members agree to work together in a constructive manner to meet key milestones. Understand that all agencies are equal and agree to support partner projects. Strive to reach consensus on positions of shared interest and proactively identify barriers for discussion and, where possible, resolution at the earliest opportunity. Once decisions are made will support successful implementation.

Equitable Cost Share. All members agree to work collaboratively to develop a fair and equitable cost sharing agreement. No one is to benefit at the expense of others, and all parties agree to negotiate in good faith. Per the Coalition MOU, all members agree that future cost responsibilities for salt mitigation shall be based on the mass loading of salts to the basin by the members' recycled water contributions and overall benefit to the basin and its stakeholders, as calculated through a mutually agreeable Antidegradation Analysis or similar effort.

Commitment of Time. Strive to attend meetings consistently; we need everyone at the table throughout. Contribute your thoughts and share our time so everyone can participate.

Respect Others and the Process. Seek opportunities to share your perspective and understand the perspectives of others. Listen intently to what others are saying. Be honest and fair, and as candid as possible. If you hear something you do not understand, ask questions to clarify. If you hear something you do not agree with, help people understand your concerns.

Support an Effective Process

Rely on Credible Information. To foster effective dialogues, members agree to mutually support a transparent and inclusive process where parties commit to providing and relying on credible data and clear criteria to inform decision-making and to draw on the advice of the Feasibility Study consultant.

Equitable Allocation of Assimilative Capacity. All members agree to work collaboratively to develop a fair and equitable allocation of assimilative capacity. All members agree to strive for consistency in their approach to permitting with the Regional Water Quality Control Board and have shared permitting expectations to ensure consistency in permit conditions and requirements across partner agencies.

Support the Schedule. Provide timely responses and input to communication and deliverables and be transparent and timely in the delivery of pertinent information. Commit to meeting key milestones and provide adequate time for members and stakeholders when requesting information.

State-of-the-Art Analysis. Commitment to a science-based process for identifying and evaluating technical alternatives and salinity management strategies. Be proactive and creative about potential solutions and benefits to regional stakeholders.

Invest in Stakeholder Engagement

Transparency. Commitment to address groundwater salinity at regional level, sharing information freely among partners and stakeholders.

Strive for Consistent Communication. All members agree to support the development and communication of united messaging to stakeholder groups (including regulatory agencies) and collaborate on the direction of the messaging specific to the stakeholder.

SAN BERNARDINO VALLEY | A REGIONAL WATER AGENCY SINCE 1954

DATE: November 14, 2023

TO: Board of Directors Workshop – Resources/Engineering

FROM: Kai Palenscar - Environmental Compliance and Permitting Program Manager
Joanna Gibson – Executive Director, Upper Santa Ana River HCP

SUBJECT: Consider Adoption of Resolution No. 1181 Authorizing San Bernardino Valley to Enter into a Funding Agreement with California Department of Fish and Wildlife for the Awarded Traditional Section 6 Grant: Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring

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Staff Recommendation

Adoption of Resolution No. 1181 (Attachment 1) authorizing San Bernardino Valley to:

1. Enter into a funding agreement with the California Department of Fish and Wildlife (CDFW) for the awarded Traditional Section 6 Grant: Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring, and accept and expend federal grant monies in the amount of $117,858.35;
2. Provide non-federal matching funds totaling $43,600.00; and
3. Authorize the CEO/General Manager to execute the funding agreement with CDFW, and any amendments thereto.

Summary

Staff submitted a Cooperative Endangered Species Conservation Fund, Traditional Section 6 (FY 2022), grant application to the United States Fish and Wildlife Service (USFWS) in early 2022 to conduct a study on the Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring. The grant will facilitate the development and refinement, and test the efficacy, of less intrusive sampling methodologies (camera monitoring and tagging) for Santa Ana sucker. In early 2023 the USFWS recommended full funding of our grant proposal (Attachment 2), in the amount of $117,858.35, with matching fund contribution from San Bernardino Valley in the amount of $43,600.00.

Background

The studies proposed in this grant will be used to inform monitoring required under the Upper Santa Ana River Habitat Conservation Plan's (HCP) conservation strategy that supports the permitting of approximately 80,000 acre-feet per year on average of local water supply projects. Incidental take permit (ITP) applications are currently under review by the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) to allow construction and operations of over 100 water projects within our region over the next 50 years.

As part of the HCP's commitment to offset impacts from proposed water facilities, numerous conservation measures will be implemented for the benefit of Santa Ana sucker, both along the mainstem of the Santa Ana River, and in mountain tributary streams, where translocations are proposed. A requirement of the ITPs will involve demonstrating that the measures/actions being implemented are achieving desired outcomes. For Santa Ana sucker, demonstrations of measure/action "success" include stable or increasing population size, and expansion of distribution.

Fisheries biologists have employed various surveying methods to monitor sucker populations, but inconsistencies in survey methodologies and limitations on the timing of surveys have made for difficulties in data analyses, and an incomplete understanding of sucker population dynamics. Further, currently employed survey methodologies require significant time and financial investment. The studies proposed in this grant involve use of less intrusive and time-consuming methodologies, and if deemed successful, their application could lead to significant time and cost-savings for the HCP Partner Agencies, as well as a greater understanding of year-round sucker population dynamics.

District Strategic Plan Application

Projects proposed under the grant will support the HCP's Conservation Strategy which is critical to providing a resilient water supply (the HCP will facilitate the permitting of approximately 80,000 acre-feet per year on average of local water supply through the construction and implementation of multiple water infrastructure projects), and a healthy watershed for future generations. The project also embodies science-based decision making may lead to cost savings for the HCP Partner Agencies.

Fiscal Impact

In order to receive the $117,858.35 in federal grant monies, San Bernardino Valley will provide $43,600.00 in matching funds to the project. The matching funds comprise $36,000 already slated

to be paid to the Riverside-Corona Resource Conservation District (RCRCD) over the next two fiscal years (associated with operations of native fish raceways and RCRCD staff time: Line Item 6780), and approximately $7,600 in San Bernardino Valley Staff time and equipment. The FY 23-24 General Fund budget approved up to $37,000 for the RCRCD Fish Raceways and Native Fishes Survey permits/staff/equipment (Line Item 6780).

Attachments

1) Attachment 1: Resolution 1181
2) Attachment 2: Notice of Award: Traditional Section 6 (FY2022): Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring

RESOLUTION NO. 1181

RESOLUTION OF THE BOARD OF DIRECTORS OF SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT AUTHORIZING SAN BERNARDINO VALLEY TO ENTER INTO A FUNDING AGREEMENT WITH THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE AND AUTHORIZING AND DESIGNATING A REPRESENTATIVE FOR THE DEVELOPMENT OF ALTERNATIVE SAMPLING METHODOLOGIES FOR YEAR-ROUND SANTA ANA SUCKER MONITORING PROJECT

WHEREAS, San Bernardino Valley Municipal Water District ("***San Bernardino Valley***") is a municipal water district organized and operating pursuant to the Municipal Water District Law of 1911 (Water Code § 71000 *et seq*.); and

WHEREAS, San Bernardino Valley submitted a grant application to the California Department of Fish and Wildlife ("***CDFW***") for funding the Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring Project ("**Project**"); and

WHEREAS, prior to the CDFW executing a funding agreement, the Board of Directors of San Bernardino Valley is required to adopt a resolution authoring an agent, or representative, to sign the funding agreement, amendments, and requests for disbursement of funds on behalf of San Bernardino Valley, and to carry out other necessary Project-related activities.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT, as follows:

San Bernardino Valley is authorized to carry out this Project and enter into a funding agreement with the CDFW, and accept and expend funds for this project in the amount of $117,858.35; and

San Bernardino Valley agrees to provide the non-federal matching funds contribution of $43,600.00; and

The Chief Executive Officer/General Manager, or designee, is hereby authorized and designated to sign for, and act on behalf of San Bernardino Valley, the funding agreement for this Project and any amendments thereto.

NOW, THEREFORE, BE IT FURTHER RESOLVED AND ORDERED BY THE BOARD OF DIRECTORS OF SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT that any and all actions, whether previously or subsequently taken by San Bernardino Valley, which are consistent with the intent and purposes of the foregoing resolution, shall be, and hereby are, in all aspects, ratified, approved, and confirmed.

CERTIFICATION

The Board of Directors of San Bernardino Valley Municipal Water District certify that the foregoing is a full, true, and correct copy of this Resolution.

ADOPTED this 14th day of November 2023.

