RESOLUTION NO. 2021-42
RESOLUTION NO. PFA-02
ORDINANCE NO. 2021–01

AGENDA

OUR MISSION

Protect, enhance, and develop Calaveras County's water resources and watersheds to provide safe, reliable, and cost-effective services to our communities.

Regular Board Meeting
Wednesday, June 23, 2021
1:00 p.m.

Calaveras County Water District
120 Toma Court
San Andreas, California 95249

Based on guidance from the California Governor's Office and Department of Public Health, in order to minimize the potential spread of the COVID-19 virus, the Calaveras County Water District will convene its public meetings of the Board of Directors telephonically until further notice.

The following alternatives are available to members of the public to watch these meetings and provide comments to the Board before and during the meeting:

Join on your computer or mobile app
Click here to join the meeting
Or call in (audio only)
+1 689-206-0281,,147934627# United States, Orlando
Phone Conference ID: 147 934 627#

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3028. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting. Any documents that are made available to the Board before or at the meeting, not privileged or otherwise protected from disclosure, and related to agenda items, will be made available at CCWD for review by the public.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. ROLL CALL

2. PUBLIC COMMENT
At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to three minutes per person.

BOARD OF DIRECTORS

Jeff Davidson, President — Cindy Secada, Vice President
Scott Ratterman, Director — Bertha Underhill, Director — Russ Thomas, Director

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member may request that any item be removed for later discussion.

3a Approval of Minutes for the Board Meeting of June 9, 2021
(Rebecca Hitchcock, Clerk to the Board)

3b Review Board of Directors Monthly Time Sheets for May 2021
(Rebecca Hitchcock, Clerk to the Board)

3c Report on the Monthly Investment Transactions for May 2021
(Rebecca Callen, Director of Administrative Services)

3d Consideration of Renewal of Contract for Federal Advocacy Services with Mia O'Connell of O'Connell & Dempsey, LLC for Fiscal Year 2021-22 **RES 2021-_____**
(Michael Minkler, General Manager)

4. PUBLIC HEARING

4a Discussion/Action Regarding the Adoption of the Fiscal Year 2021-22 Operating and Capital Improvement Plan Budget
(Rebecca Callen, Director of Administrative Services) **RES 2021-_____**

Discussion/Action Regarding the Adoption of the Fiscal Year 2021-22 Personnel Allocation Budget
(Rebecca Callen, Director of Administrative Services) **RES 2021-_____**

5. NEW BUSINESS

5a* Resolution of Appreciation for John Gomes
(Rebecca Callen, Director of Administrative Services) **RES 2021-_____**

5b* Resolution of Appreciation for Bob Godwin
(Damon Wyckoff, Director of Operations) **RES 2021-_____**

5c Discussion/Action to Award Design Services Contract for the Arnold Wastewater Treatment Facility Improvement Project, CIP 15095
(Bob Godwin, Senior Civil Engineer) **RES 2021-_____**

5d Discussion/Action regarding Adoption of the District's 2020 Urban Water Management Package
(Brad Arnold, Manager of Water Resources)

- Adoption of the Calaveras County Water District 2020 Urban Water Management Plan Update **RES 2021-_____**
- Adoption of the Calaveras County Water District 2020 Water Shortage Contingency Plan **RES 2021-_____**
- Adoption of the Addendum to the 2015 Calaveras County Water District 2015 Urban Water Management Plan Update for Compliance with the 2013 Delta Plan **RES 2021-_____**

*No information included in packet

5e Discussion/Action regarding an Amendment to Contract to Purchase Middle Fork Mokelumne River Water Supplies from Calaveras Public Utilities District
(Michael Minkler, General Manager) **RES 2021-_____**

5f New Hogan Reservoir OM&R Charges Update
(Brad Arnold, Manager of Water Resources)

5g America's Water Infrastructure Act Risk and Resiliency Assessment Update
(Brad Arnold, Manager of Water Resources) **RES 2021-_____**

6. REPORTS

6a* General Manager's Report
(Michael Minkler)

7.* BOARD REPORTS / INFORMATION / FUTURE AGENDA ITEMS

8. NEXT BOARD MEETINGS

- Wednesday, July 14, 2021, 1:00 p.m., Regular Board Meeting
- Wednesday, July 28, 2021, 1:00 p.m., Regular Board Meeting

9. CLOSED SESSION

9a Government Code § 54957.6 Agency Negotiators: General Manager Michael Minkler, HR Manager Stacey Lollar and Michael Jarvis Regarding Negotiations with Employee Organization SEIU Local 1021 and Management and Confidential Unit

10. REPORTABLE ACTION FROM CLOSED SESSION

11. ADJOURNMENT

CALAVERAS COUNTY WATER DISTRICT

Board of Directors

District 1	Scott Ratterman
District 2	Cindy Secada
District 3	Bertha Underhill
District 4	Russ Thomas
District 5	Jeff Davidson

Legal Counsel

Matthew Weber, Esq.
Downey Brand, LLP

Financial Services

Umpqua Bank
US Bank
Wells Fargo Bank

Auditor

Richardson & Company, LLP

CCWD Committees / Membership**

*Engineering Committee	Davidson / Thomas (alt. Secada)
*Finance Committee	Underhill / Secada (alt. Thomas)
*Legal Affairs Committee	Ratterman / Davidson (alt. Thomas)

Joint Power Authorities

ACWA / JPIA	Ratterman (alt. Michael Minkler)
CCWD Public Financing Authority	All Board Members
Calaveras-Amador Mokelumne River Authority (CAMRA)	Ratterman / Underhill (alt. Secada)
Calaveras Public Power Agency (CPPA)	Michael Minkler (Alt. Brad Arnold)
Eastern San Joaquin Groundwater Authority	Thomas
Tuolumne-Stanislaus Integrated Regional Water Management Joint Powers Authority (T-Stan JPA)	Secada (alt. Thomas)
Upper Mokelumne River Watershed Authority (UMRWA)	Davidson (alt. Ratterman)

Other Regional Organizations of Note

Calaveras LAFCO	Ratterman / Thomas
Calaveras County Parks and Recreation Committee	Thomas (alt. Ratterman)
Highway 4 Corridor Working Group	Thomas / Underhill
Mountain Counties Water Resources Association (MCWRA)	All Board Members
Mokelumne River Association (MRA)	All Board Members
Tuolumne-Stanislaus Integrated Regional Water Mgt. JPA Watershed Advisory Committee (WAC)	Brad Arnold
Eastern San Joaquin Groundwater Authority-Technical Advisory Committee	Brad Arnold

* Standing committees, meetings of which require agendas & public notice 72 hours in advance of meeting.
** The 1st name listed is the committee chairperson.

RESOLUTION NO. 2021-33
RESOLUTION NO. PFA-02
ORDINANCE NO. 2021–01

MINUTES

CALAVERAS COUNTY WATER DISTRICT
REGULAR BOARD MEETING

JUNE 9, 2021

Directors Present:	Jeff Davidson, President Cindy Secada, Vice-President Scott Ratterman, Director Bertha Underhill, Director Russ Thomas, Director
Staff Present:	Michael Minkler, General Manager Matt Weber, General Counsel Rebecca Hitchcock, Clerk to the Board Rebecca Callen, Director of Administrative Services Damon Wyckoff, Director of Operations Pat Burkhardt, Construction and Maintenance Manager Brad Arnold, Manager of Water Resources Jessica Self, External Affairs Manager Stacey Lollar, Human Resources Manager
Others Present:	Michael Jarvis, LCW Mark Henwood, Henwood & Assoc.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. ROLL CALL

President Davidson called the Regular Board Meeting to order at 1:02 p.m. and led the Pledge of Allegiance.

2. PUBLIC COMMENT

There was no public comment.

3. CONSENT AGENDA

MOTION: **Directors Ratterman/Underhill–Approved Consent Agenda Item: 3a, 3b, and 3c as presented.**

3a Approval of Minutes for the Board Meeting of May 26, 2021
(Rebecca Hitchcock, Clerk to the Board)

3b Resolution of Support for Nomination of Michael Minkler for ACWA Region 3 Board Member Position
(Michael Minkler, General Manager) **RES 2021-33**

3c Ratify Claim Summary #591 Secretarial Fund in the Amount of $1,983,207.92 for May 2021
(Rebecca Callen, Director of Administrative Services) **RES 2021-34**

AYES: **Directors Ratterman, Underhill, Secada, Thomas, and Davidson**
NOES: **None**
ABSTAIN: **None**
ABSENT: **None**

4. PUBLIC HEARING

President Davidson opened the Public Hearing at 1:04 p.m.

ANNUAL STANDBY ASSESSMENT FEES
(Rebecca Callen, Director of Administrative Services)

- Indian Rock Vineyards Subdivision (Sewer) **RES 2021-35**
- West Point Improvement District 3 (Water) **RES 2021-36**
- Ebbetts Pass Improvement District 5 (Water) **RES 2021-37**
- Jenny Lind Improvement District 6, Copper Cove Improvement District 7 (including Copperopolis Townsite)(Water) **RES 2021-38**
- Saddle Creek Subdivision Improvement District 7 (Water) **RES 2021-39**
- Copper Cove / LaContenta Improvement District 8S (Sewer) **RES 2021-40**

MOTION: **Directors Underhill/Thomas-Adopted Resolutions 2021-35, 2021-36, 2021-37, 2021-38, 2021-39, and 2021-40 in one unified motion.**

DISCUSSION: Ms. Callen discussed the annual standby assessments and the improvement district fees assessed for each district and responded to questions from the Board.

PUBLIC COMMENT: There was no public comment.

AYES: **Directors Underhill, Thomas, Ratterman, Secada, and Davidson**
NOES: **None**
ABSTAIN: **None**
ABSENT: **None**

President Davidson closed the Public Hearing at 1:06 p.m.

5. NEW BUSINESS

5a Discussion/Action to Accept the Two-Year Audit of the District's Sanitary Sewer Management Plan
(Damon Wyckoff, Director of Operations)

MOTION: Directors Secada/Ratterman-By Minute Entry Accepted the Two-Year Audit of the District's Sanitary Sewer Management Plan

DISCUSSION: Mr. Wyckoff presented the audit findings from the District's Sanitary Sewer Management Plan. He stated that there have been updates to procedural items, workflow descriptions, and contact information. There was brief discussion regarding the audit.

PUBLIC COMMENT: There was no public comment.

AYES: Directors Secada, Ratterman, Underhill, Thomas, and Davidson
NOES: None
ABSTAIN: None
ABSENT: None

5b Discussion/Action regarding Credit Adjustment for APN 030-005-010
(Jessica Self, External Affairs Manager) **RES 2021-41**

MOTION: Directors Secada/Underhill-Approved Credit Adjustment for APN 030-005-010

DISCUSSION: Ms. Self statedthat the District currently has a customer at 5831 Highway 4, who is requesting a credit adjustment of $1,007.33 due to a leak on their property through no fault of their own. As per Section 1 of Ordinance 2000-03, leak adjustments will only be granted once every five years per water service account. Ms. Floyd has not received an adjustment within the last five years and is in good standing with payment as such. Therefore, staff recommends that the credit adjustment be approved by the Board. There was brief discussion regarding the leak.

PUBLIC COMMENT: There was no public comment.

AYES: Directors Secada, Underhill, Ratterman, Thomas, and Davidson
NOES: None
ABSTAIN: None
ABSENT: None

6. REPORTS

6a Report on the May 2021 Operations and Engineering Departments
(Damon Wyckoff, Director of Operations)

DISCUSSION: Mr. Wyckoff presented the May 2021 monthly Operations and Engineering reports. He reviewed items of interest and answered questions from the Board.

PUBLIC COMMENT: There was no public comment.

6b General Manager's Report

(Michael Minkler)

DISCUSSION: Mr. Minkler reported on the following activities: 1) the retirement party for Dave Hicks of Blue Lake Springs Mutual Water Company; 2) the water supply agreement with CPUD; 3) the Corp yard building has been delayed to September or October; 4) ACWA Committee assignment applications are open; 5) Engineering, Operations, and Administrative Services have been working diligently on the many projects such as Tyler implementation and Mueller Meters; and 6) potential Special Board Meetings in June.

7. BOARD REPORTS / INFORMATION / FUTURE AGENDA ITEMS

Director Underhill attended Dave Hicks retirement party and stated she is very pleased about the promotion of the new General Manager.

Director Ratterman complimented Jessica Self on the recent press releases she has done for the -- District.

Director Thomas had nothing to report.

Director Secada had nothing to report.

Director Davidson had nothing to report.

8. NEXT BOARD MEETINGS

- Wednesday, June 15, 2021, 1:00 p.m., Special Budget Workshop
- Wednesday, June 23, 2021, 1:00 p.m., Regular Board Meeting

The meeting adjourned into Closed Session at approximately 1:45 p.m. Those present were Board Members: Russ Thomas, Bertha Underhill, Cindy Secada, Jeff Davidson, and Scott Ratterman; staff members Michael Minkler, General Manager, Stacey Lollar, Human Resources Manager; Michael Jarvis, LCW Negotiator (for item 9b); Mark Henwood, Henwood & Assoc. (for item 9a); and Matt Weber, General Counsel.

9. CLOSED SESSION

9a Conference with Legal Counsel-Anticipated Litigation
Significant Exposure to Potential Litigation-Government Code § 54956.9(d)(2)-2 cases

9b Government Code § 54957.6 Agency Negotiators: General Manager Michael Minkler, HR Manager Stacey Lollar and Michael Jarvis Regarding Negotiations with Employee Organization SEIU Local 1021 and Management and Confidential Unit

10. REPORTABLE ACTION FROM CLOSED SESSION

The Board reconvened into Open Session at approximately 5:02 p.m. There was no reportable action.

11. ADJOURNMENT

With no further business, the meeting adjourned at 5:02 p.m.

Respectfully Submitted:	ATTEST:
_____	_____
Michael Minkler General Manager	Rebecca Hitchcock Clerk to the Board

Agenda Item

DATE: June 23, 2021

TO: Michael Minkler, General Manager

FROM: Rebecca Hitchcock, Clerk to the Board

SUBJECT: Review Board of Directors Time Sheets for May 2021

RECOMMENDED ACTION:

For information only.

SUMMARY:

Pursuant to direction from the Board of Directors, copies of the Board's monthly time sheets from which the Board is compensated from, are included in the monthly agenda package for information. Attached are copies of the Board's time sheets for the month of May 2021.

Board Members can be reimbursed for mileage cost to travel to meetings/conferences and are paid at the current IRS rate.

FINANCIAL CONSIDERATIONS:

Monthly compensation and mileage reimbursement costs are included in the FY 21-22 budget.

Attachments: Board of Directors Time Sheets for May 2021

COPY

CALAVERAS COUNTY WATER DISTRICT
2021 DIRECTOR REIMBURSEMENT FORM

For Admin Use	Payroll	X
	Expense	

Month/Yr May 2021

Name S. Rutherman

Activity Date	Meeting or Other Expense Description	Designated Rep. Yes	Designated Rep. No	Association List Yes	Association List No	Prior Approval Yes	Prior Approval No	Cost Meeting	Cost Expense	Total Miles
4-28	CCWD Reg. Mtg.							$120.-		66
5-10	ACWA / JPIA Boo Mtg - virtual							120.-		0
5-11	Meeting w/ Bureau of Rec. - virtual							120.-		0
5-12	CCWD Reg. Mtg.							120.-		7
5-14	Mt. Counties Mtg. - Amador Co.							120.-		68
5-19	CAMRA Mtg. - virtual							120.-		0
5-24	Washington DC - virtual visit Meetings							120.-		0
5-24	Meeting w/ CCWD + CPUD - Mokelumne Hill							-		0
5-25	Washington DC - virtual Meetings							-		0
5-26	CCWD Reg. Mtg							-		7
Total	For Totals line, multiply miles by the IRS rate: 1/1/2021 $0.560							840.-	0	148
	Pursuant to Board Policy 4030, receipts required; report /materials required.							Totals (use IRS mileage rate) 840.		$0.00 82.88

The undersigned, under penalty of perjury states: This claim and the items set forth herein are true and correct; that expenses incurred, meetings attended and business conducted are necessary to District affairs; that this claim is proper and within the scope of California Water Code Section 20200 et seq, and District Ordinance 2015-02; that the service was actually rendered; and that the amount(s) herein are justly true.

Signature of Claimant:

Administrative Review:

Date: 5/20/21

Orig to Finance Dept.

CALAVERAS COUNTY WATER DISTRICT
2020 DIRECTOR REIMBURSEMENT FORM

For Admin Use	Payroll ⊘
	Expense

Month/Yr May-21

Name Cindy Secada

Activity Date	Meeting or Other Expense Description	Designated Rep.		Association List		Prior Approval		Cost		Total Miles
		Yes	No	Yes	No	Yes	No	Meeting	Expense	
12-May	CCWD Reg Meeting In person							$120.00		38.7
18-May	CCWD Finance Meeting In person	X						$120.00		38.7
26-May	CCWD Regular Meeting in person							$120.00		38.7
26-May	Copperopolis Town Hall Meeting							$120.00		79.8
Total	*For Totals line, multiply miles by the IRS rate:* 1/1/2020 $0.575								0	195.9
	Pursuant to Board Policy 4030, receipts required; report /materials required.			Totals *(use IRS mileage rate)*				$480.00	$0.00	$112.64

The undersigned, under penalty of perjury states: This claim and the items set forth herein are true and correct; that expenses incurred, meetings attended and business conducted are necessary to District affairs; that this claim is proper and within the scope of California Water Code Section 20200 et seq, and District Ordinance 2015-02; that the service was actually rendered; and that the amount(s) herein are justly true.

Signature of Claimant: Cindy Secada

Administrative Review: _____ **Date:** 5/26/21

Orig to Finance Dept.

COPY

CALAVERAS COUNTY WATER DISTRICT
2021 DIRECTOR REIMBURSEMENT FORM

For Admin Use — Payroll ⊘ / Expense

Month/Yr: May-21

Name: Bertha Underhill

Activity Date	Meeting or Other Expense Description	Designated Rep. Yes	Designated Rep. No	Association List Yes	Association List No	Prior Approval Yes	Prior Approval No	Cost Meeting	Cost Expense	Total Miles
12-May	CCWD Regular Board Meeting							120		0
18-May	CCWD Finance Committee Meeting							120		0
Total	*For Totals line, multiply miles by the IRS rate:* 1/1/2021 $0.560									
									0	0
	Totals (use IRS mileage rate)							$240.00	$0.00	$0.00

Pursuant to Board Policy 4030, receipts required; report /materials required.

The undersigned, under penalty of perjury states: This claim and the items set forth herein are true and correct; that expenses incurred, meetings attended and business conducted are necessary to District affairs; that this claim is proper and within the scope of California Water Code Section 20200 et seq, and District Ordinance 2015-02; that the service was actually rendered; and that the amount(s) herein are justly true.

Signature of Claimant: Bertha Underhill

Administrative Review: _____ **Date:** 5/26/21

Orig to Finance Dept.

COPY

CALAVERAS COUNTY WATER DISTRICT
2020 DIRECTOR REIMBURSEMENT FORM

For Admin Use		
	Payroll	⊘
	Expense	☐

Month/Yr May, 2021

Name Russ Thomas

Activity Date	Meeting or Other Expense Description	Designated Rep. Yes	Designated Rep. No	Association List Yes	Association List No	Prior Approval Yes	Prior Approval No	Cost Meeting	Cost Expense	Total Miles
5/4/2021	Engineering Committee							120		44
5/12/2021	CCWD Regular Board Meeting (Virtual)							120		0
5/18/2021	In office meeting with Ralph Copeland - UWMP							120		44
5/21/2021	In office meeting with CV Partners - Town Center Issues							120		44
5/24/2021	Calaveras County Parks & Rec Commission (Virtual)							120		0
5/25/2021	CCWD Town Hall Meeting in Copperopolis							120		6
Total	*For Totals line, multiply miles by the IRS rate:*	1/1/21	$0.560					$ 720.00	0	94

Pursuant to Board Policy 4030, receipts required; report /materials required.

Totals *(use IRS mileage rate)* $ 52.64

The undersigned, under penalty of perjury states: This claim and the items set forth herein are true and correct; that expenses incurred, meetings attended and business conducted are necessary to District affairs; that this claim is proper and within the scope of California Water Code Section 20200 et seq, and District Ordinance 2015-02; that the service was actually rendered; and that the amount(s) herein are justly true.

Signature of Claimant: Russ Thomas

Administrative Review: _____

Date: 5/26/21

Orig to Finance Dept.

COPY

CALAVERAS COUNTY WATER DISTRICT
2021 DIRECTOR REIMBURSEMENT FORM

For Admin Use — Payroll ⊘ / Expense

Month/Yr: May-21

Name: Jeff Davidson

Activity Date	Meeting or Other Expense Description	Designated Rep. Yes	Designated Rep. No	Association List Yes	Association List No	Prior Approval Yes	Prior Approval No	Cost Meeting	Cost Expense	Total Miles
12-May	CCWD Regular Board Meeting							120		28
4-May	CCWD Engineering Committee Meeting							120		28
Total	For Totals line, multiply miles by the IRS rate: 1/1/2021 $0.560								0	56
								Totals (use IRS mileage rate)	$240.00	$0.00	$31.36

Pursuant to Board Policy 4030, receipts required; report /materials required.

The undersigned, under penalty of perjury states: This claim and the items set forth herein are true and correct; that expenses incurred, meetings attended and business conducted are necessary to District affairs; that this claim is proper and within the scope of California Water Code Section 20200 et seq, and District Ordinance 2015-02; that the service was actually rendered; and that the amount(s) herein are justly true.

Signature of Claimant: Jeff Davidson

Administrative Review: _____ **Date:** 5/26/21

Orig to Finance Dept.

CALAVERAS COUNTY WATER DISTRICT
INVESTMENT ACTIVITY
FOR THE MONTH ENDING MAY 31, 2021

INVESTMENT TRUSTEE/TYPE	MARKET VALUE	INVESTMENT COST				CM INTEREST AND DIVIDEND RECVD
		COST	PAR (PRINC)	CPN RATE	DATE INVST	
Umpqua Bank Money Market	819,599.49	819,599.49	819,599.49	0.050%	ongoing	**34.81**
Local Agency Investment Fund	24,872,840.96	24,872,840.96	24,872,840.96	0.320%	ongoing	**-**
Chandler Asset Management	9,975,993.28	9,991,051.99	9,891,297.75	0.410%	2/17/2021	**6,451.38**
Totals	**35,668,433.73**	**35,683,492.44**	**35,583,738.20**			**6,486.19**

Description	Date	Type	Amount
Royal Bank of Canada Note	5/1/2021	Interest	2,812.50
First American Govt Obligation Fund Class Y	5/3/2021	Dividend	13.88
Caterpillar Financial Service Note	5/10/2021	Purchase	164,778.90
Amazon.com Inc Callable Note Cont 11/12/2021	5/10/2021	Purchase	104,846.70
JP Morgan Chase Note	5/13/2021	Interest	3,625.00
Transfer to Laif	5/31/2021	Transfer	3,300,000.00
Umqua Money Market: Interest Received	5/31/2021	Interest	34.81

CALAVERAS COUNTY WATER DISTRICT
CHANDLER ASSET MANAGEMENT
FOR THE MONTH ENDING MAY 31, 2021

INVESTMENT TRUSTEE/TYPE	MARKET VALUE	INVESTMENT COST			Dividends Earned	Interest Earned	Accrued Interest on Sales	Accrued Interest on Purchases	Net Income
		BOOK	PAR Vale/Units	CPN RATE					
Agency Securities	1,189,599.60	1,193,902.48	1,200,000.00	0.62%	-	-	-	-	-
Asset Backed Security	80,074.28	79,989.10	80,000.00	0.33%	-	-	-	-	-
Corporate Securities	2,288,419.18	2,286,973.54	2,215,000.00	0.58%	-	6,437.50	-	-	6,437.50
Money Market Fund (Cash)	2,191,297.75	2,191,297.75	2,191,297.75	0.01%	13.88	-	-	-	13.88
Supernational Securities	601,617.67	601,772.74	605,000.00	0.76%	-	-	-		-
US Treasury	3,624,984.80	3,637,116.38	3,600,000.00	0.48%	-	-	-	-	-
Totals	**9,975,993.28**	**9,991,051.99**	**9,891,297.75**	**0.41%**	**13.88**	**6,437.50**	**-**	**-**	**6,451.38**

Type	Trade Date	Security	Quantity	Amount
Interest	5/1/2021	Royal Bank of Canada Note	250,000.00	2,812.50
Dividend	5/3/2021	First American Govt Obligation Fund Class Y	2,458,178.54	13.88
Purchase	5/10/2021	Caterpillar Financial Service Note	165,000.00	164,778.90
Purchase	5/10/2021	Amazon.com Inc Callable Note Cont 11/12/2021	105,000.00	104,846.70
Interest	5/13/2021	JP Morgan Chase Note	200,000.00	3,625.00

Agenda Item

DATE: June 23, 2021

TO: Board of Directors

FROM: Michael Minkler, General Manager

SUBJECT: Consideration of Renewal of Contract for Federal Advocacy Services with Mia O'Connell of O'Connell & Dempsey, LLC for Fiscal Year 2021-22

RECOMMENDED ACTION:

Motion: _____/_____ adopt Resolution No. 2021 - ____ authorizing a contract renewal with Mia O'Connell of O'Connell & Dempsey, LLC for federal advocacy services for FY 2021-22.

SUMMARY:

This agenda item is to request renewal of the District's contract with Mia O'Connell of O'Connell & Dempsey, LLC for federal advocacy services for next fiscal year (July 1, 2022–June 30, 2022). The District's current contract for Ms. O'Connell's services in Washington, D.C. expires at the end of June.

FINANCIAL CONSIDERATIONS:

The FY 2021-22 budget includes funds for this effort

Attachments: *Resolution 2021 - __ Authorizing Contract with O'Connell & Dempsey, LLC for FY 2021-22*
Proposal from O'Connell & Dempsey, LLC

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

APPROVING AN AGREEMENT FOR CONSULTING SERVICES WITH O'CONNELL & DEMPSEY, LLC

WHEREAS, the CALAVERAS COUNTY WATER DISTRICT (CCWD) Board of Directors wishes to enter into an Agreement dated July 1, 2021, for consulting services with O'Connell & Dempsey, LLC in Washington, DC; and

WHEREAS, under the said proposal, O'Connell & Dempsey, LLC will provide CCWD representation in pursuit of federal drought legislation and enhancing local water supply reliability.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of CALAVERAS COUNTY WATER DISTRICT hereby authorizes the General Manager to execute an Agreement dated July 1, 2021 - June 30, 2022, for Consulting Services with O'Connell & Dempsey, LLC in the amount of $60,000 said proposal is attached hereto and made a part hereof. Funding for services to come from the District Operating Fund.

PASSED AND ADOPTED this 23rd day of June, 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

O'Connell & Dempsey, LLC

To: Michael Minkler, General Manager, Calaveras County Water District

From: Mia O'Connell, President, O'Connell & Dempsey

Date: June 17, 2021

SUBJ: Contract Renewal Proposal for O'Connell & Dempsey, LLC

As a follow up to the request regarding contract renewal for the upcoming year with O'Connell & Dempsey, this memo details the proposed Scope of Work for O'Connell & Dempsey, focusing on the opportunities for the Calaveras County Water District (CCWD) on the federal level which we are currently engaged in and propose to expand into the next year.

I am proposing that O'Connell & Dempsey assist the District in pursuing the following opportunities in the coming year:

1) FY 2022 Appropriations, FY 2022 Work Plan and FY 2023 Appropriations

We propose to aggressively continue our efforts to pursue Corps of Engineers funding for the District's upgrade of its Copper Cove Wastewater Treatment and Reclamation Facility under the County's Corps of Engineers Congressional authorization through the Section 219 Environmental Infrastructure Program for water and wastewater projects in Calaveras County. The consultant will build on the work she has already done with Congressman McClintock, and Senators Feinstein and Padilla in raising the profile of the District's request for **$1.1 million** in construction funds for the Corps to begin the construction of the upgrade to the Copper Cove Project. As the FY 2022 appropriations process continues, the consultant will work with these congressional offices as well as Committee staff to raise the profile of our project, Copper Cove, and provide direction to the Corps in the FY 2022 Appropriations Bill and accompanying Committee Report to provide funding for environmental infrastructure projects, including Copper Cove in the Corps' Program. We are also pursuing an earmark for these funds for our project in the Senate Energy and Water Development Appropriations Bill for FY 2022 though Senators Feinstein and Padilla.

Once the FY 2022 appropriations process is complete, the consultant will work with the District and the Corps, as well as the Assistant Secretary of the Army, OMB, and the delegation to work to include the requested funding for the Copper Cove project in a potential Corps' Work Plan. In a very positive conversation this week with Congressman McClintock, he has agreed to go back to the ASA Budget Assistant Secretary to push

him hard to include funding for Copper Cove in the upcoming Work Plan as the Assistant Secretary had essentially promised the Congressman that the funding for the project would be in the Administration's FY 2022 Budget and it was not. The Congressman is not pleased and is doing legwork, along with the consultant, with the Corps and ASA's office to find out what happened in order for the Congressman to be well-informed for a follow up call with the Assistant Secretary for the Budget to request his personal commitment in making sure that Copper Cove is funded soon, probably in the upcoming FY 2022 Work Plan of the Corps assuming Congress provides for that. Through our persistent and on-point efforts with the Administration and Congress, we have been able to turn Congressman McClintock from a non-supporter to a strong supporter of our project and we will work to make that result in funding for the project and ongoing support for the overall project upgrade.

Later in the year, the consultant will again work with the District and the Administration and Congressman McClintock to include the funding for Copper Cove in the Administration's FY 2023 Budget to get on better footing for the project moving forward. As the FY 2023 Budget is released in early 2022, the consultant will work with the Delegation and the committees to continue to lay the groundwork for funding for the Copper Cove Project in the FY 2023 appropriations measures as they are developed.

2) Infrastructure Funding

As the House and the Senate move forward with negotiating on the upcoming Infrastructure bill, which will provide funding to bolster the nation's economy and begin to create new jobs, the consultant will work with the delegation and the committees to include additional funding for environmental infrastructure projects like Copper Cove under the Corps Section 219 program. In fact, in last year's House bill H.R. 2, the INVEST in America Act, the bill provided an additional **$10 billion** dollars to the Corps for its construction account and of that funding, **$500 million** was dedicated to environmental infrastructure projects, like Copper Cove. The consultant will work to support similar language in the final infrastructure package. Currently, the Administration is seeking **$100 billion** in water Infrastructure funds in its Infrastructure proposal, the American Jobs Plan. Congress is in negotiations with the Administration to develop a bipartisan Infrastructure package as one of two paths it is considering for passing a large package with the second approach being through the Budget reconciliation process whereby a simple majority would only be needed to pass the bill. We are tracking these discussions very carefully and will be pursuing all opportunities for CCWD as they develop.

3) Corps of Engineers Annual Report to Congress and the Water Resources Development Act of 2020

We were successful in working with the delegation in including language in the Water Resources Development Act of 2020 (WRDA) to increase the authorization for the

Calaveras County authority in the 1992 WRDA from the **$3,000,000** for a wastewater reclamation, recycling, reuse and conjunctive use project or projects authority to **$13,280,000** based on positive inclusion in the Corps Annual Report for 2021 and a report to Congress. The consultant worked with the District last summer to develop and submit the application for inclusion in the Annual Report to increase the authorization level.. We worked closely with the Corps and ASA's office to have our application included in the Corps final Annual Report. We are now expecting that report to be released soon. We will be monitoring that development and will be advising CCWD where things stand on the authorization as CCWD works to do further design work on the upgrade to the plant and see what that more detailed work shows in terms of total project cost. We will work on options to deal with that as it develops.

4) Request for 13,800-acre-foot Permanent Storage Share in Bureau of Reclamation's New Melones Reservoir

CCWD submitted a proposal to Reclamation at the end of 2020 requesting a 13,800-acre-foot permanent storage share in Reclamation's New Melones Reservoir through a conserved water approach, per Section 4006 of Water Infrastructure Improvements for the Nation Act (WIIN) Act. CCWD has an ongoing request for a permanent storage share in New Melones Reservoir (New Melones) based on Section 4006 of the WIIN Act. A formal proposal was submitted to Reclamation's Central California Area Office on October 26, 2020. The consultant will be working with CCWD leadership as it begins its detailed discussions with Reclamation about the proposal to help position it for the most favorable treatment through the Area Office and up to the Headquarters level of Reclamation. The consultant will help strategize with CCWD to address the Area Office's issues and concerns and will develop best approaches for how to move the proposal in the most positive light through the Reclamation process to the Headquarters level. At the appropriate time, the consultant will work to set a meeting or series of meetings for CCWD with Reclamation leadership to discuss the proposal and request approvals and next steps with Reclamation. We will also be working with the Delegation at the appropriate time to make sure we have the support CCWD needs to move the proposal through agency approvals.

5) Low-Income Household Water Assistance Program

The consultant will continue to closely monitor and advise on the developments and implementation by the Department of Health and Human Services (HHS) of the launch of the Low-Income Household Water Assistance Program. The consultant advised recently that HHS is releasing the first 15% of funds to each state and territory which can be used for administrative costs by the state or implementing partners for the establishment of the first ever low-income water customer assistance program. Since December, Congress has provided **$638 million**, then in March **$500 million** to utilities

across the country to help customers in need to meet their utility bills. The consultant will continue to advise as HHS begins to release the funds to the states and will work with CCWD to ensure that it you work with your state offices which will be implementing the Program as well as with the local third party organizations that help implement the Low-Income Home Energy Assistance Program, which is what HHS is relying as a model for implementation of the program.

6) FERC Relicensing Modernization for Hydropower Projects

With CCWD facing relicensing of its hydropower facilities in 2032 and the typical FERC relicensing process taking 8-10 years, we have been discussing with CCWD leadership some interest raised by the House Resources Committee to look at modernizing the hydropower relicensing process. While discussion is in the early stages, the consultant has discussed with the House committee staff CCWD's interest in participating in any effort by the committee to streamline FERC's relicensing process. At the appropriate time, the consultant will be working with CCWD leadership to identify key issues it sees to streamline the relicensing process in an effort to simplify CCWD's relicensing efforts coming up in the near term. The consultant will work with CCWD to make the legislative proposal a County-wide effort to increase chances for success.

Fees

For this scope and the work associated with these initiatives, we would request a flat monthly rate of $5,000 to cover the hours and expenses involved with this workload. This amount would keep the monthly fee at the same level where it has been for the last two years.

Thank you for this opportunity and it would be our honor to continue to represent the District in Washington. We appreciate your consideration of our proposal and we are prepared to answer any questions you may have.

Agenda Item

DATE: June 23, 2021

TO: Michael Minkler, General Manager

FROM: Rebecca Callen, Director of Administrative Services

SUBJECT: Adoption of the Fiscal Year 2021-22 Operating and Capital Improvement Program (CIP) Budget and Personnel Allocation

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RECOMMENDED ACTION:

Motion _____ / _____ adopting Resolution No. 2021 - ____ the Fiscal Year 2021-22 Operating and Capital Improvement Program (CIP) Budget; and

Motion _____ / _____ adopting Resolution No. 2021 - ____ adopting the Personnel Allocation Resolution for the Fiscal Year 2021-22 Budget.

SUMMARY:

The proposed FY 2021-22 Operating Budget was reviewed and discussed by the Finance Committee on May 18, 2021, and subsequently reviewed and discussed at the Board of Directors special Budget Workshop meeting on June 15, 2021, Budget Workshop.