AYES:
NOES:
ABSENT:
ABSTAINED:

_____
Paul R Kielhold
President

_____
Heather P. Dyer
Secretary

NOTICE OF AWARD

1. DATE ISSUED *MM/DD/YYYY* 05/12/2023	**1a. SUPERSEDES AWARD NOTICE dated** 02/28/2023 except that any additions or restrictions previously imposed remain in effect unless specifically rescinded
2. CFDA NO. 15.615 - Cooperative Endangered Species Conservation Fund	
3. ASSISTANCE TYPE Project Grant	
4. GRANT NO. F23AP00759-01 **Originating MCA #**	**5. TYPE OF AWARD** Other
4a. FAIN F23AP00759	**5a. ACTION TYPE** Post Award Amendment
6. PROJECT PERIOD *MM/DD/YYYY* **From** 07/01/2022	*MM/DD/YYYY* **Through** 12/31/2024
7. BUDGET PERIOD *MM/DD/YYYY* **From** 07/01/2022	*MM/DD/YYYY* **Through** 12/31/2024

AUTHORIZATION (Legislation/Regulations)

Endangered Species Act—Cooperation with States (16 U.S.C. §1535)

8. TITLE OF PROJECT (OR PROGRAM)

Traditional Section 6 (FY 2022)Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring

9a. GRANTEE NAME AND ADDRESS

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE
1416 9th St Fl 12
Sacramento, CA, 95814-5515

9b. GRANTEE PROJECT DIRECTOR

Nikita Dudley
715 P St
Sacramento, CA, 95814-6400
Phone: 916-204-8961

10a. GRANTEE AUTHORIZING OFFICIAL

Mrs. Nicole Viehman
715 P Street -16th Floor
SACRAMENTO, CA, 95814-6400
Phone: 916-207-3987

10b. FEDERAL PROJECT OFFICER

Ms. Karen Jensen
2800 Cottage Way Suite W-2606
Sacramento, CA, 95825
Phone: 9164146557

ALL AMOUNTS ARE SHOWN IN USD

11. APPROVED BUDGET (Excludes Direct Assistance)

	I Financial Assistance from the Federal Awarding Agency Only	II Total project costs including grant funds and all other financial participation
a.	Salaries and Wages	$ 0.00
b.	Fringe Benefits	$ 0.00
c.	Total Personnel Costs	$ 0.00
d.	Equipment	$ 0.00
e.	Supplies	$ 0.00
f.	Travel	$ 0.00
g.	Construction	$ 0.00
h.	Other	$ 161,459.00
i.	Contractual	$ 0.00
j.	TOTAL DIRECT COSTS →	$ 161,459.00
k.	INDIRECT COSTS	$ 0.00
l.	**TOTAL APPROVED BUDGET**	$ 161,459.00
m.	Federal Share	$ 117,859.00
n.	Non-Federal Share	$ 43,600.00

12. AWARD COMPUTATION

a. Amount of Federal Financial Assistance (from item 11m)	$ 117,859.00
b. Less Unobligated Balance From Prior Budget Periods	$ 0.00
c. Less Cumulative Prior Award(s) This Budget Period	$ 117,858.34
d. **AMOUNT OF FINANCIAL ASSISTANCE THIS ACTION**	$ 0.66
13. Total Federal Funds Awarded to Date for Project Period	$ 117,859.00

14. RECOMMENDED FUTURE SUPPORT
(Subject to the availability of funds and satisfactory progress of the project):

YEAR	TOTAL DIRECT COSTS	YEAR	TOTAL DIRECT COSTS
a. 2	$	d. 5	$
b. 3	$	e. 6	$
c. 4	$	f. 7	$

15. PROGRAM INCOME SHALL BE USED IN ACCORD WITH ONE OF THE FOLLOWING ALTERNATIVES:

a. DEDUCTION
b. ADDITIONAL COSTS
c. MATCHING
d. OTHER RESEARCH (Add / Deduct Option)
e. OTHER *(See REMARKS)*

b

16. THIS AWARD IS BASED ON AN APPLICATION SUBMITTED TO, AND AS APPROVED BY, THE FEDERAL AWARDING AGENCY ON THE ABOVE TITLED PROJECT AND IS SUBJECT TO THE TERMS AND CONDITIONS INCORPORATED EITHER DIRECTLY OR BY REFERENCE IN THE FOLLOWING:

a. The grant program legislation
b. The grant program regulations.
c. This award notice including terms and conditions, if any, noted below under REMARKS.
d. Federal administrative requirements, cost principles and audit requirements applicable to this grant.

In the event there are conflicting or otherwise inconsistent policies applicable to the grant, the above order of precedence shall prevail. Acceptance of the grant terms and conditions is acknowledged by the grantee when funds are drawn or otherwise obtained from the grant payment system.

REMARKS (Other Terms and Conditions Attached - ● Yes ○ No)

GRANTS MANAGEMENT OFFICIAL:

Becky Miller, GRANT MANAGEMENT SPECIALIST
2800 COTTAGE WAY, W-1729
SACRAMENTO, CA, 95825
Phone: 916-978-6185

17. VENDOR CODE 0070057965			**18a. UEI** UVKGJ6U1SEG3	**18b. DUNS** 808322358		**19. CONG. DIST.** 06
LINE#	**FINANCIAL ACCT**	**AMT OF FIN ASST**	**START DATE**	**END DATE**	**TAS ACCT**	**PO LINE DESCRIPTION**
1	0051031888-00010	$0.00	07/01/2022	12/31/2024	5143	Traditional - CA CFDA 15.615
2	0051034731-00010	$0.66	07/01/2022	12/31/2024	5143	Traditional - CA CFDA 15.615

Federal Financial Report Cycle			
Reporting Period Start Date	Reporting Period End Date	Reporting Type	Reporting Period Due Date
07/01/2022	06/30/2023	Annual	09/28/2023
07/01/2023	06/30/2024	Annual	09/28/2024
07/01/2024	12/31/2024	Final	04/30/2025

Performance Progress Report Cycle			
Reporting Period Start Date	Reporting Period End Date	Reporting Type	Reporting Period Due Date
07/01/2022	06/30/2023	Annual	09/28/2023
07/01/2023	06/30/2024	Annual	09/28/2024
07/01/2024	12/31/2024	Final	04/30/2025

SCOPE OF WORK

1. **Project Description**

The Service hereby incorporates the recipient's application submitted to and approved by the Service into these award terms and conditions.

Your organization's application for Federal financial assistance amendment titled ***"Traditional Section 6 (FY 2022) Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring. (G2298097)"*** submitted to the U.S. Fish and Wildlife Service is approved effective **April 25, 2023.** This award is amended as follows: ***Time Extension/Increase of Award***

Terms and Conditions

1. **U.S. Fish and Wildlife Service**

General Award Terms and Conditions

Recipients of U.S. Fish and Wildlife Service (Service) grant and cooperative agreement awards (hereafter referred to as 'awards') are subject to the terms and conditions incorporated into their Notice of Award either by direct citation or by reference to Federal regulations; program legislation or regulation; and special award terms and conditions. Award terms and conditions are applicable unless and until the USFWS removes or revises them in written notice to the recipient. The Service will make such changes by issuing a written notice that describes the change and provides the effective date.

Recipients indicate their acceptance of an award by starting work, drawing down funds, or accepting the award via electronic means. Recipient acceptance of an award carries with it the responsibility to be aware of and comply with all terms and conditions applicable to the award. Recipients are responsible for ensuring that their subrecipients and contractors are aware of and comply with applicable award statutes, regulations, and terms and conditions. Recipient failure to comply with award terms and conditions can result in the Service taking one or more of the remedies and actions described in Title 2 of the Code of Federal Regulations (CFR) §§200.339—343.

A PDF of these terms and conditions with embedded links to all regulations is available on the Service's website at: https://www.fws.gov/media/fws-financial-assistance-award-terms-and-conditions-2020-12-31. See also the Department of the Interior's General Award Terms and Conditions on their website at: https://www.doi.gov/grants/doi-standard-terms-and-conditions.

Administrative Requirements, Cost Principles, and Audit Requirements

These requirements and cost principles are applicable to all awards except those to individuals receiving the award separate from any business or organization they may own or operate. Foreign public entities and foreign organizations must comply with special considerations and requirements specific to their entity type, unless otherwise stated in this section. Foreign public entities must comply with those for states.

2 CFR Part 200, Subparts A—D, as supplemented by 2 CFR Part 1402

Foreign public entities must follow payment procedures in 2 CFR §200.305(b). For foreign public entities and foreign organizations, the requirements in 2 CFR §§200.321—323 do not apply.

Appendix XII to 2 CFR Part 200—Recipient Integrity and Performance Matters

Applicable to awards with a total Federal share of more than $500,000 except for awards of any amount to foreign public entities.

2 CFR Part 200, Subpart E—Cost Principles

Applicable to all domestic and foreign non-Federal entities except non-profit organizations identified in Appendix VIII to 2 CFR Part 200.

48 CFR Subpart 31.2—Contracts with Commercial Organizations

Applicable to non-profit organizations identified in Appendix VIII to 2 CFR Part 200 and for-profit organizations.

Indirect Cost Proposals

Requirements for development and submission of indirect cost rate proposals are contained in Appendix III (Institutions of Higher Education), Appendix IV (Nonprofit organizations), and Appendix VII (States, local government agencies, and Indian tribes) to 2 CFR Part 200. See also the DOI negotiated indirect cost rate deviation policies at 2 CFR §1402.414. For-profit entities should contact the DOI National Business Center, Office of Indirect Cost Rate Services at: https://ibc.doi.gov/ICS/icrna.

2 CFR Part 200, Subpart F—Audit Requirements

Applicable to U.S. states, local governments, Indian tribes, institutions of higher education, and nonprofit organizations. Not applicable to foreign public entities, foreign organizations, or for-profit entities.

Statutory and National Policy Requirements

These requirements are applicable to all awards, including those to individuals, for-profits, foreign public entities, and foreign organizations, unless otherwise stated in this section.

Appendix A to 2 CFR Part 25—Universal Identifier and System for Award Management

Not applicable to individuals or any entity exempted by the awarding bureau or office prior to award per 2 CFR §25.110(c)(2) and bureau or office policy.

Appendix A to 2 CFR Part 170—Award term for reporting subaward and executive compensation

Not applicable to individuals. See 2 CFR 170 for other exceptions.

2 CFR §175.15—Award Term for Trafficking in Persons

Applicable to private entities as defined in 2 CFR §175.25(d), states, local governments, and Indian tribes. Applicable to foreign public entities if funding could be provided to a private entity as a subrecipient under the award.

2 CFR Part 1400—Nonprocurement Debarment and Suspension

All recipients must ensure they do not enter into any covered transaction with an excluded or disqualified participant or principal. See also 2 CFR Part 180—OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement). 2 CFR §180.215 defines nonprocurement transactions that are not covered transactions.

2 CFR Part 1401—Requirements for Drug-Free Workplace (Financial Assistance)

Not applicable to foreign public entities or foreign organizations.

43 CFR Part 18—New Restrictions on Lobbying

Recipients are prohibited from using any federally appropriated funds (annually appropriated or continuing appropriations) or matching funds under a Federal award to pay any person for lobbying in connection with the award. Lobbying is influencing or attempting to influence an officer or employee of any U.S. agency, a Member of the U.S. Congress, or an officer or employee of a Member of the U.S. Congress in connection with the award.

41 U.S.C. §4712—Whistleblower Protection for Contractor and Grantee Employees

41 U.S.C. §6306—Prohibition on Members of Congress Making contracts with Federal Government

Mandatory Disclosures

Failure to make required disclosures may result in any of the remedies for noncompliance described in 2 CFR §200.339, including suspension or debarment (see also 2 CFR Part 180).

Conflicts of interest: Per 2 CFR §1402.112, non-Federal entities and their employees must take appropriate steps to avoid conflicts of interest in their responsibilities under or with respect to Federal financial assistance agreements. In the procurement of supplies, equipment, construction, and services by recipients and by subrecipients, the provisions in 2 CFR §200.318 apply. Non-Federal entities, including applicants for financial assistance awards, must disclose in writing any conflict of interest to the DOI awarding agency or pass-through entity in accordance with 2 CFR §200.112. Recipients must establish internal controls that include, at a minimum, procedures to identify, disclose, and mitigate or eliminate identified conflicts of interest. The recipient is responsible for notifying the Service Project Officer identified in their notice of award in writing of any conflicts of interest that may arise during the life of the award, including those that reported by subrecipients. The Service will examine each disclosure to determine whether a significant potential conflict exists and, if it does, work with the applicant or recipient to develop an appropriate resolution. Failure to resolve conflicts of interest in a manner that satisfies the government may be cause for termination of the award.

Lobbying: If the Federal share of the award is more than $100,000, recipients must disclose making or agreeing to make any payment using non-appropriated funds for lobbying in connection with the award. To make such disclosures, recipients must complete and submit the SF-LLL, "Disclosure of Lobbying Activities" form to the USFWS. This form is available at: https://www.grants.gov/web/grants/forms/post-award-reporting-forms.html. For more information on when additional submission of this form is required, see 43 CFR, Subpart 18.100. These restrictions are not applicable to such expenditures by Indian tribe,

tribal organization, or any other Indian organization that is specifically permitted by other Federal law.

Other Mandatory Disclosures: Recipients and subrecipients must disclose, in a timely manner, in writing to the Service Project Officer identified in their notice of award or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Non-Federal entities subject to the 2 CFR 200, Appendix XII—Award Term and Condition for Recipient Integrity and Performance Matters are required to report certain civil, criminal, or administrative proceedings to SAM.

National Policy Encouragements

Executive Order 13043—Increasing Seat Belt Use in the United States

Non-Federal entities are encouraged to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented, or personally owned vehicles. Individuals are encouraged to use seat belts while driving in connection with award activities.

E. O. 13513—Federal Leadership on Reducing Text Messaging While Driving

Non-Federal entities are encouraged to adopt and enforce policies that ban text messaging while driving, including conducting initiatives of the type described in section 3(a) of the order. Individuals are encouraged to not text message while driving in connection with award activities.

AWARD CONDITIONS

1. **Matching Requirements**

If cost share percentage identified in the budget as stated on original award letter, or any applicable amendments, changes for any reason, please notify the project officer for further guidance.

See also 2 CFR §200.306.

2. **Indirect Cost Restrictions**

The Service conditionally approves the proposed indirect costs on the final approved budget incorporated into this award. The Recipient is prohibited from charging indirect costs to this award until the Recipient provides a copy of their approved negotiated indirect cost rate agreement to the Service Project Officer identified on this notice of award. The Recipient must submit their indirect cost rate proposal to their cognizant agency for indirect costs within 90 calendar days past the award period of performance start date. In the event the recipient does not establish an approved rate by the award period of performance end date, the recipient must contact the Service Project Officer identified on this notice of award to discuss the situation and determine what budget revisions may be required. If the recipient submitted their rate agreement in a timely manner but the cognizant agency delayed processing it, the recipient should provide relevant details to the Service Project Officer.

3. **WSFR Cost Accounting**

Cost accounting is at the Grant/project/subaccount level.

4. **Other Program- or Project-Specific Terms and Conditions**

The Federal Government has the right to obtain, reproduce, publish, or otherwise use the data, methodology, factual inputs, models, analyses, technical information, reports, conclusions, or other scientific assessments, produced under this grant, and authorize others to receive, reproduce, publish, or otherwise use such data, methodology, factual inputs, models analyses, technical information, reports, conclusions, or other scientific assessments, for Federal purposes, including to allow for meaningful third-party evaluation

2 CFR 200.407 Prior written approval (prior approval).

Under any given Federal award, the reasonableness and allocability of certain items of costs may be difficult to determine. In order to avoid subsequent disallowance or dispute based on unreasonableness or nonallocability, the non-Federal entity may seek the prior written approval of the cognizant agency for indirect costs or the Federal awarding agency in advance of the incurrence of special or unusual costs. Prior written approval should include the timeframe or scope of the agreement. The absence of prior written approval on any element of cost will not, in itself, affect the reasonableness or allocability of that element, unless prior approval is specifically required for allowability as described under certain circumstances in the following sections of this part:

(a) §200.201 Use of grant agreements (including fixed amount awards), cooperative agreements, and contracts, paragraph (b)(5); ***Changes to principle investigator, project leader, project partner, or scope of efforts.***

(b) §200.306 Cost sharing or matching; ***Unrecovered Indirect Cost used as match.***

SPECIAL TERMS AND REQUIREMENTS

1. **Individuals Hiring Contractors**

The Recipient has an obligation to protect themselves from potential liability when hiring any contractor to perform work activities approved under this award on property owned by the Recipient by checking references and ensuring that any contractor hired is licensed, bonded, and has valid employee insurance coverage for events of injury or bodily harm. In accordance with 2 CFR 180, for any contract expected to total $25,000 or more the Recipient must confirm that the contractor is not suspended or debarred from receiving Federal funds. The Recipient does this by: 1) checking SAM Exclusions, 2) collecting a certification from the contractor; or 3) adding a clause or condition to the contract. To check SAM Exclusions, go to www.SAM.gov. Search for entities by their UEI number. Search for principal participants by their names. Search for contractors by their business names. If an exclusion is found that prohibits the entity from receiving Federal award funds, the Recipient is prohibited from entering into a subaward with that entity.

2. **Individuals Issuing Subawards**

In accordance with 2 CFR 180, before issuing any subaward of any amount the Recipient must confirm that the subrecipient and principals or the contractor are/is not suspended or debarred from receiving Federal funds. The Recipient does this by: 1) checking SAM Exclusions, 2) collecting a certification from the subrecipient; or 3) adding a clause or condition to the subaward. To check SAM Exclusions, go to www.SAM.gov. Search for entities by their UEI number. Search for principal participants by their names. Search for contractors by their business names. If an exclusion is found that prohibits the entity from receiving Federal award funds, the Recipient is prohibited from entering into a subaward with that entity.

2 CFR § 200.331 Subrecipient and contractor determinations.

2 CFR § 200.332 - Requirements for pass-through entities.

PAYMENTS

1. **Domestic Recipients Enrolled in Treasury's ASAP System**

The recipient will request payments under this award in the U.S. Treasury's Automated Standard Application for Payment (ASAP) system. When requesting payment in ASAP, your Payment Requestor will be required to enter an Account ID. The number assigned to this award is the partial Account ID in ASAP. When entering the Account ID in ASAP, the Payment Requestor should enter the award number identified in the notice of award, followed by a percent sign (%). Refer to the ASAP.gov Help menu for detailed instructions on requesting payments in ASAP.

BUDGET AND PROGRAM REVISIONS

1. **WSFR Budget and Program Revisions**

The recipient is permitted to re-budget within the approved direct cost budget to meet unanticipated requirements and may make limited program changes to the approved project. However, certain types of post-award changes in budgets and projects shall require the prior written approval of the Service. Refer to **2 CFR 200.308** for additional information on the types of changes that require prior written approval.