Since the Board of Director's budget workshop on June 15, 2021, the following changes were made, as discussed at the workshop, that resulted in changes to the proposed budget:

- An adjustment to the Operations and Maintenance costs for the Hogan Reservoir was made, increase of $155,628. In addition to the increase discussed at the meeting, it was identified that the prepayment amount had not been getting budgeted each year. Effective 2020-21, going forward, the entire O&M R will be budgeted regardless of the year of cash outlay. (Department 60 – Water Resources)
- Cost associated with two watershed sanitary survey has not been completed and will continue into 2021-22. Increased costs of $24,000. (Department 60 – Water Resources)
- Capital Outlay was corrected to split the Bad GIS ELF devices 50/50 (1 for water and 1 for sewer). (Department 54 – Utilities)

- Due to the shift in costs and increases, the transfers to the NEW Water Reserve were amended and additional transfers in related to Water Resource costs associated with Wastewater charges was increased by $75,000.

FINANCIAL CONSIDERATIONS:

All discussed above.

Attachment: 2021-22 Proposed Operating and CIP Budget and Personnel Allocation Document
Resolution 2021- ___ Adopting the FY 2021-22 Operating and Capital Improvement Budgets
Resolution 2021 - ____ Adopting the FY 2021-22 Personnel Allocation

Calaveras County Water District

Fiscal Year 2021-22 OPERATING AND CIP BUDGETS


State of California

Office of the Secretary of State

I, FRANK M. JORDAN, Secretary of State of the State of California, hereby certify:

That I have compared the annexed transcript with the RECORD on file in my office, of which it purports to be a copy, and that the same is a full, true and correct copy thereof.

IN WITNESS WHEREOF, I hereunto set my hand and affix the Great Seal of the State of California

this 6th day of September, 1946

Secretary of State

By Deputy

Board of Directors

Jeff Davidson, President
Cindy Secada, Vice President
Bertha Underhill, Director
Scott Ratterman, Director
Russ Thomas, Director

General Manager
Michael Minkler

Management Team

Brad Arnold, Water Resource Manager
Charles Palmer, District Engineer
Damon Wyckoff, Director of Operations
Jesse Hampton, Plant Operations Manager
Jessica Self, External Affairs Manager
Pat Burkhardt, Construction and Maintenance Manager
Rebecca Callen, Director of Administrative Services
Stacey Lollar, Human Resources Manager

Calaveras County Water District

Fiscal Year 2021-22

Operating Budget

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Calaveras County Water District Introduction

District and Community Profile

Calaveras County Water District (District or CCWD) has prepared this budget for fiscal year 2021-22 in accordance with its mission: *Protect, enhance, and develop Calaveras County's water resources and watersheds to provide safe, reliable, and cost-effective services to our communities.* The District takes pride in its role as a trusted leader and collaborator to provide healthy, innovative, and resilient water resource solutions to the community and continues to focus operational efficiency, public health, environmental stewardship, and fiscal responsibility. The draft budget for fiscal year 2021-22 was developed with these priorities in mind.

Calaveras County water District ("CCWD" or "District") provides raw water, treated water, sewer, septage, and reclaimed water services to customers throughout Calaveras County. The District has approximately 13,307 water customers. Sewer service is provided to 5,028 residential and commercial accounts.

To provide these essential services, the District owns and operates 6 water systems and 13 wastewater systems. Water and wastewater costs are accounted for separately under the water enterprise and wastewater enterprise funds.

Raw Water Sources

The District provides water to its customers from four sources: the Calaveras, Stanislaus, and Mokelumne Rivers and their tributaries, as well as groundwater from the Eastern San Joaquin Groundwater Subbasin underlying the western portion of the county.

Treated Water

The water systems include various water storage and conveyance facilities, transmission pipelines, treatment facilities, pump stations, and distribution pipelines. The District operates six services areas including: Ebbetts Pass, Jenny Lind, Sheep Ranch, Wallace, West Point, and Copperopolis.

Wastewater System

The wastewater systems provide collection and treatment services, as well as reclaimed water distribution for irrigation uses. The District operates and maintains 13 wastewater treatment facilities.

Draft Annual Operating and CIP Budget for Fiscal Year 2021-22

CCWD's annual budget allocates the necessary resources for the financial sustainability of the District while carrying out the Board of Director's ("Board") mission to *Protect, enhance, and develop Calaveras County's water resources and watersheds to provide safe, reliable, and cost-effective services to our communities.*

Adoption of the budget is a key action taken by the Board and provides the necessary basis to pursue the District's Vision, Mission, and Goal and Objectives. The budget is the District's financial workplan, translated in expenditures and supported by revenues. It establishes the District's policy direction for the short term, and to the extent the decisions have ongoing implications, it also establishes long term direction.

Due to the ongoing drought, the budget includes water conservation outreach in anticipation of likely mandates imposed upon the District and its customers by the State of California ("State") through the State Water Resources Control Board. Conservation, however, has a nominal effect on District expenses. Most of the District's expenses are fixed and occur regardless of the amount of water used or conserved.

Strategic Plan

The Calaveras County Water District 2021 Strategic Plan ("Plan") was developed in the spring of 2021 by the District's Board of Directors and staff through a series of public workshops, which facilitated public participation. The Plan was adopted with the understanding that it is to be a living document that will be utilized regularly and revised as needed to better serve the District and Calaveras County. The Plan was purposefully fashioned as a succinct, workable document that establishes focused goals, articulates comprehensive objectives, communicates values, and develops a path to establish the best use of District resources. The proposed FY 21/22 budget has been developed consistent with the Board's strategic goals as established in the Plan.

Water Operating Fund

The water operating Fund is used to account for water operations that are financed and operated in a manner consistent with the Board adopted Financial Management Policy: Budget and Fiscal Policies (5.00). The intent is that the costs (expenses) of providing goods or services to the public on a continuing basis be financed or recovered primarily through user charges, which are supplemented by other reliable sources of revenue.

Sewer Operating Fund

The sewer operating Fund is used to account for wastewater operations that are financed and operated in a manner consistent with the Board adopted Financial Management Policy: Budget and Fiscal Policies (5.00). The intent is that the costs (expenses) of providing goods or services to the public on a continuing basis be financed or recovered primarily through user charges, which are supplemented by other reliable sources of revenue.

Revenues

The primary revenues include services charges (rates), property taxes, debt service recovery, facilities capital charges, hydropower income, and other smaller sources. The District anticipates realizing approximately $12.5 million is annual water fund revenue, approximately $6.3 million is annual sewer fund revenue, and $1.8 million in transfers in related to capital facility charges and debt service recovery.

Expenditures

Consistent with the type of service the District provides, the primary expenditures in the District budget are personnel-related (salaries and benefits), services and supplies, and capital outlay. Total labor related budgeted

expenditures are approximately $10.6 million for FY 2021-22. The proposed budget does not add any additional positions. Services and supplies are budgeted at approximately $7.9 million. Capital Outlay and Debt service are budgeted at approximately $3 million. Of these expenditures, $1.017 million are identified as one-time costs to address technology implementation advancement, equipment purchases, staff training, and planning/assessment studies.

Reserves

The FY 2021-22 budget proposes to establish a new Water Reserve. The reserve acts as a savings account to be used judiciously to help fund future infrastructure and equipment costs or meet expenses in tough economic times. The Board made the establishment of reserves a central theme when approving the Interest Reserve fund with Resolution 2000-16, incorporating the discussion of reserve importance in the 2018 Rate Study, and through the adoption of the Budget and Fiscal Policies. Reserves serve as a prudent measure for the District to build and maintain expensive infrastructure and equipment. Water and wastewater infrastructure and equipment is expensive to build, buy, and maintain and development and protection of adequate reserves is an industrywide best practice.

The budget as proposed accomplishes the goals of replacing and rehabilitating infrastructure per the Capital Improvement Plan and building reserves over time to the level that will adequately support the future replacement of infrastructure. Significant investment in new infrastructure remains a central theme to bring customers a greater level of long-term reliability in their public water and sewer systems.

The District is the owner and FERC licensee of two hydroelectric power projects, the North Fork Stanislaus Hydroelectric Project, and the New Hogan Hydroelectric Project. Included in the budget is a contribution of resources towards funding FERC efforts through an increase to the reserve and professional services for a combined contribution of $250,000.

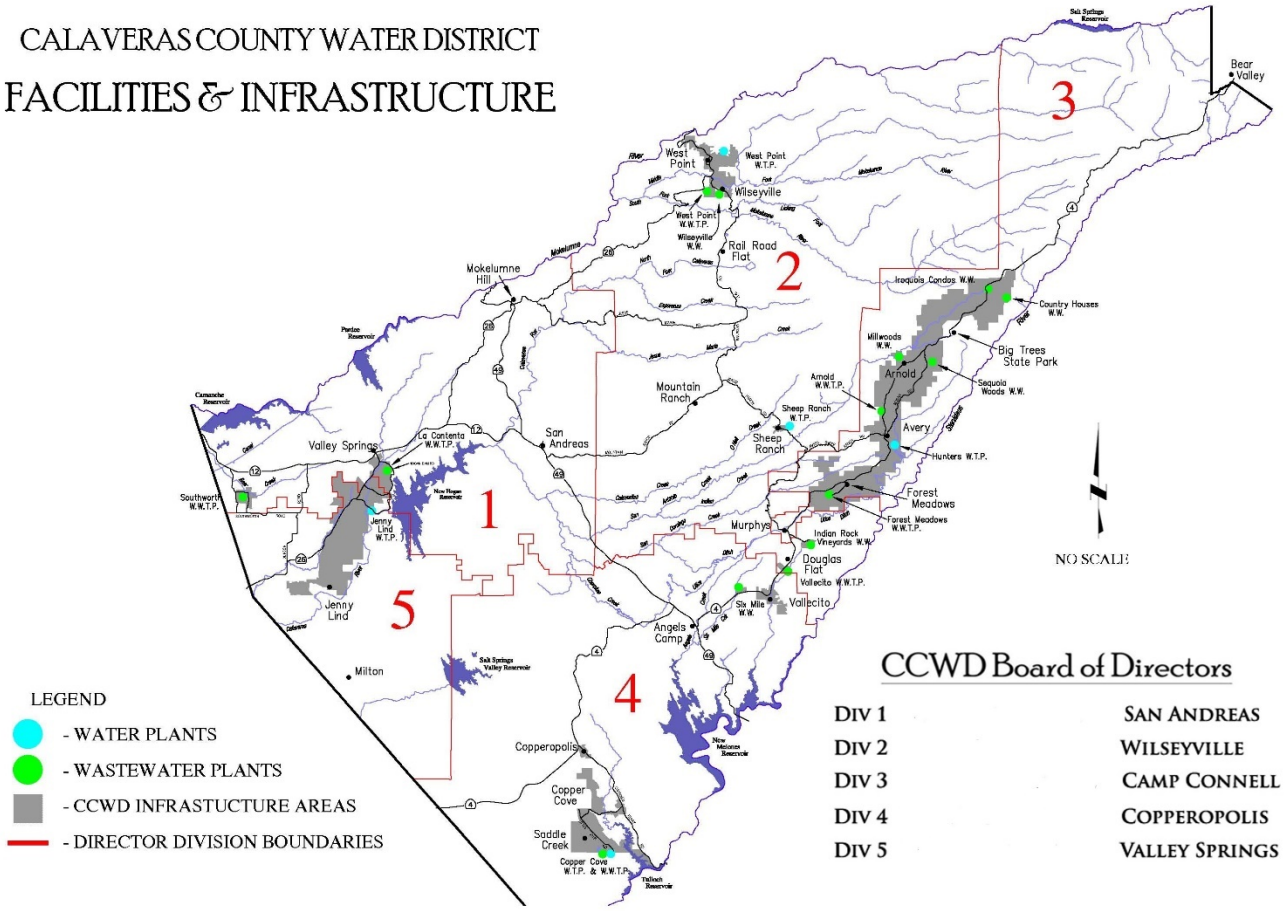
To better account for and make transparent all the reserves and associated fund balances the District relies on, a new Fund Balance Analysis is being presented in this proposal on page 16.

Board of Directors

The Board of Directors sets forth the policy direction for the District. The Board works with other levels of government on water and wastewater policy matters important to the overall operations of the District and service to its customers. The Board budget includes training, conferences, and travel costs related to those efforts.

Utilities/Operations Department

The Operations Department consists of water, wastewater, construction/maintenance, and fleet management that address the District's field operations. Each division plays an integral role in producing and distributing water, collecting, and processing wastewater, and maintaining, repairing, and constructing water and wastewater infrastructure. Without these divisions the District could not properly service its customers in an efficient and cost-effective manner.



Distribution and Treatment Divisions

The distribution division includes all materials and supplies needed to safely produce treated water at the District's six treatment facilities. In addition to daily water production, 27 treated water storage tanks need to be cleaned, inspected, and repaired. Material expenses includes regulatory compliance costs for routine lab testing, chemicals, and power.

The district continues to monitor power use and look for opportunities to reduce costs. Monitoring the District's treatment plants and equipment through a complex supervisory control and data acquisition (SCADA) system is a significant and often unnoticed aspect of District operations. The District's SCADA system automates the collection of necessary data reducing or eliminating the need to have personnel manually conduct those same data collections tasks daily.

This division also performs preventative maintenance on the District's distribution facilities such as 287.5 miles of water main lines, 100's of pressure reducing valves, pressure zones, 18 pump stations, oversees the backflow prevention and cross connection control programs, and provides reclaimed water to many of the golf courses in the community.

Construction and Maintenance

The District's construction and maintenance crews handle day-to-day repairs and major construction on behalf of District customers. Staff play a leading role in implementing cost effective water and wastewater capital

infrastructure for the District, in addition to attending to repairs each year, including responding to 24/7/365 to water and sewer mainline and lateral breaks that require immediate attention. The District will respond to water line breaks and other infrastructure failures throughout the year, often magnified by inclement and freezing winter weather. FY 2020-21, operations staff have responded to 7,435 USA's, 2,359 Service Requests, and 2,224 work orders. The District's goal of improving infrastructure through an aggressive capital improvement program is intended to reduce the number of service requests and work orders over time.

Fleet and Facilities

The District's fleet vehicles and equipment are necessary to conduct the field operations in both water and wastewater. Fleet also maintains the District's heavy equipment used for mainline water and sewer services and other maintenance needs. The division works to maintain the fleet in a manner that wrings every mile of useful life from vehicles and equipment. To alleviate the overrun of maintenance costs on the District fleet, the decision to move to a capital lease program began in Fiscal Year 2019-20. FY 2021-22 will be the third year ramping up that program. To date the District has leased 18 vehicles and the FY 2021-22 is proposing an additional 10 vehicles.

Collections and Wastewater Treatment

The District operates 12 wastewater facilities. The District maintains and operates these facilities in addition to 125 miles of collection system line (ranging in elevations from 600 feet to 5,500 feet), 45 lift stations, 100's of air release/anti-vacuum valves, 1,000's of manholes, and over 700 septic systems. Wastewater is highly regulated by both the federal and state governments requiring that District operations adhere to mandated standards.

Engineering

The Engineering Department provides for the design of District infrastructure, including development of construction designs and standards and construction of water and sewer infrastructure associated with new development. Engineering Department staff facilitates the process of establishing new service connections, including the conditions for extending service to new development and are charged with applying to various funding programs for loans and grants to offset fiscal impacts to District ratepayers.

Administrative Services Department

The Administrative Services Department provides fiscal management and accounting for the District, including the processing of utility billing for approximately 13,500 water accounts and 5,000 sewer accounts on a bi-monthly basis. The Administrative Services Department includes information technology, and the budget includes funding to continue to support and administer the District's many high-tech systems. Proposed in FY 2021-22 includes the continuation of Tyler implementation for Utility Billing and Finance, the addition of HR/PY, the addition of an Inventory system for the warehouse, and a security overhaul as identified in a recent 2021 network security assessment. The External Affairs Manager also resides in this department and a significant amount of outreach is contemplated in this budget to engage with customers with the many changes the District is undertaking.

The District's IT Administrator who has been with the District for over 20 years will be retiring in at the end of August. He will be using his accrued PTO balance for the month of August and a majority of July. This will cause an overlap in the position as the District will need to hire a replacement for this critical position. Though there is an active recruitment there are no potential candidates as of the writing of this memo. The budget and

personnel allocation will need to include a two month overlap in the Information Systems Administrator position. As of September 1, 2021, the personnel allocation will revert to one Full Time Employee (F.T.E.).

Delinquencies

March 2020 began the first impacts from the pandemic on billing at the District. While the number of past due notices being mailed was staying in line with historical trends, the inability for the District to lock off accounts was no longer prompting payment, coupled with customers lack ability to pay on their past due accounts. As such, the number of delinquent accounts has swelled to 728 active accounts, totaling nearly $380,000. 56% are delinquent more than 120 days. Staff are actively working with partners and identifying funding from grants to assist low-income customers to pay for portions or all individual past due accounts. Additionally, staff are reviewing current policy and potential legislation to establish payment plan opportunities and methods to avoid defaults.

Non-Departmental

This budget includes the head office services, supplies, and districtwide insurance (risk management). Insurance costs increased overall 18%.

General Management

This budget includes Human Resources, the General Manager, and the Executive Assistant (Clerk to the Board). This budget includes employee wellness programs, general and labor legal costs, lobbyist costs, and district membership fees.

Pension Program

One of the components of the District's personnel expenditures is the contribution to the District's pension programs, California Public Employee Retirement Systems ("CalPERS"). CalPERS is a multiple-employer public employee defined benefit pension plan and provides retirement, disability benefits, and death benefits to plan member and beneficiaries. CalPERS acts as a common investment and administrative agent for participating public entities within the State of California.

The District refunded a substantial portion of the CalPERS unfunded liability (UAL) in FY 2018-19. The annual debt service associated with the UAL refunding in FY 2021-22 is $518,386. This amount is in addition to the monthly payments made to CalPERS for retirement contributions as part of payroll, or "Normal costs".

The UAL (Unfunded Accrued Liability) remaining with CalPERS has grown and caused an increase to the FY 2021-22 budget of $124k. This will be an ongoing trend of an increased UAL payment annually.

The current CalPERS employer contribution rates and the rates for the next fiscal year are as follows:

Employee Group	FY 2020-21	FY 2021-22
Tier I (Prior to 2012)	20.535%	23.56%
Tier II (Prior to 2013)	9.418%	9.65%
Tier III (After 2013)	8.281	8.06%

As of June 30, 2020, the District reported a net pension liability for its proportionate share in the amount of $5,142,799 in addition to the $5,397,000 of debt remaining from the UAL refunding in 2019, financed at 3.32% interest. Based on the CalPERS actuary, the plan is currently funded at 85.8%.

Other Postemployment Benefits (OPEB)

The District has established a Retiree Health Benefits Plan ("OPEB Plan") and participates in CalPERS health benefit plans for current employees and retirees. The current OPEB Plan provides eligible employees who retire directly from the District, up to 100% contribution of the monthly CalPERS health insurance premiums for retiree medical coverage dependent on hire date and years of service.

On June 10, 2009, the District's Board adopted a resolution to participate in the PARS Trust, an irrevocable trust established to fund OPEB. As to funding, the contribution requirements of plan members and the District are established through a vesting schedule, and may be amended, by the Board of Directors. The District has practiced an annual prefunding contribution equal to 100% of the ADC (Actuarially Determined Contribution) in addition to the pay-go direct contributions to CalPERS for Retiree Health Premiums. This practice was funding more than what the ADC was. The FY 2021-22 budget proposes halting the contribution to the PARS OPEB trust, given the Plan is over 75% funded.

As of December 31, 2020, the District has assets equal to $11,461,355 with PARS and liabilities were reported as of June 30, 2020, of $15,165,683.

Capital Improvement Plan

The District will continue an aggressive capital improvement plan (CIP) during the budget term. The District's adoption of a 5-year, incremental rate increase was to address operations and maintenance of its water and wastewater operations. However, it did not address compelling infrastructure funding needs. Instead, the portion of rates to allocate to Rehabilitation and Replacement ("R&R") is static, while costs of materials, labor, and professional service contracts are increasing. Proposed water system related CIP projects will total $9.8 million in FY 2021-22. Proposed sewer related CIP projects will total $2 million in FY 2021-22. The planned projects are consistent with the adopted CIP and in several cases, are the beginning phases of what are multi-year projects to substantially improve infrastructure and provide for greater reliability for District customers.

Water CIP Projects

Grant/Loan Funded Projects

Of the $9.9 million in water related projects, $5 million is the AMI Radio Read Meter Program funded with a loan from USDA at a projected 1.75% interest. $1.5 million is the Ebbetts Pass Redwood Tank project, with $1.125 million coming from a grant, $210,000 is the Hunters Raw Water Pump project, with $157,500 coming from a grant, $1.2 million for West Point Backup Water Filter project, with $306,447 coming from IRWMP funding, and $60,000 is Miscellaneous Road Repairs stemming from the Winter Storm Declaration in 2017 funded with $56,250 in grants.

Capital R&R/Expansion/Reserve Funded Projects

There are two types of projects utilizing this funding, Operational Projects that will be carried out with force account labor, managed in house as opposed to those that are multi-year projects whereby FY 2021-22 will be the initial Design and Planning aspect of those projects.

Operational Projects

These include Tule Removal and dam rehab; total FY 2021-22 budget is $135,918.

Multi-Year Projects or Development Projects
These project makeup the remaining $2.75 million in water related projects that would rely solely on R&R, Expansion, Reserves, or Direct Charges for Service from applicants.

- Reeds Turnpike Pump Station: *The current Reed's Turnpike PS can only discharge 100 g.p.m. to the Copper Cove Tank. This is not enough supply to provide to the Copper Cove Tank to adequately refill the tank as the demand from Copper town Square increases. This project is necessary because of development in the area and therefore will be developer funded.*
- Jenny Lind Filters 3, 4, 5 Rehab/ Coating
- Ebbetts Pass Meadowmont Pump Station Rehab: *This project works to replace the existing pump heads with high-pressure pump heads. When the pumps shut off, they dead-head against a closed valve at the pump to eliminate the risk of water hammer in the Distribution line. A result of this operation is that pressures at the pump head exceeds 570 psi. A couple years back one of the pump heads broke and shot cast iron against the inside of the building. This is a critical safety issue and must be resolved. The District looks toward resolution with this project.*
- District Corp Yard: *Construction of a Mechanics Shop and Purchasing Warehouse next-door to the District's Administrative Building accomplishes multiple objectives. It consolidates many District functions on one-site. The Mechanics, Purchasing Agent, and other field staff can report to work alongside Administrative Staff which increases efficiencies related to - passage of information, receipt of deliveries, building repair and maintenance, administrative vehicle repair and storage. A centralized warehouse allows CCWD to stock commonly used items to feed other District Warehouses and crews - this works to eliminate frivolous and unnecessary purchases.*
- Copper Cove Tank B/ Clearwell: This is a multifaceted project including: a) replacement of the leading Redwood Tank B2 with a steel tank, b) structural repairs and re-coating of the existing steel Tank B1, c) construction of a second clearwell at the water treatment plant and d) structural repairs and re-painting of the existing clearwell at the water treatment plant. The second clearwell at the WTP is necessary for buildout and necessary for redundancy and ability to take the other clearwell out of service for cleaning, repairs, and re-painting.
- Sheep Ranch: *The Sheep Ranch clearwell has extensive internal corrosion as well - the internal ladder is disintegrated and lying on the bottom of the tank. It needs to be rehabilitated to ensure supply reliability. Note that $50,000 will be funded by Calaveras County to partner for reliable fire water access.*

Wastewater CIP Plan

The 2021-22 budget includes $2.65 million is wastewater projects.

Grant/Loan Funded Projects

The West Point/ Wilseyville Consolidation Project is slated to begin with $500,000 in budgeted grant funding for FY 2021-22.

Capital R&R/Expansion Funded Projects

There are two types of projects utilizing this funding, Operational Projects that will be carried out with force account labor, managed in house as opposed to those that are multi-year projects whereby FY 2021-22 will be the initial Design and Planning aspect of those projects.

Operational Projects
The Forest Meadows UV Disinfection System Replacement, Vallecito WWTP System Improvements, and the La Contenta Sand Filter Rehab will be carried out by inhouse staff or internally managed by staff. Total budget costs in FY 2021-22 are $480,000.

Multi-Year Projects or Development Projects
$1.025 million is budgeted for FY 2021-22 where R&R and Expansion funds are the sole funding source.

- Arnold Secondary Clarifier: *The project objective is to add a second clarifier due to the age and problematic operation of the single existing clarifier, which experiences washout of the biological activated sludge during peak wet weather flows and washout of the clarifier. The existing clarifier is too small to handle peak hydraulic wet weather flow. In addition, all the ancillary facilities RAS/WAS pump station, new flow splitter between Oxidation Ditch and new and old clarifiers, new effluent pumps, new aerobic digester are all integral to the clarifier design.*
- Copper Cove Secondary, Tertiary, and UV Improvements: *This is a comprehensive project to largely replace biological secondary treatment including nitrification/denitrification, secondary clarification, and significant upgrades to tertiary filters, and UV disinfection systems. The scope and cost of these improvements is currently based on the most recent sewer master plan for Copper Cove. The initial effort is to prepare a more detailed facility plan or a series of predesign memorandums.*
- La Contenta BIOLAC, Clarifier, and UV Improvements: *This project would be consistent with the recently completed wastewater master plan. The project would either fully rehabilitate the existing BIOLAC biological treatment system and/or build a second parallel train for reliability and redundancy and to improve equalization.*
- Addition projects include I&I Mitigation, Wallace Electrical, and the roll over to complete the Wallace Renovation/SCADA/PLC and Electrical project.

Conclusion

Throughout a year-long pandemic, the Calaveras County Water District has continued to provide critical high-quality water supply and wastewater services, both safely and reliably, while remaining cost conscience.

Achieving this goal is not a simple task. The District continues to deal with a substantial array of aging infrastructure, deferred capital improvements, and regulatory mandates that must all come together to make the system work 24/7/365. The water system is comprised of numerous treatment plants, hundreds of miles of pipelines and water conveyance facilities, storage tanks, pump stations, valves, and systems to control the diversion, treatment, and delivery of high-quality, reliable water to each household. These systems are old, failing, and in many cases, beyond repair. CCWD has been mainly successful in keeping rates down through partnerships, grants, loans, and strategic, prudent decision-making.

The fiscal year 2021-22 budget is a careful balance to achieve the many goals and objectives as outlined in the District's Strategic Plan. These efforts include drawing and retaining a highly skilled and dedicated workforce, investments in funding prioritized infrastructure repair and replacements, and implementing strategic initiatives, such as enhancing the customer experience through investment in new and updated technology, ensuring operational integrity by modernizing treatment facilities, leveraging hydropower project to benefit the near and long term priorities, and working with critical stakeholders throughout these changes.

As CCWD celebrates its 75th year in operation, it remains committed to engaging as a member of the community and as a team to balance competing needs and demands of this agency and the community.

The Board's vision to be a trusted leader in the water and wastewater utility industry further signifies the need to partner to rebuild the system toward the goal of reliability, efficiency, and resiliency, especially in the face of drought and threat of fire.

The Board of Director's strong mission will serve as a guide to staff and a commitment to our customers to protect, enhance, and develop Calaveras County's water resources and watersheds to provide safe, reliable, and cost-effective services to our communities.

Fund Balance Analysis

The District carefully manages its fund balances in accordance with is Reserve Policies set forth in the Budget and Fiscal Policies Section of Financial Management Policies, 5.00. This policy defines the funds and their uses. Funds include the Water and Wastewater Operating Funds, Capital Improvement Repair and Restoration, Rate Stabilization Funds, Water Rights and FERC (Federal Energy Regulatory Commission) Relicensing, Debt Reserve Funds, Expansion Funds, Special Project Funds, and Cash Flow Reserves.

- The Operating Funds are used for routine cash flow needs including general operations and debt service and are funded through rates, fees, and property taxes.
- Capital Improvement Funds support capital improvement projects that improve, repair, rehabilitate or replace the capital assets of each of the Districts two enterprises: Water and Wastewater.
- The Rate Stabilization Funds are utilized to mitigate year-to-year fluctuations in revenues or expenses to cover short term funding gaps.
- The Water Rights and FERC reserve is to fund several projects that are proposed over the next several years and to ensure funds are available for the protection of the District's water rights.
- The Debt Service Reserves are a requirement for the two USDA loans the District carries for Reach 3A and the AMI (Advanced Metering Infrastructure) Project.
- The Special Projects Reserve is for equipment replacements and capital outlay projects throughout the District and is funded by allocations of ad valorem property taxes and interest income.
- The CIP (Capital Improvement Program) Cash Flow Reserve is to mitigate the cash flow needs of large grant and loan funded projects that require the District to carry the outlay while awaiting reimbursement or draw down of loan funds.

Among all the pooled cash funds, the Operating Funds carry the highest priority for funding. Resolution 2000-16 established an $8 million Reserve Fund and Use Policy, and it is referred to as the Interest Reserve Fund. This fund houses the 90 Day/Emergency Operating Reserve, Water Rights/FERC Relicensing Reserve, the CIP Cash Flow Reserve, the Rate Stabilization Reserve, the EP Reach 3A Debt Service Reserves, and the USDA AMI Debt Service Reserves, Forest Thinning Projects, and the Special Projects Reserve. All interest earned within this Fund increases the Special Projects Reserve.

GFOA (Governmental Financial Officer Association) identifies best practices for Working Capital for Enterprise Funds. Specifically, Enterprise Funds should distinguish between current and non-current assets and liabilities. Because of this, it is possible to take advantage of this distinction to calculate working capital (i.e., current assets minus current liabilities). The measure of working capital indicates the liquid portion of total enterprise fund capital, which represents a margin or buffer for meeting obligations.

It is essential to maintain adequate levels of working capital to mitigate current and future risks (e.g., revenue shortfalls and unanticipated expenses) and to ensure stable services and fees.

Working capital is a crucial consideration in long-term financial planning. Credit rating agencies consider the availability of working capital in their evaluations of continued creditworthiness.

Fund Equity incorporates ***long-term*** liabilities and ***long-term*** assets in the overall calculation, but severely restricts the availability of resources to be used in budget planning.

The distinction between the two is an important consideration for managing the budget and budget development.

Water Enterprise

The Water Operating fund was created in the 2010-11 fiscal year and the starting balance was made up of a consolidation of several other funds that housed water related operational balances. This one-time consolidation, along with annual surplus, and continued transfers in from the interest reserve, created approximately $8 million dollars in the operational water fund (fund 300).

The Water Enterprise also is comprised of restricted funds. Capital R&R (Rehabilitation & Repair), 73% of the Interest Reserve Fund, and the Water Expansion Funds all have been classified restricted through local enabling legislation (Ordinance or Resolution) or as directed by the rate and capacity fee studies.

The restricted portion of the Water Enterprise of Capital R&R is used to pay-as-we-go on Capital Improvement Projects. In addition, these funds pay for debt service through transfers into the water operating fund associated with R&R projects and grant matches.

The District has developed a 5-year Capital Improvement Plan, referred to as the CIP. For purposes of this budget document, the focus is on the 2021-22 cash flow to determine if the available resources will meet the short-term project needs, not the entire project costs. The entire cash flow projection, which includes project outlay through 2025-26 is used to develop the Long-Term Financial Planning Model.

The Water R&R funds is projected to have an opening balance of $2.8 million, following significant outlay in the 2020-21 year for Reach 1 and Techite. 2021-22 inflows are projected to be $3.3 million with projected outflows of about $1.9 million for CIP and Debt Service transfers. Based on these projections, the 6/30/22 balance for Water R&R should be $3.0 million to be used for funding short- and long-term CIP plans.

Currently, there is no anticipation of utilizing Rate Stabilization funds. However, with the potential for drought related conservation efforts, a potential for revenue shortfall related to consumption restrictions is possible. Should that occur, an item will be brought before the Board in the future. The projected water portion of the balance in the Rate Stabilization Fund is $520,464.

In addition to the Expansion funds, the District has several Assessment Districts. These funds are not included in the overall Water Enterprise, as they are technically separate agency funds. These funds, generally, do not have available resources for projects, as the initial assessment bonding proceeds would have already been spent on projects at the time the initial bonds were issued, and the current phase of their use is entirely for bond debt service. However, the Wallace Assessment District still has unallocated resources of $363,574 that can be utilized per the Engineer's Report on both Water and Wastewater projects in that area. The 2021-22 budget includes using $100,000 for SCADA (Supervisory Control and Data Acquisition) systems for water infrastructure, leaving projected balance of $263,574 for projects. However, all projects must align with the Engineers reports that established the bonding amount.

Wastewater Enterprise

The District's Wastewater Enterprise is expected to cover operational costs and debt service. Recall that the Wastewater fund had been running a deficit for several years, prompting the need to borrow from the water fund to cover operational costs. The last rate increase that went into effect July 2018 addresses this deficiency and as of the 2020-21 fiscal year the wastewater fund should be funded for purposes of operations and identified debt service as part of the rate study. Using the working capital calculation of current assets minus current liabilities less depreciation, the working capital would be negative. The depreciation expense is significantly higher than the anticipated capital outlays. Due to this, it is important to modify the calculation for working capital, by adjusting the depreciation expense down to match actual

outlay, which is less than depreciation. This puts the wastewater fund at a net zero for purposes of working capital for 2021-22 and going into the 2022-23 fiscal year for ***operations***. It is imperative that small (non-CIP) projects and equipment be aligned with other funding sources and operating expenses be managed within those constraints.

The Wastewater Enterprise also is comprised of restricted funds. Capital R&R, 27% of the Interest Reserve Fund, and the Wastewater Expansion Funds all have been classified restricted through local enabling legislation (Ordinance or Resolution) or as directed by the rate and capacity fee studies.

The District has developed a 5-year Capital Improvement Plan, referred to as the CIP. For purposes of this budget document, the focus is on the 2021-22 cash flow to determine that the available resources will meet the short-term project needs. The entire cash flow projection, which includes project outlay through 2025-26 is used to develop the Long-Term Financial Planning Model. The Wastewater R&R funds is projected to have an opening balance of $2.8 million. 2021-22 inflows are projected to be $1.2 million with projected outflows of about $2.0 million for CIP. The main project for 2021-22 being the Copper Cove Lift Station6, 8 and Force Main Bypass. Based on these projections, the 6/30/22 balance for Wastewater R&R should be $670,000.

As a supplement to the Wastewater R&R funding CIP, the Arnold Sewer Expansion fund is also scheduled to partially fund the design phase of the Arnold Secondary Clarifier for 2021-22 in the amount of $125,000. Recall that the District has several Assessment Districts. These funds are not included in the overall Wastewater Enterprise, as they are technically separate agency funds. These funds do not have available resources for projects, as the initial assessments would have already been spent at the time the initial bonds were issued and this phase of their use is entirely for bond debt service. However, the Wallace Assessment District still has unallocated resources of $363,574 that can be utilized per the Engineer's Report on both Water and Wastewater projects in that area. There is a projected balance of $263,574 for projects. However, all projects must align with the Engineers reports that established the bonding amount.

Fund Balance Realignment

Prior to the segregation of the cash and investments to each respective fund, the balances were housed in fund 101 (referred to as the General Fund) making it impossible to identify working capital or even fund equity by fund. Instead, staff relied on the outside auditors to provide the fiscal yearend financial statements that split all available resources between Water and Wastewater Enterprises. This is adequate for purposes of calculating debt coverage ratios and from a *Districtwide* creditworthiness. The issue with this methodology is that while we do only have two definitive enterprises, Water and Wastewater, the formation of those fund balances, the restrictive nature of those balances, and the segregation of funds by service area is a key factor in ensuring those resources align as intended for purposes of budgeting projects and utilization of balances. The only way to identify that granularity was to allocate the balances by fund, and that was the priority over the last year and a half. Starting with the 2020-21 fiscal year, the District will now be able to track, trend the designated fund balances, and make clearer decisions on use, type, and availability of funds. This change in structure will ensure any savings or unanticipated revenues will be allocated in the following year's budget to ensure that all operating sources of funds are aligned with operational activities as close to the year of receipt of revenues as possible, or that balances are planned for longer term projects (funding gaps in the CIP as an example).

Due to the size of the water operating unassigned balance, it is recommended to make a one-time transfer of those funds to a NEW Water Reserve in the interest reserve fund. This action would allocate the bulk of unassigned working capital specifically for one-time expenses planned in future years, making funding available for significant deferred maintenance and equipment replacements, revenue shortfalls, or to assist in funding CIP projects related to water. The new Water Reserve Fund is a consolidation of accumulated reserves from several

years and income sources and, as proposed, will be utilized to fund priority one-time expenditures. It would not have a minimum balance or replenishment requirement so it may be spent down and potentially eliminated in the future. In addition to the transfer of unassigned fund equity to Water Infrastructure Reserves, paying off the Jenny Lind Expansion loan of $1.5 million would move funds to the Jenny Lind Expansion fund to align much needed resources for the CIP projects designated in the Jenny Lind Area. In addition to the Water R&R (Rehabilitation & Repair) funding CIP, the Jenny Lind Water Expansion fund is scheduled to partially fund the design phase of the Jenny Lind Tank A-B Transmission Line for 2021-22.

Fiscal Year 2021-22 Budget Fund Balance Analysis

	Projected Working Capital 6/30/2021	Total Receipts	Total Expenditures	Principal Debt Payments	Total Capital Expenditures	Transfers IN	Transfers OUT	Projected Balance 6/30/2022	Change
Water Enterprise									
Admin Replacement	-							-	-
Interest Reserve									
90 Day/Emergency Operating Reserve (73/27)	2,920,000							2,920,000	-
Water Rights/FERC Relicensing Reserve	5,445,795	-	-	-	-	100,000		5,545,795	100,000
CIP Cash Flow Reserve (73/27)	1,241,000							1,241,000	-
Rate Stabilization Reserve (73/27)	520,464							520,464	-
EP Reach 3A Reserve	30,260					10,123		40,383	10,123
EP Reach 3A Short-Lived Asset Reserve	15,000					5,000		20,000	5,000
USDA Reserve	-					17,801		17,801	17,801
USDA Short-Lived Asset Reserve	-					5,000		5,000	5,000
Forest Thinning Projects	35,361							35,361	-
Water Reserve* NEW						5,063,674		5,063,674	5,063,674
Special Project Reserve (73/27)	1,014,044	598,600		22,715	-	-		1,635,359	621,315
Total Interest Reserve	11,221,924	598,600	-	22,715	-	5,201,598		17,044,837	5,822,913
Capital Improvement - Water	(139,432)					139,432		-	139,432
Capital Improvement - Water R&R	2,876,377	3,312,900			(1,918,418)		(1,179,015)	3,091,844	215,467
Water Operating	8,031,581	12,451,031	(12,856,351)	(1,502,152)	(499,996)		(5,624,112)	0	(8,031,581)
West Point Water Expansion	498,769	4,000			(400,000)	-		102,769	(396,000)
Ebbetts Pass Water Expansion	46,351	178,000						224,351	178,000
Sheep Ranch Water Expansion	18,652	160						18,812	160
Jenny Lind Water Expansion	294,364	92,600			(87,500)			299,464	5,100
Copper Cove Water Expansion	2,814,907	474,000			(510,000)			2,778,907	(36,000)
Wallace Water Expansion	6,732	60						6,792	60
Advanced Grants Fund	1,268	-	-	-	-	-		1,268	-
Total Water Enterprise	**25,671,493**	**17,111,351**	**(12,856,351)**	**(1,479,438)**	**(3,415,914)**	**5,341,030**	**(6,803,127)**	**23,569,044**	**(2,102,449)**
Wastewater Enterprise									
Admin Replacement	-							-	-
Interest Reserve									
90 Day/Emergency Operating Reserve (73/27)	1,080,000							1,080,000	-
CIP Cash Flow Reserve (73/27)	459,000						-	459,000	-
Rate Stabilization Reserve (73/27)	192,500							192,500	-
Special Project Reserve (73/27)	460,831	221,400		(8,401)	(511,930)		-	161,900	(298,931)
Total Interest Reserve	2,192,331	221,400	-	(8,401)	(511,930)	-		1,893,400	(298,931)
Capital Improvement Sewer	(4,781)					4,781		-	4,781
Capital Improvement Sewer - R&R	2,823,887	1,220,000	-	(8,401)	(1,592,500)		(395,277)	2,047,709	(776,178)
Sewer Operating	2,945	6,264,814	(6,143,254)	(600,960)	(434,372)	910,827		0	(2,945)
Forest Meadows Sewer Expansion	376,358	18,000						394,358	18,000
Big Trees Village Sewer Expansion	8,840	60						8,900	60
Vallecito and Indian Rock Sewer Expansion	500,361	9,000						509,361	9,000
Six Mile Village Sewer Expansion	19,178	160						19,338	160
Arnold Sewer Expansion	346,928	3,500			(137,500)			212,928	(134,000)
LaContenta Sewer Expansion	101,632	1,600						103,232	1,600
Southworth Sewer Expansion	195,261	7,000						202,261	7,000
Copper Cove Sewer Expansion	1,328,470	362,000			(125,000)			1,565,470	237,000
Wallace Sewer Expansion	6,732	60						6,792	60
West Point Sewer Expansion	427,156	3,000	-	-	-	-		430,156	3,000
Total Wastewater Enterprise	**8,325,298**	**8,110,594**	**(6,143,254)**	**(617,762)**	**(2,801,302)**	**915,608**	**(395,277)**	**7,393,905**	**(931,393)**
Total District Funds	33,996,791	25,221,945	(18,999,606)	(2,097,200)	(6,217,216)	6,256,638	(7,198,404)	30,962,948	(3,033,843)

SCHEDULE 1 Positions

Department	Full Time Position	FY 2020-21	FY 2021-22
Administrative Services	Accountant I/II*	2	2
	Accounting Technician I/II	1	1
	Customer Service Representative I/II/III/SR	3	3
	Director of Administrative Services	1	1
	External Affairs Manager	1	1
	Information System Administrator	1	1
	Succession IT Admin (2 Months) **	0	0.17
59 – Administrative Services Total		**9**	**9.17**
Engineering/Technical Services	Civil Engineer	1	0
	Construction Inspector I/II/III/SR	1	0
	District Engineer	1	1
	Engineer - Associate, Civil, Senior	0	3
	Engineering Coordinator	1	1
	Engineering Technician	1	1
	Senior Civil Engineer	2	0
	Senior Supervisor of Construction/ Inspection	0	1
58 – Engineering/Technical Services Total		**7**	**7**
General Management	Executive Assistant/Clerk to the Board	1	1
	General Manager	1	1
	Human Resources Manager	1	1
	Human Resources Technician	1	1
General Management Total		**4**	**4**
Utility Services	Administrative Technician I/II/Sr	1	1
	Collection System Worker I/II/III/IV/Sr	5	5
	Construction and Maintenance Manager	1	1
	Construction Worker I/II/III/Sr	7	7
	Director of Operations	1	1
	Distribution Worker I/II/III/IV/Sr	7	9
	Electrical/Instrumentation Tech I/II/Sr	1	1
	Electrical/SCADA Senior Supervisor	1	1
	Facilities Maintenance Worker	1	1
	Mechanic I/II/Sr	4	3
	Meter Reader Trainee/I/II	2	0
	Operations, Senior Supervisor	4	4
	Plant Operations Manager	1	1
	Purchasing Agent	1	1
	SCADA Technician I/Sr	2	2
	Water/Wastewater Plant Operator	10	10
Utility Services Total		**49**	**48**
Water Resources	Manager of Water Resources	1	1
Water Resources Total		**1**	**1**
Total Personnel Allocation		70	69.17

*Will be reduced to 1 FTE Mid-Year

** Will replace 1 FTE IT Admin upon retirement

SCHEDULE 2 – Personnel Budgets

CCWD PERSONNEL BUDGET FY 2021-22

Department	Dept #	EL	FT	Salaries/Wages	OT	Payouts	Oncall	Benefits	Retiree Med	PERS	Standby	Total
Board	57	5	0	43,200	0	0	0	101,577	1,800	0	0	146,577
Administrative Services	59	0	9	898,470	10,000	5,743	0	270,354	3,320	137,183	0	1,325,070
Engineering/Technical	58	0	7	808,047	20,000	5,677	0	247,347	2,600	133,778	0	1,223,450
General Management	56	0	4	474,674		8,550	0	115,438	1,800	54,396	0	654,498
Utility Services	54	0	48	4,147,151	220,220	169,686	21,100	1,768,158	17,600	755,008	15,400	7,114,103
Water Resources	60	0	1	138,202		6,750	0	28,820	360	11,102	0	185,235
Total		**5**	**69**	**6,490,715**	**250,000**	**196,406**	**21,100**	**2,526,158**	**27,120**	**1,094,630**	**15,400**	**10.648.933**

Water	**4,549,855**	**163,011**	**128,356**	**13,504**	**1,724,333**	**18,384**	**744,896**	**10,064**	**7,352,403**
Sewer	**1,959,889**	**86,989**	**68,051**	**7,596**	**808,361**	**8,736**	**351,574**	**5,336**	**3,296,532**
Total	**6,490,715**	**250,000**	**196,406**	**21,100**	**2,526,158**	**27,120**	**1,094,630**	**15,400**	**10,621,540**

SCHEDULE 3 - Revenues

CALAVERAS COUNTY WATER DISTRICT

REVENUES - WATER

DESCRIPTION	BUDGET FY 2021-22
Service Charges/Rates	8,898,469
Property Taxes	2,298,135
Investment Income	10,000
Power Sales	521,448
Standby Fees	95,630
Other Revenue	627,349
TOTAL WATER REVENUES	**$12,451,031**
Transfers In	1,062,298
TOTAL WATER SOURCES (REVENUES AND TRANSFERS)	**$13,513,329**

CALAVERAS COUNTY WATER DISTRICT

REVENUES - SEWER

DESCRIPTION	BUDGET FY 2021-22
Service Charges/Rates	5,252,926
Property Taxes	554,684
Investment Income	3,500
Power Sales	189,207
Standby Fees	35,370
Other Revenue	229,127
TOTAL SEWER REVENUES	**$6,264,814**
Transfers In	910,827
TOTAL SEWER SOURCES (REVENUES AND TRANSFERS)	**$7,175,641**

SCHEDULE 4 - Expenses

CALAVERAS COUNTY WATER DISTRICT

EXPENSES – BY DEPARTMENT

DEPARTMENT NO	DEPT NAME	BUDGET FY 2021-22
50	Non-Departmental	$3,160,666
54	Utility Services	11,874,989
56	General Management	978,793
57	Board of Directors	170,327
58	Engineering Technical Services	1,484,325
59	Administrative Services	2,090,226
60	Water Resources	2,092,524
TOTAL EXPENSES		**$21,851,850**

SCHEDULE 5 – Debt Service

DEBT SCHEDULE

		Payoff	BALANCE	FISCAL YEAR 2021-22 PAYMENTS			BALANCE
Lender	Project/Equipment	Year	6/30/21	INT 21	PRIN 21	TOT21	6/30/22
Umpqua Bank	UAL Refunding	2036	5,069,000	165,386	353,000	518,386	4,716,000
Stockton East	New Hogan Reservoir	2025	273,988	9,656	55,242	64,898	219,746
USDA	Reach 3A	2055	2,445,200	54,492	46,700	101,192	2,398,500
Umpqua	Vactor Truck	2024	386,134	10,196	114,881	125,077	271,253
USDA	AMI Radio Read	2036	5,000,000	92,500	292,275	384,775	4,707,725
TBD	Vactor Truck	2025	475,000	11,000	115,000	126,000	360,000
Internal	Sewer to Water	2028	811,481	17,774	119,268	137,042	692,213
Internal	Ops Headquarters	2023	2,176,421	31,116	614,626	645,742	1,561,795
Total			16,637,224	392,120	1,710,992	2,103,112	14,927,232

SCHEDULE 6 – Comparative Recaps

Fiscal Year 2021-22 Budget Combined Statement of Receipts and Expenditures	Water	Wastewater	District Total
OPERATING REVENUES			
Rate Revenue	$ 8,514,746	$ 5,147,926	$ 13,662,672
Other Operating Income	383,723	105,000	488,723
TOTAL OPERATING REVENUES	$ 8,898,469	$ 5,252,926	$ 14,151,395
OPERATING EXPENSES			
Non-Departmental	714,155	280,678	994,834
Utility Services	7,137,249	3,828,373	10,965,621
General Management	700,245	278,548	978,793
Board of Directors	118,428	51,899	170,327
Engineering/Technical Services	1,054,583	429,743	1,484,325
Administrative Services	1,441,392	648,835	2,090,226
Water Resources	1,662,764	614,995	2,277,759
TOTAL OPERATING EXPENSES	$ 12,828,816	$ 6,133,070	$ 18,961,886
NET OPERATING INCOME	$ (3,930,347)	$ (880,144)	$ (4,810,491)
NON-OPERATING REVENUES			
Property Taxes	2,298,135	554,684	2,852,819
Standby Fees	95,630	35,370	131,000
Hydropower Revenue	521,448	189,207	710,655
Other Revenue	637,349	232627	869,976
TOTAL NON-OPERATING REVENUES	$ 3,552,562	$ 1,011,888	$ 4,564,450
NON-OPERATING EXPENSES			
Other Expenses	27,536	10,184	37,720
Interest Expense	301,130	90,990	392,120
TOTAL NON-OPERATING EXPENSES	$ 328,666	$ 101,174	$ 429,840
NET INCOME BEFORE CONTRIBUTIONS	$ (706,450)	$ 30,569	$ (675,881)
CAPITAL CONTRIBUTIONS AND TRANSFERS			
Capital Labor Reimbursement (R&R)	553,616	215,496	769,112
Transfer In for Debt - Interest	169,707	8,401	178,108
Transfer In Special Projects		177,558	177,558
TOTAL CAPITAL CONTRIBUTIONS/ TRANSFERS	$ 723,323	$ 401,455	$ 1,124,778
NET INCOME	$ 16,873	$ 432,025	$ 448,897
CASH CONSIDERATIONS			
Debt Principal Payments	(1,201,022)	(509,970)	(1,710,992)
Transfer In for Debt Principal	338,975	-	338,975
Capital Outlay	(499,996)	(434,372)	(934,368)
Transfer to FERC	(100,000)		(100,000)
Transfer to Jenny Lind Expansion	(1,522,736)		(1,522,736)
Transfer to New Water Reserve	(5,063,674)		(5,063,674)
Transfer in For Water Rights Exp		75,000	75,000
Transfer In for Capital Outlay		434,372	434,372
CHANGE IN CASH BALANCE	(8,048,454)	(434,970)	(8,483,423)
BEGINNING WORKING FUND BALANCE	8,031,581	2,945	8,034,526
PROJECTED NET POSITION AT END OF YEAR	$ 0	$ 0	0

Fiscal Year 2021-22 Budget Comparative Statement of Receipts and Expenditures			
DISTRICT TOTAL	6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
OPERATING REVENUES			
Rate Revenue	13,229,965	13,011,501	$13,662,672
Other Operating Income	768,032	526,000	488,723
TOTAL OPERATING REVENUES	$ 13,997,997	$13,537,501	$14,151,395
OPERATING EXPENSES			
Non-Departmental	989,801	944,134	994,834
Utility Services	10,202,029	10,929,868	10,965,621
General Management	994,824	1,072,903	978,793
Board of Directors	111,662	162,792	170,327
Engineering/Technical Services	639,523	1,115,320	1,484,325
Administrative Services	1,681,825	1,793,216	2,090,226
Water Resources	1,192,521	1,747,858	2,277,759
TOTAL OPERATING EXPENSES	$ 15,812,185	$17,766,091	$18,961,886
NET OPERATING INCOME	$ (1,814,188)	$(4,228,590)	$(4,810,491)
NON-OPERATING REVENUES			
Property Taxes	3,017,485	2,783,238	2,852,819
Standby Fees	131,231	131,000	131,000
Hydropower Revenue	682,100	747,000	710,655
Other Revenue	1,153,500	1,153,500	869,976
TOTAL NON-OPERATING REVENUES	$ 4,984,316	$ 4,814,738	$ 4,564,450
NON-OPERATING EXPENSES			
Other Expenses	19,035	37,720	37,720
Interest Expense	346,127	346,127	392,120
TOTAL NON-OPERATING EXPENSES	$ 365,162	$ 383,847	$ 429,840
NET INCOME BEFORE CONTRIBUTIONS	$ 2,804,966	$ 202,301	$ (675,881)
CAPITAL CONTRIBUTIONS AND TRANSFERS			
Capital Labor Reimbursement (R&R)	487,818	487,818	769,112
Transfer In for Debt - Interest	126,742	126,742	178,108
Transfer In Special Projects	687,350	687,350	177,558
OTAL CAPITAL CONTRIBUTIONS/ TRANSFERS	$ 1,301,910	$ 1,301,910	$ 1,124,778
NET INCOME	$ 4,106,876	$ 1,504,211	$ 448,897
CASH CONSIDERATIONS			
Debt Principal Payments	(2,800,268)	(2,800,268)	(1,710,992)
Transfer In for Debt Principal	1,598,014	1,598,014	338,975
Capital Outlay	(681,041)	(800,863)	(934,368)
Transfer to FERC			(100,000)
Transfer to Jenny Lind Expansion		-	(1,522,736)
Transfer to New Water Reserve		-	(5,063,674)
Transfer in For Water Rights Exp			75,000
Transfer to FERC Reserve	(2,445,795)		-
Transfer In for Capital Outlay		800,863	434,372
CHANGE IN CASH BALANCE	(4,329,090)	(1,202,254)	(8,483,423)
BEGINNING WORKING FUND BALANCE	8,247,649	8,034,526	8,034,526
PROJECTED NET POSITION AT END OF YEAR	8,034,526	8,031,581	0

Operating Budgets by Department

Non- Departmental

Fiscal Year 2021-22 Budget Expenses			
Non-Departmental	6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
Service and Supplies			
Power	3,592	8,585	10,000
Water	3,503	3,650	4,000
Telephone	9,327	9,945	22,984
Refuse/Disposal	2,214	2,600	2,847
Materials & Supplies	40,692	40,000	45,445
Herbicide	-	500	-
Tools	25	-	500
Outside Services/Repairs	18,484	9,000	12,200
Service Maintenance Contracts	5,498	7,800	7,680
Building Repairs	2,400	5,000	5,000
Claims/Damages	4,042	5,000	5,000
Janitorial Services	18,576	23,220	23,220
Retiree Health Costs	597,048	620,000	608,295
Insurance	274,798	216,333	255,163
LAFCO Contribution	14,100	14,100	14,100
Misc Non-Operating Costs	-	16,120	16,120
Total Supplies and Services	994,299	981,853	1,032,554
Capital Outlay			
Projects	-	40,501	25,000
Total Capital Outlay	-	40,501	25,000
Debt Service			
Interest Exp PERS UAL Loan	176,475	176,475	165,386
Interest Exp-USDA EP Reach 3A	55,531	55,532	54,492
Interest Exp-Water Fund Loan	24,785	25,103	17,774
Interest Exp New Hogan Loan	12,142	12,142	9,656
Interest Exp OP HQ	46,107	46,107	31,116
Interest Exp-VacCon Truck	12,398	12,398	10,196
Interest Exp-Water Rev Loan	18,370	18,370	-
Interest Exp-VacCon Truck 2021	-	-	11,000
USDA AMI Loan - Interest	-	-	92,500
Principal-PERS UAL Loan	328,000	328,000	353,000
Principal Exp-USDA EP Reach 3A	45,700	45,700	46,700
Principal Payment-Water Fnd Ln	107,014	107,014	119,268
Prin Pmt New Hogan	55,242	55,242	55,242
Principal Pmt OP HQ	599,635	599,635	614,626
Principal Payment-VacCon Truck	112,363	112,363	114,881
Principal Payment-Water Rev Ln	1,552,314	1,552,314	-
Principal Payment-VacCon Truck 2021	-	-	115,000
USDA AMI Loan - Prin	-	-	292,275
Total Debt Service	3,146,076	3,146,395	2,103,112
Total Operating Expense Budget	4,140,375	4,168,749	3,160,666

Utility Services

Fiscal Year 2021-22 Budget Expenses			
Utilities	6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
Salaries and Benefits			
Salaries Wages	3,770,731	4,314,537	4,147,151
Payouts	179,555	-	169,686
Oncall Pay	6,300	-	21,100
Overtime	143,586	291,462	220,000
Benefits	1,772,976	1,872,664	1,768,158
Medical Reimbursements	9,922	18,800	17,600
Retirement Expense	427,511	501,550	490,349
CalPERS UAL	205,289	188,304	264,660
Standby Pay	9,000	-	15,400
Total Salaries and Benefits	6,524,870	7,187,317	7,114,104
Service and Supplies			
Power	873,190	842,000	997,000
Water	3,850	2,800	4,296
Sewage	37,515	42,449	46,734
Telephone Lease Line	310	4,000	-
Telephone	83,959	79,500	83,167
Refuse/Disposal	14,554	15,200	15,608
Materials & Supplies	103,246	102,000	102,000
Herbicide	1,114	1,500	1,500
Safety Equipment/Consumables	38,987	40,000	40,000
Tools	29,329	30,000	30,000
Uniforms - New	10,581	12,000	16,200
Materials and Supplies - CalFire	-	18,000	18,000
Lab Supplies, Consumables	47,714	40,000	40,000
Ozone System Parts	847	10,000	10,000
UV Bulb/MBR Replacement	111,742	102,000	110,000
Electrical Parts Replacement	69,865	80,000	80,000
Leak Repair Supplies	112,915	100,000	100,000
Road Repair Materials	31,336	25,000	25,000
SCADA, Radio Supplies	12,464	40,000	10,000
Septic Tanks, Repair & New	19,468	20,000	10,000
Meters, New & Replacement	36,788	55,000	30,000
Aerator/Compressor Repair	13,895	18,000	18,000
Computers/Peripherals	1,323	6,000	18,500
Control System/Pressure Transducer	2,861	10,000	10,000
Headworks/Solids Removal and Repair	17,168	20,000	18,000
HVAC	4,890	8,500	8,500
Mixers/Valves/Repair Kits/ Actuators	12,794	15,000	15,000

Utility Services Cont'd

Fiscal Year 2021-22 Budget Expenses			
Utilities	6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
Monitor Wells Repair	-	1,000	-
Pumps/Motors Repair	99,192	100,000	90,000
Solids Handling Eq Repair	1,467	5,000	5,000
Chemicals	375,549	340,000	340,627
Outside Services/Repairs	94,411	100,000	98,643
Fire Ext. Testing Cust. Base	2,400	2,000	2,000
Spraying - Weeds & Insects	15,174	13,000	13,000
Snow Removal	3,024	6,000	6,000
Uniform Launder	18,596	23,000	21,209
Fire Hydrant Maintenance	18,418	47,000	54,420
Groundwater Monitoring	24,677	45,000	47,250
Instrumentation Tech	7,373	8,500	8,500
Ozone System PM	1,217	10,000	3,500
Backflow Device Testing	2,100	4,000	4,000
SCADA Consulting	17,517	10,000	14,000
Hauling /Dig/Crane/Excavator	2,841	12,000	5,000
Pave/Seal/Asphalt Repair	92,723	100,000	100,000
Telemetry / Radio	4,841	3,000	-
Septic Hauling Bio-solids Hauling	29,590	31,000	34,660
Tank Cleaning	37,896	60,000	50,000
Building Repairs	15,633	35,000	10,000
UV System PM	15,011	5,000	-
Computer License/Maintenance Contracts	48,273	26,400	87,320
Laboratory Services	128,433	165,000	165,000
Rentals (Non Vehicles/Equip)	58,778	36,000	67,200
Professional Services	65,100	89,300	100,710
Operating Exp/Fuel & Oil	265,257	231,000	231,000
Repairs and Parts	132,215	75,000	95,000
Fuel/Repair - Generators	31,827	50,000	20,000
Rental Exp/Vehicle and Eq	26,485	54,473	21,200
Vehicle Maintenance	9,738	8,245	9,520
Permits and Licenses	9,995	15,000	10,800
Publications/Subscriptions	2	2,000	500
Memberships/Dues	16,582	14,500	13,000
Training, Conf & Travel	24,902	35,000	35,000
Other Travel Costs		184	184
Purchased Water	947	5,000	11,000
State Water/Sewer Fees	250,389	236,000	218,770
Total Supplies and Services	3,641,278	3,742,551	3,851,517

Utility Services Cont'd

Fiscal Year 2021-22 Budget Expenses				
Utilities		6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
Capital Outlay				
Vehicles Capital Lease		174,468	128,983	302,014
Equipment Purchased		498,233	460,000	432,354
Projects		8,340	114,100	175,000
Total Capital Outlay		681,041	703,083	909,368
Total Operating Expense Budget		10,847,189	11,632,951	11,874,989

General Management

Fiscal Year 2021-22 Budget Expenses				
General Management		6/30/21 Est Actuals	2020-21 Budget	2021-22 Budget
Salaries and Benefits				
Salaries Wages		445,120	465,665	474,674
Payouts		4,645	-	8,550
Overtime		496	607	-
Benefits		147,429	147,577	115,438
Medical Reimbursements		1,440	1,600	1,440
Retirement Expense		38,512	45,264	39,716
CalPERS UAL		13,503	10,095	14,680
Total Salaries and Benefits		651,145	670,808	654,498
Service and Supplies				
Materials & Supplies		2,529	2,800	2,800
Safety Equipment			8,000	4,000
Drug & Alcohol Testing		2,979	2,200	2,200
Recruiting		15,033	12,850	12,850
Outside Legal Fees		99,101	160,000	145,000
Advertising/Publicity		207	1,500	1,500
Professional Services		146,644	147,800	82,800
Forms and Supplies		-	800	800
Publications/Subscriptions		302	150	150
Memberships/Dues		53,586	46,745	46,745
Training, Conf & Travel		2,321	16,500	22,700
Other Travel Costs		-	750	750
Unemployment Claims		-	2,000	2,000
Total Supplies and Services		322,702	402,095	324,295
Total Operating Expense Budget		973,847	1,072,903	978,793

Board of Directors

Fiscal Year 2021-22 Budget Expenses				
Board of Directors		**6/30/21 Est Actuals**	**2020-21 Budget**	**2021-22 Budget**
Salaries and Benefits				
Salaries Wages		27,792	43,200	43,200
Benefits		79,095	98,442	101,577
Medical Reimbursements		1,633	2,000	1,800
Total Salaries and Benefits		108,520	143,642	146,577
Service and Supplies				
Materials & Supplies		84	750	3,750
Training, Conf & Travel		1,694	15,000	17,500
Other Travel Costs		1,366	3,400	2,500
Total Supplies and Services		3,144	19,150	23,750
Total Operating Expense Budget		111,664	162,792	170,327

Engineering /Technical Services

Fiscal Year 2021-22 Budget Expenses			
Engineering	**6/30/21 Est Actuals**	**2020-21 Budget**	**2021-22 Budget**
Salaries and Benefits			
Salaries Wages	332,057	679,084	808,047
Payouts	8,897	-	5,677
Overtime	7,821	20,220	20,000
Benefits	137,915	233,331	248,347
Medical Reimbursements	960	2,400	2,600
Retirement Expense	41,908	73,032	90,388
CalPERS UAL	19,940	23,798	48,391
Total Salaries and Benefits	549,498	1,031,865	1,223,450
Service and Supplies			
Materials & Supplies	26	1,000	7,000
Safety Equipment	-	-	800
Service Maintenance Contracts	19,621	15,105	13,000
Professional Services	63,109	57,450	210,000
Forms and Supplies	-	600	600
Publications/Subscriptions	-	600	600
Memberships/Dues	582	600	600
Recording/Title Reports	54	-	-
Training, Conf & Travel	5,736	7,500	27,675
Other Travel Costs	-	600	600
Total Supplies and Services	89,128	83,455	260,875
Total Operating Expense Budget	638,626	1,115,320	1,484,325

Administrative Services

Fiscal Year 2021-22 Budget Expenses			
Administrative Services	**6/30/21 Est Actuals**	**2020-21 Budget**	**2021-22 Budget**
Salaries and Benefits			
Salaries Wages	726,856	807,821	898,470
Payouts	24,991	-	5,743
Overtime	3,975	4,044	10,000
Benefits	293,279	336,598	270,354
Medical Reimbursements	3,840	2,800	3,320
Retirement Expense	75,279	82,337	95,840
CalPERS UAL	29,626	21,617	41,343
Total Salaries and Benefits	1,157,846	1,255,217	1,325,070
Service and Supplies			
Materials & Supplies	159	750	4,250
Admin Technologies Comm	25,083	20,000	20,000
Outside Services/Repairs	7,849	9,100	-
Service Maintenance Contracts	43,540	107,931	139,942
Computer License/Maintenance Contracts	30,392	39,014	62,909
Accounting/Auditing	41,184	41,600	41,600
Professional Services	154,250	85,850	263,771
Forms and Supplies	788	1,950	1,950
Postage	12,046	17,520	15,950
Memberships/Dues	1,195	495	495
Printing	-	500	1,000
Training, Conf & Travel	4,481	6,000	5,000
Other Travel Costs	20	800	800
Bad Debt Expense	60,737	52,000	52,000
Rate Assistance Program	52,391	60,000	60,000
Water Efficiency	2,610	3,000	4,000
Third Party Payment Processing	87,264	83,989	83,989
Agent Fees (Custodial)	3,375	7,500	7,500
Misc Non-Operating Costs	82	-	-
Total Supplies and Services	527,446	537,999	765,156
Total Operating Expense Budget	1,685,292	1,793,216	2,090,226

Water Resources

Fiscal Year 2021-22 Budget Expenses				
Water Resources		**6/30/21 Est Actuals**	**2020-21 Budget**	**2021-22 Budget**
Salaries and Benefits				
Salaries Wages		135,504	135,512	138,202
Payouts		-	-	6,750
Benefits		42,532	52,063	28,820
Medical Reimbursements		360	-	360
Retirement Expense		11,353	19,235	9,720
CalPERS UAL		2,266	8,593	1,383
Total Salaries and Benefits		192,015	215,403	185,235
Service and Supplies				
Materials & Supplies		368	500	-
Outside Legal Fees		89,136	115,000	-
Advertising/Publicity		-	500	292,405
Professional Services		78,887	129,000	-
Memberships/Dues		76,808	63,443	-
Training, Conf & Travel		870	4,000	500
Other Travel Costs		-	750	495,628
Purchased Water		293,262	293,262	-
Federal Dam & Admin Fees		-	-	95,700
State Water Right Fees		659,842	786,000	65,000
Mandated Plans		94,959	140,000	-
Total Supplies and Services		1,294,132	1,532,455	1,907,289
Total Operating Expense Budget		1,486,147	1,747,858	2,092,524

Capital Outlay

2020-21 Dept Requested Budget - Capital Outlay

Capital Type	Dept	Qty	Location	Description	Water	Sewer	Total Cost
Capital Lease	54	10		2019-20 Lease	53,684	30,197	83,881
Capital Lease	54	8		2020-21 Lease	50,722	28,531	79,253
Capital Lease	54	10		2021-22 Lease	53,683	30,197	83,880
Capital Lease	54	10		Upfitting for new leases	35,200	19,800	55,000
Equipment	54	est 3 to 4	Replacing aged gens in the fleet(80+)	Misc Generators	118,400	66,600	185,000
Equipment	54	2	1Distribution 1Collections	Bad Elf GIS device	5,177	5,177	10,354
Equipment	54	5	West Point/EP/JL	Water Quality Sample Stations	10,000		10,000
Equipment	54	1	Mechanics Shop	Used C&C Machine	9,600	5,400	15,000
Equipment	54	1	JL Distribution	Tow Behind Air Compressor	30,000		30,000
Equipment	54	2	JLWTP	Magnetic Flow Meter Replacement	30,000		30,000
Equipment	54	1	Construction Crew	Asphalt Roller	44,800	25,200	70,000
Equipment	54	1	Construction Crew	HDPE Pipe Welder 2"-6"	7,680	4,320	12,000
Equipment	54	10	Distribution	PRV Rebuild Kits and repair equipment	20,000		20,000
Equipment	54	1	La Contenta WWTP	UPS for the UV System		30,000	30,000
Equipment	54	5	Various Locations	UPS and Radio replacement equipment	12,800	7,200	20,000
Projects	54		La Contenta WWTP				-
Projects	54		La Contenta WWTP	Sand Filter Rehab		50,000	50,000
Projects	54		Collections Systems	Collections Systems Improvements		100,000	100,000
Projects	54		Collections Systems	Lift Station BLDG Rehab		25,000	25,000
Projects	50		Ops Headquarters	Office Remodel for addl offices	18,250	6,750	25,000
						Total	**934,368**

Capital Improvement Plan – Water

Schedule of Cash Flow - Water Projects
FY 2021-22 thru FY 2023-2024

Project No	Water Projects Project Description	Available Project Authority	Cash Flow			Funding FY 21-22					
			FY 21-22	FY 22-23	FY 23-24	Expansion Funds	Reserves	Capital R & R	Grants	Debt Service	AD / Other Outside
11096	AMR/AMI Radio Read Meter Program* USDA Loan	4,742,570	5,000,000	-	-	-	-	250,000	-	384,775	-
11108	Big Trees Pump Stations 1, 4 & 5 Replacement	1,499,893	-	500,000	1,000,000			-			
11083C	Copper Cove Tank B / Clearwell (11079/11080)	1,159,804	500,000	671,000		250,000	-	250,000	-		-
11111	Copper Cove Tank B Pump Station Renovation	1,264,893	-	400,000	550,000			-			
11122	Copper Cove Zone B-C Trans Pipeline & Pump Stations	9,000,000	-	-	-	-	-	-	-		-
11101	District Corp Yard	1,121,391	400,000	721,391		-	400,000				
11115	Ebbetts Pass Larkspur Pump Station Rehab / Electrical	750,000	-	500,000	250,000	-	-	-	-		-
11099	Ebbetts Pass Meadowmont Pump Station / Rehab.	204,121	100,000	104,121		-	-	100,000			
11116	Ebbetts Pass Pinebrook Tank Rehabilitation	400,000	-	-	-	-	-	-	-		-
11095	Ebbetts Pass Redwood Tanks HMGP	3,307,527	1,500,000	1,397,227		-	-	375,000	1,125,000		-
11083S	Ebbetts Pass Sawmill Tank / Repair & Paint	1,799,345	-	-	-	-	-	-	-		-
11103	Hunters Raw Water Pumps (Hazard Mitigation)	2,071,548	210,000	500,000	500,000			52,500	157,500		
11083J	Jenny Lind Clearwell #2 / Repair & Paint	199,471	-	199,471		-	-	-	-		-
11120	Jenny Lind Raw Water Intake Structure	4,000,000	-			-	-	-	-		-
11088	Jenny Lind Tank A-B Transmission Line	6,678,690	-	-	250,000	-	-	-	-		-
11121	Jenny Lind Tank C Replacement	1,000,000	-	-	-	-	-	-	-		-
11118	Jenny Lind Filters 3, 4 & 5 Rehab / Coating	658,487	450,000			-	-	-	-		-
11119	Jenny Lind Tanks A, B, E & F Rehab	2,000,000	-	-	500,000	-		-	-		-
11104	Lake Tulloch Submerged Water Line Crossing	6,250,000	-	500,000	1,000,000	-	-	-	-		-
11083L	Larkspur Tank / Replacement	576,522		450,000	126,522	-	-	-	-		-
various	Misc Road Repairs /Bear Creek CalOES	16,499	60,000			-	3,750		56,250		-
11110	Reeds Turnpike Pump Station Replacement	494,784	25,000	-							25,000
11127	Sheep Ranch Clearwell Rehab/ Repair and Paint	350,000	-	-	350,000	-	-	-			-
11126	Sheep Ranch Distribution System Replacement	6,000,000	200,000	-	-	-	-	-	-		200,000
11125	Sheep Ranch Water Plant Replacement	800,000	-	-	-	-	-	-	-		-
10029	Slurry Line Improvements	80,000	80,000			-	-	80,000			-
11100	Wallace SCADA System Improvements	64,763	-			-	-	-	-		-
11083W	Wallace Tanks / Repair & Paint	1,493,076	-	-	-	-	-	-	-		-
11123	West Point Acorn Pump Station & Trans Pipeline	2,010,000	-	-	-	-	-	-	-		-
11106	West Point Backup Water Filter / MAC IRWMP	2,194,922	1,200,000	994,922	-	400,000	-	550,000	250,000		-
11124	West Point Middle Fork Pump Station	1,610,000	-			-	-	-	-		-
11107	West Point SCADA Improvements	109,566	-			-	-	-	-		-
11112	White Pines Dam/Blanket Drain Rehab	35,918	35,918					35,918			
TBDWP	WP Tule Removal/Spillway	100,000	100,000					100,000			
TBDWP1	West Point Regulator Repair/Tule Removal	100,000	-	100,000				-			
TBDEP	E.P. Hunters WTP Clearwell Rehab. & Coating				-						
TBDCC	Copper Cove O'Byrnes Water Line Extension	110,000	110,000			110,000					
Total Water Projects		**$ 64,253,790**	**$ 9,970,918**	**$ 7,038,132**	**$ 4,526,522**	**$ 760,000**	**$ 403,750**	**$ 1,793,418**	**$ 1,588,750**	**$ 384,775**	**$ 225,000**