REPORT

1. **WSFR Interim Financial Reports**

The recipient is required to submit interim financial reports on an annual basis directly in GrantSolutions. The recipient must follow the financial reporting period end dates and due dates provided in GrantSolutions. The interim reporting due dates are available by signing in to GrantSolutions and selecting the menu for Reports>Federal Financial Report. The GrantSolutions financial report data entry fields are the same as those on the SF-425, "Federal Financial Report" form. See also our instructional video on "Completing the Federal Financial Report (SF-425)".

2. **WSFR Interim Performance Reports**

The recipient is required to submit interim performance reports on an annual basis directly in GrantSolutions. The recipient must follow the performance reporting period end dates and due dates provided in GrantSolutions. The interim reporting due dates are available by signing in to GrantSolutions and selecting the menu for Reports>FPR.

3. **Final Reports**

The recipient must liquidate all obligations incurred under the award and submit a *final* financial report in GrantSolutions no later than 120 calendar days after the award period of performance end date. The GrantSolutions financial report data entry fields are the same as those on the SF-425, Federal Financial Report form, https://www.grants.gov/web/grants/forms/post-award-reporting-forms.html . See also our instructional video on "Completing the Federal Financial Report (SF425) https://fawiki.fws.gov/display/VLSV#VirtualLearningSeriesVideosHome-CompletingtheFederalFinancialReport(SF-425)

The recipient must submit a *final* performance report no later than 120 calendar days after the award period of performance end date. Performance reports must contain: 1) a comparison of actual accomplishments with the goals and objectives of the award as detailed in the approved scope of work; 2) a description of reasons why established goals were not met, if appropriate; and 3) any

other pertinent information relevant to the project results. Please include the Service award number on all reports.

The recipient must follow the final Federal Financial Report and the final Performance Report reporting period end dates and due dates provided in GrantSolutions. The final reporting due dates are available by signing in to GrantSolutions and selecting the menu for Reports>Federal Financial Report or Reports>FPR.

4. **Reporting Due Date Extensions**

Reporting due dates may be extended for an award upon request to the Service Project Officer identified in the notice of award. The request should be sent by selecting the award in GrantSolutions and selecting send message. The message must include the type of report to be extended, the requested revised due date, and a justification for the extension. The Service may approve an additional extension if justified by a catastrophe that significantly impairs the award Recipient's operations. The recipient must submit reporting due date extension requests through GrantSolutions to the Service Project Officer identified in their notice of award before the original due date. The Service Project Officer will respond to the recipient after approval or denial of the extension request.

5. **Significant Developments Reports**

See 2 CFR §200.329(e). Events may occur between the scheduled performance reporting dates that have significant impact upon the supported activity. In such cases, recipients are required to notify the Service in writing as soon as the recipient becomes aware of any problems, delays, or adverse conditions that will materially impair the ability to meet the objective of the Federal award. This disclosure must include a statement of any corrective action(s) taken or contemplated, and any assistance needed to resolve the situation. The recipient should also notify the Service in writing of any favorable developments that enable meeting time schedules and objectives sooner or at less cost than anticipated or producing more or different beneficial results than originally planned.

AWARD ATTACHMENTS

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE F23AP00759-01

1. SF 424 - AFA
2. Justification
3. Budget
4. Project Narr
5. Budget Narr
6. Attachments

Application for Federal Assistance SF-424 Version 04

* 1. Type of Submission:	* 2. Type of Application:	* If Revision, select appropriate letter(s):
○ Preapplication	◉ New	
◉ Application	○ Continuation	* Other (Specify)
○ Changed/Corrected Application	○ Revision	

* 3. Date Received:	4. Applicant Identifier:
~~04/07/2022~~ 04/25/2023 msp	

5a. Federal Entity Identifier:	* 5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:	7. State Application Identifier:
04/07/2022	G2298097

8. APPLICANT INFORMATION:

* a. Legal Name: California Department of Fish and Wildlife

* b. Employer/Taxpayer Identification Number (EIN/TIN):	* c. UEI:
941697567	UVKGJ6U1SEG3

d. Address:

* Street1:	715 P St
Street2:	
* City:	Sacramento
County:	
* State:	California
Province:	
* Country:	UNITED STATES
* Zip / Postal Code:	95814-6400

e. Organizational Unit:

Department Name:	Federal Assistance Section
Division Name:	

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:		* First Name:	Nikita
Middle Name:			
* Last Name:	Dudley		
Suffix:			

Title: Grant Administrator

Organizational Affiliation:

Budget Branch

* Telephone Number:	916-653-9879	Fax Number:	

* Email: nikita.dudley@wildlife.ca.gov

Application for Federal Assistance SF-424 Version 04

9. Type of Applicant 1: Select Applicant Type:

State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

DOI-US Fish and Wildlife Service

11. Catalog of Federal Domestic Assistance Number:

15.615

CFDA Title:

Cooperative Endangered Species Conservation Fund

*** 12. Funding Opportunity Number:**

F22AS00138

* Title:

FY 2022 Cooperative Endangered Species Conservation Fund (CESCF) Traditional Conservation Grants Program (Service Legacy Region 8)

13. Competition Identification Number:

F22AS00138

Title:

FY 2022 Cooperative Endangered Species Conservation Fund (CESCF) Traditional Conservation Grants Program (Service Legacy Region 8)

14. Areas Affected by Project (Cities, Counties, States, etc.):

*** 15. Descriptive Title of Applicant's Project:**

Traditional Section 6 (FY 2022) Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring

Attach supporting documents as specified in agency instructions.

Application for Federal Assistance SF-424 Version 04

16. Congressional Districts Of:

* a. Applicant: 06 * b. Program/Project: All

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date: 07/01/2022 * b. End Date: 06/30/2024 12/31/2024 msp

18. Estimated Funding ($):

* a. Federal	117937 0.66 msp 20230425
* b. Applicant	0
* c. State	43600
* d. Local	0
* e. Other	0
* f. Program Income	0
* g. TOTAL	161537 0.66 msp

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

(●) a. This application was made available to the State under the Executive Order 12372 Process for review on 04/07/2022.

( ) b. Program is subject to E.O. 12372 but has not been selected by the State for review.

( ) c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

( ) Yes (●) No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

(●) **** I AGREE**

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name: Nicole

Middle Name:

* Last Name: Viehman

Suffix:

* Title: Acting SSMI

* Telephone Number: 916-207-3987 Fax Number:

* Email: nicole.viehman@wildlife.ca.gov

* Signature of Authorized Representative: Ms. Nikita Dudley207812 * Date Signed: 04/07/2022

Authorized for Local Reproduction Standard Form 424 (Revised 10/2005)
Prescribed by OMB Circular A-102

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Director's Office
P.O. Box 944209
Sacramento, CA 94244-2090
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 25, 2023

Ms. Becky Miller
Regional Manager
U.S. Fish and Wildlife Service
Pacific Southwest Regional Office
Wildlife and Sport Fish Restoration Program
2800 Cottage Way, Room W-1916
Sacramento, CA 95825

Re: Amendment 1 – Range-Wide Management and Monitoring of the Endangered Salt Marsh Bird's-Beak (F23AP00759 / G2298097)

Dear Ms. Miller:

The California Department of Fish and Wildlife (CDFW) requests to amend the Period of Performance (PoP) Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring grant (F23AP00759 / G2298097).

Since this grant was awarded with a PoP of 07/01/22-06/30/24 in error, CDFW would like to request a revised PoP date of 01/01/23-12/31/24.

A revised PoP is necessary in order to allow for sufficient time to complete the objectives of the grant. Only with the requested extension can the goals and objectives of the grant be achieved.

Sincerely,

Messchaert, Leslie@Wildlife

Digitally signed by Messchaert, Leslie@Wildlife
DN: DC=Gov, DC=Ca, DC=Dfg, DC=AD, OU=DFG Divisions, OU=AD, OU=Users, CN="Messchaert, Leslie @Wildlife"
Reason: I am the author of this document
Location:
Date: 2023.04.25 09:21:31-07'00'
Foxit PDF Editor Version: 12.0.1

Leslie Messchaert, Grant Administrator
Federal Assistance Branch
California Department of Fish and Wildlife