Capital Improvement Plan – Sewer

Capital Improvement Program
Schedule of Cash Flow - Wastewater Projects
FY 2021-22 thru 2023-24

						Funding FY 21-22					
Project No	*Wastewater Projects Project Description*	Available Project Authority	Cash Flow FY 21-22	Cash Flow FY 22-23	Cash Flow FY 23-24	Expansion Funds	Reserves	Capital R & R	Grants	Debt Service	AD / Other Outside
15095	Arnold Secondary Clarifer & WWTP Improv.	3,417,172	550,000	1,500,000	1,367,172	137,500	-	412,500	-		-
15080	CC Lift Station 15 & 18 Rehab/Replacement	3,230,407	250,000	250,000	2,730,407	-	-	250,000	-		-
15076	CC Lift Station 6, 8 & Force Main Bypass	4,239,755	250,000	250,000	3,739,755	-	-	250,000	-		-
15094	CC Secondary,Tertiary & UV Improvements	14,970,625	150,000	250,000	250,000	125,000	-	125,000	-		-
15109	Collection System Rehab and I&I Mitigation	150,000	50,000	50,000	50,000	-	-	50,000	-		-
15103	Arnold Effluent Storage Tank Rehab	250,000	-	-				-			
15101	La Contenta Spray Fields	989,350	-	380,000	-			-			
15097	LC Biolac, Clarifier & UV Improvements	3,999,046	250,000	250,000	3,499,046	-	-		-		-
15104	Arnold Lift Station 2 & 3 Improvements	2,000,000	-		500,000						
15108	Regional Biosolids/Sludge Handling	1,500,000	-		-						
15110	Sequoia Woods Leach Field Rehab	150,000	-	-		-	-		-		-
15102	Arnold Tertiary Filter Rehab	250,000	-	-							
15106	FM UV Disinfection System Replacement	300,000	300,000					300,000			
15111	Vallecito WWTP System Improvements	130,000	130,000					130,000			
15087	Wallace WW Electrical	25,000	25,000					25,000			
15091	West Point / Wilseyville Consolidation Project	5,471,126	500,000	4,750,000	221,126	-	-	-	500,000		-
15087/10033	Wallace Renovation/SCADA/PLC & Electrical	164,207	150,000			-	-	-	-		150,000
TBDLCSF	La Contenta Sand Filter Rehab _		50,000	50,000				50,000			
TBDCCWWT	CC WWTP Tertiary Filter	1,400,000									
TBDCCLS	CC Lift Station Rehab - General	5,000,000									
	Total Wastewater Projects	**$ 47,636,688**	**$ 2,655,000**	**$ 7,730,000**	**$ 12,357,506**	**$ 262,500**	**$ -**	**$ 1,592,500**	**$ 500,000**	**$ -**	**$ 150,000**
TOTAL WATER AND WASTEWATER PROJECTS		**$ 111,890,478**	**$ 12,625,918**	**$ 14,768,132**	**$ 16,884,028**	**$1,022,500**	**$ 403,750**	**$ 3,385,918**	**$ 2,088,750**	**$ 384,775**	**$ 375,000**

Department	Full Time Position	FY 2020-21	FY 2021-22
Administrative Services	Accountant I/II*	2	2
	Accounting Technician I/II	1	1
	Customer Service Representative I/II/III/SR	3	3
	Director of Administrative Services	1	1
	External Affairs Manager	1	1
	Information System Administrator	1	1
	Succession IT Admin (2 Months) **	0	0.17
59 – Administrative Services Total		**9**	**9.17**
Engineering/Technical Services	Civil Engineer	1	0
	Construction Inspector I/II/III/SR	1	0
	District Engineer	1	1
	Engineer - Associate, Civil, Senior	0	3
	Engineering Coordinator	1	1
	Engineering Technician	1	1
	Senior Civil Engineer	2	0
	Senior Supervisor of Construction/ Inspection	0	1
58 – Engineering/Technical Services Total		**7**	**7**
General Management	Executive Assistant/Clerk to the Board	1	1
	General Manager	1	1
	Human Resources Manager	1	1
	Human Resources Technician	1	1
General Management Total		**4**	**4**
Utility Services	Administrative Technician I/II/Sr	1	1
	Collection System Worker I/II/III/IV/Sr	5	5
	Construction and Maintenance Manager	1	1
	Construction Worker I/II/III/Sr	7	7

	Director of Operations	1	1
	Distribution Worker I/II/III/IV/Sr	7	9
	Electrical/Instrumentation Tech I/II/Sr	1	1
	Electrical/SCADA Senior Supervisor	1	1
	Facilities Maintenance Worker	1	1
	Mechanic I/II/Sr	4	3
	Meter Reader Trainee/I/II	2	0
	Operations, Senior Supervisor	4	4
	Plant Operations Manager	1	1
	Purchasing Agent	1	1
	SCADA Technician I/Sr	2	2
	Water/Wastewater Plant Operator	10	10
Utility Services Total		**49**	**48**
Water Resources	Manager of Water Resources	1	1
Water Resources Total		**1**	**1**
Total Personnel Allocation		70	69.17

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPTING THE FISCAL YEAR 2021-22 OPERATING AND CAPITAL IMPROVEMENT PROGRAM BUDGET

WHEREAS, the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT Has reviewed the projected revenues and expenditures for the 2021-22 fiscal year: and

WHEREAS, the Board of Directors has, as a result of the review, identified those programs and expenditures that will be most beneficial to the needs of the CALAVERAS COUNTY WATER DISTRICT.

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT that the Fiscal Year 2021-22 Operating Budget in the amount of $28,673,483 is hereby approved and adopted.

BE IT FURTHER RESOLVED, by the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT that the Fiscal Year 2020-21 Capital Improvement Program (CIP) Budget in the amount of $12,625,918 is hereby approved and adopted.

PASSED AND ADOPTED this 23rd day of June 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPTING THE FISCAL YEAR 2021-22 PERSONNEL ALLOCATION

WHEREAS, the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT Has reviewed the projected revenues and expenditures for the 2021-22 fiscal year: and

WHEREAS, the Board of Directors has, as a result of the review, identified those programs and expenditures that will be most beneficial to the needs of the CALAVERAS COUNTY WATER DISTRICT.

WHEREAS, the Board of Director approved and adopted the Fiscal Year 2021-22 Operating Budget on June 23, 2021.

NOW, THEREFORE BE IT RESOLVED, by the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT that the Fiscal Year 2021-22 Personnel Allocation, attached hereto and made a part hereof, is hereby approved and adopted.

PASSED AND ADOPTED this 23rd day of June 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

Agenda Item

DATE: June 23, 2021

TO: Michael Minkler, General Manager

FROM: Bob Godwin, Senior Civil Engineer

SUBJECT: Discussion/Action to Award Design Services Contract for the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project, CIP 15095

RECOMMENDED ACTION:

Motion:_____/_____ adopting Resolution 2021-_____ awarding a contract for engineering service for the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project, CIP 15095, and authorizing the General Manager to execute a professional services agreement with Hydroscience Engineers Inc. (Hydroscience) in the amount of $378,951 to prepare preliminary and final design improvements for the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project, CIP 15095.

SUMMARY:

The District issued a Request for Proposals (RFP) on January 4, 2021 for designs services related to the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project. The District received four proposals on March 17, 2021. A summary of each proposal's labor and fee estimate are listed alphabetically in the table below:

Proposal	Consultant's Labor Hours	Fee Estimate (including ODCs)
Blackwater Consulting Engineers	1,391	$343,588
Coleman Engineers Inc.	2,022	$733,497
Dewberry – Drake Haglan	1,210	$269,143
Hydroscience Engineers Inc.	2,461	$536,236

Staff reviewed all consultant proposals and found them all responsive to the RFP. The Hydroscience proposal was ranked highest by District staff. However, Hydroscience's scope of work includes a greater labor effort resulting in the third highest fee estimate.

Staff took the issue of consultant selection to the Engineering Committee on May 12, 2021 seeking and receiving direction by the committee regarding consultant selection.

At the Engineering Committee staff was directed by the committee to contacted Hydroscience and negotiate an amended scope of work, and fee estimate to eliminate all discretionary work. This negotiated amendment was received on June 9, 2021 and the amended labor and fee estimate presented in the table below:

June 9, 2021 Amendment	Consultant's Labor Hours	Fee Estimate (including ODCs)
Hydroscience Engineers Inc.	1,717	$378,951

Staff evaluated amendment and has determined that this amendment provides both the minimum level of effort required to complete the project design and remains the highest ranked consultant proposal.

Staff recommend that Hydroscience's proposal with June 9, 2021 scope of work and fee estimate amendment be accepted, and Hydroscience awarded a professional design service contract for preliminary and final design services for the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project, CIP 15095.

FINANCIAL CONSIDERATIONS:

Funding for the Arnold Secondary Clarifier and Wastewater Treatment Plant Improvement Project, CIP 15095 is included in the Fiscal Year 2021-22 Operating and CIP Budget pending adoption on June 23, 2021. Projected working capital for the project design services is $550,000.

Attachments:

1) *Hydroscience Proposal w/ June 9, 2021 Amended Scope of Work and Fee Estimate*
2) *Resolution 2021-___- Awarding Design Service Contract for the Arnold Secondary Clarifier and WW Treatment Plant Improvement Project, CIP 15095*

Design and Engineering Services for the

Arnold Wastewater Treatment Facility Improvement Project, (CIP 15095)

March 17, 2021

Prepared for
Calaveras County Water District

Prepared by
HydroScience Engineers

HydroScience

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HydroScience
Strategic Water Solutions

HydroScience Engineers, Inc.
10569 Old Placerville Road
Sacramento, CA 95827
916.364.1490

March 17, 2021

Kate Jesus
Engineering Department Coordinator
Calaveras County Water District
120 Toma Ct.
San Andreas, CA 95249

Subject: Proposal for Engineering and Design Services, Project No. CIP 15095
Arnold Wastewater Treatment Facility Improvement Project

Dear Ms. Jesus:

HydroScience is pleased to submit this proposal to develop a phasing plan, preliminary design, and final design for improvements to the Arnold Wastewater Treatment Facility (WWTF). We offer an experienced and committed team who will bring the following benefits to the District:

Extensive Wastewater Design Experience: Project Manager Bill Slenter, PE and Project Engineer Eric Jones, PE have collaborated on treatment facility rehabilitation and upgrade projects since 2007 and have a combined 48 years of experience. They will be supported by a comprehensive team of in-house civil, mechanical, process, electrical, and controls engineers working cohesively to advance the preliminary and final designs and set the stage for a successful construction project.

Collaborative Planning and Design Approach: HydroScience is a client-focused design firm well-suited to guide the District through a confident evaluation and decision-making process that will result in an optimal phasing plan and cost-effective Phase 1 improvements. We implemented a similar approach for City of Davis who approached us with a wish list of improvements and a limited budget to implement them, and developed a very successful design for complex retrofits to an existing operating treatment plant that met their budget. Our evaluation and workshop process will involve and inform your staff and result in an optimized plan for improving the Arnold WWTF.

Best Value Focus: Recognizing the challenges that the District faces in funding needed improvements operation across twelve treatment facilities serving a small base of 5,000 customers, we will apply experience and creativity to maximize the value of every construction dollar spent. Continuous value engineering coupled with close collaboration with your knowledgeable staff will be applied throughout preliminary and final design to achieve improvements that provide high value over the long-term.

HydroScience will execute the District's standard professional services agreement that was attached to the RFP. All work will be performed based on a time-and-materials basis up to a not-to-exceed fee at our 2021 standard billing rates.

HydroScience is the right-sized firm with the people, experience, and client-focused work culture needed to exceed your goals. Should you have any questions about our proposal, please contact Bill Slenter at either bslenter@hydroscience.com or (916) 273-6035.

Sincerely yours,
HYDROSCIENCE ENGINEERS

Curtis Lam
President

Bill Slenter
Principal

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TABLE OF CONTENTS

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Section A

PROJECT OVERVIEW

The Calaveras County Water District (District) seeks to upgrade the Arnold Wastewater Treatment Facility (WWTF) to improve capacity, operational flexibility, reliability, redundancy, and performance. The project will begin with a Preliminary Design phase that will evaluate, prioritize, estimate costs, and set a schedule for phased improvements. High priority improvements will be designed and constructed as part of this project. The extent of Phase 1 improvements will be based on available funding and urgency. Future improvement projects will be implemented in accordance with the roadmap established under this Preliminary Design.

The Arnold WWTF is a 175,000 gallons per day (gpd) facility that uses an oxidation ditch, secondary clarifier, pressure filter, and chlorine disinfection to treat to secondary standards. Effluent is discharged to land via both spray irrigation and subsurface infiltration. Sludge is processed in two aerobic digesters and dewatered using a belt press, followed by solar drying. The facility currently serves 835 equivalent single-family units (ESFUs) and is covered under the General Order for Small Domestic Treatment Systems (WQ-2014-153-DWQ-R5190). Effluent limitations include monthly average and 7-day average limitations for BOD and TSS of 30 mg/L and 45 mg/L, respectively, with a maximum coliform level of 23 MPN/100 mL.

Most process structures and equipment are over 35 years old, and the lack of process redundancy complicates rehabilitation. The WWTF is located at an elevation of approximately 3,700 ft, and construction is generally restricted to the dry months. Subsurface conditions include significant shallow weathered bedrock, complicating excavations for foundations and yard piping. Existing process tanks are mostly constructed above grade to avoid the rock. Tanks are constructed on sloped land with 8 ft of water surface elevation drop between the oxidation ditch and the secondary clarifier. An automated pinch valve is currently used to regulate flow to the clarifier.

The District issued a Design Report (Arnold WWTF Phase 1 Improvement Project Design Report Update, December 14, 2020) which provided a preliminary priority list of planned new and replacement infrastructure, addressed anticipated growth in the service area, examined current raw wastewater volume and characterization, presented process calculations, established a basis of design, and provided a concept design for Phase 1 improvements. The proposed Phase 1 improvements consist of the Priority 1-3 items listed in the RFP, and are summarized as follows:

1. Add a new secondary clarifier.
2. Improve conveyance, metering, and flow splitting of mixed liquor from the oxidation ditch to the two clarifiers, with provision for future addition of a second oxidation ditch.
3. Replace the existing RAS/WAS pump station with a new facility capable of serving two clarifiers.
4. Replace the existing effluent pump station with a new facility, where pumping operations to the filters and from the filters to the effluent storage tank are separated.
5. Add an aerobic digester.
6. Perform associated improvements to yard piping, power distribution, utility power supply (if required), instrumentation, and PLC/SCADA controls.

Available funding for facility upgrades is limited. The District operates twelve wastewater treatment facilities serving about 5,000 municipal customers and implements incremental improvements to these facilities based on priority, with an emphasis on maximizing the value of each dollar expended. The District wishes to begin construction of Phase 1 improvements in early 2022 and have all underground work completed before the start of wet weather, with the overall construction project closing out in early 2023.

Our approach, proposed scope of work, and schedule for planning and implementing best-value improvements to the Arnold WWTF through a collaborative process are described in the next section.

The Arnold WWTF Improvement Project will add secondary clarification capacity and redundancy, replace existing activated sludge and effluent pumping facilities with upgraded equipment, improve aerobic digestion capacity, improve power supply and instrumentation/control systems to support these upgrades, enhance overall performance and redundancy, and establish a roadmap for future plant improvements.

Section B

UNDERSTANDING AND APPROACH

HydroScience will establish a collaborative environment with District management, engineering, and operation and maintenance (O&M) staff at the outset of the project and carry this through evaluation and design phases. We will meet with District staff to collect information on existing facilities, fully understand the District needs and priorities, discuss operational and condition shortcomings that need to be addressed, and establish an efficient framework for decision-making. We will evaluate each improvement element, apply our experience and creativity to find cost-effective improvement approaches, be mindful of existing facility ongoing operations, and present complete information for the District to make sound and confident decisions. Through this approach, we will establish a comprehensive roadmap for improvements and implement a Phase 1 design that will be constructed cost-effectively and provide long-term reliable service.

Preliminary Design Phase

The December 2020 Design Report established a roadmap for near-term and long-term upgrades to the Arnold WWTF. Our current understanding of the project is based on a thorough review of the documentation provided (as-builts, prior evaluations, and the December 2020 Design Report), a visit to the facility, and our experience with similar treatment plant retrofit and design projects. We will enhance this understanding by holding a well-planned kickoff meeting followed by a detailed visual inspection of the facility. We will bring all engineering discipline leads and request that District O&M and engineering staff attend and be prepared to share their knowledge and preferences.

The preliminary design will build upon the December 2020 Design Report. Rather than repeating those efforts, we will review and validate the calculations and findings of the report, incorporate additional information and input gathered during the kickoff, optimize improvement approaches, prepare planning-level cost estimates for each improvement item, and incorporate evaluations of the remaining improvements (Priorities 4-10). Trigger points will be established to determine when each improvement needs to be implemented based on design capacities of existing equipment, age, condition, and anticipated increases to flows and loads.

Collaborative Development of Facility Improvements Roadmap

HydroScience will establish and maintain an effective collaborative process with District engineering, management, and O&M staff through this process, continuing into detailed design.

HydroScience has completed numerous wastewater facility design projects that started with an improvements wishlist, a range of conceptual alternatives to achieving the improvements, and budget limitations for the improvements. Examples of our similar work include the City of Davis WWTP Rehabilitation and Replacement Project and the Silicon Valley Clean Water Wastewater Treatment Reliability Project (see Experience). HydroScience will utilize the same approach successfully implemented on these projects, summarized as follows:

1. Establish the key goals of the project and identify the District's priorities.
2. Set up a construction cost estimate model that can be frequently updated and refined during planning and design.
3. Evaluate existing facilities including condition, hydraulics, and areas of inefficiency and inadequate performance, reliability, or flexibility.
4. Finalize the design criteria and trigger points for future upgrades.
5. Identify where replacement, rehabilitation, and/or reuse are appropriate for achieving project goals while maximizing value. Work with the District to refine asset reuse/improvement approaches.
6. Update the cost model to reflect a running total of project costs. Run the cost model for various alternatives under consideration. Incorporate appropriate cost contingencies based on the current bidding environment.
7. Discuss options and costs with District staff during design workshops. Provide sufficient information to facilitate confident decision-making. Set priorities and refine the strategy and scope of improvements and arrive at a final design that is constructable within the budget.

8. Prepare Phase 1 design documents.
9. Finalize the roadmap for future upgrades.

Accurate cost estimating will be a key focus item for our effort. We will develop estimates with care, utilizing manufacturer quotations, bid tabs from recent similar projects, and appropriate contingencies reflecting unknowns and the anticipated bidding climate.

HydroScience will establish process outage constraints and creative bypass options with District operations early in preliminary design. Limited-duration process outages will be needed to connect new liquid and solids process units to the existing treatment trains. Provisions for performance testing during construction will also be needed. By establishing the overall strategy and acceptable outage durations early, we can develop our design approaches in full consideration of these constraints, improving our efficiency.

Improvements will be prioritized based on urgency of need, life cycle costs, and non-cost factors examined through a scoring and weighting system developed with District input. The design approach for each improvement will consider the level of staffing and average staff response time to alarms at this specific facility.

Two workshops will be held during preliminary design:

Workshop 1: This workshop will be held after we have completed data gathering and evaluation and have developed preliminary improvement approaches and costs. We will present our preliminary analysis and findings using a series of PowerPoint slides and gather input. This input will guide our efforts to prepare a Draft Predesign Report, Preliminary Phase 1 Improvements Drawings, estimate, and schedule update.

Workshop 2: This workshop will be held after we have submitted our draft report package. We will present the submittal and discuss major District comments during the meeting. Following the meeting, we'll receive itemized District comments for implementation.

Detailed Design Phase

The selected improvements for Phase 1 implementation will be carried forward to detailed design. HydroScience's in-house civil, mechanical, process, electrical, instrumentation and controls engineers, working in concert with our trusted structural subconsultant, VE Solutions, will work as a cohesive team to efficiently develop a well-coordinated design. Our electrical and controls team will coordinate closely with A-Teem (under contract with District) to address the incorporation of new instrumentation signals and revised process control strategies into the existing PLC control system.

Continuous construction cost management will be a key component of our design. This consists of two components: minimizing unexpected costs and maximizing the value of every construction dollar spent. The following summarizes how we will achieve that:

Minimizing Unexpected Costs:

- Conduct sufficient geotechnical investigation and surveying to accurately characterize existing conditions.
- Include a well-defined rock clause in the contract documents.
- Pothole existing utilities where discrepancies in as-built locations could result in construction change orders. Design around actual conditions.
- Perform thorough internal QA/QC of each deliverable prior to submitting to the District, using an experienced senior staff member independent from the design team.
- Continuously coordinate design efforts across disciplines to avoid conflicts.
- Produce clear and complete plans and specifications to maximize the accuracy and completeness of bids.
- Clearly identify construction sequencing and timing constraints in the contract documents.

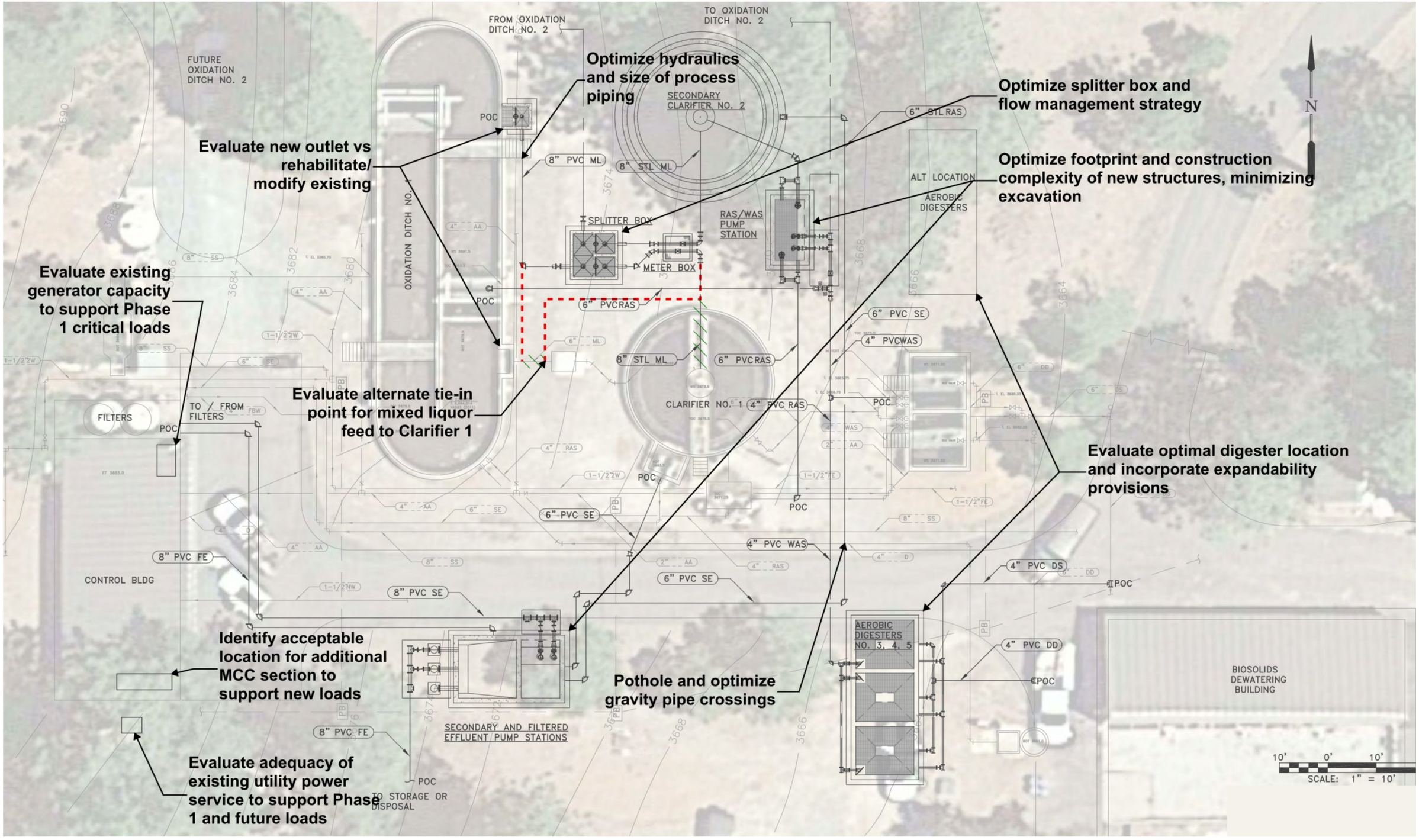
Maximize Value of Every Construction Dollar Spent:

- Incorporate multiple manufacturers and pipe materials where feasible in the contract documents to increase pricing competition.
- Minimize the complexity of concrete structures where feasible.
- Minimize the area and depth of excavations where shallow hard rock exists.
- Seek opportunities to pre-fabricate components in the shop.
- Choose equipment with a history of successful installation and a robust and responsive support network.
- Choose construction materials that will provide a long service life.

Unit Process Upgrades Approach

This section describes our understanding and potential design approaches for some of the key unit process upgrades identified in the District's priority list. Particular attention is given to the Priority 1-3 projects identified in the RFP for detailed design. Refer to ***Figure 1*** for identification of key issues and alternatives to be evaluated as part of the Preliminary Design.

FIGURE 1


Optimize hydraulics and size of process piping
Optimize splitter box and flow management strategy
Evaluate new outlet vs rehabilitate/ modify existing
Optimize footprint and construction complexity of new structures, minimizing excavation
Evaluate existing generator capacity to support Phase 1 critical loads
Evaluate alternate tie-in point for mixed liquor feed to Clarifier 1
Evaluate optimal digester location and incorporate expandability provisions
Identify acceptable location for additional MCC section to support new loads
Pothole and optimize gravity pipe crossings
Evaluate adequacy of existing utility power service to support Phase 1 and future loads
FROM OXIDATION DITCH NO. 2
TO OXIDATION DITCH NO. 2
FUTURE OXIDATION DITCH NO. 2
OXIDATION DITCH NO. 1
SECONDARY CLARIFIER NO. 2
CLARIFIER NO. 1
SPLITTER BOX
METER BOX
RAS/WAS PUMP STATION
ALT LOCATION AEROBIC DIGESTERS
AEROBIC DIGESTERS NO. 3, 4, 5
SECONDARY AND FILTERED EFFLUENT PUMP STATIONS
BIOSOLIDS DEWATERING BUILDING
FILTERS
CONTROL BLDG
TO / FROM FILTERS
TO STORAGE OR DISPOSAL
POC
6" STL RAS
8" PVC ML
8" STL ML
6" PVC RAS
6" PVC SE
4" PVC WAS
4" PVC RAS
4" PVC DS
4" PVC DD
8" PVC FE
8" PVC SE
N
10' 0' 10'
SCALE: 1" = 10'

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Oxidation Ditch Modifications

All flow through the plant goes through the one oxidation ditch. The existing ditch has a depth of 11 ft. The Design Report identifies a need to replace the existing oxidation ditch mixed liquor outlet structure or modify the existing outlet structure as part of planned mixed liquor flow distribution and metering improvements upstream of the clarifiers. While the oxidation ditch appears to have sufficient hydraulic capacity, the existing outlet requires the manual addition/removal of weir boards to vary water depth between 7-11 ft based on influent flows. This is problematic for coordinated operation of two future ditches. Also, the outlet configuration needs to be changed to better coordinate with the change to downstream mixed liquor metering and flow splitting (addressed below). The final outlet configuration must minimize turbulence that could break up flocs given the 8 ft of fall to the clarifier.

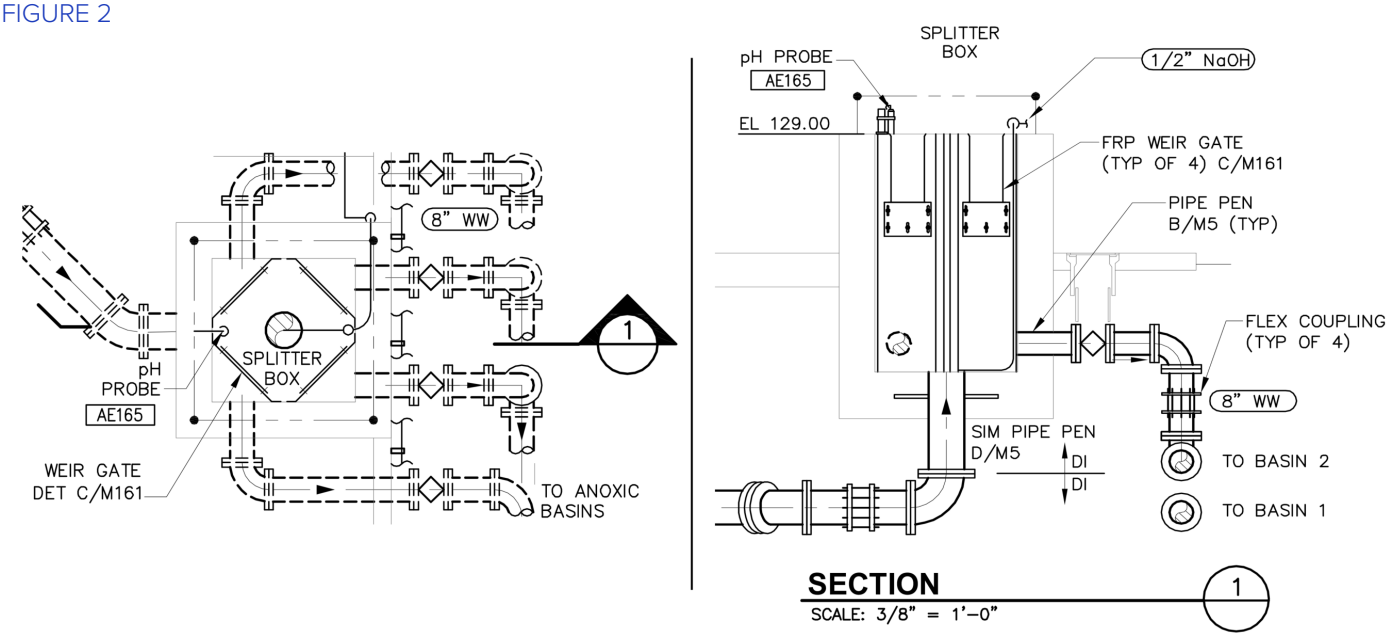
HydroScience will evaluate several approaches, including modifying the existing outlet and constructing a new replacement outlet, in consideration of the significant outage limitations for construction at a single-train treatment plant. The outlet location will be coordinated with process operation and the anticipated location of the new RAS pipe connection. Constructing a new outlet structure would entail modifying the existing structure to create an opening, requiring a process outage and draining. The outage duration could be limited by constructing the outlet box first and then coring a hole in the existing wall as a final step during a limited outage. Modifying the existing outlet would entail an outage to remove weir boards and install new flow control devices (adjustable weir gate, telescoping valve, or similar). The existing 6" outlet pipe could be sufficient to provide 4.5 fps at 400 gpm, but an 8" will also be evaluated.

Mixed Liquor Metering

Currently, mixed liquor flow is metered through a modulating pinch valve. This setup is only suitable for the existing single process train. There is 8 ft of elevation fall between the two tanks. The Design Report drawings show construction of a new splitter box with downward motorized adjustable weir gates modulated through a flow control loop utilizing downstream flowmeters in a vault.

HydroScience will evaluate this and alternate solutions for combining mixed liquor flows from up to two oxidation ditches and evenly splitting and metering this flow to two secondary clarifiers. We will seek opportunities to reduce the quantity, complexity, and excavation sizes of the concrete structures while achieving like performance. We will also examine the benefits of passive versus active flow split control. A properly-constructed passive splitter box can evenly split flow without the cost/complexity of magmeters and motorized valves. ***Figure 2*** provides an example of a simplified weir box design that utilizes manually-adjustable metal plates to evenly split flow and downstream plug valves for isolation.

FIGURE 2



Above: *Example simplified splitter box design from Thunder Valley WWTP project (HydroScience, 2010). This splitter box evenly splits raw wastewater to four process trains. Manually adjustable weir plates provide fine-tuning capability during commissioning. Downstream buried plug valves are used to take process trains out of service. The use of stainless steel weir plates instead of concrete chambers reduces cost of concrete formwork and reinforcing steel installation.*

A key issue for metering mixed liquor is minimizing turbulence to avoid breaking up floc, which would negatively impact settleability and effluent quality. This may already be occurring with the existing arrangement. The solutions we offer will optimize hydraulics and weir placement to minimize drops and turbulence.

Secondary Clarifier Addition

The new secondary clarifier would likely be constructed north of the existing clarifier, as originally intended in the original plant design. The new clarifier is expected to have similar dimensions as the existing clarifier. During predesign we will evaluate options for the clarifier mechanical equipment (make, model, materials) including painted and stainless steel, standard and spiral blade scrapers, and drive units. The resulting specification will provide the optimal balance of capital cost, service life, reliability, and performance and allow for at least two manufacturers to compete for supply of the equipment. Optimal tie-in points for mixed liquor feed piping will also be determined. The existing flow control vault location would allow more of the existing piping to be reused and avoid excavating next to the existing clarifier.

RAS/WAS Pumping

The Design Report identifies replacement of the existing RAS/WAS pump station with a new facility serving both clarifiers and sized for the future addition of a second oxidation ditch. The report specifies two 128 gpm pumps (duty and standby) with the addition of two more with the second oxidation ditch. HydroScience will evaluate and refine the pump sizing to maximize operational flexibility across the range of typical recycle flows for oxidation ditches (generally 75-150% of influent flow) while maintaining equipment redundancy. It may be possible to design the station for three total pumps at buildout, with one as a swing standby, reducing the pump station footprint and cost.

Aerobic Digestion

The Design Report indicated that one additional digester is needed to provide required capacity. Adding additional flow and a second clarifier will also increase sludge production. The report recommended submersible self-aspirating aerators for the new digester, which would be different than the existing arrangement; low-horsepower mixers with an air inlet pipe. The benefits of the self-aspirating aerators combine the advantages of aeration diffusers and agitation in one unit. This type of aerator will also not require an air supply line from the existing blowers, which will further relieve the blowers from reaching maximum capacity during Phase I Improvements.

Design of a new digester will factor in the anticipated range of operating temperatures and the tank will be configured to minimize dead spots. The digester location will be selected based on geotechnical conditions, proximity to tie-ins, and provisions for future expansion.

Effluent Pumping

The existing effluent pumps consist of two 200 gpm, 200 ft TDH vertical turbine pumps which pump to the filters and then discharge into an elevated effluent storage tank 161 ft above the clarifier water surface. The Design Report identifies issues utilizing a single set of pumps to convey effluent through filtration to the tank, which could be causing sub-optimal filter hydraulics. These issues include the potential to blow out media, which is cited as a concern in prior evaluations of filter performance. The existing pumps are installed in a chamber attached to Clarifier No. 1. The addition of a second clarifier will require either upgrading to new larger pumps and an inlet from Clarifier No. 2 or installing a centralized pumping facility. The Design Report calls for a new combined secondary and filtered effluent pump station in a dual wet well structure. This approach will be evaluated along with smaller separate facilities. Both cast-in-place and precast options will be considered.

Electrical and Instrumentation

The existing motor control center (MCC) is located in the Control Building and rated for 480 VAC, 300 A, 60 Hz, 3-phase, 4-wire, and 42000AIC. The MCC is fed utility power via a 250A Main Circuit Breaker. The MCC distributes 480VAC, 3-phase power to all existing motors and equipment and a 50 KVA, 3-Phase, 480VAC / 120-208VAC transformer. Two power distribution panels, Panel A and Panel B, distribute power to miscellaneous electrical loads. An automatic transfer switch (ATS) connects a 55 kVA standby generator in the Control Building to the MCC bus to provide emergency power to a group of selected loads that must be operated during the utility power outage. The ATS, when activated, splits the MCC bus into two sections, supplying generator power to only critical loads.

Given the obsolescence of the existing electrical power system, the District intends to eventually replace it. The current Project Priority Ranking for replacement of electrical and instrumentation systems is 6, therefore the replacement of the power system is not anticipated to be part of Phase 1 but will be evaluated during Preliminary Design for future implementation.

Construction of Priority 1-3 improvements will include a net increase to the number of motors and therefore the number of 480-volt feeder breakers that need to be accommodated. ***Table 1*** provides a summary of this.

TABLE 1: PRIORITY 1-3 PROJECT MOTOR LOAD CHANGES

MAJOR EQUIPMENT	QUANTITY ADDED OR REMOVED	HP (EACH)	TOTAL HP ADDED OR REMOVED
New Clarifier	1	1	1
Existing RAS/WAS Pumps	-2	3	-6
RAS/WAS PS	2	3	6
Existing Filter PS	-2	10	-20
New Filter PS	3	5	15
New Effluent PS	3	15	45
New Aerobic Digester Aerator/Mixer	1	6	6
		TOTAL	47

Note: *Filter and Effluent PS horsepowers include 1 standby unit each.*

Preliminary evaluation of the existing utility power service indicates that the service may be adequately sized for the increase in motor loads. This will be confirmed during Preliminary Design and the trigger point for a required upgrade will be identified. A design fee for coordinating electric service upgrade is listed as an optional service. The net increase in 480-volt motors will require modification of the existing MCC sections after removal of existing loads and prior to connecting new loads. An additional MCC section will be needed to provide motor controls for the new motors and power to the new equipment as required. The Control Building has no room to expand the MCC without blocking off the window to its immediate right. This option will be considered along with locating a remote section elsewhere in the Control Building (either in the Control Room or the Shop Room).

We were not able to view the existing Control Panel PLC inputs/outputs (I/Os) during our site visit, and as-built drawings for the panel were not available. We will assess the existing PLC control system during Predesign, coordinate with A-Teem, and establish available capacity for additional instruments and I/Os as part of Priority 1-3 improvements as well as future improvements. This will include identification of trigger points for expanding I/O capacity and panel space to support planned improvements.

We will coordinate with A-Teem for modifications of the existing PLC program and SCADA HMI screens to integrate the new equipment and instrumentation. New I/Os including equipment status, alarms, instrumentation, and control logic will be identified on a set of P&IDs and specified in the control strategies to establish programming requirements for the PLC and SCADA HMI.

Aeration Blowers

Replacement of aeration blowers 1-3 is slated as a future Priority 4 replacement project. The use of a self-aspirating aerator for Digester 3 will avoid triggering blower upgrades in Phase 1, but the addition of a future second oxidation ditch or age/condition could trigger blower replacement. The existing blowers provide air for the existing aerobic digesters and oxidation ditch. There are currently three 15 hp blowers (2 duty, 1 standby) in operation, with a capacity of 280 cfm each.

At the projected BOD loading of 225 mg/L and maximum daily influent flow the air capacity required would be approximately 579 to 868 cfm for the oxidation ditch, which would require at least two blowers to provide air exclusively to the oxidation ditch under minimum air requirements. However, the maximum capacity of the air diffusers is limited to 500 cfm and aeration capacity requirements do not consider the aeration capacity of the mixers in the ditch or transfer of air through the surface of the ditch. Under projected average daily flow and future BOD loadings, one blower would provide sufficient air flow to the oxidation ditch. In addition, the blowers supply air to two 9,050 gallon aerobic digesters (2 cells total) which require 60 cfm or 30 cfm of air per digester cell. HydroScience will evaluate the trigger point for exceeding blower capacity and develop a replacement strategy for the blower system.

Additional Process Evaluations

The predesign phase will include the evaluation of the following additional future improvement projects:

Filters: The existing filters are aging and the 1990 Capacity Evaluation noted limited water quality benefit during normal operations. Adequate filtration is needed to protect the subsurface disposal system from solids buildup. The filters will be evaluated in the context of effluent pumping hydraulics improvements planned as part of Phase 1. The evaluation will rely on existing data gathered by the District along with our visual inspection. This can include examination of upstream and downstream turbidity and TSS measurements collected by the District over time, along with media sampling and replacement records.

Area Drain Pump Station: The District reports the station is aging and under sized. HydroScience will evaluate replacement of all mechanical equipment (pumps, rails, pipes, panel, appurtenances) with upsized, more efficient modern equipment and either rehabilitation or replacement of the concrete wet well.

UV Disinfection System: HydroScience will evaluate the replacement of the existing chlorine disinfection system to provide effluent disinfection to meet the 23 MPN/100 mL coliform requirement. Closed vessel UV systems will be evaluated to minimize head losses and simply UV placement downstream of the existing filters.

Permitting Support

The District plans to address any required CEQA permitting and reporting to the Central Valley Regional Water Quality Control Board (Water Board) associated with the improvements. HydroScience has frequently supported, and also led, efforts to permit and obtain CEQA clearance for WWTF improvements. HydroScience anticipates supporting the District by preparing a project description for the selected improvements, preparing design criteria tables, preparing schematics and flow charts, and incorporating and tracking permitting timelines on our master schedule.

HydroScience will also assist the District in obtaining a waiver from effluent requirements for the period of operational transition and testing of the new unit processes during construction.

Project Management

HydroScience will manage the project with an emphasis on diligence, tracking and verification, efficiency, effective communication, management of budget, and delay avoidance. Project Manager Bill Slenter will leverage his long history of managing complex wastewater projects to foresee and collaboratively address challenges before they impact the schedule or budget.

Our approach to client collaboration is summarized as follows:

- Bill and the team will maintain regular phone, email, and written communication. At all times, the District will be well informed of the status of the project and the questions and issues that are coming.
- We will visit the site and regularly collaborate through in-person meetings and screen-share calls.
- In respect of staff time, we will boil down communications to the key issues by doing our homework first and communicating in a concise and focused manner.
- The workshop format will be used to communicate with the District at key milestones and solicit input. Every workshop will include handouts and visual aids in order to move quickly through the presentation portion, fully inform District staff, and encourage productive discussion.
- Agendas will be prepared for all meetings and distributed one week in advance, and summary minutes will be distributed within three days of every meeting.
- Monthly budget, schedule, and work progress status reports will be prepared and included with every invoice.

A log will be developed to prioritize issues and document decisions, and this will be distributed to the District at meetings and monthly. The decision log will be referenced during every design decision to ensure that District comments are addressed.

The District will be well informed at all times as to the status of the project, the decisions that need to be made, the input needed to make those decisions, and the anticipated final product. The final product will be a completed improvement project and future improvements roadmap, both specifically tailored to the District's needs and operating philosophy.

Calaveras County Water District
Arnold Wastewater Treatment Facility Improvement Project - CIP 15095
HydroScience Engineers Scope of Work – Revised 6/7/2021

HydroScience will perform preliminary and final design of improvements to the Arnold WWTF and provide engineering services during construction. The following summarizes the included improvement elements:

Evaluate and Design:

- New secondary clarifier
- New RAS/WAS pump station
- Modify or replace mixed liquor outlet structure
- New mixed liquor splitter box and metering
- New aerobic digester
- Upgrade power utility service
- MCC modifications for new loads
- Control panel modifications for new equipment
- Associated yard piping

Optional Additional Services:

- Evaluate and design a new filter feed/filter effluent pump station

Task 1: Project Management and Coordination

HydroScience will provide project management services as necessary to direct the internal team members, coordinate with the District, manage project accounting, monitor project schedule, prepare monthly invoices, prepare status reports for inclusion with invoices, track project decisions, and implement our Quality Control/Quality Assurance (QA/QC) Program.

All deliverables will be reviewed by our QA/QC Lead Curtis Lam prior to delivery to the District. As part of our QA/QC process, we will maintain a log of activities with sign off by the appropriate designer and QA/QC individual that all comments have been addressed.

Invoices will be summarized by task number and will show the total task budget, amount billed each month, and task budget balance. The progress reports will include the current project status, schedule, obstacles, and estimated work remaining to complete the project.

HydroScience will conduct a project status call with the District's project manager as required to coordinate project activities, up to every other week (bi-weekly) during preliminary and final design.

Deliverables:

- Monthly progress reports
- Schedule updates
- Decision tracking log updates

Task 2: Project Initiation and Predesign Report

An all-hands project kickoff meeting combined with data collection and District staff interviews will be held to initiate the project and begin the data collection process. HydroScience will facilitate the kickoff meeting, the purpose of which is to review scope, roles, and responsibilities; open lines of communication; finalize the implementation schedule; establish upcoming milestones and meetings; and collect background information for review and evaluation. One week prior to this kickoff meeting, HydroScience will generate a detailed list of information needs and present this to the District to facilitate information gathering.

The operator and staff interviews, coupled with a visual inspection and inventory of facility condition, will gather anecdotal information and records on the condition and O&M requirements for the existing facility to better understand current operations and deficiencies, identify how staff prefers to operate and maintain the plant, capture O&M concerns, confirm project objectives, and vet potentially feasible alternatives.

HydroScience will review the District's 2020 Design Report and prior reports, documentation, process and water quality data collected by the District, as-built drawings, and District projections for future flow and load increases.

HydroScience will establish a predesign-level project cost model for all contemplated improvements and will update the model as each improvement element is developed.

HydroScience will work with the District to identify available construction project funding and required contingency budget, then verify which improvements will be carried forward to detailed design and implementation based on priority and available funding.

HydroScience will conduct one predesign workshop with the District, to be held during the mid-point of predesign, to review development of the preliminary design and gather staff input.

An optimal construction sequencing for the improvements will also be addressed with the intent of minimizing interruption to plant operations. Construction constraints agreed upon with District O&M staff will be documented.

HydroScience will submit the draft Predesign Report to the District that includes the evaluation, recommended design approach for each improvement element, preliminary drawings, capital cost estimate, implementation schedule, and permitting requirements. Preliminary design drawings will be developed for the recommended improvements to be implemented in this phase. Based on comments received, the Predesign Report will be finalized and used as a basis for the subsequent detailed design. It is assumed the scope of design will be fixed at the conclusion of this phase going into design.

Deliverables:

- Predesign Report – Draft and Final (PDF)
- Preliminary Drawings (PDF)
- Preliminary Cost Estimate

Task 3: Topographic Surveying

Nordahl Land Surveying will perform a topographic survey and prepare an AutoCAD base map for the design as follows:

- Conduct a GPS OPUS Static Survey to establish survey control on the California Coordinate System NAD 83, Zone 3 basis and elevations on the NAVD 1988 Datum.
- Conduct a detailed topographic/location survey of the existing facility.
- Locate utilities, major trees, roads, driveways, edge of paving, structures, buildings, manholes, vaults, concrete pads, walls, poles, signs, fences, slopes, curbs, drop inlets, culverts, valves, pipelines, other existing facilities, and topographic features.
- Reduce survey data, contour, draft improvements and topographic features as outlined above.
- Prepare base map in AutoCAD showing topography and improvements as outlined above.

Deliverables:

- AutoCAD base map for incorporation into the design

Task 4: Geotechnical Investigation

Condor will begin field work preparation by contacting Underground Service Alert (USA) to mark any public utility right of ways located at the site. The project site boundaries will be physically marked so that USA representatives will be able to clear the site for public utilities. The client will need to provide Condor with locations of any on-site utilities not marked by USA prior to our field activities. The client will provide Condor the authorization to enter the project site. The approximate proposed test pit locations will be staked in the filed prior to commencement of field activities by Condor. Condor will not be held responsible for damage to any utilities that were not marked or that were not brought to our attention prior to beginning our field activities.

To evaluate the subsurface conditions at the project site for the proposed improvements, the field work will consist of excavating exploratory test pits by use of a backhoe and collecting representative samples of soil and bedrock. Up to 6 test pits will be excavated and logged by a Condor geologist. Test pits will be excavated to depths equal to the depth of the proposed structures, or excavation refusal, whichever occurs first. The test pits will be backfilled with excavated materials and lightly tamped using the backhoe.

Condor will perform laboratory tests on collected samples that may include moisture content and dry density, particle size distribution, plasticity index and corrosion potential. The final selection of testing type and frequency will be selected based on the subsurface conditions encountered during the field exploration.

Condor will perform geotechnical engineering evaluations, summarize our findings, conclusions, and recommendations in a report. Condor's report will include the following items:

- A description of the proposed project;
- A description of the surface and subsurface site conditions encountered during our field explorations;
- A description of our field and laboratory investigations;

- Results of laboratory testing;
- A summary of the geologic and seismic conditions within the project area;
- A description of our evaluation to develop ground shaking parameters for the project.
- Conclusions and recommendations related to the geotechnical aspect of:
    - Potential geologic and seismic hazards and recommendations for mitigation including liquefaction;
    - General earthwork, including site stripping, subgrade preparation, over-excavations, temporary excavations, permanent slopes, trench backfill, import fill, compaction criteria and site surface drainage;
    - Foundation design and construction, including foundation type, allowable bearing capacities, lateral resistance, settlement, and foundation depth, for conventional foundations; and 2019 California Building Code (CBC) seismic design criteria;
    - Lateral earth pressure design criteria; and,
    - Concrete slabs and exterior flatwork (as applicable for ancillary features)
- Plates and maps showing the site vicinity, the exploratory test pit locations, and subsurface soil and rock encountered, the geologic conditions in the project area, and locations of active and potentially active faults in the project area; and
- Appendices that will include logs of the test pits, laboratory test results and results of seismic analysis.

Deliverables:

- Geotechnical Report (PDF)

Task 5: Project Design

HydroScience will prepare plans, specifications, and estimates of improvements, suitable for public bid. Design documents will be delivered to the District at 50%, 90%, and 100% completion levels for review and comment, followed by a bid-ready set. Each submittal will include drawings commensurate with the level of completion, specifications (select draft technical specifications at 50%, complete technical and front-end specifications at 90%/bid set), construction schedule, the engineer's opinion of probable cost, and responses to comments from previous submittals.

Front-end specifications will be developed utilizing the 2018 edition of the Engineers Joint Contract Documents Committee Standards (EJCDC). A copy of the standards will be furnished to HydroScience by the District. HydroScience will edit the EJCDC documents adding any project-specific and State of California contract requirements. HydroScience will provide a bid schedule, detailed descriptions for each bid item, alternative bid items, if any, and description of sequence of work.

Deliverables:

- Draft plans at 50%, 90%, and 100% completion levels
- Selected draft technical specifications at 50%, draft and final technical and front-end specifications at 90%, 100%
- Estimate updated with each deliverable
- Bid Set PS&E (PDF/DWG/Word/Excel with one wet stamped copy)

Assumptions

- The District will prepare any required CEQA and RWB permitting documentation. As an optional service, HydroScience can provide project-specific descriptions, data, and figures to support this effort.
- The detailed design task is budgeted based on an assumed scope of WWTF improvements to be implemented as listed above. If the Predesign Phase determines that the scope of the design and construction should be modified, or if additional improvements are found to be needed to support the planned improvements, the scope and fee may require adjustment.
- The flow and load growth projections contained in the 2020 Design Report will be relied upon for development of Predesign recommendations and design criteria.
- Any process data or additional sampling required to support the project will be collected by the District at their expense.
- An additional MCC section sufficient to supply new loads can be located somewhere within the building. Complete replacement of the MCC not included in this design scope.
- Design of a new building or outdoor canopy not included in this design scope.
- Changes in the design are expected to be minimal at the 90% submittal stage. District review is mainly to capture minor edits or changes in the notes. At subsequent submittals, any significant design changes such as realignment of the pipeline and/or additional design details may result in delays in the schedule and additional fee.
- All deliverables to be provided in PDF format. Native format (dwg, doc, etc.) will be provided for final documents.
- The District will lead the bid advertisement phase and be the primary point of contact to prospective bidders. The District will forward technical questions to HydroScience for response, and prepare any addenda with input/draft content from HydroScience on technical items.
- Construction management, inspection, and materials testing will be by others.

Fees:

The base fee for the above services is $378,951 as detailed in Attachment A.

Optional Services:

Attachment A includes the following optional services items which can be individually or collectively added to this scope if requested by the District:

- **Power Service Utility Application:** If an upgrade to the existing power service and transformer is required to support additional loads, HydroScience will prepare a power service utility application to the utility provider and provide coordination support. The District will pay all application fees.
- **Utility Service Upgrade Construction Coordination:** This item covers anticipated coordination assistance during construction for a new service and transformer.
- **Updates to O&M Manual:** HydroScience will prepare updates to the existing facility Operations and Maintenance (O&M) Manual to incorporate the changes to the treatment plant processes. The District will provide its existing O&M manual in editable format, and HydroScience will prepare amended sections in Word. Deliverables to be provided in PDF and Word format.

- **Potholing Allowance:** HydroScience will procure the services of a potholing contractor to pothole existing buried utilities at the treatment plant to determine locations and elevations in order to refine the design of new utility crossings. Services will be provided up to the allowance amount.
- **Permit and Environmental Assistance:** HydroScience will prepare a project description, design criteria tables, schematics, and flow charts describing the Phase 1 improvements. These can be used by the District for incorporation into a CEQA environmental document and a Report of Waste Discharge to the Regional Water Board.
- **Commissioning Support:** HydroScience will provide up to 54 hours of on-site engineering support for the commissioning phase of the project.
- **Change Order Assistance:** HydroScience will review and provide input regarding the validity and scope of potential change orders (PCOs) issued by the contractor to the District's Construction Manager.
- **Predesign & Design Filter Feed/Effluent Pump Station:** HydroScience will add to the preliminary and final design effort the design of a new common Filter Feed and Effluent Pump Station Facility, instead of utilizing individual clarifier pump stations.
- **Construction Assistance:** HydroScience would provide engineering services during bidding and construction for the base design scope as follows:
    - Attend the pre-bid meeting and provide technical support to respond to technical questions from prospective bidders submitted during the bidding phase.
    - Prepare required technical Addenda content in response to bidder questions.
    - Prepare confirmed documents if necessary.
    - Attend pre-construction (construction kick-off) meeting.
    - Review technical submittals from the contractor in sufficient detail to determine whether or not the submitted item conforms to the intent of the Contract Documents. Up to 75 submittals and resubmittals are included.
    - Review and respond to Requests for Information (RFI). Up to 35 RFI responses are included.
    - Attend construction meetings and site visits during the construction phase to address design issues. Up to four site visits are included.
    - Prepare as-built drawings based on redline markups from the Contractor upon project completion.
- **Construction Assistance for Filter Feed/Effluent Pump Station:** HydroScience will review up to 5 additional submittals/resubmittals and respond to 5 additional RFIs during construction, associated with a new common Filter Feed and Effluent Pump Station Facility.

Section C

TEAM ORGANIZATION

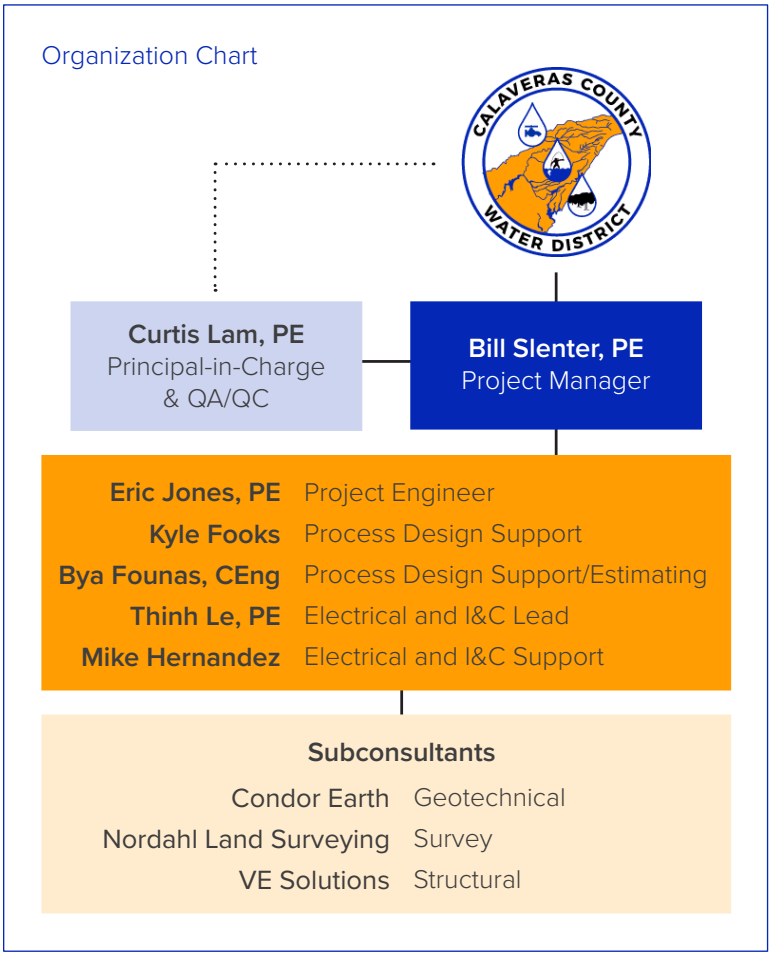
Proposed Project Staffing

HydroScience has assembled a comprehensive team of engineers with extensive experience designing wastewater treatment facilities similar to the District's Arnold WWTF Improvement Project. These team members have successfully worked together on wastewater infrastructure repair and replacement projects throughout Northern California, and they bring their talents, training, and lessons learned to the District's important project. The team brings the following benefits:

- **Local Presence.** Our proposed project manager and project engineer are both based in Sacramento, along with our team's in-house electrical and instrumentation & control engineers. Our geotechnical and surveying subconsultants are also local. This proximity to the District's facilities and familiarity with local codes and standards will ultimately save the District time and money.
- **Experience Tailored to Your Needs.** Our focused and versatile team gives the District the experience it needs, while remaining responsive and flexible to the project's unique requirements. As a firm devoted entirely to water and wastewater projects, we take the time to listen to our clients and deliver highly personized service that will meet your specific needs and expectations.
- **Single Point of Contact.** Our proposed project manager, Bill Slenter, PE, is a principal with HydroScience and will be your dedicated point of contact throughout the entire project. Bill is a wastewater treatment expert based in our Sacramento office, about an hour's drive from the District offices. He will be available when you need him.

The structure and reporting relationships of our team are shown in the organization chart below, followed by brief qualifications and role descriptions for each of the team members. *Table 2* on the following page shows each member's guaranteed percentage of time devoted to this project and their respective office locations. Resumes for all proposed staff, including subconsultants, can be found in Section G.

Organization Chart



Personnel Qualifications and Experience

Bill Slenter, PE - Project Manager. Bill is a civil engineer and principal of HydroScience with 28 years of experience. His expertise includes upgrades to wastewater treatment and collection infrastructure, and he has managed large and complex WWTP repair and replacement projects for the City of Davis, City of Stockton, and City of San Jose, among others. For this project, Bill will be responsible for overall project delivery, scope, and project management. He will be the District's main point of contact and will be involved in day-to-day project activities, providing the vision the project requires and working with key personnel to ensure the project's overall success.

Curtis Lam, PE - Principal-in-Charge and QA/QC. Curtis is President of HydroScience and has 26 years of experience in overseeing planning and design services for wastewater, water, and recycled water infrastructure. Curtis will serve as a secondary point of contact, and will work closely with Bill to provide independent QA/QC of all deliverables submitted to the District. He will dedicate and commit staffing resources, monitor project progress and conformance to the agreement, and verify that all project goals are being met.

Eric Jones, PE - Project Engineer. Eric has more than 20 years of experience with an emphasis on wastewater treatment facility and pump station design, with notable experience working on small treatment

systems in and around Sacramento. Recent experience includes managing a WWTP reliability improvement project for Silicon Valley Clean Water. Eric will work closely with Bill on all project deliverables and execute Bill's overall technical direction. He will lead the technical evaluations and design elements, coordinate with subconsultants, and supervise drafting activities.

Kyle Fooks - Process Design Support. Kyle has served as project engineer on multiple wastewater treatment plant upgrade projects. One of his projects involved the upgrade of an existing WWTP for the County of San Mateo, which is similar to the Arnold WWTF and required significant predesign, detailed design, and construction management and inspection services. The project was successfully completed in late 2020.

Bya Founas, CEng - Process Design Support and Estimating. Bya has more than 14 years of experience in planning, design, and construction of water and wastewater treatment plants, pipelines, and pump stations, including an important wastewater treatment plant improvement project for the City of St. Helena. Bya has also worked on major international wastewater projects and brings experience with a wide variety of wastewater process designs.

Thinh Le, PE - Electrical and I&C Lead. Thinh has more than 16 years of experience as EI&C engineer on a variety of water and wastewater projects, including several complex WWTP improvements for clients including the City of Stockton, Silicon Valley Clean Water, and the City of St. Helena. Thinh has an extensive working knowledge of electrical project development including analysis, SCADA systems, network and communication security, industrial automation controls, emergency and standby power, and electrical power systems.

Mike Hernandez - Electrical and I&C Support. Mike has experience in the areas of electrical power distribution, instrumentation & controls, and SCADA systems. Mike will work closely with Thinh to ensure all electrical and I&C needs are met.

TABLE 2: TEAM MEMBER INFORMATION

TEAM MEMBER/ FIRM	TIME DEVOTED TO PROJECT	OFFICE LOCATION
Bill Slenter *HydroScience*	30%	Home Office 10569 Old Placerviile Rd. Sacramento, CA 95827
Curtis Lam *HydroScience*	5%	Berkeley Office 741 Allston Way Berkeley, CA 94710
Eric Jones *HydroScience*	40%	Home Office 10569 Old Placerviile Rd. Sacramento, CA 95827
Kyle Fooks *HydroScience*	60%	Berkeley Office 741 Allston Way Berkeley, CA 94710
Bya Founas *HydroScience*	50%	Concord Office 1800 Sutter St. Suite 590 Concord, CA 94520
Thinh Le *HydroScience*	30%	Home Office 10569 Old Placerviile Rd. Sacramento, CA 95827
Mike Hernandez *HydroScience*	60%	Home Office 10569 Old Placerviile Rd. Sacramento, CA 95827
Condor Earth	5%	2941 Sunrise Blvd. Rancho Cordova, CA 95742
Nordahl Land Surveying	5%	6625 Stabulis Rd. Valley Springs, CA 95252
VE Solutions	30%	650 University Ave. Suite 110 Sacramento, CA 95825

Subconsultants

Condor Earth - Geotechnical. Condor Earth is a diversified, multidisciplinary consulting organization providing a variety of services including Geotechnical Engineering. For over 35 years, they have provided the technical expertise necessary to deliver successful and sustainable projects to their clients. At their core, they believe that innovation and a commitment to quality and integrity have been the keys to their long standing success. Their on-going mission is to continue providing high-quality, professional, services for value-enhanced resource management and infrastructure development.

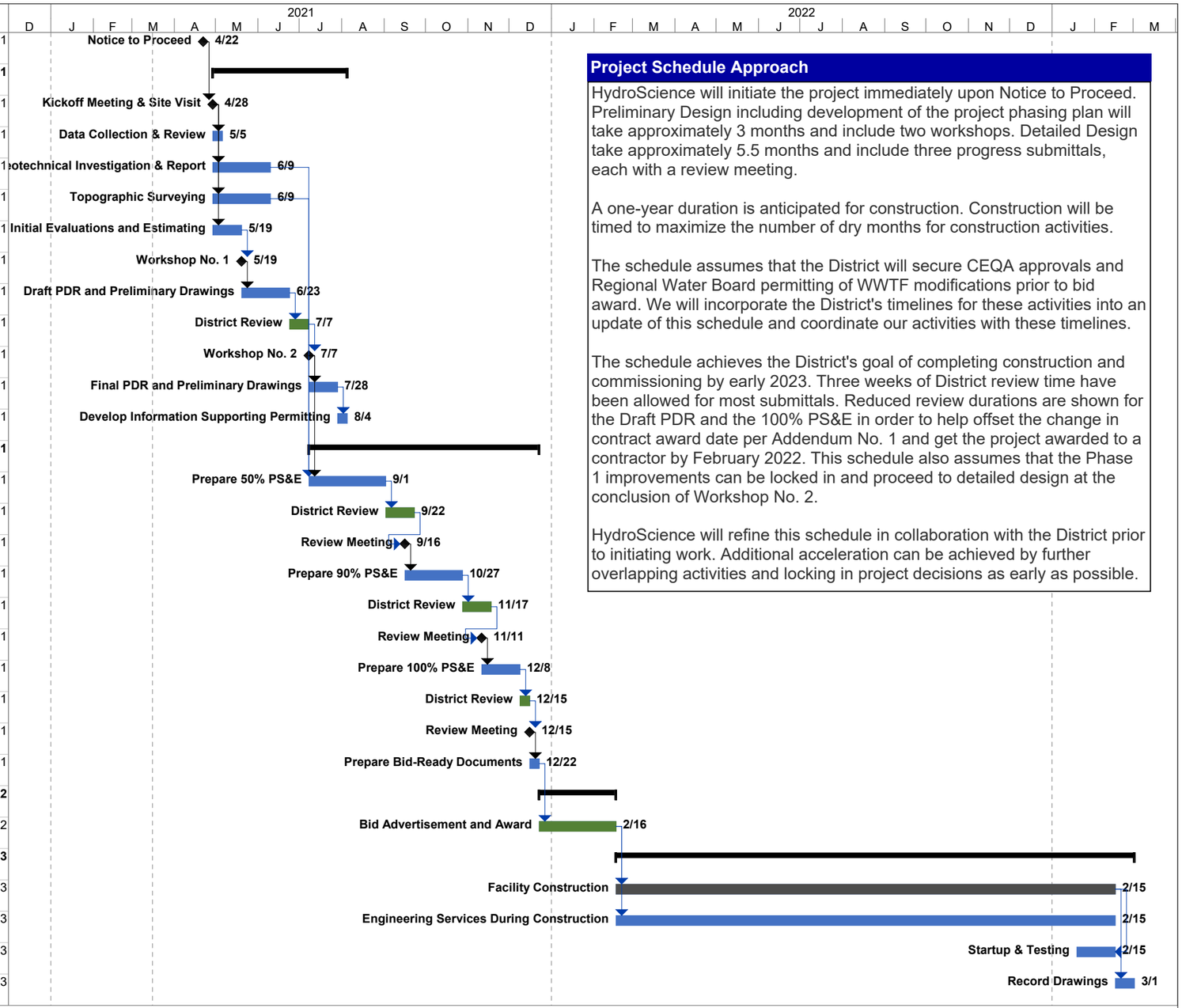
Nordahl Land Surveying - Survey. Nordahl Land Surveying is a local firm and have been providing Land Surveying and construction staking services in Calaveras County since 1987. The principals have been conducting Land Surveying in Calaveras County for over 40 years. They have an excellent reputation and are well known throughout the Mother Lode and Central Valley for providing high quality professional surveying, mapping and construction staking services.

VE Solutions - Structural. VE Solutions is a full service structural engineering firm that designs cost-effective engineering solutions for steel, concrete, prestressed concrete, masonry and wood buildings and structures, as well as rehabilitation of existing damaged structures. VE Solutions regularly provide subconsultant services to HydroScience on sewer projects ranging from pump/lift station and treatment plant improvement designs to pipeline suspension designs.

Section D

PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish
1	Notice to Proceed	0 days	Thu 4/22/21	Thu 4/22/21
2	**Preliminary Design Phase**	**70 days**	**Wed 4/28/21**	**Wed 8/4/21**
3	Kickoff Meeting & Site Visit	0 days	Wed 4/28/21	Wed 4/28/21
4	Data Collection & Review	5 days	Thu 4/29/21	Wed 5/5/21
5	Geotechnical Investigation & Report	30 days	Thu 4/29/21	Wed 6/9/21
6	Topographic Surveying	30 days	Thu 4/29/21	Wed 6/9/21
7	Initial Evaluations and Estimating	15 days	Thu 4/29/21	Wed 5/19/21
8	Workshop No. 1	0 days	Wed 5/19/21	Wed 5/19/21
9	Draft PDR and Preliminary Drawings	25 days	Thu 5/20/21	Wed 6/23/21
10	District Review	10 days	Thu 6/24/21	Wed 7/7/21
11	Workshop No. 2	0 days	Wed 7/7/21	Wed 7/7/21
12	Final PDR and Preliminary Drawings	15 days	Thu 7/8/21	Wed 7/28/21
13	Develop Information Supporting Permitting	5 days	Thu 7/29/21	Wed 8/4/21
14	**Detailed Design Phase**	**120 days**	**Thu 7/8/21**	**Wed 12/22/21**
15	Prepare 50% PS&E	40 days	Thu 7/8/21	Wed 9/1/21
16	District Review	15 days	Thu 9/2/21	Wed 9/22/21
17	Review Meeting	0 days	Thu 9/16/21	Thu 9/16/21
18	Prepare 90% PS&E	30 days	Thu 9/16/21	Wed 10/27/21
19	District Review	15 days	Thu 10/28/21	Wed 11/17/21
20	Review Meeting	0 days	Thu 11/11/21	Thu 11/11/21
21	Prepare 100% PS&E	20 days	Thu 11/11/21	Wed 12/8/21
22	District Review	5 days	Thu 12/9/21	Wed 12/15/21
23	Review Meeting	0 days	Wed 12/15/21	Wed 12/15/21
24	Prepare Bid-Ready Documents	5 days	Thu 12/16/21	Wed 12/22/21
25	**Bid Phase**	**40 days**	**Thu 12/23/21**	**Wed 2/16/22**
26	Bid Advertisement and Award	40 days	Thu 12/23/21	Wed 2/16/22
27	**Construction Phase**	**270 days**	**Thu 2/17/22**	**Wed 3/1/23**
28	Facility Construction	52 wks	Thu 2/17/22	Wed 2/15/23
29	Engineering Services During Construction	52 wks	Thu 2/17/22	Wed 2/15/23
30	Startup & Testing	20 days	Thu 1/19/23	Wed 2/15/23
31	Record Drawings	10 days	Thu 2/16/23	Wed 3/1/23



Project Schedule Approach

HydroScience will initiate the project immediately upon Notice to Proceed. Preliminary Design including development of the project phasing plan will take approximately 3 months and include two workshops. Detailed Design take approximately 5.5 months and include three progress submittals, each with a review meeting.