TRADITIONAL SECTION 6

Development of Alternative Sampling Methodologies for Year-Round Snta Ana Sucker

36002623/Project ID - NEW

				2022-23	2023-24	TOTAL
PERSONAL SERVICES	**POSITION NUMBER**	**CNO**	**INCUMBENT**	**AMOUNT**	**AMOUNT**	**AMOUNT**
Permanent Staff						
Position Title	565-019-xxxx-xxx	xxxxx	Name	$0	$0	$0
Position Title	565-019-xxxx-xxx	xxxxx	Name	$0	$0	$0
Position Title	565-019-xxxx-xxx	xxxxx	Name	$0	$0	$0
				$0	**$0**	**$0**
Permanent Intermittent Staff						
Position Title	565-019-xxxx-xxx	xxxxx	Name	$0	$0	$0
Position Title	565-019-xxxx-xxx	xxxxx	Name	$0	$0	$0
				$0	**$0**	**$0**
Temporary Help (Sci Aides)				**$0**	**$0**	**$0**
TOTAL PERSONAL SERVICES				**$0**	**$0**	**$0**
OPERATING EXPENSES						
General Expenses				$0	$0	$0
Facilities				$0	$0	$0
Minor Equipment (Equipment **under** $5K per item)				$0	$0	$0
Travel/Training				$0	$0	$0
C&PS - Interdepartmental				$0	$0	$0
C&PS - External				$71,968	$45,969	$117,937
USGS				$71,968	$45,969	$117,937
Waste Removal				$0	$0	$0
Electricity				$0	$0	$0
Water				$0	$0	$0
Utilities				$0	$0	$0
Major Equipment (Equipment **over** $5K per item)				$0	$0	$0
Capital Expenditures				$0	$0	$0
Gas/Diesel Fuel				$0	$0	$0
Vehicle/Equipment Maintenance & Repair				$0	$0	$0
Vehicle/Equipment Parts & Supplies				$0	$0	$0
TOTAL OPERATING EXPENSES				**$71,968**	**$45,969**	**$117,937**
TOTAL OE&E/PERSONAL SERVICES				**$71,968**	**$45,969**	**$117,937**
***INDIRECT COST RATE** (less overhead for Major Equipment, Contracts and PI)				**$0**	**$0**	**$0**
*Approved FY 20/21 ICRP. The FY 21/22 proposed ICRP will be submitted to the U.S. Depart				*27.16%*	*27.16%*	
TOTAL FEDERAL SHARE				**$71,968**	**$45,969**	**$117,937**
Federal Share (73.01%)				$71,968	$45,969	$117,937
State Share (26.99%) (In-Kind: SBVMWD)				$26,606	$16,994	$43,600
TOTAL PROJECT COST				**$98,574**	**$62,963**	**$161,537**

TRADITIONAL SECTION 6

Development of Alternative Sampling Methodologies for Year-Round Snta Ana Sucker

36002623/Project ID - NEW

PERSONAL SERVICES	POSITION NUMBER	CNO	PY	INCUMBENT	ANNUAL SALARY	GRANT SALARY	BENEFITS	MSA Increase %	2022-23 AMOUNT
Permanent Staff									
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
			0.0				**Total Permanent Staff Salaries**		**$0**
Permanent Intermittent Staff			**Hours**		**$/Hr.**				
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.00%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.00%*	*0.00%*	$0
						Total Permanent Intermittent Salaries			**$0**
Temporary Help (Sci Aides)	N/A	N/A	#DIV/0!		*$0.00*	*$0*	*56.341%*	*0.00%*	**$0**
TOTAL PERSONAL SERVICES					$0	**$0**	**$0**	**$0**	**$0**
OPERATING EXPENSES									
General Expenses									$0
Facilities									$0
Minor Equipment Equipment **under** $5K per item									$0
Travel/Training									$0
C&PS - Interdepartmental									$0
C&PS - External									$71,968
USGS									$71,968
Waste Removal									$0
Electricity									$0
Water									$0
Utilities									$0
Major Equipment Equipment **over** $5K per item									$0
Capital Expenditures									$0
Gas/Diesel Fuel									$0
Vehicle/Equipment Maintenance & Repair									$0
Vehicle/Equipment Parts & Supplies									$0
TOTAL OPERATING EXPENSES									**$71,968**
TOTAL OE&E/PERSONAL SERVICES									**$71,968**
***INDIRECT COST RATE** (less overhead for Major Equipment, Contracts and PI)								*27.16%*	**$0**
*Approved FY 20/21 ICRP. The FY 21/22 proposed ICRP will be submitted to the U.S. Department of the Interior and is subject to change.									
TOTAL FEDERAL SHARE									**$71,968**
Federal Share (73.01%)									$71,968
State Share (26.99%) (In-Kind: SBVMWD)									$26,606

TRADITIONAL SECTION 6

Development of Alternative Sampling Methodologies for Year-Round Snta Ana Sucker

36002623/Project ID - NEW

PERSONAL SERVICES	POSITION NUMBER	CNO	PY	INCUMBENT	ANNUAL SALARY	GRANT SALARY	BENEFITS	MSA Increase %	2023-24 AMOUNT
Permanent Staff									
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0.0	Name	*$0*	*$0*	*0.000%*	*0.00%*	$0
			0.0				**Total Permanent Staff Salaries**		**$0**
Permanent Intermittent Staff			**Hours**		**$/Hr.**				
Position Title	565-019-xxxx-xxx	xxxxx	0	Name	*$0*	*$0*	*0.00%*	*0.00%*	$0
Position Title	565-019-xxxx-xxx	xxxxx	0	Name	*$0*	*$0*	*0.00%*	*0.00%*	$0
						Total Permanent Intermittent Salaries			**$0**
Temporary Help (Sci Aides)	N/A	N/A	#DIV/0!		*$0.00*	*$0*	*56.341%*	*0.00%*	**$0**
TOTAL PERSONAL SERVICES					$0	$0	$0	$0	$0
OPERATING EXPENSES									
General Expenses									$0
Facilities									$0
Minor Equipment Equipment **under** $5K per item									$0
Travel/Training									$0
C&PS - Interdepartmental									$0
C&PS - External									$45,969
USGS									$45,969
Waste Removal									$0
Electricity									$0
Water									$0
Utilities									$0
Major Equipment Equipment **over** $5K per item									$0
Capital Expenditures									$0
Gas/Diesel Fuel									$0
Vehicle/Equipment Maintenance & Repair									$0
Vehicle/Equipment Parts & Supplies									$0
TOTAL OPERATING EXPENSES									**$45,969**
TOTAL OE&E/PERSONAL SERVICES									**$45,969**
***INDIRECT COST RATE** (less overhead for Major Equipment, Contracts and PI)								*27.16%*	**$0**
*Approved FY 20/21 ICRP. The FY 21/22 proposed ICRP will be submitted to the U.S. Department of the Interior and is subject to change.									
TOTAL FEDERAL SHARE									**$45,969**
Federal Share (73.01%)									$45,969
State Share (26.99%) (In-Kind: SBVMWD)									$16,994

ENDANGERED SPECIES CONSERVATION AND RECOVERY GRANT
(Federal Endangered Species Act Traditional Section 6 Grant)

Project Title: Development of alternative sampling methodologies for year-round Santa Ana sucker monitoring

Project Abstract: The Santa Ana sucker *(Catostomus santaanae,* SAS) is one of few extant freshwater fishes native to southern California and are listed as federally threatened under the Endangered Species Act. Their current distribution is limited to the Santa Ana, San Gabriel, and Los Angeles Rivers, where they have steadily declined in recent years within the Santa Ana River due in part to nonnative predatory species, reduced spawning habitat, and degraded habitat conditions. Fisheries biologists have employed various surveying methods to monitor the Santa Ana River SAS population but inconsistencies in survey methodologies have made for limited and often biased analytic options. Furthermore, SAS surveys have previously been limited to the non-breeding seasons or using less informative methods that can't quantify comparable estimates of population structure for all SAS life-stages (e.g., bank visual observations). Collectively, these limited sampling approaches have resulted in an incomplete understanding of SAS population dynamics. We propose to develop and refine two less intrusive methodologies for surveying SAS: camera monitoring and pit-tagging. These new methodologies can be used in coordination with common survey methods and during sensitive SAS life-history periods to gain additional information on major life-history events (e.g., reproduction) and standardize SAS surveying methodologies to provide comparable demographic information throughout the known SAS distribution.

Description of Entities Undertaking the Project: The study will be conducted under the direction and guidance of the United States Geological Survey (USGS), San Bernardino Valley Municipal Water District (SBVMWD), and Riverside-Corona Resource Conservation District (RCRCD). The USGS will lead all raceway experiments, data analysis, and product development. The SBVMWD and RCRCD will also assist in the completion of the objective.

Principal Investigator:
Kai Palenscar, Project Manager 11, Biological Resources, San Bernardino Valley Municipal Water District, email: kaip@sbvmwd.com

Participating Entities:
Brock M. Huntsman, Fish Biologist, U.S. Geological Survey, California Water Science Center, email: bhuntsman@usgs.gov

Kerwin Russell, Natural Resources Manager, Riverside-Corona Resource Conservation District, email: russell@rcrcd.org

State Agency Contacts:
Project Leads:

Kim Freeburn, Environmental Program Manager, California Department of Fish and Wildlife, email: kim.freeburn@wildlife.ca.gov

Claire Ingel, Senior Environmental Scientist (Supervisor), California Department of Fish and Wildlife, Native Fishes Conservation and Management, email: Claire.Ingel@wildlife.ca.gov

Federal Agency Contacts:
Mary Beth Woulfe, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Section 6 Grant Coordinator, email: marybeth_woulfe@fws.gov

Rebecca Christensen, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, email: rebecca_christensen@fws.gov

Christine Medak, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, email: christine_medak@fws.gov

Statement of Need: The SAS is a federally threatened freshwater fish endemic to the Santa Ana, San Gabriel, and Los Angeles Rivers, where it has been extirpated from more than 70% of its native range (United States Fish and Wildlife Service [USFWS] 2017). The Santa Ana River population has been impacted by reduced availability of spawning habitat through the establishment of nonnative, invasive species of plants (e.g., giant reed and beard algae) and wildlife (e.g., largemouth bass and American bullfrog), seasonal smothering of spawning and foraging habitats from sand deposition, and lack of stable water sources (e.g., fluctuating wastewater discharges and groundwater extraction). Further, a recent increase in the predatory largemouth bass population has correlated with the significant decline in estimated SAS population based on population assessments conducted during non-spawning seasons (Huntsman et al. *in review* [Attachment 6], Figures 1 and 2). The current recovery strategy highlights that the development and implementation of "a rangewide monitoring protocol to accurately and consistently document (a) populations (quantitatively and qualitatively), (b) occupied habitat, and (c) threats" as its first recovery objective (USFWS 2017). Indeed, accurate abundance and occupancy estimates are a cornerstone from which most management decisions evolve, yet standardized sampling protocols from which spatially and temporally comparable SAS population assessments can be made, are missing from currently available SAS surveys (USFWS 2017). Although a need exists to evaluate available surveying methodologies and develop standardized SAS sampling protocols, such efforts have yet to be undertaken.

Current efforts to monitor and reduce stressors affecting SAS within the Santa Ana River are part of the Upper Santa Ana River Habitat Conservation Plan (HCP; http://www.uppersarhcp.com/). Examples include expanding the Santa Ana River SAS population into newly-created and conserved lowland habitats within the Santa Ana River watershed, and SAS translocations into historic mountain tributaries. The Santa Ana Watershed Projects Authority has also recently implemented a grant-funded habitat restoration project and the US Army Corps of Engineers has implemented a large habitat

restoration project to help improve conditions for the species in the Santa Ana River. However, the current management strategies were developed from restricted surveying information limited to a small window of the SAS's life-cycle (e.g., fall surveys; Wulff et al. 2021), which also hinders robust assessments of management actions. Additionally, SAS surveying methods during spawning seasons lack sampling efficiency validation (visual spawning surveys) and are biased towards detecting juvenile fishes at the stream margin, limiting our understanding on the status of all SAS life-stages. Consequently, few robust data sets are available to manage SAS, spatially and temporally. For example, annual USGS electrofishing surveys (surveys occur in fall) have not observed SAS near the Rialto channel in recent years (Figures 1 and 2) although SAS occupy the Rialto channel during spawning months (Kerwin Russell personal communication). Currently available data suggest fall surveys (September) occur when water temperatures in the Rialto channel are close to suggested stressful limits for SAS (32°C, USFWS 2017; Figure 3), suggesting the Rialto channel may be inhospitable for SAS, part of the year. Understanding the mechanisms responsible for SAS use of habitats, spatially and temporally in the Santa Ana River watershed, is important for the development of adaptive management strategies, but difficult to accomplish without surveying methods that can be employed to frequently monitor all SAS life-stages.

Species Listing Status and Implementation of High Priority Recovery Tasks: A final recovery plan for the SAS was completed by the USFWS in 2017. The SAS has a recovery priority number of 6C. This priority number indicates that SAS have been identified as possessing a high degree of threat and low potential for recovery. Sections 1 and 2 of the Recovery Action Narrative within the SAS Recovery Plan highlights the importance of standardized sampling protocols for evaluating the status of SAS populations, developing SAS status comparisons among and within watersheds, and assessing SAS responses based on management actions (Pages 111-2 and 111-3). As part of the proposed project, a monitoring protocol will be developed and implemented with a goal to determine effective, non-intrusive surveying methods that can be used to describe the habitat needs of SAS across life-stages and life-history events (e.g., spawning). Due to the diversity of habitat types and conditions that SAS may experience seasonally within the Santa Ana River, the monitoring protocols developed as part of this project are expected to have applicability across drainages and serve as a reference for rangewide monitoring protocols, partially fulfilling Recovery Actions 1.1, 1.2, and 1.3.

The proposed study will also further Recovery Action 2.4, that specifically addresses the need for describing habitat conditions SAS require during critical life-history events. This action priority will be particularly important because current surveying efforts for SAS are limited in their ability to quantify habitat associations during the spawning and juvenile incubation life-stages of SAS, critical life-history events for any fish species.

Lastly, surveying methodology developed for this study will partially fulfill Recovery Action 2.7, by assisting with the development of a population viability analysis (PVA) for SAS. The proposed monitoring protocols will include the use of fish tagging technology that can be used in the development of PVA's by providing vital rate information (survival, movement), as well as quantifying change to population structure (population growth

rates) and estimating longevity that has been difficult using conventional aging methodologies (scales, otoliths). All this information can be used in the development of PVA type analyses.

Species	Recovery/ Priority Action	Recovery Planning Document
Santa Ana sucker	5C	Species Recovery Plan (2017)

Purpose: Our study will supplement traditional survey techniques (e.g., electrofishing, snorkeling) with more novel methodologies (e.g., videography) to develop a range wide survey protocol vetted within raceway mesocosms at the RCRCD and the Santa Ana River. A capture-mark-recapture survey methodology coupled with the use of passive integrated transponder tags (PIT) and tracking technology will provide opportunities to gain a better understanding of age-class distribution, vital rates (movement, survival), and species detection probabilities among methods. The simultaneous deployment of surveying methods makes the correction of sampling bias that occurs for each method, possible. Once refined, the application of these techniques within the Santa Ana River will improve our understanding of basic SAS biology and life history, especially concerning reproductive life-history events in which traditional surveys are restricted. Data that will be generated using techniques developed during this study will provide information on critical data gaps for the species that are needed to inform both recovery and management actions to help recover the species. Furthermore, techniques developed during this study will be crucial by providing unbiased information on SAS population structure during all parts of the species' life-cycle, a necessity when assessing the impacts of restoration or mitigation actions that are not restricted to fall sampling periods.

Objective:
Objective 1: Use of controlled experiments (in 2023, and potentially, 2024) within multiple (more than one) raceway mesocosms to test the efficiency of survey technology prior to field implementation.

The goal of this study is to develop less intrusive surveying technology than traditional methods to quantify SAS population structure (e.g., abundance, occupancy, demography, size-structure).

Methods/ Approach: Results from this study will be presented in a report provided to California Department of Fish and Wildlife (CDFW) and USFWS with recommended survey protocols and analysis, as well as a peer-reviewed journal article, depending on the substance of the results. All data collected from experiments will be made publicly available through a USGS data release via ScienceBase (https://www.sciencebase.gov/catalog/) as part of USGS federal science practice requirements.

This objective will be accomplished in three tasks:

Tasks 1 & 2 will be implemented at the RCRCD raceway propagation facility (https://www.rcrcd.org/facilities), where RCRCD staff manage artificial streams (raceways) used for propagation and life-history studies of native fishes (SAS, Santa Ana speckled dace and arroyo chub).

Task 3 will include data simulations mimicking results from raceway experiments (task 2) to determine the number of locations to be sampled in the Santa Ana River for unbiased population estimates using the newly developed surveying technology.

Task 1: Recent advances in PIT technology have made it possible to tag relatively small fishes (< 60mm total length, Huntsman et al. 2021). USGS and RCRCD biologists will perform tagging experiments within RCRCD raceways during the summer of 2023 to confirm that PIT-tagging SAS will have minimal impacts using similar methods outlined in Acolas et al. (2007). Tagged and control (not tagged) SAS will be placed into the RCRCD raceways. SAS will be tagged with either an 8mm or 12mm PIT-tag (Oregon RFID) and fish size, survival, and tag retention will be monitored over a 30-day period. Large tags (12mm) will be tested because they have greater detection range with antennas than smaller tags. At least 10 SAS across a size-range will be used per treatment (8mm, 12mm, or no tag) and standard statistical analyses will then be used (regression, analysis of variance, analysis of covariance) to test the size and treatment effects (8mm PIT tag, 12mm PIT tag, Control) on survival, growth, and tag retention. Results will be reported to CDFW and USFWS and a decision will be made as to whether PIT-tagging benefits outweigh risks, prior to implementation.

Task 2: Following PIT-tagging feasibility experiments (task 1), tagged SAS will be released from isolation into multiple artificial raceways at the RCRCD Greenbelt facilities to progress with tests of SAS sampling alternatives from backpack electrofishing. Multiple raceways and artificial streams operated by the RCRCD will be used to test the effects of different habitat conditions (depth, velocity) on gear sampling efficiency, although a greater range of habitat conditions will surely be encountered within the Santa Ana River. First, block-nets will be used to create 50m long sampling reaches within Greenbelt raceways (total length is 100m), similar to reach sizes used during native fish surveys (Huntsman et al. 2022). Tagged SAS will then be released and given one day to distribute throughout reaches. Next, a portable PIT-tag reader (Biomark ® HPR Plus Reader with BP Plus Mobile Antenna) and inflatable floating antenna (Biomark ® HPR Plus Reader with BP Plus Mobile Antenna) will be deployed in an upstream direction, keeping track of all tagged SAS detections. This procedure will be performed 3 to 5 times, imitating a standard replica of sampling design which will estimate antenna detection efficiency from the known number of tagged fish in the raceway (Kery and Royle 2016).