A one-year duration is anticipated for construction. Construction will be timed to maximize the number of dry months for construction activities.

The schedule assumes that the District will secure CEQA approvals and Regional Water Board permitting of WWTF modifications prior to bid award. We will incorporate the District's timelines for these activities into an update of this schedule and coordinate our activities with these timelines.

The schedule achieves the District's goal of completing construction and commissioning by early 2023. Three weeks of District review time have been allowed for most submittals. Reduced review durations are shown for the Draft PDR and the 100% PS&E in order to help offset the change in contract award date per Addendum No. 1 and get the project awarded to a contractor by February 2022. This schedule also assumes that the Phase 1 improvements can be locked in and proceed to detailed design at the conclusion of Workshop No. 2.

HydroScience will refine this schedule in collaboration with the District prior to initiating work. Additional acceleration can be achieved by further overlapping activities and locking in project decisions as early as possible.

CCWD Arnold WWTF Improvement P
Proposed Project Schedule
3/17/2021

Task | Milestone | Summary | District Task | Contractor Task

HydroScience

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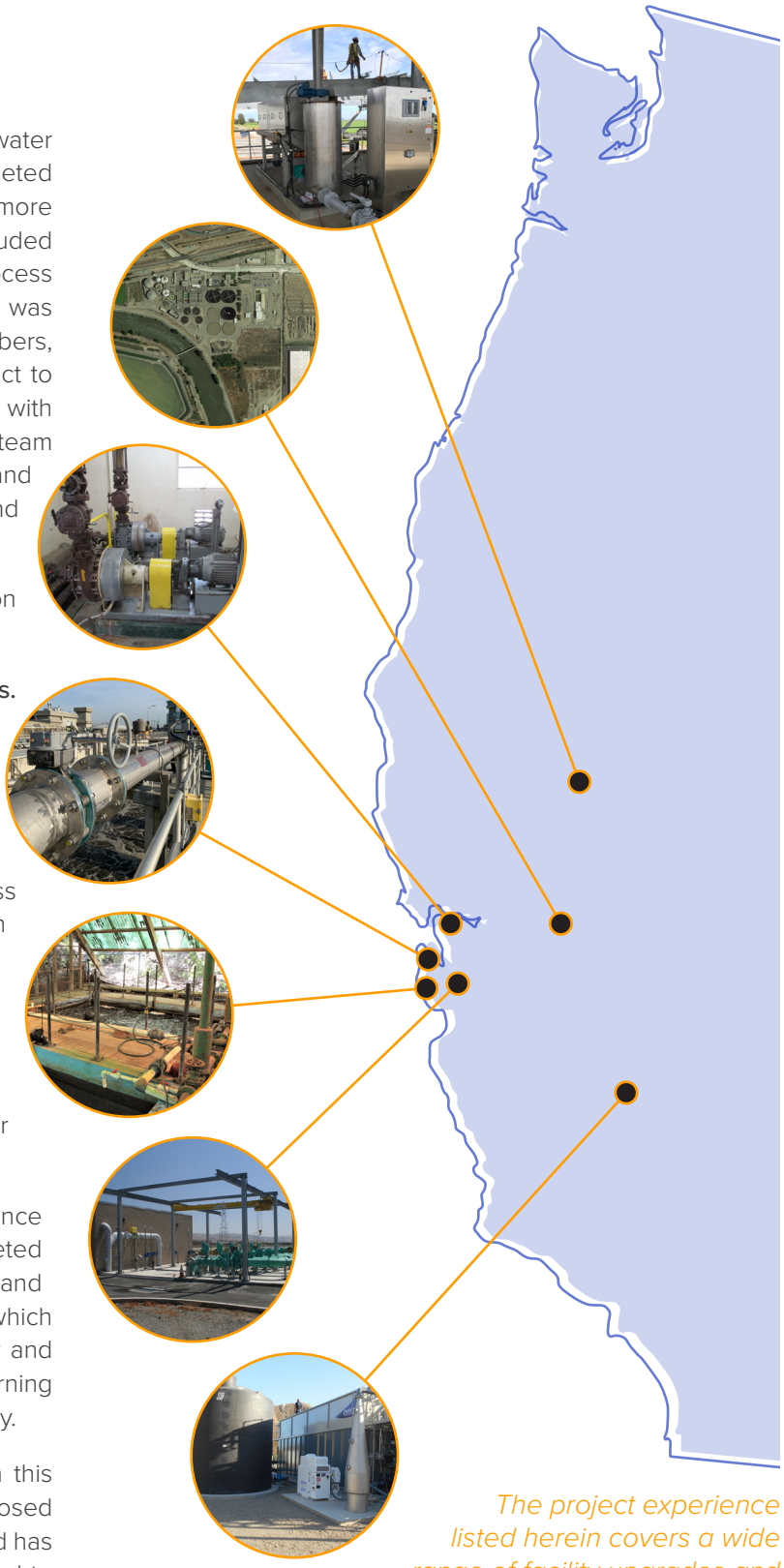
Section E

REPRESENTATIVE PROJECT EXPERIENCE

This section includes descriptions of seven wastewater treatment facility projects that HydroScience completed within the past five years, as well as a matrix of 16 more projects shown on ***Table 3*** at the end of this section. Included with our main projects are descriptions of the process design components, years during which the work was performed, HydroScience's role, relevant team members, and primary contact person. We encourage the District to reach out to our references about their experiences with HydroScience, as they can attest to the ability of these team members to utilize effective communication methods and creative solutions to their infrastructure problems and long-term objectives.

Similarities among the projects featured in this section include:

- **Wastewater Treatment Facility Improvements.** Design of treatment facility upgrades is a core capability of HydroScience. With our local team of civil, mechanical, electrical, and instrumentation engineers, and our focus on wastewater operations, we are able to evaluate existing treatment facilities and design process upgrades that provide significant benefits with minimal impact to facility operations during construction. We work closely with our client's project managers and O&M staff to plan how each upgrade is sequenced for construction to minimize downtime, provide the contractor with maximum flexibility, and minimize the potential for change orders, delays, or surprises.
- **Local knowledge and understanding.** HydroScience is based in Northern California and has completed several recent projects in this region. We understand local ordinances and project requirements, which means we will be able to start work immediately and navigate the challenges of this project without a learning curve, ultimately saving the District time and money.
- **Key staff participation.** Every project featured in this section was completed by key members of our proposed team. Our team works together very effectively and has developed the knowledge and experience needed to find creative solutions to efficiently execute this project.



The project experience listed herein covers a wide range of facility upgrades and improvements throughout Northern California.

Memorial Park Wastewater Treatment and Infrastructure Replacement

County of San Mateo • Date: 2017 – 2019

HYDROSCIENCE ROLE
Planning
Preliminary Design
Detailed Design
Services During Construction
Construction Management and Inspection

TEAM MEMBERS
Curtis Lam, *Principal-in-Charge*
Bill Slenter, *Project Manager*
Kyle Fooks, *WWTP and Pipeline Project Engineer*
Thinh Le, *Electrical Instrumentation and Controls*
VE Solutions, *Structural*

CONTACT REFERENCE
Anthony Lum, *Associate Civil Engineer*
County of San Mateo
(650) 599-1491
alum@smcgov.org

Memorial County Park is a family and group campground facility operated by the County of San Mateo and located in the Santa Cruz Mountains. The 500-acre site features dense redwoods, Pescadero Creek, hiking trails, and hosts up to 2,000 visitors per day.

Wastewater generated within the park flowed to a 30,000 gallon per day (gpd) extended aeration Wastewater Treatment Plant (WWTP). Wastewater was treated to secondary standards, disinfected, and discharged to a dedicated spray field with an unlined retention lagoon to handle larger flows. The remainder of the wastewater flowed to a septic tank and leach field system. The collection system and WWTP were over 50 years old. Due to age, poor performance, reliability concerns, and high maintenance requirements, HydroScience planned, designed, and provided both engineering support and construction management services for a replacement wastewater treatment plant. The new facility is a sequencing batch reactor with automated controls. The existing treatment tanks were rehabilitated and repurposed as emergency storage. HydroScience also applied for and secured facility coverage under the General Order for Small Domestic Wastewater Treatment Systems, and updated the water balance.

HydroScience developed a collaborative, forward-looking project approach that provides reliable operation and permit compliance in a small, low-impact footprint, and that reduces the cost and staff time to operate and maintain.

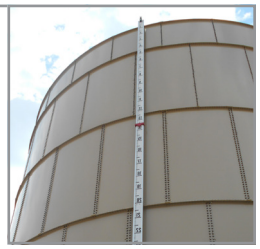
Tule River Community WWTP and Effluent Disposal

Indian Health Service; Tulare • Date: 2019 – 2020

HYDROSCIENCE ROLE
Planning
Preliminary Design
Detailed Design
Services During Construction
Construction Management and Inspection

TEAM MEMBERS
Curtis Lam, *Principal-in-Charge*
Thinh Le, *Lead Electrical Instrumentation and Controls*
Bya Founas, *Project Engineer*

CONTACT REFERENCE
David Mazorra, *Sacramento District Engineer*
Indian Health Service
(916) 930-3981 X345
david.mazorra@ihs.gov



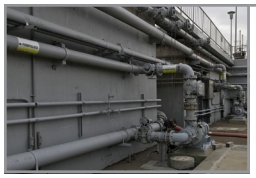
HydroScience was retained by the Indian Health Service to plan, permit, design, and provide the environmental documentation for a new wastewater treatment plant and effluent disposal facilities to serve the Tule River Indian Tribe near Porterville, California. The project includes the construction of approximately fourteen miles of sewer collection system to serve up to 500 connections at buildout. The collection system was designed to connect to each house lateral, and abandon the existing septic tanks and leach field at each connection.

The wastewater treatment plant was designed for additional capacity to be added in a modular manner in the future. The initial phase is sized for an average day flow of approximately 65,000 gpd ADWF and a peak day of 100,000 gpd, which accommodates the initial extents of the collection system. The treatment plant process uses a MBR to produce tertiary effluent suitable for restricted Title 22 uses. The buildout treatment facilities were laid out to expand the plant from 0.1 to 0.3 MGD, and during construction a change order was requested by the client to install a second train. Other plant components include effluent storage and pumping, solids handling, electrical, instrumentation and controls, grading, paving, and locating of a modular structure. A new power drop and transformer was also coordinated with Southern California Edison.

Effluent is being disposed of in 7.5 acres of subsurface leach fields comprised of infiltrator chambers. These chambers are located on an existing grassland hillside with grades of up to 40% in slope. Special provisions were incorporated into the design to minimize the potential for surfacing of effluent.

Stockton Regional Wastewater Control Facilities Project

City of Stockton • Date: 2017 – Ongoing



HYDROSCIENCE ROLE
Planning
Preliminary Design
Detailed Design
Services During Construction

TEAM MEMBERS
Bill Slenter, *Principal-in-Charge*
Eric Jones, *Project Manager*
Thinh Le, *Electrical Engineer*
VE Solutions, *Structural*

CONTACT REFERENCE
Art O'Brien, *City Advisor*
City of Stockton and Davis
(916) 714-1801
aobrien@robertsonbryan.com

The Stockton Regional Wastewater Control Facility (RWCF) provides primary, secondary, and tertiary treatment of wastewater with an average flow capacity of 31 MGD and a peak hour flow of 76 MGD. Future flows are projected to reach 122 MGD. Most processes at the facility are 40 to 70 years old and require excessive maintenance to continue operations. The facility experiences high energy usage and high staffing requirements due to condition and sub-optimal configuration of facilities.

HydroScience is providing process design, coordination, and commissioning assistance as a subconsultant to a progressive design-build (PDB) team for the construction of comprehensive improvements to the facility. Improvements consist of replacement of some facilities and rehabilitation or repurposing of others.

HydroScience designed the rehabilitation of the primary clarifiers and sludge pumping systems delivering sludge that has been thickened in the primary clarifiers to the existing rehabilitated gravity thickeners and gravity belt thickeners, with the option to bypass thickening if sufficient thickening can be achieved in the primaries. Rehabilitation design includes all new clarifier and sludge hopper mechanisms and drives, scum troughs, sprayers, miscellaneous metals, and concrete repairs as well as new progressive cavity sludge and scum pumps and piping. In coordination with the design team and construction contractor, HydroScience prepared a Basis of Design Report and detailed designs, and attended numerous workshops. Construction and commissioning of clarifier improvements is currently underway, with HydroScience providing construction support.

Wastewater Treatment Capacity Expansion Project

South County Regional Wastewater Authority; Santa Clara County • Date: 2011 – 2018

HYDROSCIENCE ROLE
Planning
Condition Assessment
Detailed Design
Services During Construction

TEAM MEMBERS
Bill Slenter, *Principal-in-Charge*
VE Solutions, *Structural*

CONTACT REFERENCE
Saeid Vaziry, *Chief Engineer*
South County Regional
Wastewater Authority
(408) 846-0480
saeid.vaziry@ci.gilroy.ca.us

HydroScience was retained to provide facility planning, permitting, and design of the $85 million South County Regional Wastewater Authority (SCRWA) Wastewater Treatment Capacity Expansion Project.

The existing influent pump station was identified by SCRWA as problematic: the influent grinder was unreliable, at high flows the existing dry pit pumps vibrated excessively, and the pump station capacity needed to be increased to cover the flows required for the WWTP expansion project.

HydroScience evaluated the existing pump and pipeline to develop the system curves for the pump station. HydroScience determined that the existing pumps were oversized for the system, creating unusual hydraulics resulting in excessive vibration at higher pump speeds. HydroScience studied several options but ultimately determined that replacing the pump station was more cost effective than retrofitting it.

Because of the influent pump station's poor condition, problematic operation, and critical nature, SCRWA opted to accelerate the completion of the pump station as a separate phase of the overall project. HydroScience designed the new 40 MGD influent pump station on an accelerated schedule. To address the recurring problems with the grinder, HydroScience recommended and designed two new deep channel front-raked bar screens. The new influent pump station was designed with submersible pumps in a dual wet well configuration to provide maximum flexibility and maintainability.

HydroScience developed the pump station site layout to allow full construction of new facilities with no impact to the existing pump station. Through careful pump selection, HydroScience was able to design the new pump station with a lower total connected horsepower than the existing pump station even though the capacity was nearly doubled. A total of six 60 HP pumps were included in the design.

Davis Wastewater Treatment Plant Rehabilitation and Replacement

City of Davis • Date: 2011 – 2017

HYDROSCIENCE ROLE
Alternatives Analysis
Planning and Estimating
Detailed Design
Services During Construction

TEAM MEMBERS
Bill Slenter, *Project Manager*
Eric Jones, *Project Engineer*

CONTACT REFERENCE
Art O'Brien, *City Advisor*
City of Stockton and Davis
(916) 714-1801
aobrien@robertsonbryan.com

HydroScience provided design and construction support services for the City of Davis WWTP Rehabilitation and Replacement Project. Improvements included rehabilitation, replacement, or upgrade of concrete tanks and channels, influent pumps, bar screens, aerated grit tanks, primary clarifier mechanisms, digesters, pipe supports, miscellaneous metalwork, and gates. HydroScience further updated the facility's SCADA system to enhance monitoring and control of the treatment process.

The project included significant rehabilitation and modification of the City's headworks and influent pump station structure to address deterioration due to H2S gasses and system performance issues due to slow liquid velocities in the pipes and channels. Innovative approaches were developed to maintain treatment capacity during construction while minimizing costly bypass facilities. Drawing upon staff experience and knowledge, HydroScience clearly defined contractor limitations and operational responsibilities to minimize risk to permit compliance while providing adequate contractor flexibility to propose innovative and cost-effective means and methods.

HydroScience worked in close coordination with mechanical, structural, and corrosion engineers and City O&M staff to refine improvements scope to fit available budget and develop a comprehensive rehabilitation design including demolition, new concrete, new coatings, and equipment. Structural detailing was a critical part of this design, and included concrete channel infills to reduce cross-sectional area, mating of new concrete to existing, incorporation of new slide gates into existing channels, support of new piping over existing channels, incorporation of new bar screens, and support of new walkway grating.

Wastewater Treatment Plant Reliability Improvements

Silicon Valley Clean Water; Redwood City • Date: 2018 – 2019

HYDROSCIENCE ROLE
Planning
Preliminary Design
Detailed Design
Engineering Services During Construction

TEAM MEMBERS
Bill Slenter, *Principal-in-Charge, QA/QC*
Eric Jones, *Project Manager*
VE Solutions, *Structural*

CONTACT REFERENCE
Kara Tremblay, *Construction Phase Project Manager*
Silicon Valley Clean Water
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ktremblay@svcw.org

HydroScience served as engineer-of-record on a design-build team for this project which provided plant reliability improvements for Silicon Valley Clean Water's 24 MGD WWTP in Redwood Shores, California. Work included upgrading the aeration basin blower system to high-speed turbo blowers with all new distribution piping and control valves, correcting basin flow split issues starting with a hydraulic profile study, installing a fan press solids dewatering system and conveyors, adding backup water for generators, and replacing their granular media filter backwash pumps.

Replacement of the backwash pumps was particularly challenging given the large size of the pumps (8,000 gpm), limited shutdown window available, their location in a below-grade gallery, and the custom large-diameter discharge manifold that needed to be replaced to accommodate new pumps. HydroScience worked with a high-precision LIDAR point cloud scan of the existing mechanical components and developed improvements design using 3D drafting techniques, coordinated with the steel pipe fabricator, and refined a design approach that facilitated accurate field fit-up and minimized downtime required for construction.

We front-loaded project planning and communication to confirm design details and capture operations and maintenance preferences early on to help streamline implementation during the construction phase. Client collaboration included a series of all-hands workshops to review findings, select preferred design alternatives, gather feedback on design deliverables, and coordinate construction activities. Installation and testing of improvements were performed in close coordination with plant operations and maintenance staff to sequence the work around ongoing operations while facilitating completion of the contract requirements.

Wastewater Treatment Plant Improvements Project and Study

Rodeo Sanitary District • Date: 2015 – 2016

HYDROSCIENCE ROLE
Planning
Preliminary Design
Detailed Design
Services During Construction
Construction Management and Inspection

TEAM MEMBERS
Bill Slenter, *Principal-in-Charge*
Eric Jones, *Project Manager*
VE Solutions, *Structural Design & Tier 1 Seismic Evaluation*

CONTACT REFERENCE
Steve Beall, *District Manager*
Rodeo Sanitary District
(510) 799-2970
bealls@rodeosan.org

HydroScience prepared preliminary and final designs for implementing high-priority improvements to the Rodeo Sanitary District (RSD) 1.14 MGD secondary activated sludge wastewater treatment plant (WWTP). The preliminary design phase included evaluations, preliminary designs, and engineer's opinions of probable construction costs (OPCCs) for the following elements:

- **Aeration Basin.** Enhancement of nitrogen removal through replacement of existing anoxic zone pump mixer with a new submersible mixer. Conventional 2 and 3-blade mixers and a Vaughan chopper pump with a nozzle attachment were considered. The chopper pump was recommended despite higher energy requirements due to the pump's ability to shred rags and fibrous material, given that this WWTP has comminutors and no headworks screen.
- **Digester Equipment.** Replacement of aging and obsolete sludge heat exchanger, boiler, sludge and hot water recirculation pumps, temperature controls, and supporting electrical equipment for the digester and potable water system in a confined footprint.
- **PLC/SCADA System.** Replacement of outdated RSView-32 SCADA system with a new Allen-Bradley / Rockwell Automation FactoryTalk SCADA communicating with ControlLogix, CompactLogix, and MicroLogix PLC systems through hardwired and radio communication. Included modification or replacement of MCC controls for SCADA compatibility.

The first bid package was subsequently developed and included the digester equipment and PLC/SCADA improvements. Construction for the digester equipment and PLC/SCADA improvements was completed in July 2018. HydroScience provided construction management and inspection services for the construction phase of the project along with engineering services during construction. The construction was funded by the CWSRF and HydroScience monitored compliance and verified quarterly status report for funding compliance.

Attachment A

Calaveras County Water District
Engineering and Design Services for the Arnold Wastewater Treatment Facility Improvement Project, CIP 15095
Proposed Fee - HydroScience Engineers *Revised*

June 7, 2021

Task	Item	Description	Curtis Lam PIC and QA/QC	Bill Slenter Project Manager	Eric Jones Project Engineer	Kyle Fooks Design Support	Bya Founas Design/Estimating	Thinh Le Electrical/EIC Lead	Mike Hernandez Electrical EIC Support	Anthony Perez AutoCAD Specialist	Administration	Hours	Fee	VE Solutions Structural	Condor Earth Geotechnical	Nordahl Surveying	OCDs	Expense Subtotal with Markup	Total Fee
		Labor Classification	Prin	Prin	E-VI	E-II	E-II	E-VI	E-III	CAD	Adm-II								
		Hourly Rate	$250	$250	$210	$170	$170	$210	$180	$110	$75								
1		**Project Management/QAQC**	**16**	**22**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**49**	**$11,810**	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,810**
		General Project Management/Tracking	2	14	3							19	$4,630					$0	$4,630
		Bi-Weekly Status Calls		8	8							16	$3,680					$0	$3,680
		QA/QC	14									14	$3,500					$0	$3,500
2		**Project Initiation and Predesign Report**	**0**	**28**	**55**	**90**	**25**	**30**	**51**	**40**	**2**	**321**	**$58,130**	**$1,250**	**$0**	**$0**	**$450**	**$1,785**	**$59,915**
		Kickoff meeting/Comprehensive Site Visit		6	6			6				18	$4,020				$300	$315	$4,335
		Data request, review, and collection		1	2	10		4				17	$3,210					$0	$3,210
		Power and Control Systems Assessment/Evaluation						8	14			22	$4,200					$0	$4,200
		Process Evaluation		8	16	24						48	$9,440					$0	$9,440
		Cost Estimating					10	1	2			13	$2,270					$0	$2,270
		Workshop		3	3			3				9	$2,010				$150	$158	$2,168
		Prepare Preliminary Drawings			6	20		6	18	40		90	$13,560					$0	$13,560
		Prepare Draft PDR		7	14	22	15	1	12		1	72	$13,425					$0	$13,425
		Prepare Final PDR		3	8	14		1	5		1	32	$5,995					$0	$5,995
		Structural Engineering - Predesign Phase										0	$0	$1,250				$1,313	$1,313
3		**Topographic Surveying**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$0**	**$0**	**$0**	**$8,700**	**$0**	**$9,135**	**$9,135**
		Prepare Topographic Survey										0	$0			$8,700		$9,135	$9,135
4		**Geotechnical Investigation**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$0**	**$0**	**$10,453**	**$0**	**$0**	**$10,976**	**$10,976**
		Field Investigation and Geotechnical Report										0	$0		$10,453			$10,976	$10,976
5		**Project Design**	**0**	**105**	**164**	**271**	**269**	**94**	**208**	**231**	**5**	**1347**	**$235,455**	**$49,000**	**$0**	**$0**	**$200**	**$51,660**	**$287,115**
		Prepare 50% Plans and Draft Technical Specifications		38	76	105	100	24	75	100	1	519	$89,925					$0	$89,925
		Update Cost Estimate		2			12	2	2			18	$3,320					$0	$3,320
		Design Review Meeting		3	3			3				9	$2,010					$0	$2,010
		Prepare 90% Plans and Specifications		38	52	80	90	38	100	75	1	474	$83,625					$0	$83,625
		Update Cost Estimate		1			5	2	2			10	$1,880					$0	$1,880
		Design Review Meeting		3	3			3				9	$2,010					$0	$2,010
		Prepare 100% Plans and Specifications		16	22	68	60	18	26	36	1	247	$42,875					$0	$42,875
		Update Cost Estimate					2	2				4	$760					$0	$760
		Prepare Bid-Ready Plans and Specifications		4	8	18		2	3	20	2	57	$9,050				$200	$210	$9,260
		Structural Engineering - Design Phase										0	$0	$49,000				$51,450	$51,450
OVERALL BASE SERVICES			**16**	**155**	**230**	**361**	**294**	**124**	**259**	**271**	**7**	**1717**	**$305,395**	**$50,250**	**$10,453**	**$8,700**	**$650**	**$73,556**	**$378,951**
OPTIONAL SERVICES																			
		Power Utility Service Application		2				4	4			10	$2,060					$0	$2,060
		Utility Service Upgrade Construction Coordination		2				8	2			12	$2,540					$0	$2,540
		Updates to O&M Manual		4	16	32		4	4		8	68	$11,960					$0	$11,960
		Potholing (allowance)				2						2	$340				$12,000	$12,600	$12,940
		Permit and Environmental Assistance		6		12						18	$3,540					$0	$3,540
		Commissioning Support		2	2	20			32			56	$10,080					$0	$10,080
		Change Order Assistance		2	2		4	4	2			14	$2,800					$0	$2,800
		Predesign & Design Filter Feed/Effluent Pump Station		16	20	80	85	4	30	20	2	257	$44,840	$11,250				$11,813	$56,653
		Construction Assistance for Base Scope Design		14	40	78	7	29	101	30	4	303	$54,220	$9,000			$600	$10,080	$64,300
		Construction Assistance for Filter Feed/Effluent Pump Station		2	6	8	1	3	5			25	$4,820	$2,000				$2,100	$6,920

TABLE 3: ADDITIONAL WASTEWATER TREATMENT FACILITY PROJECT EXPERIENCE

PROJECT/CLIENT	SIZE (GPD)	MBR	SERVICES							
			PLANNING	DESIGN	PERMITTING	OPERATIONS REVIEW	BIDDING SERVICES	CONSTRUCTION ENG. SVS.	CONSTRUCTION MANAGEMENT	CONSTRUCTION INSPECTION
San Jose/Santa Clara RWF Facility Master Agreement City of San Jose	167 M		✓	✓	✓	✓	✓	✓	✓	✓
American Canyon WWTP City of American Canyon	2.5 M	✓	✓	✓	✓		✓	✓	✓	✓
Davis WWTP Headworks + Primary Rehab & Replacement City of Davis	12 M		✓	✓		✓	✓	✓		
Davis WWTP Secondary and Tertiary Project City of Davis	18 M		✓	✓		✓	✓	✓		
El Dorado Hills WWTP Compliance Improvements El Dorado Irrigation District (El Dorado County)	3 M							✓	✓	✓
Thunder Valley WWTP United Auburn Indian Community (Placer County)	350 K	✓	✓	✓	✓	✓	✓	✓	✓	✓
Thunder Valley WWTP Expansion United Auburn Indian Community (Placer County)	700 K	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red Hawk WWTP Shingle Springs Rancheria (El Dorado County)	300 K	✓	✓	✓		✓	✓	✓	✓	✓
Cache Creek WWTP Rumsey Band of Wintun Indians (Yolo County)	350 K	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hollister Domestic WWTP City of Hollister	5 M	✓	✓	✓	✓	✓	✓	✓		
Gridley WWTP Expansion City of Gridley	1.7 M		✓	✓	✓	✓	✓	✓	✓	✓
Griffith WWTP Griffith City Council (NSW, Australia)	2.1 M	✓	✓	✓	✓	✓	✓	✓		
Barrick Goldstrike WTP Auburn Constructors (Elko County, Nevada)	5.8 M			✓		✓	✓	✓	✓	✓
MGM Grand Ho Tram Water and Wastewater Facilities Asian Coast Development, LTD (Vung Tau Province, Vietnam)	2.6 M	✓		✓	✓		✓	✓	✓	✓
San Mateo WWTP Gravity Thickener Rehabilitation City of San Mateo	12 M		✓	✓	✓		✓	✓		
Ballina Shire WRF New South Wales, Australia	1.9 M	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Section G

PROJECT TEAM RESUMES

TEAM MEMBER	ROLE
Bill Slenter, PE	Project Manager
Curtis Lam, PE	Principal-in-Charge and QA/QC
Eric Jones, PE	Project Engineer
Kyle Fooks	Process Design Support
Bya Founas	Process Design Support/Estimating
Thinh Le, PE	Electrical Instrumentation and Controls Lead
Mike Hernandez	Electrical Instrumentation and Controls Support
Brad Peterson, *Condor Earth*	Geotechnical Lead
Ron Skaggs, *Condor Earth*	Geotechnical Support
Lee Nordahl, *Nordahl Land Surveying*	Survey Lead
Scott Nordahl, *Nordahl Land Surveying*	Survey Support
Brad F, *VE Solutions*	Structural

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Bill Slenter, PE Project Manager

HydroScience

Bill Slenter is a civil engineer with 28 years of experience. His areas of expertise include permitting, funding, planning, design, and construction support of wastewater, water, and recycled water systems. A principal with HydroScience, he has served as principal, project manager and project engineer on a wide range of water-related projects.

EDUCATION
B.S., Civil Engineering, San Francisco State University

REGISTRATION
Civil Engineer, California, Registration No. 57640

AFFILIATIONS
California Water Environment Association (CWEA)

Central Valley Clean Water Association – Outreach Committee Chairperson

Former Chairperson, CWEA San Francisco Bay Section Communications Committee

CWEA Sacramento Area Section

REFERENCE PROJECTS

- **Memorial Park WWTF Improvements**
  County of San Mateo, California
  Project Manager.
- **WWTP Improvements and Study**
  Rodeo Sanitary District, Contra Costa County, California
  Principal-in-Charge.
- **WWTP Rehabilitation and Replacement**
  City of Davis, California
  Principal-in-Charge.
- **Regional Wastewater Control Facilities**
  City of Stockton, California
  Principal-in-Charge.
- **WWTP Reliability Improvements**
  Silicon Valley Clean Water, Redwood City, California
  Principal-in-Charge and QA/QC
- **Wastewater Treatment Capacity Expansion**
  South County Regional Wastewater Authority, Santa Clara County, California
  Principal-in-Charge.

SELECT PROJECT EXPERIENCE

Gridley Wastewater Treatment Plant Expansion Design and Permitting

City of Gridley, California

Project Manager. HydroScience performed permitting and design services for this project, a $2.5 million upgrade that doubled the capacity of Gridley's existing aerated pond treatment system to 1.7 MGD ADWF and 6.0 MGD PWWF. The upgrade provided the additional capacity needed to approve new residential, commercial, and industrial developments in the city; included a new headworks facility, aerators, hydraulics improvements, and electrical systems; and improved the quality of treated effluent. Permitting services included preparation of a ROWD and completion of a detailed water balance which included field permeability testing. The RWQCB deemed the ROWD complete and issued a revised permit to Gridley allowing the expansion to proceed. HydroScience completed a groundwater monitoring program and characterization for the City in fulfillment of one of the requirements of the revised permit.

Modesto Phase 2 BNR/Tertiary Wastewater Treatment

City of Modesto, California

Principal-in-Charge for HydroScience. HydroScience's role on the construction management team included engineering support and inspection services for the City of Modesto's $101M Wastewater Treatment Facility. HydroScience provided expert oversight and guidance related to process mechanical systems, particularly the membrane bioreactor (MBR) and ultraviolet disinfection (UV) systems.

Thunder Valley MBR Wastewater Treatment Plant Expansion

United Auburn Indian Community, Placer County, California

Project Manager. HydroScience designed a capacity expansion to the existing Thunder Valley Casino onsite wastewater treatment system. This expansion increased the capacity of the existing MBR high-purity treatment processes from 0.35 MGD to 0.70 MGD peak day flow while enhancing the operational flexibility and reliability of the WWTP. HydroScience performed onsite pilot testing of membrane cassettes to determine which suppliers would be eligible to supply membranes. Testing focused in particular on comparing the degree of incidental removal of dissolved metals, because the NPDES permit places extremely strict limitations on certain metals such as copper. The project also included upgrades to electrical and control systems, solids handling, emergency storage, and the potable water booster station. The key concern for this client was to achieve very high reliability in all processes. The total project construction cost was approximately $12 million and construction was completed in 2010.

Bill Slenter, PE

HydroScience

WWTP SCADA System Upgrade

Mount View Sanitary District (MVSD), Martinez, California

Project Manager. HydroScience provided electrical, instrumentation, and controls (EI&C) design services to update MVSD's aging SCADA system. The original system architecture utilized obsolete software and hardware and displays process information and controls mostly in text format. The system had limited redundancy and poor remote access. HydroScience prepared a preliminary and final design of an upgraded system that utilizes Wonderware and have modern, easy-to-read graphical displays and a comprehensive treatment plant overview screen. It provides full remote access to facilitate monitoring and control by the offsite standby operator. Other upgrades allow data backups, historian functionality, fiber networking, and flexibility for future addition of I/Os as more of the existing plant is automated and instrumented.

Buena Vue Casino Water and Wastewater Facilities

Buena Vue Rancheria, Amador County, California

Principal-in-Charge. HydroScience is providing detailed design services for a 100,000 gpd MBR that will provide tertiary treatment to serve the casino and produce Title-22 compliant effluent for discharge in accordance with an NPDES permit and onsite irrigation reuse. The flat-plate MBR system includes influent pumps, fine screens, nitrification/denitrification and emergency storage. The facility includes an ultraviolet disinfection and a solids handling system. Water treatment will be designed for groundwater from onsite wells and water will be stored in a 1.25 MG water storage tank. Our scope includes design of power distribution, an emergency generator, and controls. The project will be constructed via the design-build project delivery method.

Thunder Valley WWTP NPDES Permit Renewal

United Auburn Indian Community, Placer County, California

Project Manager. HydroScience developed a Report of Waste Discharge (RWD) to renew the Thunder Valley Casino's NPDES discharge permit for its 700,000 gpd advanced tertiary WWTP. Work tasks included data analysis, report development, and coordination with Casino, operations, and RWQCB staff.

Water and Wastewater Design for New Dillard Elementary School

Elk Grove Unified School District, Elk Grove, California

Principal-in-Charge. HydroScience provided planning, permitting, design, and construction phase engineering services for the construction of new onsite water supply, wastewater treatment, and effluent disposal systems in support of a complete replacement of this rural elementary school campus. Water supply facilities included two 750 gpm wells and pumps configured to supply both potable demands and fire flows, a hydropneumatic tank, electrical power, backup power, instrumentation, and controls systems in a utility building. Wastewater treatment and disposal facilities included septic treatment systems and a disposal pit effluent dispersal system with multiple zones. HydroScience secured County health department and fire department approvals for both systems, along with approval from the California Division of State Architects.

Deer Creek WWTP Biosolids Systems Alternatives Study

El Dorado Irrigation District, California

Principal-in-Charge. HydroScience was retained by the El Dorado Irrigation District to perform an engineering study of the biosolids treatment and processing alternatives for the District's Deer Creek Wastewater Treatment Facility. The 3.6 MGD facility was having difficulty meeting the required dry solids content of the dewatered solids with the existing belt filter press. HydroScience studied both alternate dewatering processes and Class A biosolids processes, and analyzed equipment proposals and identified optimal manufacturers based on the facility's narrow criteria and constraints. HydroScience arranged several pilot studies to test various dewatering equipment at the site, and then performed a detailed evaluation of five selected alternatives. The recommended alternative was to install a new dewatering screw press that could be incorporated into a Class A process in the future.

Davis WWTP Secondary and Tertiary Improvements

City of Davis, California

Principal-in-Charge. HydroScience provided process design, coordination, and commissioning assistance as part of a design-build team for the construction of secondary and tertiary improvements at the City's WWTP. The peak treatment capacity is 18 MGD. This $70M upgrade modernized the facility and brought it into compliance with current discharge regulations. The project included design and construction of activated sludge secondary treatment facilities (aeration and clarification), tertiary disc filters, chlorine disinfection, post-aeration, effluent pumping, flood control facilities, and a new administration building. HydroScience's core areas of responsibility on this project included the chlorine contact basin, chemical mixers, chlorine residual monitors, utility water systems, effluent reaeration system, field instrumentation, leading roles on commissioning and process transitioning, and support for plant tie-ins and owner coordination.