The PIT-tagged fish will also be used to determine the logistics of camera sampling technology to estimate SAS population structure (abundance, occupancy). Recent efforts have successfully deployed camera technology to estimate fish occupancy or abundance in various stream ecosystems (Castaneda et al. 2019, Hannweg et al. 2020, Hitt et al. 2021), although those efforts were limited to stationary deployment of cameras in relatively small channel units (Pools). This study will use the same 50m raceway reaches

and known number of SAS to test different procedures using passive and active camera deployment to determine the best methods for monitoring SAS using camera technology (GoPro Hero 4 Black, 360 Fly 4K Camera). Different procedures will include deployment location (thalweg versus stream margin), deployment length (e.g., 5, 10, 15 minutes) for stationary cameras, and the deployment speed of active cameras. Camera methods will be deployed following PIT-tag tracking as previously described. We will collect at least 20 samples (number of reaches multiplied by sampling occasions), with 3-5 replicated passes for the active camera methods which will then be analyzed with standard abundance models (N-mixture model) to assess gear performance relative to the known number of fish within raceways (Kery and Royle 2016). Simulations will use gear efficiency results to determine the minimum number of replicated passes and sampling reaches required for field implementation of new survey methods.

Task 3: Data simulations will be designed to account for various gear detection efficiency estimates gained from task 2 and sampling efficiency estimates from previous surveys conducted within the watershed (Huntsman et al. 2022). Integrating multiple data sets from different survey methods into one analysis is a powerful approach in monitoring studies because shared information can be leveraged for more accurate and precise parameter estimations (Schaub and Kery 2021) including methods we have already implemented within the Santa Ana River (see attachment 6, Huntsman et al. 2022). In our proposed study design, we will be able to integrate our surveying methods into one analysis because they share a parameter of interest and true abundance (see Figure 4 for conceptual model). This can also include the use of Jolly-Seber type capture-mark-recapture models for the PIT-tag tracking data set (Schwarz 2001), binomial N-mixture models (hierarchical abundance models) for replicated data sets (camera and snorkel surveys), and multinomial N-mixture models for the electrofishing data set (Huntsman et al. 2022). Analysis of previous surveys indicates that electrofishing surveys are more efficient than snorkel surveys at detecting SAS (Figure 5). Preliminary simulations suggest the inclusion of fall electrofishing data with alternative sampling approaches (snorkel, cameras, capture-mark-recapture) could significantly improve abundance and gear efficiency estimation even when electrofishing surveys are missing from winter and spring surveys (Figures 6 and 7). Simulations using currently available data sets and assuming low efficiency of camera technology suggests as few as 2 sites could be sampled per occasion (early fall, winter, and late spring) to provide accurate parameter estimation using this surveying design (Figures 6 and 7), assuming similar electrofishing and snorkeling efficiency as currently estimated in the river (Figure 5). However, this number could change once better-informed gear efficiency estimates of alternative sampling methods are made available (task 2).

Timetable or Milestones:

Year	Month	Task	Approach
2023	January-May	All Tasks	Project Coordination, Greenbelt Raceway Setup and Maintenance
2023	May-August	All Tasks	Passive transponder tagging experiments, multigear sampling efficiency experiments in RCRCD raceways, and data analysis and simulations
2023-2024	September 2023 - December 2024	All Tasks	Data processing, analysis, product development, communication and

			delivery

Information to Support Environmental Compliance Review Requirements:

- **National Environmental Policy Act (NEPA)** - The project consists of research and information collection activities that will inform Santa Ana sucker conservation and is therefore suitable for consideration as a categorical exclusion under NEPA per USFWS 8.5 8(1).
- **Endangered species Act (ESA) - The project will be implemented consistent with the ESA.** The project occurs within USFWS-mapped designated critical habitat for least Bell's vireo and southwestern willow flycatcher. All field personnel are familiar with these two bird species and survey sites will be accessed on foot; no roads or access routes will be constructed, and no equipment producing noise will be employed. Duration in any one location would also be very limited ~ less than 1 day. No activities associated with this effort would impact these aforementioned avian species.

  Santa Ana sucker is the target species for this project. All field work will be conducted as stated in our permits. The following avoidance and minimization measures will be implemented to avoid or minimize effects to SAS and non-target species:

  1. All field work areas accessed on foot
  2. All field personnel appropriately qualified
  3. No equipment will be left on site, nets will be continuously checked.

  All raceway experiments will be conducted in compliance with a Santa Ana sucker 10a permit (TE049540-5) under RCRCD supervision (Attachment 3).
- **National Historic Preservation Act (NHPA)** - The project will not involve ground-disturbing activities, and much of the project will be conducted within an as-built facility, therefore the project is consistent with the NHPA.
- **Bald and Golden Eagle Protection Act (Eagle Act)** - The project will be conducted within an as-built facility and has no potential to impact eagles.
- **Other Permits** - The project will be conducted under the supervision of a CDFW Scientific Collecting Permit holder for Santa Ana sucker (SC-004930; Attachment 3).

Project Location: The field work (i.e., the raceway experiments) will be conducted at the RCRCD's Greenbelt Facility located at 1900 Bradley Street, Riverside, CA 92506.

Continuation Projects Only: N/A

Project Cost: Federal Share - $117,859; Non-Federal Share - $43,600; Total Cost - $161,459

Budget Narrative: See 2022-2025 Multi-Year Budget for details on project costs.

Please refer to budget for project costs breakdown:

Please refer to budget for project costs breakdown:

External Contracts ($117,859): This project is proposed to be completed by USGS, RCRCD, and SBVMWD. Approximately $75,858 of the awarded federal funds will be used to fund USGS staff to complete/oversee all aspects of the project experiments, which includes mesocosm experiments, completion of statistical analyses, and report writing. A portion of the $75,858 will also be used by the USGS for travel and accommodations ($14,924). The USGS's federally negotiated indirect cost rate for projects off site is 87.466%. Approximately $30,000 of the awarded federal funds will be used to purchase equipment, including cameras and PIT tag tracking technology (all items are less than $5,000 individually). Approximately $12,000 of the federal funds will be used to fund RCRCD for assistance during raceway experiments, and to cover costs associated with the operation of additional native fish raceways to complete raceway experiments.

Successful implementation of this project will require highly skilled federally permitted biologists experienced in handling and surveying for Santa Ana sucker. Scientific staff at the USGS, RCRCD, and SBVMWD are suitably qualified to implement and complete this project. The project will require significant labor contribution, with 2-4 persons needed to participate in mesocosm experiments and maintenance. Labor will also be needed for statistical analysis, report writing, and program oversight. A smaller proportion of the budget will be dedicated to equipment purchase and scientific staff travel and training. Brock Huntsman, Fish Biologist, USGS will be the Principal Researcher for this project and will oversee all aspects of the project, including data analyses and report writing. A statement of qualification for Brock Huntsman is provided in Attachment 2. Staff from the RCRCD, along with the RCRCD's Greenbelt Native Fish Facility, will be used for all project-related experiments. Scientific staff from the San Bernardino Valley Municipal Water District (SBVMWD) will assist with experiments, reporting writing, grant management, equipment purchase, and project logistics (Attachment 4). An itemized external contract budget is provided in Attachment 5.

In-Kind Match Description ($43,600): The non-federal match will be met by SBVMWD (Attachment 4). SBVMWD will contribute approximately $36,000 to the RCRCD for assistance with raceway experiments and to cover costs associated with the operation of additional native fish raceways to complete raceway experiments. SBVMWD will also contribute PIT-tag tracking equipment for use by the project, estimated at $5,000, as well as scientific staff time to assist with experiments, reviewing reports, and grant management. A total of approximately 40 hours of SBVMWD staff time will be contributed to this project (totaling approximately $2,600).

Overlap or Duplication of Effort Statement: There are no overlaps or duplication between this application and any of our Federal applications or funded projects, including in regards to activities, costs, or time commitment of key personnel. We understand that if at any time we receive funding from another source that is duplicative of the funding we are requesting from the U.S. Fish and Wildlife Service in this application, we will immediately notify the U.S. Fish and Wildlife Service point of contact identified in this Funding Opportunity in writing.

Indirect Costs: CDFW is a U.S. State government entity receiving more than $35 million in direct Federal funding each year. The indirect cost rate proposals are submitted to the U.S. Department of the Interior. Currently, the approved FY20/21 rate is 27.16%. The FY21/20 rate proposal will be submitted for approval and is subject to change.

Conflict of Interest Disclosure: No actual or potential conflict of interest exists.

Uniform Audit Reporting Statement: CDFW submitted a Single Audit Report to the California Department of Finance (DOF) for the most recently closed Fiscal Year. DOF compiles and submits a single Audit Report on behalf of the State of California. The report (#719482) is available on the DOF website, located here: http://www.dof.ca.gov/Programs/OSAE/Audit_Reports/California_Audits_and_Accountability_Reports/

Disclosure of Lobbying Activities: No grant funds will be used to pay for lobbying activities. No lobbying activities will take place associated with this project.

Literature Cited:

Acolas et al. 2007. https://doi.org/10.1016/j.fishres.2007.05.011.

Castaneda et al. 2020. https://doi.org/10.1002/aqc.3254.

Fitzpatrick et al. 1998. Revised Methods for Characterizing Stream Habitat in the National Water-Quality Assessment Program U.S. Geological Survey. US Dep. Inter. US Geol. Surv. 98(4052).

Hannweg et al. 2020. https://doi.org/10.2989/16085914.2019.1701404.

Hitt et al. 2021. https://doi.org/10.1002/tafs.10245.

Huntsman et al. 2022. https://doi.org/10.1139/cjfas-2021-0210.

Kery and Royle. 2016. Applied Hierarchical Modeling in Ecology: Volume 1.

Royle. 2004. https://doi.org/10.1111/j.0006-341X.2004.00142.x.

Schaub and Kery. (2021). Integrated Population Models.

Schwarz. (2001). https://doi.org/10.1198/108571101750524706.

US Fish and Wildlife Service. 2017. Recovery plan for the Santa Ana sucker. Pacific Southwest Region, Sacramento, California.

https://ecos.fws.gov/docs/recovery_plan/20170228_Final%20SAS%20RP%20Signed.pdf.

Wulff et al. 2021. https://doi.org/10.5066/P9FPG2X6.

Attachments:

- Attachment 1: Figures 1-7
- Attachment 2: Statement of Qualification for Brock Huntsman
- Attachment 3 A&B: Collection Permits
- Attachment 4: Letter of support and match commitment from the SBVMWD
- Attachment 5: External Contract Itemized Budget
- Attachment 6: Huntsman et al. 2022 manuscript referenced in proposal.

State Agency Project Manager's Contact Information:

Project Lead
Kim Freeburn, Environmental Program Manager
CDFW, Inland Deserts Region
Kim.Freeburn@wildlife.ca.gov

Grant Administrator
Nikita Dudley, Grant Administrator
CDFW, Federal Assistance Section
Nikita.Dudley@wildlife.ca.gov
(916) 653-9879

BUDGET SUMMARY

Description	Federal Share	Non-Federal Share	Total
Task 1			
Equipment	$30,000.00	$5,000.00	$35,000.00
Travel (USGS)	$5,090.67		$5,090.67
USGS Staff (GS 12: 40 hours @ $58.61/hr, plus leave @21.5%)	$2,848.45		$2,848.45
USGS Staff (GS 9/10: 40 hours @ $47.44/hr, plus leave @ 21.5%)	$2,305.58		$2,305.58
USGS Indirect Cost Rate (87.466%)	$4,508.02		$4,508.02
RCRCD (Fish Raceways)	$12,000.00	$12,000.00	$24,000.00
SBVMWD Staff Time		$1,000.00	$1,000.00
Task 1 Total	*$56,752.72*	*$18,000.00*	*$74,752.72*
Task 2			
Travel (USGS)	$9,833.67		$9,833.67
USGS Staff (GS 12: 120 hours @ $58.61/hr, plus leave @21.5%)	$8,546.00		$8,546.00
USGS Staff (GS 10: 120 hours @ $47.44/hr, plus leave @21.5%)	$5,533.00		$5,533.00
USGS Indirect Cost Rate (87.466%)	$12,314.34		$12,314.34
RCRCD (Fish Raceways)		$24,000.00	$24,000.00
SBVMWD Staff Time		$1,275.00	$1,275.00
Task 2 Total	*$36,227.01*	*$25,275.00*	*$61,502.01*
Task 3			
USGS Staff (GS 12: 20 hours @ $60.37/hr, plus leave @21.5%)	$1,467.00		$1,467.00
USGS Staff (GS 10: 20 hours @ $48.86/hr, plus leave @21.5%)	$1,187.00		$1,187.00
USGS Indirect Cost Rate (87.466%)	$2,321.35		$2,321.35
SBVMWD Staff Time		$325.00	$325.00
Task 3 Total	*$4,975.35*	*$325.00*	*$5,300.35*
All Tasks			
USGS Staff Time (Product Development) (GS12: 80 hrs @ $60.37/hr, plus leave @21.5%)	$5,868.00		$5,868.00
USGS Staff Time (Product Development) (GS10: 80 hrs @ $48.86/hr, plus leave @21.5%)	$4,749.00		$4,749.00
USGS Indirect Cost Rate (87.466%)	$9,286.27		$9,286.27
All Tasks Total	$19,903.27		$19,903.27
Subtotals			
Travel (USGS) Total	$14,924.34		$14,924.34
Equipment Total	$30,000.00	$5,000.00	$35,000.00
USGS Staff Time Total (includes leave)	$32,504.03		$27,755.03
USGS Indirect Costs Total	$28,429.97		$37,455.56
SBVMWD Staff Time Total	$0.00	$2,600.00	$2,600.00
RCRCD (Fish Raceways) Total	$12,000.00	$36,000.00	$48,000.00
GRAND TOTAL	**$117,858.34**	**$43,600.00**	**$161,458.34**

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RCRCD (Fish Raceways) Total	$12,000.00	$36,000.00	$48,000.00
GRAND TOTAL	**$117,858.34**	**$43,600.00**	**$161,458.34**

CERTIFICATION of NON-FEDERAL CONTRIBUTIONS (ESTIMATE)

THIRD PARTY MATCH

***NOTE: Cells highlighted in light blue are locked and cannot be edited**

Federal Grant #	**FAS Grant #** (Assigned by FAS)	**Federal Project ID**	**Grant Term** (Start Date - End Date)
	G2298097		9/1/2022-6/30/2024

Federal Agency	**Federal Grant Program**
U.S. Fish and Wildlife Service	Section 6

Federal Grant Title

Total Grant Value (with all match sources)	**Federal Share**	**Match %**	**State Share**	**Match %**	*State share must correspond with summary below*
$161,537	$117,937	73%	$43,600	27%	

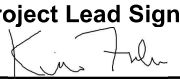
Reporting Structure	**Project Title**
	Development of alternative sampling methodologies for year-round Santa Ana sucker m

SUMMARY OF DONATED MATERIALS - Value of donated materials, goods and services must be provided on official business letterhead- signed and dated. (Documentation must be maintained with Project Lead and in FAS project file).

Date	Sponsor/Donor	Brief Description	Total Value
Sept 2022-Aug 2023	San Bernardino Valley Municipal Water District	Operation of raceways at RCRCD	$36,000.00
Sept 2022-Aug 2023	San Bernardino Valley Municipal Water District	PIT-tag tracking equipment	$5,000.00
Sept 2022-June 2024	San Bernardino Valley Municipal Water District	SBVMWD Staff time	$2,600.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
			$0.00
		Total value of Donated Materials contributed to Federal Project =	**$43,600**

TOTAL VALUE OF THIRD PARTY NON-FEDERAL CONTRIBUTIONS = $43,600

Certification: I certify that to the best of my knowledge that this Certification of Nonfederal Contributions is correct, has no federal nexus, and is directly related to the objectives of the project. I also certify that support documents are available in the project's file.

Printed Name	**Project Lead Signature**	**Contact Email or Phone**	**Date**
Kim Freeburn		kim.freeburn@wildlife.ca.gov	

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

380 East Vanderbilt Way
San Bernardino, CA 92408
phone: 909.387.9200
fax: 909.387.9247
www.sbvmwd.com

To: Kim Romich
Senior Environmental Scientist (Specialist), Region 6
California Department of Fish and Wildlife

From: Heather Dyer
CEO/General Manager
San Bernardino Valley Municipal Water District

Date: March 21, 2022

Re: Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring

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Please accept this letter which outlines and estimates that the San Bernardino Valley Municipal Water District (District) will provide staff time, contractor support and services, supplies and equipment to support the California Department of Fish & Wildlife's Fiscal Year 2022 Cooperative Endangered Species Conservation Fund (Section 6 of the Endangered Species Act) Traditional Conservation and Recovery Grant for the proposed Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring Program for the fiscal year periods of 2022/2023 through 2024/2025.

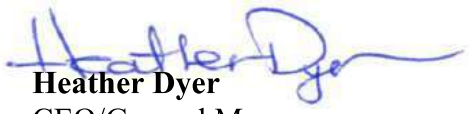
The District will contribute funding/donate project supplies and equipment, and will fully fund monthly maintenance costs associated with the Riverside-Corona Resource Conservation District's Native Fish-holding Facility, which will be used for the duration of the project. Additionally, the District will contribute approximately 40 hours of scientific staff time for field assistance, report preparation and review, and project management. In summary, the District has estimated that they will contribute the following amounts to assist in the development and review of the alternative sampling methodologies for year-round Santa Ana sucker monitoring program:

Project Supplies and Equipment	**$ 5,000**
Native Fish-holding Facility Costs	**$ 36,000**
District Staff In-Kind Costs	**$ 2,600**

In total the District plans on donating approximately **$43,600** in Non-Federal Matching Funds towards Development of Alternative Sampling Methodologies for Year-Round Santa Ana Sucker Monitoring.

I certify that the funds that will be used to pay for the above salaries and donated goods do not include any federal funds and are not being claimed by our agency as a match or contribution to any federal program or agreement. I also certify that facts of these assurances are of my own personal knowledge and that I am duly authorized by my agency to make this certification.

Sincerely,



Heather Dyer
CEO/General Manager