SJWD WTP On-Site Residuals Management

San Juan Water District, California

Principal-in-Charge. HydroScience evaluated the District's WTP onsite residuals handling practices with respect to current and future regulations. Evaluations included quantifying the solids produced and determining the solids drying area required under current and buildout conditions. Based on the preliminary evaluations, HydroScience proposed improvements to the solids drying area to better retain solids and capture rain runoff. The recommended improvements include provisions to return runoff into the WTP process stream. HydroScience prepared a Technical Memorandum that summarized the evaluation results and preliminary design parameters for a solids retention bed (for additional drying) and for a sump and pump to collect surface runoff from the solids retention bed.

Curtis Lam, PE Principal-in-Charge and QA/QC

HydroScience

Curtis Lam has 26 years of experience in the design of recycled water and potable water distribution system infrastructure, wastewater treatment and collection system design, and the master planning of water, wastewater, and recycled water infrastructure. A Principal with HydroScience, Curtis has served as Principal-in-Charge, Project Manager and Project Engineer on a wide range of water, wastewater, and recycled water projects.

EDUCATION
M.S., Civil and Environmental Engineering, University of California, Berkeley

B.S., Civil Engineering, University of California, Berkeley

REGISTRATION
Civil Engineer, California, Registration No. 59049

AFFILIATIONS
WateReuse Association, Representative to the Board of Trustees, 2017 - Present

WateReuse Association, President, 2015 - 2016

WateReuse Association, Vice-President, 2013 - 2014

WateReuse Association, Program Chair, 2011 - 2013

WateReuse, Chair, 2013 California Annual Conference

California Water Environment Association

Water Environment Federation

REFERENCE PROJECTS

- **Memorial Park Wastewater Treatment Facilities Improvements**
  County of San Mateo, California
  Principal-in-Charge.
- **Tule River Wastewater Treatment Plant and Effluent Disposal**
  Indian Health Service, Tulare County, California
  Principal-in-Charge.

SELECT PROJECT EXPERIENCE

Tule River Tertiary Wastewater System Facilities

Tule River Tribe, Porterville, California

Project Manager. HydroScience has been retained by the Tule River Tribe to design and provide permitting and funding support for a new Water Recycling Treatment Plant, recycled water storage and conveyance infrastructure, and offsite wastewater collection system improvements in the City of Porterville, California. The project objective is to offset the potable water demand associated with the Tribe's proposed Eagle Mountain Casino and Resort Relocation Project in accordance with mandated CEQA requirements. The City of Porterville currently does not treat wastewater to tertiary standards therefore; an agreement between the Tribe and City will permit the production of recycled water using the City's existing WWTP outfall. The project includes the design and construction of a new 0.308 MGD ultrafiltration plant, 0.5 MG steel storage tank, 900 gpm vertical turbine pump station, 7,000 linear feet of 12 inch PVC recycled water distribution piping, electrical and SCADA improvements, civil site improvements including a new access road, and the irrigation retrofit of the City's existing sports complex for permitted reuse of recycled water. Offsite improvements include the replacement of two existing sanitary sewer lift stations and collection system improvements.

Gridley Wastewater Treatment Plant Expansion Design and Permitting

City of Gridley, California

QA/QC. HydroScience performed permitting and design services for this project, a $2.5 million upgrade that doubled the capacity of Gridley's existing aerated pond treatment system to 1.7 MGD ADWF and 6.0 MGD PWWF. The upgrade provided the additional capacity needed to approve new residential, commercial, and industrial developments in the city; included a new headworks facility, aerators, hydraulics improvements, and electrical systems; and improved the quality of treated effluent. Permitting services included preparation of a ROWD and completion of a detailed water balance which included field permeability testing. The RWQCB deemed the ROWD complete and issued a revised permit to Gridley allowing the expansion to proceed. HydroScience completed a groundwater monitoring program and characterization for the City in fulfillment of one of the requirements of the revised permit.

Happy Camp Community Wastewater System Rehabilitation and Expansion

Happy Camp CSD, Siskiyou County, California

Principal-in-Charge. HydroScience designed flow monitoring and headworks upgrades at the wastewater treatment plant to meet the California Regional Water Quality Control Board Discharge Permit conditions. The wastewater collection system included six lift stations and two river crossings. The collection system was modeled using SewerCAD to identify and prioritize areas needing repair or replacement. The model was also used to plan for system upgrades and future expansion needs. The collection system project included lift station upgrades, provisions for standby power, and SCADA improvements for remote monitoring.

Curtis Lam, PE

HydroScience

Tule River Wastewater Treatment Plant Construction Administration

Indian Health Service, Tulare County, California

Principal-in-Charge. HydroScience was retained to provide construction administration services for the construction of the Tule River WWTP, as well as an emergency storage pond and disposal fields. Tasks included pre-bid services, engineering services during construction for submittal reviews, request for information, change orders, and testing and startup.

WWTP Gravity Thickener Rehabilitation

City of San Mateo, California

Principal-in-Charge. HydroScience performed a condition assessment on the existing gravity thickener system at the City of San Mateo's 12 MGD WWTP. HydroScience coordinated the confined space entry into the drained tank to examine the exposed thickener mechanism, and prepared recommendations to rehabilitate the entire gravity thickener system. The design includes replacement of the thickener mechanism; replacing the existing sludge withdrawal line; modifications to the existing pump room layout; modifications to change the configuration of the tanks from square to circular; piping and splitter box modifications; recoating the effluent well; miscellaneous repairs to concrete and grating; and electrical improvements.

Pala Wastewater Treatment Plant

Pala Band of Mission Indians, San Diego County, California

Technical Reviewer. The Pala Casino recently completed a preliminary design report for the construction of a 0.6 MGD sequencing batch reactor (SBR) wastewater treatment plant. During the procurement of a design-build contractor, Pala procured the third-party services of HydroScience to review the various design-build proposals, recommend the selection of one of the teams, provide design review services at key milestones (50%, 90%) during the design phase, and provide specialized construction services on an as-needed basis during construction.

Coyote Valley Wastewater Treatment Plant NPDES Permit

Coyote Valley Band of Pomo Indians, Mendocino County, California

Principal-in-Charge. Following up on the feasibility study prepared by HydroScience, HydroScience prepared the engineering report and supporting documentation required for this treatment plant to apply for an NPDES permit to discharge effluent seasonally to Forsythe Creek, a tributary of the Russian River. HydroScience identified the expected discharge limitations, developed an overall water balance to ensure the treatment plant always had a reliable disposal strategy, and prepared recommended permit limitations for USEPA consideration. This NPDES permit was issued by the USEPA, and is second new discharge to a Russian River tributary permitted by HydroScience.

San Pasqual Wastewater Collection, Treatment, and Disposal

San Diego County, California

Principal-in-Charge. HydroScience prepared a wastewater feasibility study to determine the wastewater collection, treatment, and effluent disposal requirements for the San Pasqual Indian Reservation (Reservation) in San Diego, California. The intent of this Study was to evaluate the available options to implement a centralized sewer collection, treatment, and disposal system for District's A and B. HydroScience identified that the existing Reservation would have an ADWF of approximately 67,000 gpd, increasing to 130,000 gpd at buildout. Treatment and disposal requirements both on trust lands and a municipal connection to the Valley Center Municipal Water District were identified and sized. The 10-mile collection system, treatment plant, and disposal system had an estimated cost of $12.8 million to construct.

Dry Creek Wastewater Treatment Plant Influent Meter Vaults Design

City of Roseville, California

Project Manager. This project included the design and construction of two new influent meter vaults, bypass facilities, and installation of two new magmeters to accurately measure influent flow at the Dry Creek Wastewater Treatment Plant. This project required the shutdown of both of the plant's only influent pipelines to complete installation. The magmeters were located in meter vaults approximately 15-feet below grade with side walls coming three-feet above grade. For maintenance of the magmeter, a flow bypass line was also constructed. Design components included full SCADA control and monitoring of the new valves and flow meter, electrical, civil, and site lighting.

Dry Creek Rancheria Wastewater Project

Dry Creek Rancheria Band of Pomo Indians, Sonoma County, California

Project Manager. Located in the steep hills near Geyserville, California, the project included the design of high lift sewer lift stations and a wastewater treatment plant. The treatment plant was designed to treat highly variable waste flow from a gaming facility. An immersed membrane treatment plant was designed to provide a high quality effluent to be used for recycled water. This project included a completely new wastewater collection system, high head sewage lift stations, and a new treatment facility. The new wastewater plant was designed to meet all Title 22 requirements for unrestricted recycled water use. The plant included headworks with fine screening and an immersed membrane bioreactor including anoxic zones for denitrification. An ultraviolet disinfection system was designed for the project.

Eric Jones, PE Project Engineer

HydroScience

EDUCATION
B.S., Mechanical Engineering (Environmental Engineering emphasis), University of California, Santa Barbara

REGISTRATION
Civil Engineer, California, Registration No. 68550

Eric Jones is a project manager, construction manager and project engineer with more than 20 years of experience in water, wastewater, and recycled water facility planning, design and construction assistance. His specific areas of focus have included pump station design, pipeline design including trenchless technologies, water and wastewater treatment design, feasibility studies and construction management. He has played key roles in several design and construction services teams for many projects throughout California and Australia.

REFERENCE PROJECTS

- **Wastewater Treatment Plant Improvements Project and Study**
  Rodeo Sanitary District, Contra Costa County, California
  Construction Manager / Project Manager.
- **Regional Wastewater Control Facilities**
  City of Stockton, California
  Project Manager.
- **Wastewater Treatment Plant Reliability Improvements Project**
  Silicon Valley Clean Water, Redwood City, California
  Project Manager / Project Engineer.

SELECT PROJECT EXPERIENCE

Ballina Wastewater Treatment Plant Design and CM

Ballina Shire Council, New South Wales, Australia

Project Engineer. HydroScience was retained by the Ballina Shire Council to design and upgrade the Ballina Wastewater Treatment Plant with a modern membrane bioreactor (MBR) treatment plant capable of treating an average dry weather flow of 1.9 MGD and a peak flow of 5.7 MGD. The plant incorporates Kubota flat sheet membranes. The design provided features to improve the plant performance, reduce cost and improve efficiency. The existing structures were used to accommodate some of the new facilities. The MBR was designed using Dual RAS / ML recycling streams and eliminated de-aeration to reduce power use and CO2 emissions. The membrane system was designed for gravity flow through the membranes. Efficient turbo blowers were included for both process and membrane scrubbing to reduce power consumption. HydroScience proceeded with detailed design, and was responsible for the process commissioning and validation. The plant now provides recycled water for non-potable use in new residential developments in Ballina (third pipe), and for other uses including irrigation of parks and playing fields.

City of Hollister Long-Term Wastewater Management Plan

City of Hollister, California

Assistant Engineer. The project consisted of a master planning study to develop a long-term strategy for wastewater treatment and disposal for the City's of domestic and industrial wastewater treatment plants. Effluent disposal strategies integrated a future reclamation program into near-term disposal strategies that would be consistent with ongoing regional groundwater management practices. Treatment plant improvements consolidated domestic and industrial wastewater treatment, expanded disposal capacity from 2.69 to 4.0 MGD, expandable to 7.5 MGD, and improved treatment plant performance, reliability, and consistency to tertiary standards. Additional services included a preliminary NPDES sampling and permitting feasibility review and a preliminary recycled water market assessment.

Sheridan Wastewater Treatment Plant Upgrade

Placer County, California

Project Engineer. The project involved planning, design, and construction management of a seasonal storage reservoir, new sprayfields, and suspended solids removal system for an expansion of an existing facility. The project also included coordination of a new discharge permit with RWQCB Region 5 (Central Valley). Eric's primary responsibilities included the design of the seasonal storage reservoir, which included the water balance. He also assisted with the Report of Waste Discharge and the application for the small county grant.

Eric Jones, PE

HydroScience

Cache Creek Casino Resort Wastewater Treatment Plant Upgrade

Yocha Dehe Wintun Nation, Yolo County, California

Project Engineer. HydroScience designed an upgrade to expand the Casino's WWTP which was an overloaded SBR plant that was under scrutiny from the USEPA. An MBR plant with denitrification was designed along with an effluent disposal system comprised of multiple pump stations, a sprayfield, and a large subsurface disposal system. Reclamation services included lining an existing 56-acre-foot recycled water reservoir, designing a recycled water booster pump station, and retrofitting and converting an existing water storage tank to a recycled water storage tank and adding reinforced polypropylene baffles. The project was designed and constructed on an aggressive schedule of only nine months from beginning of design to startup of the first phase.

Hollister Domestic Wastewater Treatment Plant Interim Improvements

City of Hollister, California

Assistant Engineer. This project consisted of the design and construction of interim improvements at the City of Hollister's Domestic Wastewater Treatment Plant. This project converted a 2.5 MGD pond treatment system into a 3.0 MGD dual-power, multicellular system to provide immediate improvements in effluent quality and reduce BOD and SS concentrations by an additional 70%. The design consisted of a new influent lift station, process modification and conversion to the biological processes, and the design of a DAF system. Pursuant to RWQCB mandate, the $3.2 million project was designed, bid, constructed, and successfully started-up in less than eight months, one month ahead of schedule with less than 5% change orders.

Hollister Domestic MBR Wastewater Plant

City of Hollister, California

Project Engineer. This project consisted of initial feasibility studies, a preliminary design report, and bid design and specifications. The project included the design of a 5.0 MGD immersed membrane bioreactor (MBR) treatment plant. As part of the design, MBR equipment supply specifications were prepared and the MBR supplier was pre-selected using an evaluated bid process. The MBR was designed to denitrify to meet the low effluent nitrate limit of 5 mg/L. In addition to the MBR, the design involved a pretreatment facility consisting of grit removal and 2 mm fine screens. HydroScience also designed a solids handling system incorporating sludge stabilization basins and a combination gravity belt thickener/belt filter press. Ancillary facilities included an operations building, laboratory, a methanol feed system, and an odor control system. As part of the City's long-term recycled water objectives, HydroScience designed a chlorine contact basin, hypochlorite feed and storage area, and an effluent pump station.

Barrick Goldstrike Water Treatment Plant

Auburn Contractors, City of Elko, Nevada

Mechanical Design Engineer. HydroScience designed a $39 million water treatment plant design-build project for Barrick Goldstrike Mine near Elko, Nevada. This complex project included the design of multimedia filters, ultrafiltration systems, and multiple stage reverse osmosis systems and associated pumping within a three story building. HydroScience provided structural, civil, mechanical and electrical design for this project. The construction of this fast-track project began within 3 months of award and the total design was completed in approximately 10 months from notice to proceed. Specific services provided by Eric include overall layout and mechanical design, coordination with equipment manufacturers, and in house electrical and structural department, and drafting management to develop final construction plans, specifications.

Griffith Water Reclamation Plant Upgrade Concept Design

Griffith City Council, New South Wales, Australia

Project Engineer. HydroScience was retained by the City of Griffith to design a 2.8 MGD municipal MBR WWTP. The new plant was designed to produce recycled water to supply the City's ambitious recycled water program. Design features included use of the existing primary sedimentation tanks to peak wet weather flows. Other design features included a 4 train membrane bioreactor, UV disinfection system, sludge dewatering building, operations building, and SCADA control system. HydroScience services also included commissioning and start-up.

Griffith Water Reclamation Plant Upgrade Final Design

Griffith City Council, New South Wales, Australia

Project Engineer. After completing the concept design for this project, the HydroScience team was retained to provide final design for the 3.0 MGD MBR. The new plant was designed to produce recycled water to supply the City's ambitious recycled water program.

Recycled Water Package Membrane Treatment System

City of Hayward, California

Project Engineer. HydroScience is providing detailed design, bid, and construction phase support for a new microfiltration and chlorine disinfection tertiary treatment plant, which will supply up to 0.5 MGD of disinfected tertiary treated water to the City's recycled water distribution system. The facilities will consist of a feed pump station, microfiltration system, sodium hypochlorite storage and feed system, recycled water disinfection and storage, and electrical and control systems.

Kyle Fooks, EIT Process Design Support

HydroScience

Kyle is a support engineer with experience in the planning and design of water and wastewater conveyance and treatment, and design of storm water systems. Kyle has had key roles in wastewater treatment plant and collection system planning and design; recycled water pipeline planning and design; and sewer lift station design. His software experience includes AutoCAD Civil 3D for Pipeline & Civil Site Design.

EDUCATION

M.S. Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo

B.S. Environmental Engineering, California Polytechnic State University, San Luis Obispo

REGISTRATION

Engineer-in-Training, CA, Registration No. 142162

REFERENCE PROJECTS

- **Memorial Park Wastewater Treatment Facilities Improvements**
  County of San Mateo, California
  WWTP and Pipeline Design Support.

SELECT PROJECT EXPERIENCE

Sanitary Sewer Lift Station Improvements Phase 5

City of Foster City, California

Support Engineer. HydroScience is providing design and construction support for the rehabilitation or replacement of nine lift stations throughout the city, in order to upgrade them to state-of-the-art-facilities. Upgrades include electrical, mechanical, structural, and civil improvements. Typical improvements include replacement of the control panel, pumps and associated piping inside the lift station, generator and Automatic Transfer Switch, reuse SCADA components as possible, and relocation of PG&E meter as necessary. Kyle's duties include design of sewer line and lift station relocation, design drafting, and preparation of record drawings.

Creekview Specific Plan Sewer Lift Station

City of Roseville, California

Associate Engineer. HydroScience was retained to design and provide construction services for the implementation of a new 1 MGD submersible pump station. Major project features include an 8-foot diameter precast concrete wet well constructed 38 feet below grade, submersible ultrasonic level control with backup float level switch controls, state of the art local control panels, fiberoptic communication for remote monitoring with City Scada, below grade mechanical assemblies for forcemain/pump isolation, bypass pumping provisions, pigging stations, Standby electric generation, Proto II CMU structural wall, and approximately 12,000 gallons of onsite emergency storage within a below grade precast concrete box culvert storage basin.

Ralston Avenue Sewer Rehabilitation

City of Belmont, California

Support Engineer. To address surcharging in several sewer manholes in Ralston Avenue, the City of Belmont retained HydroScience to provide capacity studies and sewer modeling services, slate segments and facilities for improvement, prepare contract documents, and provide bid and engineering services during construction. HydroScience verified the City's flow model and assessed the condition of the City sewers and manholes, updated and adjusted the model for accurate future flow scenarios and a better representation of actual conditions in the Ralston Avenue sewers. The project included preparing recommendations for repair, replacement, or rehabilitation, with consideration for trenchless options where possible. This project won the 2019 American Public Works Association Silicon Valley Chapter's Honor Award. Kyle's duties included evaluation of topographic survey data, design drafting, and preparation of record drawings.

Cabrillo Park Sewer Improvements

Santa Cruz County Sanitation District, California

Project Engineer. HydroScience was retained by the Santa Cruz County Sanitation District to provide pipeline condition assessment, trenchless rehabilitation and new installation alternatives analysis/feasibility study, and design and construction services for pipeline improvements associated with this project. The project encompasses approximately 17 manholes and 2,540 linear feet of pipeline broken into 16 sewer segments located both upstream and downstream of the overflow locations. Existing pipelines are 6- and 8-inches in diameter, and all are asbestos cement pipe (ACP) except for a DIP segment residing under Highway 1. Improvements target removal and replacement of an aerial pipeline crossing, rehabilitation utilizing CIPP lining, sliplining, and pipe bursting/reaming. HydroScience developed a TM to assess and outline design recommendations for both sewer and manhole improvements. From there, the project was split into two phases, with the

Kyle Fooks, EIT

HydroScience

first phase accelerated to accommodate the most critical sewer improvements, and the second following a more typical schedule to allow for further geotechnical investigation, easement research and documentation, evaluate options for realignment, and preliminary negotiations with Caltrans to present a unique approach for crossing Highway 1. Kyle's duties include evaluation of pipe busting and open cut replacement alternatives, as well as design drafting.

El Camino Real and Malcolm Avenue Improvements

Mid-Peninsula Water District, San Mateo County, California

Project Engineer. This project replaces an existing 8-inch diameter cast iron water main partly within the California Department of Transportation's (Caltrans) right-of-way and entirely within the City of Belmont. The existing cast iron pipe is at the end of its useful life. The project includes installation of 4,500 linear feet of new 8-inch ductile iron pipe and associated corrosion and cathodic protection. The new water main will be constructed along a similar alignment to the existing water main along the El Camino Real (CA State Route 82). The El Camino Real is a high-capacity urban roadway, owned and operated by Caltrans, which has numerous existing utilities, major intersections, and residential and commercial properties along the alignment. Existing utilities have been located using ground penetrating radar (GPR) technology to avoid intrusive methods for locating existing buried utilities. Additionally, there are two major developments being built concurrently with the design phase. The design team must consider the changes these developments will cause to the system, particularly service connections, and plan for them in the design.

Berryessa Road Recycled Water Project

San Jose Water, Santa Clara County, California

Support Engineer. This project was one of three recycled water projects being designed by HydroScience for near-term implementation by the SJW RWMP, which was also completed by HydroScience. HydroScience is designing the first two phases of this 45,600 LF recycled water pipeline project that has diameters ranging from 8 to 24-inches. This pipeline is being sized to provide recycled water distribution for nonpotable use, serve as a secondary parallel recycled water transmission main south for the South Bay Water Recycling distribution system, and to provide recycled water for potable reuse to two groundwater recharge ponds. Major project components included crossings of the new BART alignment, two creeks, connection to the existing 42-inch SBWR pipeline, significant utility location and coordination in a dense urban setting, and the retrofit of customers to receive recycled water with a combined irrigation demand of approximately 477 AFY at buildout of the first phase.

Storm Water Infrastructure Improvements

City of Albany, California

Project Engineer. HydroScience was retained by the City of Albany to design repair and rehabilitation measures to problem areas of the existing storm water system. The project improves aged infrastructure that was contributing to localized flood risk to property and the traveling public, and pedestrian hazards due to deteriorating cross drains and drain inlets. Closed-circuit television video logs, site survey, condition assessment, field review and assessment, and valuable input from City staff were used to develop cost-effective improvement strategies. HydroScience developed design strategies to maximize the use of City standard details and using city utility maps and past project information to accomplish needed improvements with limited design budget.

Folsom FPA and FSAG Pipeline and Pump Station

City of Folsom, California

Support Engineer. The Folsom South Area Group (FSAG) Transmission Pipeline is required to supply the Folsom Plan Area (FPA) with water as it approaches the buildout phase. All water supply to the FPA is from the City of Folsom through updates and extensions of existing infrastructure. These infrastructure improvements include construction of a new 24-inch transmission pipeline crossing under Highway 50 and extending to a new booster pump station located at the City's Water Treatment Plant approximately 3.5 miles away. HydroScience evaluated different alignment alternatives and identified a preferred route based on cost, impacts, constructability, and future maintenance. HydroScience then initiated design of the pipeline and pump station, which required a rigorous geotechnical, survey and utility locating program. HydroScience coordinated closely with the City, the railroad owner, and two large utility owners with overhead facilities, as well as the FSAG environmental consultant. The new 12.6 MGD booster pump station is located within the grounds of the City's water treatment plant. The pump station will utilize five (5) vertical turbine pumps and will include a standby generator, fuel tank, load bank, and transformer. Site grading was necessary to create a level pad at an elevation approximately level with the adjacent plant facilities. The 36-inch suction pipeline will then run towards a new valve vault, with grating-type cover, to provide access to the isolation valves. A new concrete masonry building is being constructed to house the pumps, the associated mechanical piping and valves, plus the necessary electrical and instrumentation panels. The building will offer sound attenuation, with considerations of the neighboring residents. The discharge pipeline will exit the pump station building, connecting to a 10,000-gallon surge tank and an in-line flow meter. The discharge pipe will continue beyond the treatment plant grounds, connecting to the water transmission pipeline.

Bya Founas, CEng Process Design Support/Estimating

HydroScience

Bya is a project engineer with over 10 years of experience in planning, design and construction of water and wastewater treatment plants, pipelines, pump stations and storage tanks as well as pipeline hydraulic studies. She also has worked on major international water and conveyance projects and has a wide experience on different water and wastewater process designs. Bya has experience leading multi-disciplinary teams to overcome design and construction challenges and meet tight deadlines and budgets.

EDUCATION
MSc Civil Engineering for Development, University of Southampton, United Kingdom

BEng Civil Engineering, University of Brighton, United Kingdom

BEng Civil Engineering, University of Joseph Fourier, France

REGISTRATION
CEng MICE, 61482771, Chartered Member of the ICE

AFFILIATION
North California Pipe User Group (PUG)

REFERENCE PROJECTS

- **Tule River Tertiary Wastewater System Facilities**
  Tule River Tribe, City of Porterville, California
  Process Design Lead Engineer.

SELECT PROJECT EXPERIENCE

Bretton Wastewater Treatment Plant

Dwr Cymru Welsh Water, DCWW, Bretton Site Office, Wales, UK

Lead Civil Engineer. Detailed design of an 11 MGD improvement scheme at the Bretton WTP to install new treatment to remove pesticides present in raw water sources. The new works comprised a low lift pumping station downstream of the existing rapid gravity adsorbers, six new gravity GAC adsorbers, chemical building and a contact tank. The GAC adsorbers were provided with concrete filters using a Black & Veatch patented design. Design and construction are completed.

Holyhead Wastewater Treatment Works and Sewerage Scheme

Galliford Try Construction (GTC) for DCWW, Holyhead Site Office, Wales, UK

Design Coordinator, Site Engineer and Sub-Agent. This role followed on from previous responsibilities as a project engineer on the same project. Bya was seconded to the main contractor GTC for the duration of the construction (1 year). Initially acted as site engineer, responsible for answering sub-contractors' technical queries (RFIs). Later, responsibilities extended to include construction coordination of a pumping station which included the provision of underground storage tank as well as replacement of 3 very large pipes alongside a listed stone bridge. Responsible for procurement, schedule delivery, specifications compliance. At the same time, acted as a facilitator in obtaining licenses, permits and approvals necessary to execute the overall scheme. Liaised with the EA, DEFRA, Network Rail, the Welsh Assembly, CCW, Trinity House, CADW, Manweb, Transco.

Holyhead Wastewater Treatment Works

DCWW, Bretton Site Office, UK

Project Engineer. Produced the detailed designs of three pumping stations featuring: the control rooms, an underground shaft storage tank, a tank sewer, a sea outfall, rising mains and sewer systems. Coordinated with M&E, environmental, odor, geotechnical and contractor to implement the designs and interfaced with Network Rail during the design and construction of two under track sewerage pipes (Ø300mm, Ø600mm) using trenchless technology. Part of role was to evaluate and resolve the flooding problems within the sewerage network and successfully managed this by coordinating with the hydraulic modelers. Designs also included the H&S assessment as required by the CDM regulations and the Risk Assessments. Furthermore, partly involved in the production of the standard drawings. Project value £36m.

Abergwyngregyn Wastewater Treatment Works (WwTW)

Black & Veatch / Bullen JV, DCWW, Bretton Site Office, UK

Project Engineer. This project diverted all sewerage from Abergwyngregyn WwTW to Llanfairfechan WwTW for treatment through a 3-km rising main. Managed a team of three people to provide the upgrade designs for the existing WwTW into the new pumping station. The design included a new transfer main. During construction, role included answering technical queries from site as well as the collection of as-built data. During construction, coordinated the production of the O&M manual as well as the as-constructed drawings. Project Value £900,000.

Bya Founas, CEng

HydroScience

Harlech Wastewater Treatment Works

Welsh Water, Chester, UK

Project Engineer. This was a feasibility study aiming at improving three different sites in Wales. Delivered engineering solutions for the provision of two new pumping stations and a 6-km rising main and produced the drawings, pipe work schedules, specifications and civil element break down to enable the contractor to carry out cost estimates and derive the initial target cost.

Nefyn Wastewater Treatment Works (WwTW)

Welsh Water, Bretton Site Office, UK

Design engineer. After the outline design was completed, joined the project team to produce the structural design of the membrane tanks used in the construction of the WwTW. Also produced the re-bar schedule and sketches which subsequently led to the CAD drawings development.

Sutter Trunk Sewer Rehabilitation

City of Modesto, California (O'Dell Prime)

Support Project Engineer. HydroScience is providing pipeline condition assessment, trenchless rehabilitation and new installation alternatives analysis/feasibility study, and design services for approximately 5,600 feet of sewer pipeline improvements associated with the City of Modesto's Sutter Trunk Sewer Project. These sewers are undersized to meet existing and buildout capacity. The project includes rehabilitation of existing and installation of new sewer pipeline crossing beneath Highway 99 and State Route 132. As a subconsultant to O'Dell Engineering, our services include CCTV review and condition assessment, pipeline rehabilitation and new construction recommendations, PS&E development for all pipeline improvements, and overall PS&E QA/QC for the project with an eye for constructability and economy. The project was broken into two phases in order to expedite construction beneath Highway 99, with significant Caltrans coordination needed to secure encroachment permit exceptions. Phase 1 includes 540 feet of a 65-inch to 72-inch casing installed by TBM Pipe Jacking to house new twin 24-inch pipes and spare conduits; Phase 2 includes 70 feet of 36-inch casing installed by Pilot Tube Guided Boring to house a new 24-inch pipe as well as 590 feet of 24-inch Cured-in-Place-Pipe, with the remaining footage slated for open cut removal and replacement to correct grade deficiencies.

Sewer Trunk South of Highland

City of Morgan Hill, California

Support Engineer. HydroScience is providing planning and design services for a 36-inch diameter relief sewer trunk that extends nearly seven miles. Construction methods include traditional open-cut methods, pilot tube auger boring, and/or horizontal directional drilling methods where the pipeline crosses under the Union Pacific Railroad train tracks, Highway 101, Leavesley Road, a large slough, and a small creek. A stepped approach was employed to identify seven potential alignments, review system hydraulics, potential traffic constraints, available easements, number of trenchless crossings, impacted businesses and residents, and estimated construction costs. This comprehensive effort laid the groundwork for the preliminary design and contract document development, currently underway. HydroScience is proactively working with the City of Morgan Hill, City of San Martin, City of Gilroy, Santa Clara County, Santa Clara Valley Water District, neighboring cities, other utility owners, UPRR, and Caltrans to address the project stakeholders' encroachment permit and design requirements. Design includes two double barrel siphons encased in special considerations at two locations where the design grade compels deep excavations in high utility-congested areas; and coordination with current and future developments. HydroScience is also supporting the environmental consultant with the CEQA effort tied to this project, and is preparing the Type 3 SWPPP meeting Construction General Permit requirements. Current projection of estimation of probable construction costs is $30M.

Folsom FPA and FSAG Pipeline and Pump Station

City of Folsom, California

Support Engineer. The Folsom South Area Group (FSAG) Transmission Pipeline is required to supply the Folsom Plan Area (FPA) with water as it approaches the buildout phase. All water supply to the FPA is from the City of Folsom through updates and extensions of existing infrastructure. These infrastructure improvements include construction of a new 24-inch transmission pipeline crossing under Highway 50 and extending to a new booster pump station located at the City's Water Treatment Plant approximately 3.5 miles away. HydroScience evaluated different alignment alternatives and identified a preferred route based on cost, impacts, constructability, and future maintenance. HydroScience then initiated design of the pipeline and pump station, which required a rigorous geotechnical, survey and utility locating program. HydroScience coordinated closely with the City, the railroad owner, and two large utility owners with overhead facilities, as well as the FSAG environmental consultant. The new 12.6 MGD booster pump station is located within the grounds of the City's water treatment plant. The pump station will utilize five (5) vertical turbine pumps and will include a standby generator, fuel tank, load bank, and transformer. Site grading was necessary to create a level pad at an elevation approximately level with the adjacent plant facilities. The 36-inch suction pipeline will then run towards a new valve vault, with grating-type cover, to provide access to the isolation valves. A new concrete masonry building is being constructed to house the pumps, the associated mechanical piping and valves, plus the necessary electrical and instrumentation panels. The building will offer sound attenuation, with considerations of the neighboring residents. The discharge pipeline will exit the pump station building, connecting to a 10,000-gallon surge tank and an in-line flow meter. The discharge pipe will continue beyond the treatment plant grounds, connecting to the water transmission pipeline.

Thinh Le, PE Electrical and I&C Lead

HydroScience

Thinh Le has over 16 years of experience serving as Project Manager, Lead E&IC Engineer on a variety of water, wastewater, and recycled water projects. He has knowledge of ISA, IEEE, NEC, NFPA, and codes applicable to electrical and I&C system design and construction. He has worked in both electrical and I&C roles on design and construction management projects and has an extensive working knowledge of electrical project development from analysis, SCADA systems, network & communication security, industrial automation controls, emergency and standby power, and electrical power systems including low and medium voltage electrical systems.

EDUCATION
M.S., Electrical Engineering, California State University, Sacramento

B.S., Electrical Engineering, California State University, Sacramento

REGISTRATION
Electrical Engineer, California, Registration No. E18362

REFERENCE PROJECTS

- **Memorial Park Wastewater Treatment Facilities Improvements**
  County of San Mateo, California
  Lead EI&C.
- **Tule River Tertiary Wastewater System Facilities**
  Tule River Tribe, Porterville, California
  Lead EI&C.
- **Regional Wastewater Control Facilities**
  Stockton, San Joaquin County, California
  Lead EI&C.

SELECT PROJECT EXPERIENCE

City of Richmond Cogen Project

City of Richmond, Contra Costa County, California

Electrical Engineer. As a requirement of their Biosolids and Energy Management Plan, the City of Richmond and Veolia Water wish to build a cogeneration facility at the Richmond WWTP, which will enable the facility to become energy neutral. As part of a design-build team, HydroScience is designing a 360 kW cogeneration engine to beneficially reuse approximately 59,000 cf/day of digester gas. The new engine will be a skid-mount unit with enclosure, air quality abatement system, and include gas treatment as required to operate the cogen and comply with all permitting requirements. The engine will provide the primary power supply for plant power, reduce natural gas usage at the plant, and reduce greenhouse gas emissions.

Buena Vue Casino Water and Wastewater Facilities

Buena Vue Rancheria, Amador County, California

Electrical Engineer. HydroScience is providing detailed design services for a 100,000 gpd MBR that will provide tertiary treatment to serve the casino and produce Title-22 compliant effluent for discharge in accordance with an NPDES permit and onsite irrigation reuse. The flat-plate MBR system includes influent pumps, fine screens, nitrification/denitrification and emergency storage. The facility includes an ultraviolet disinfection and a solids handling system. Water treatment will be designed for groundwater from onsite wells and water will be stored in a 1.25 MG water storage tank. Our scope includes design of power distribution, an emergency generator, and controls. The project will be constructed via the design-build project delivery method.

Wastewater Treatment Plant Expansion Project, Phase 3

City of Patterson, Stanislaus County, California

Lead Electrical Engineer/Team Leader. This was the third expansion of the plant with a construction value of approximately $8 million. Thinh was Lead Electrical Engineer for preparation of plans and specifications for a major plant expansion and improvements projects.

MGM Grand Ho Tram Casino Resort Water and Wastewater Facilities

Ba Ria - Vung Tau Province, Viet Nam

Lead Electrical Engineer/Team Leader. HydroScience was retained to engineer, procure and construct (EPC) a 1,900m3/day MBR wastewater treatment plant and a 2,200 m3/day water treatment plant. The recycled water from the wastewater treatment plant will be used to irrigate the projects 18-hole golf course.

Thinh Le, PE

HydroScience

Laguna Hue Central WWTP

ThuaThien, Hue Province, Viet Nam

Project Manager. HydroScience was retained to prepare a wastewater master plan for the 280 hectare beachfront Laguna Hue Resort Project. When fully developed, the project will include seven hotels, spas, a golf course, villas, a convention centre, and a town centre with retail and recreational facilities. HydroScience has now been retained to engineer, procure, and construct a new 1,000 m3/day MBR central wastewater treatment plant. The recycled water from the wastewater treatment plant will be used to irrigate the projects 18-hole golf course.

Wastewater Treatment Plant Expansion and Improvements

Valley Sanitary District, Indio, Riverside County, California

Electrical Engineer. In addition to completing design elements, Thinh is coordinating activities between process engineering group and field construction personnel to insure proper project implementation for the early phases of the work that are under construction. His duties include preparation of plans and specifications for a $45 million plant expansion and improvements projects, which was implemented in multiple phases.

Chrysanthy Pump Station

Sacramento Area Sewer District, California

Lead EI&C. HydroScience is planning and designing the sewer pump station that will serve the Bradshaw East Rancho Cordova sewer shed, SASD requires upgrades of the existing S132 pump station to increase pumping capacity from 5.5 mgd to 8.5 mgd. Improvements include installation of two 250 HP pumps in the existing pre-cast wet well, VFDs for each large pump, electrical upgrades, replacement of the existing standby generator, and a canopy to protect the electrical equipment. Design elements include updating the design report to reflect updated design criteria, evaluation of the pump station and forcemain hydraulics, development of final design documents for bidding by Fall 2021. All work performed in accordance with SASD Design Standards and with close coordination with SASD and the City of Rancho Cordova.

Wolfe-Evelyn Water Plant Reconstruction

City of Sunnyvale, Santa Clara County, California

Electrical Engineer. HydroScience provided planning, design and construction services for the City of Sunnyvale at the Wolfe-Evelyn Water Plant to replace four existing and aged pumps with new VFD controlled pumps with a capacity of approximately 7.9 MGD. The design allows the plant to safely remain on-line while the new electrical system is installed and each existing pump is replaced and tested in succession. The entire outdated electrical system was removed and updated with arc-clash compliant motor control centers. Other site upgrades include site paving around the existing pump building, grading and access road improvements around the storage tank, a vehicle tire wash down station, and seismic upgrades to the existing pump building. HydroScience prepared the CEQA documentation for Categorical Exemption for the City, as well as assist in the preparation and acquisition of any other required permitting or documentation.

Colorado River Aqueduct Pumping Plants Improvements

Metropolitan Water District of Southern California, Los Angeles County, California

Project Engineer. This project is to provide safe fault current protection for the CRA pumping plants by reducing the momentary fault current load on the 6.9kV circuits below 70,000 amps, and upgrading the capacity of the 6.9kV buses to at least 70,000 amps. MWD planned two CRA shutdowns in the near term the new line reactors and bus bracings will be constructed during the planned shutdowns.

EID Four Lift Stations Upgrades

El Dorado Irrigation District, El Dorado County, California

Electrical Engineer. HydroScience was selected to provide facility evaluations, predesigns, and designs for the rehabilitation/replacement of four sewer lift stations for EID. Each project involves significant rehabilitation and replacement elements on space-restricted properties with sensitive neighbors. All lift stations will receive new submersible pumps ranging up to 70 hp, and will include upgraded standby generators in sound enclosures. All facilities need to be kept in reliable operation while improvements are completed. The design approach is targeted to long term reliability and safety, including such features as permanent vactor truck pipes, safety grates, lanyard anchors, guard rail sockets and Arc Flash requirements for electrical equipment. HydroScience will provide bidding and construction phase support for these facilities.

Begonia Iron Removal Plant Modifications

California American Water Company, Sacramento County, California

Electrical and Instrumentation. The 16.2 MGD BIRP facility uses 18 pressure filters to remove iron and manganese from nine wells located along the Carmel River. HydroScience is developing design documents to demolish 6 older pressure filters that are no longer used, including removal of immediate piping and appurtenances. HydroScience is also designing the replacement of older existing motorized valves, finished water turbidity analyzers, the air scour blower system, and water damaged air scour piping; adding pressure indicating transmitters and pressure gauges at each filter bank's raw water supply header and finished water header piping; updating the control strategy and equipment; and replacing the existing oversized sodium hypochlorite feed pumps to meet lower demand periods and provide dual contained chemical piping.

Mike Hernandez Electrical and I&C Support

HydroScience

EDUCATION
B.S., Electrical Engineering, California State University, Sacramento

Advanced Power Engineering Certificate California State University, Sacramento

AFFILIATIONS
Power Engineering Society at California State University, Sacramento

Mike has six years of experience in the areas of electrical power distribution, instrumentation and controls (I&C), and supervisory control and data acquisition (SCADA) systems for a variety of projects including water treatment plants, wastewater treatment plants and water distribution pump stations. His work has provided a full spectrum of services that encompasses planning, predesign, electrical and I&C design, power reliability, power system modeling, and construction support services.

SELECT PROJECT EXPERIENCE

Broward County Water and Wastewater Services Facility 3A Four Log Virus Treatment System

Broward County Water and Wastewater Services, City of Fort Lauderdale, Florida

Design Engineer. Mike provided electrical design for the 5-mgd re-pump station. He performed the electrical design for this facility. Mike's design functions included electrical design layouts, electrical load analyses, 480-volt electrical distribution, single line diagrams, coordinating with other disciplines, plans and specifications.

Southwest Water Treatment Plant IW-2

City of Cape Coral, Florida

Design Engineer. Mike managed the electrical design for the new Injection Well. Mike's design functions included coordinating with other disciplines, electrical design layouts, electrical load analyses, 480-volt electrical distribution, single line diagrams, plans and specifications.

Rinconada Water Treatment Plant Reliability Improvement Project

Santa Clara Valley Water District, California

Design Engineer. Electrical system designer for the 100-mgd plant retrofit project. Responsible for the design of several improvements to this plant including upgrade of the electrical distribution equipment in the Control Building, raw water and flow control facility, chemical systems, ozone contactor structure, Sodium Hypochlorite Facility and LOX facility. When complete, this plant will have one of the largest drinking water ozone systems in the Bay Area. Mike's electrical design functions included single line diagrams, control schematics, plans and coordinating with other disciplines and sub consultants.

Antioch Water Treatment Plant Disinfection Improvements

City of Antioch, California

Design Engineer. Mike was the lead system designer for this 36-mgd plant disinfection improvements project. This project consists of upgrades to several key facilities as well as improvements to various unit processes and new Sodium Hypochlorite and Aqua Ammonia chemical systems. Mike managed both the Electrical and I&C for this project.

Creekview Specific Plan Sewer Lift Station

City of Roseville, California

Electrical Engineer. HydroScience was retained to design and provide construction services for the implementation of a new 1 MGD submersible pump station. Major project features include an 8-foot diameter precast concrete wet well constructed 38 feet below grade, submersible ultrasonic level control with backup float level switch controls, state of the art local control panels, fiberoptic communication for remote monitoring with City Scada, below grade mechanical assemblies for forcemain/pump isolation, bypass pumping provisions, pigging stations, Standby electric generation, Proto II CMU structural wall, and approximately 12,000 gallons of onsite emergency storage within a below grade precast concrete box culvert storage basin. This station is currently in construction and is expected to be fully operational for Phase 1 sanitary sewer flows by March 2020.

Mike Hernandez

HydroScience

Sierra Vista Interim Sanitary Sewer Lift Station

Mackay and Somps, City of Roseville, California

Electrical Engineer. HydroScience provided design services for a new 0.72 MGD sanitary sewer lift station located within the Sierra Vista Development of Roseville California. The lift station was designed to service Phase 1 of the planned Sierra Vista Development and operate interim to the ultimate build out lift station expected to be designed 10+ years after Phase 1 is constructed. HydroScience was responsible for developing construction ready PS&E documents in conformance to the City of Roseville's design standards for a remote sanitary sewer facility. The design package includes a state of the art submersible pumping and control system designed for automatic and redundant operation, precast concrete structures, concrete and asphalt paving, site grading, yard piping, and a structural perimeter wall. Challenges of the design include developing a buildable and cost effective solution to a 120,000-gallon emergency storage basin which will supplement the development's gravity sewer system and coordination of onsite utilities with outside consulting engineers. The final estimate of the engineer's probable cost of construction was $1.7 Million.

EID Waterford 7 Lift Station

El Dorado Irrigation District, California

Design Engineer. HydroScience designed upgrades to the Waterford 7 Lift Station to bring the aging facility up to current District standards. The project included refurbishment of the overall site and utility building; wet well improvements; two new 330 gpm constant-speed 25 hp submersible pumps; integration of a recently-installed 100 kW standby generator; new arc-resistant MCC; new PLC control panel with SCADA link; site and building lighting and security improvements; and emergency bypass provisions. The bid package included a carefully-planned construction sequencing plan to allow for existing facility operation to be protected while improvements were constructed at a tight site located immediately adjacent to residences.

EID Carson Creek 2 Lift Station

El Dorado Irrigation District, California

Electrical Engineer. HydroScience designed the new Carson Creek 2 lift station to expand the District's collection system to serve the new Carson Creek Unit 2 development. The new station includes two 940 gpm, variable speed, 34 hp submersible pumps in a precast concrete wetwell. Additional features include three large precast emergency storage manholes, influent/bypass manhole, Zabocs odor control system, associated piping, an electrical building, new electrical power service, a new motor control center, a 100 kW standby generator, and above ground discharge headers for easy maintenance. Site facilities include an access road, paving and a CMU perimeter wall for site security and visual screening. This project includes an evaluation of the effect of increasing the flow projection and acceleration of the project schedule by a month.

Pump Station 15 Improvements

City of Santa Rosa, CA

Electrical Engineer. HydroScience is currently providing design services to the City of Santa Rosa to improve Pump Station 15. The pump station suffers from unreliability, inefficiency, and costly maintenance requirements. The pump station is the only supply of pressure for the City's R15 pressure zone, therefore the pump station must continue to operate during construction to supply water to the zone. This project includes, recoating the hydropneumatic tank (inside and out), new 4" Flow Switch, new magnetic flow meters, and the replacement of the existing Automatic Transfer Switch, natural gas generator, fi re pump starter, PLC, operator terminal, and pressure transmitters. As part of the design, HydroScience developed a construction constraints and sequencing plan and vetted this with City staff. This plan was then reflected in the bid documents and includes construction phasing, shutdown and bypass prerequisites, and temporary construction provisions to maintain facility operations.

Bickford Ranch Off-Site Water Infrastructure Project

Bickford Ranch, Placer County, California

Electrical Engineer. HydroScience prepared a potable water hydraulic model to serve this 1,928 acre development in Placer County. The design includes development of a new green-field tank and pump site adjacent to the Catta Verdera neighborhood in Lincoln, CA. New water facilities include one 1.4 million-gallon (MG) tank to mitigate impacts of peak hour deliveries from Placer County Water Agency (PCWA) and provide operational storage, a 7.5 mgd booster pump station with canned vertical turbine pumps, 10,000 gallon hydropneumatic tank for pressure control, CMU pump station building, 4,000 LF of 18-inch transmission main pipeline, and 4,000 LF extension of PCWA's 60-inch Ophir transmission pipeline.

Diablo Water District Delta Coves Reservoir and Pump Station

Diablo Water District, City of Oakley, California

Design Engineer. Electrical and I&C designer responsible for preparation of plans and specifications for the 1.6 MG Reservoir project. Electrical design functions included electrical design layouts, single-line diagrams, plans, specifications and coordinating with other disciplines and sub consultants.

City of Cape Coral Southwest Water Reclaim Facility Metropolitan St. Louis Sewer District Caulks Creek Force Main

Metropolitan St. Louis Sewer District, City of Chesterfield, Missouri

Design Engineer. Electrical designer for two force main valve vaults. Electrical design functions included electrical design layouts, electrical load analyses, coordination with utility for new service, single-line diagrams, coordinating with other disciplines, plans and specifications.

CONDOR

Brad Peterson

Project Director

STATEMENT OF POSITION

Condor's Project Director is responsible for managing project resources to ensure that projects progress on time and on budget. This includes all aspects of project coordination, budget control and quality of service.

EDUCATION

- BA, Geology St. Thomas University, St. Paul, MN
- Geotechnical Exploration Seminar, Idaho State University
- Geophysical Exploration Seminars, Bison Instruments

AREAS OF EXPERTISE

- Project Management
- Construction Management
- Geotechnical Engineering
- Special Inspection
- Construction Materials Testing

INDUSTRIES SERVED

- Water, Wastewater, and Irrigation Districts
- Private Commercial and Residential Developments
- Public Schools and Hospitals
- Cities and Counties

REGISTRATIONS & CERTIFICATIONS

- Certificate for Handling and Operating Nuclear Soil Gauges, Radiation Safety Seminar – Campbell Pacific Nuclear Corporation
- Certificate for Investigation and Remedial Actions at Hazardous Waste Sites

Certificate of Completion on Applied Bioremedial Technologies ABAG Training Institute

REPRESENTATIVE EXPERIENCE

Mr. Peterson has over 30 years of experience in managing water resource related projects throughout California and the western United States. This experience includes construction of water treatment facilities, pipelines, reservoir construction, dam stability studies, and spillway investigations on multiple sites throughout the San Francisco Bay Area and Sierra Foothills. He has also been responsible for overall project coordination, budget control and ensuring quality of service. Mr. Peterson is an excellent communicator and is well organized and effective in the implementation of quality assurance and quality control (QA/QC) procedures that enhance overall project quality and performance. Mr. Peterson is uniquely qualified to serve as Project Director for this project based on his technical expertise and his broad water resource experience.

SELECTED PROJECTS/PROJECT EXPERIENCE

Department of Water Resources Statewide "On Call" Construction Management Services – Mr. Peterson served as Deputy Project Manager for this statewide 5-year Construction Management (CM) contract. Construction activities associated with this contract included the construction, alteration, repair and operation of portions of the State Water Project (SWP), the nation's largest state-built water and power development and conveyance system, which includes facilities that capture, store, and convey water to 29 water agencies. Other construction activities included statewide CM and inspection services for hydroelectric pumping and generation plants, pipelines, dams, reservoirs, water conveyance structures/buildings, groundwater improvement/recharge and transfer, environmental mitigation, restoration and enhancement facilities, flood protection facilities, dredging and sediment removal, aqueducts, levees, roads, bridges, recreation facilities, multi-purpose buildings, fish passage structures, roads and bridges, and facilities to improve water quality.

Calaveras County Water District – Copper Cove Water Treatment Plant Tank C Improvements – Copperopolis – Mr. Peterson served as Construction Manager/Project Manager for Construction of two new 500,000-gallon welded steel tanks that distribute treated water from the 4-million-gallon-per-day Copper Cove Water Treatment Plant throughout much of the Copperopolis area in the foothills of the Sierra Nevada. An existing 400,000-gallon redwood tank remained in service until one of the new tanks was constructed. Work on this project included inspection of all foundations and appurtenances, electrical modifications, and site piping to and from the tanks as well as new distribution piping and multiple tie-ins adjacent to the site. Project responsibilities included providing inspection services to ensure contractor's conformance with the plans and specifications, attending regular progress meetings, monitoring contract change order work, measuring and calculating quantities, coordinating geotechnical engineering inspection and material testing, including welding and tank coating inspections, assisting the District with filing and other project related paper work, coordinating and conducting final inspections, and performing project closeout services.

CONDOR

Ronald L. Skaggs, PE, GE

Principal Civil and Geotechnical Engineer
Vice President

STATEMENT OF POSITION

Condor's Vice President of Engineering Services is responsible for operational performance, business development, staffing, quality assurance, and client services.

EDUCATION

- Master of Engineering in Geotechnical Engineering – University of CA Davis
- Bachelor of Science – Civil Engineering, California State University Fresno

AREAS OF EXPERTISE

- Construction Management
- Project Management
- Materials Quality Control Testing
- Geotechnical Studies and Investigations
- Storm Water Management and Permitting
- Storm Water BMP Development/Implementation
- Rehabilitation of Historic Civil Works

INDUSTRIES SERVED

- Construction
- Irrigation/Utility Districts
- Public Works/Special Districts
- School Facilities
- Land Development
- Transportation

REGISTRATIONS & CERTIFICATIONS

- Civil Engineer
  CA No. 44588
  NV No. 009854
- Geotechnical Engineer CA No. 2295
- General Engineering Class A Contractor CA No. 732026
- Hazardous Waste Contractor CA No. 732026 HAZ
- CA Construction General Permit QSD/QSP Certificate No. 824

REPRESENTATIVE EXPERIENCE

Mr. Skaggs's has over 30 years of experience as a licensed civil and geotechnical engineer. His experience includes a broad range of geotechnical design and construction projects in the water resource, water infrastructure, transportation, and building industry. He has completed over 500 geotechnical studies for water resource, institutional, commercial and industrial projects throughout California. He also provides other related services that include construction management, construction quality control, waste characterization and containment design, stormwater best management practice (BMP) systems, and design and construction of groundwater recovery systems.

SELECTED PROJECTS/PROJECT EXPERIENCE

Calaveras County Water District – Mr. Skaggs served as Project Manager and Geotechnical Engineer of Record for two 500,000-gallon water tanks in Copper Cove.

Calaveras County Water District – Mr. Skaggs served as Project Manager and Geotechnical Engineer of Record for the Reach 1 Pipeline project between Avery and Forest Meadows.

Calaveras County Water District – Mr. Skaggs served as Project Manager and Geotechnical Engineer of Record for the Redwood Tank Replacement Project.

Tuolumne Utilities District - Mr. Skaggs served as Project Manager and Geotechnical Engineer of Record for the $26M Sonora Regional Wastewater Recycling Facility

Oakdale Irrigation District – Mr. Skaggs served as Client Manager, Construction Manager and Geotechnical Engineer of Record for numerous canal and tunnel assessment and rehabilitation projects, and new tunnel design and construction. Services also included risk assessment, field investigations, plans and contract document preparation and construction quality assurance (QA).

Truckee Meadows Water Authority – Mr. Skaggs served as Client Manager and Geotechnical Engineer of Record for the canal and tunnel assessment and rehabilitation project, and new tunnel design and construction. Services included risk assessment, field investigations, plans and contract document preparation, construction management, and construction QA.

Mountain House New Town – Mr. Skaggs served as Client Manager for Condor Services that included geotechnical engineering, storm water master planning, environmental services, geohydrology, construction storm water permitting and construction dewatering.

Geotechnical Engineering Studies – Mr. Skaggs served as Project Manager and Geotechnical Engineer of Record for over 500 geotechnical studies for institutional, commercial and industrial projects throughout California.

RESUME

LEE M. NORDAHL
C.E.O., Nordahl Land Surveying, Inc.

PROFESSIONAL REGISTRATION:

Professional Licensed Land Surveyor in California since 1975, P.L.S. 4233.
Member of the California Land Surveyors Association since 1977.

EDUCATION:

Chabot College – Civil Engineering
Army Technical Schools – Geodetic Surveying
University of California Extension – Land Surveying
Sacramento City College – Land Surveying

EXPERIENCE:

Mr. Nordahl has over 50 years of diversified experience in surveying; specializing in Land Surveying, cadastral surveys, control surveys, right-of-way surveys, photogrammetric control surveys, subdivision/land development surveys, and construction surveys with experience in both office and field. Mr. Nordahl was director of Land Surveying and field operations for PRC Toups Corporation in Dublin, Tetrad Engineering in Martinez, Sierra Engineering in San Andreas and Western Land Surveyors in Valley Springs. He is presently the C.E.O. of Nordahl Land Surveying in Valley Springs. Mr. Nordahl has been an owner/principal of firms in private practice since 1975. Prior to this, Mr. Nordahl worked at a Land Surveyor level for CALTRANS in the District 4 Office of Surveys and Right-of-Way Engineering Departments in San Francisco. While in the U.S. Army, he was in charge of 3 - 10 man survey parties, establishing geodetic control networks throughout Germany. Mr. Nordahl also has extensive experience as the Land Surveyor on many Federal Highway projects and U.S. Army Corps of Engineers Levee Reconstruction Projects. Mr. Nordahl has lived in and conducted Land Surveying work in the Mother Lode Area, Bay Area and Central Valley since 1968.

RESUME

SCOTT M. NORDAHL

PROFESSIONAL REGISTRATION:

Professional Licensed Land Surveyor in California since 2019, P.L.S. 9508

EDUCATION:

4 Years at Calaveras High School
2 Years at Sacramento State

Mr. Nordahl has over 30 years of diversified experience as a party chief. His main expertise is control surveys, boundary surveys, location surveys and construction staking. After schooling at Sacramento State in AutoCAD drafting, he worked as an instrument man on a survey crew for one year and was then given a party chief position where he has been working for the past 30 years. He runs large construction staking projects on his own without help from the office. He also works in the office as a Licensed Land Surveyor, providing AutoCAD drafting of record maps, construction staking setup and preparing topographic base maps in AutoCAD. He has worked on many large construction staking projects in the Central Valley and Mother Lode area. He has also been the party chief and many large levee projects and river projects for the U.S. Army Corps of Engineers as well as Forest Highway projects for the Federal Highways.

Brad Friederichs, SE Structural Engineer

VE Solutions

VE SOLUTIONS, INC.

Brad Friederichs has 38 years of experience as a structural engineer for wastewater, water treatment, commercial, industrial, agricultural, retail and residential structures. His expertise is in cast-in-place concrete, prestressed concrete, steel, wood and masonry construction. His specialty is in producing completely detailed, contractor friendly, value-oriented construction documents resulting in projects that bid well with few change orders. All of the projects shown below are as subconsultant to HydroScience Engineers.

EDUCATION
B.S., Civil Engineering with honors, California State University, Sacramento

REGISTRATION
Structural Engineer, California, Registration No. S2780

AFFILIATIONS
Structural Engineers Association of Central California, president 1989-90

American Society of Civil Engineers

American Concrete Institute

American Institute of Steel Construction

REFERENCE PROJECTS

- **Memorial Park WWTF Improvements**
  County of San Mateo, California
  Structural Engineer.
- **WWTP Improvements and Study**
  Rodeo Sanitary District, Contra Costa County, California
  Structural Design & Tier 1 Seismic Evaluation.
- **Regional Wastewater Control Facilities**
  City of Stockton, California
  Structural Engineer.
- **Wastewater Treatment Plant Reliability Improvements Project**
  Silicon Valley Clean Water, Redwood City, California
  Structural Engineer.
- **Wastewater Treatment Capacity Expansion Project**
  South County Regional Wastewater Authority, Santa Clara County, California
  Structural Engineer.

SELECT PROJECT EXPERIENCE

Buena Vue Casino Water and Wastewater Facilities

Buena Vue Rancheria, Amador County, California

Structural Engineer. HydroScience provided detailed design for wells, potable water supply, and wastewater treatment systems for this casino project. Wastewater treatment utilizes a 100,000 gpd membrane bioreactor (MBR) providing tertiary-treated Title-22 compliant effluent for discharge and onsite irrigation use in accordance with an NPDES permit. The wastewater treatment system includes influent pumps, fine screens, nitrification/denitrification, equalization, emergency storage, hollow fiber membrane modules, ultraviolet disinfection, and solids screw press. Water supply components include three wells, sodium hypochlorite injection, greensand filtration for iron and manganese removal, 1.25 MG storage tank, booster pumps for fire and domestic demands, and backwash/solids handling systems. The project was constructed via the design-build delivery method.

EID WWTP Odor Control Design

El Dorado Irrigation District, California

Structural Engineer. The El Dorado Irrigation District (EID) retained HydroScience to design modifications and improvements to the odor control system at their 3 MGD El Dorado Hills WWTP. This activated sludge BNR plant is located near residential areas and the District has received odor complaints as new residential areas are constructed near the plant. The project consists of a 24,000 cubic feet per minute biofilter, tank covers and new ductwork. The existing equalization tanks carbon odor control system will be removed and the fouled air will be directed to the biofilter for treatment.

WWTP Gravity Thickener Rehabilitation

City of San Mateo, California

Structural Engineer. HydroScience performed a condition assessment on the existing gravity thickener system at the City of San Mateo's 12 MGD WWTP. HydroScience coordinated the confined space entry into the drained tank to examine the exposed thickener mechanism, and prepared recommendations to rehabilitate the entire gravity thickener system. The design includes replacement of the thickener mechanism; replacing the existing sludge withdrawal line; modifications to the existing pump room layout; modifications to change the configuration of the tanks from square to circular; piping and splitter box modifications; recoating the effluent well; miscellaneous repairs to concrete and grating; and electrical improvements.

Brad Friederichs, SE

VE Solutions

Copeland Pump Station Rehabilitation Project

City of Petaluma, California

Structural Engineer. HydroScience was retained to assess and rehabilitate the Copeland Sewer Pump Station for the City of Petaluma. This facility is adjacent to the Petaluma River and provides pumping for the downtown area of the City. The facility was last upgraded in 1997, and required a number of operational, structural, mechanical, and electrical improvements. Improvements include installing new pumps, SCADA connection to the City's wastewater treatment facility, MCC, PG&E service, addition of flow metering and bypass pumping, HVAC in the control building, and modifications to the onsite building. HydroScience evaluated the existing standby generator and recommended replacement of the old generator as part of the project. The design of this project was completed in February 2015, and the project went into construction in May 2015 and was completed in 12 months.

Oak Canyon Booster Station Replacement

City of Morgan Hill, California

Structural Engineer. HydroScience was retained to evaluate and design upgrades to replace an approximately 50-year-old booster pump station for the City of Morgan Hill. The existing booster station consisted of a 6,500 gallon hydropneumatic tank, air compressor, a 350,000 gallon storage reservoir, two constant speed electric driven pumps of varying capacity, and a diesel driven emergency pump. Design goals included the replacement of the existing and aged pumps with three new 7.5 hp VFD controlled vertical turbine pumps with a peak hour flow of 140 gpm and a 75 hp constant speed horizontal centrifugal pump with a maximum flow of 1,500 gpm. The design allowed the station to remain in operation during installation and testing of the new booster pumps, construction of the new station building, and installation of a new on-site standby generator. HydroScience assisted in the preparation of CEQA documentation for Categorical Exemption for the City, assisted in PG&E coordination, and provided engineering services during construction.

Chysanthy Pump Station

Sacramento Area Sewer District, California

Structural Engineer. HydroScience is planning and designing the sewer pump station that will serve the Bradshaw East Rancho Cordova sewer shed, SASD requires upgrades of the existing S132 pump station to increase pumping capacity from 5.5 mgd to 8.5 mgd. Improvements include installation of two 250 HP pumps in the existing pre-cast wet well, VFDs for each large pump, electrical upgrades, replacement of the existing standby generator, and a canopy to protect the electrical equipment. Design elements include updating the design report to reflect updated design criteria, evaluation of the pump station and forcemain hydraulics, development of final design documents for bidding by Fall 2021. All work performed in accordance with SASD Design Standards and with close coordination with SASD and the City of Rancho Cordova.

Spyglass Pump Station and Force Main

City of San Bruno, California

Structural Engineer. This project included evaluation and design upgrades to a 30-year-old lift station and force main. The pump station design included new wet wells, 200-gpm submersible pumps, above-grade piping and valves, an upstream wastewater grinder, new electrical equipment, new generator, and an upgraded SCADA and control system. The existing force main was deteriorating and much of it was not accessible for maintenance. HydroScience designed a replacement that followed the existing streets within the City right of way, and discharged into an alternative location that considerably reduced the pressure requirements of the pumps while also reducing the length of sewer forcemain piping from 3,100- to 1,260-feet. The sewer forcemain design included a 150-foot pilot tube auger bore of 6-inch HDPE within a 10-inch steel casing. The gravity sewer upgrades included upsizing 550 feet of 8-inch sanitary sewer pipeline with 10-inch sanitary sewer pipeline, and replacing three manholes. Special construction sequencing allowed the new pump station to be constructed while maintaining operation of the existing system.

EID 2013 Four Lift Stations Upgrades Project

El Dorado Irrigation District, California

Structural Engineer. HydroScience provided facility evaluations, predesigns, and designs for the rehabilitation/replacement of four sewer lift stations for EID. Each project involves significant rehabilitation and replacement elements on space-restricted properties with sensitive neighbors. All lift stations receive new submersible pumps ranging up to 70 hp, and will include upgraded standby generators in sound enclosures. All facilities needed to be kept in reliable operation while improvements are completed. The project built on the foundation HydroScience established with the District on previous lift station designs. The design approach targeted long term reliability and safety, including such features as permanent vactor truck pipes, safety grates, lanyard anchors, guard rail sockets and Arc Flash requirements for electrical equipment. HydroScience provided bidding and construction phase support for these facilities.

Bickford Ranch Off-Site Water Infrastructure Project

Bickford Ranch, Placer County, California

Structural Engineer. HydroScience prepared a potable water hydraulic model to serve this 1,928 acre development in Placer County. The design includes development of a new green-field tank and pump site adjacent to the Catta Verdera neighborhood in Lincoln, CA. New water facilities include one 1.4 million-gallon (MG) tank to mitigate impacts of peak hour deliveries from Placer County Water Agency (PCWA) and provide operational storage, a 7.5 mgd booster pump station with canned vertical turbine pumps, 10,000 gallon hydropneumatic tank for pressure control, CMU pump station building, 4,000 LF of 18-inch transmission main pipeline, and 4,000 LF extension of PCWA's 60-inch Ophir transmission pipeline. The project included Caltrans permitting, as the sewer pipeline parallels Hwy 193. Placer County is obtaining a cooperative agreement with Caltrans because of this complex project.

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HydroScience is a civil engineering firm that plans, designs, and manages the construction of water, wastewater, and recycled water projects. With offices in Sacramento, Berkeley, Concord, and San Jose, we understand and address the complex water and wastewater needs of Northern California.

HydroScience
10569 Old Placerville Rd.
Sacramento, CA 95827
916.364.1490

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

AWARDING DESIGN SERVICE CONTRACT FOR THE ARNOLD SECONDARY CLARIFIER AND WASTEWATER TREATMENT PLANT IMPROVEMENT PROJECT, CIP 15095

WHEREAS, upon issuing a Request for Proposals (RFP) on January 4, 2021 for engineering and design services for the subject project and conducting a job walk of the project area with prospective consulting firms interested in submitting proposals, the District received four proposals as of the due date of March 17, 2021, and

WHEREAS, the District Engineer and other staff reviewed all proposals considering qualifications and experience, team organization, scope of work, cost effectiveness, schedule and other criteria with the result that Hydroscience Engineers Inc. was ranked highest of the proposals received, and

WHEREAS, upon direction from the District Engineering Committee on May 12, 2021 staff negotiated with Hydroscience Engineers Inc. to amend their scope of work and fee estimate which was submitted to the District on June 9, 2021, and

WHEREAS, upon receipt the amended June 9, 2021 scope of work and fee estimate staff recommends the Award of the contract for engineering and design services to Hydroscience Engineers, Inc., and

BE IT RESOLVED, the Calaveras County Water District Board of Directors hereby approves the proposal submitted by Hydroscience Engineers, Inc., attached hereto and made a part hereof, and authorizes the General Manager to enter into a Professional Services Agreement (PSA) with Hydroscience Engineers, Inc. in the amount of $346,928 for engineering and design services for said project; and being funded in the Fiscal Year 2021-22 Operating and CIP Budget.

PASSED AND ADOPTED this 23rd day of June, 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____

Jeff Davidson, President
Board of Directors

ATTEST:

_____

Rebecca Hitchcock
Clerk to the Board

Agenda Item

DATE: June 23, 2021

TO: Board of Directors

FROM: Brad Arnold, Water Resources Program Manager

SUBJECT: Final 2020 Urban Water Management Plan Update Package

RECOMMENDED ACTIONS:

Three separate actions are recommended below:

1. Motion ____/____ adopting Resolution No. 2021-____ to adopt the Calaveras County Water District 2020 Urban Water Management Plan Update.
2. Motion ____/____ adopting Resolution No. 2021-____ to adopt the Calaveras County Water District 2020 Water Shortage Contingency Plan.
3. Motion ____/____ adopting Resolution No. 2021-____ to adopt Addendum to 2015 Calaveras County Water District 2015 Urban Water Management Plan Update for Compliance with the 2013 Delta Plan.

SUMMARY:

Calaveras County Water District (CCWD) has developed its Urban Water Management Plan (UWMP) document to support CCWD's long-term water resources planning, and to help ensure there are adequate water supplies to meet existing and future water needs. The California Urban Water Management Planning Act (Act, per California Water Code §10610-10657) requires CCWD, and many other public water supply utilities in California, to submit an updated UWMP to the California Department of Water Resources (DWR) every five years. The latest 2020 update cycle, due to DWR by July 1, 2021 (Deadline), incorporates new analyses related to water supply vulnerabilities, climate change risks, and drought water supply reliability. Besides the UWMP Update, there are two other distinct components of the UWMP Update Package, as follows:

1. Water Shortage Contingency Plan (WSCP) which implements DWR's state-wide drought water shortage stages and defines how CCWD will provide water use notices, implement water conservation members, and engage with the public during future drought conditions.
    - Starting in 2022, the Act requires CCWD to submit to DWR an evaluation of its available water supplies and demands on an annual basis (called the "Water Supply and Demand Assessments" or "WSDAs"), used to review and justify the need for the water shortage stages and actions defined in the WSCP. The WSCP includes an overview of the methodologies and procedures intended for standardization of these future WSDAs.

2. Addendum to CCWD 2015 UWMP Update (Addendum) to document CCWD's reduced reliance on water supplies with a nexus to the Sacramento-San Joaquin River Delta region (Delta), consistent with California Code of Regulations §5003 and the Delta Stewardship Council's 2013 Delta Plan (Delta Plan). CCWD does not receive water supplies from the Delta region, so this Addendum addresses requirements to the extent Calaveras County (County) measures upstream of the Delta could theoretically provide downstream water supply and quality benefits.

The final (ready for adoption) versions of these documents are provided in Attachments A, B, and C, respectively.

Public Review

Per the Act, a Public Review Draft of CCWD's 2020 UWMP Update, 2020 WSCP, and Addendum were made available for public review and comment from April 26 to May 21, 2021 (Public Comment Period). Documents were available on CCWD's website and hardcopies available at the San Andreas office and public library. During the Public Comment Period of approximately 30 days, CCWD held a public hearing on May 12, 2021, to provide an overview of UWMP contents and to receive direct public feedback. In addition, the CCWD Board of Directors (Board) provided the following opportunities for the public to comment on specific components of the UWMP Update Package:

- April 28, 2021, Board notice of open Public Comment Period for UWMP Update Package (all components).
- May 26, 2021, introduction to WSDA concepts and WSCP-defined procedures provided with WSDA examples for all CCWD water service areas in the context of 2021 hydrologic conditions.

CCWD has prepared a response to the comments received during the Public Comment Period, in matrix table format as provided in Attachment D. This response includes the comments received, as well as a technical memorandum providing additional context to the UWMP-forecasted increase in in-County agricultural demands over the next 25 years. CCWD also used the feedback to incorporate suggested edits and to provide additional clarity in the UWMP, WSCP, and Addendum documents, where practicable. The response to comments will also be included as an appendix in the UWMP, for future reference.

Next Steps

Following adoption by the Board, CCWD will submit hardcopies and digital versions of the 2020 UWMP Update, 2020 WSCP, and Addendum to DWR (by the Deadline) for their review of their consistency with the Act. CCWD anticipates receiving DWR's feedback in the coming months of 2021. CCWD developed its UWMP Update Package based on DWR's "2020 Urban Water Management Plan Guidebook for Water Suppliers" (Guidebook), and does not anticipate issues with their approval, however, CCWD may need to further revise these documents based on DWR's review, if required.

FINANCIAL CONSIDERATIONS:
None at this time.

STRATEGIC PLANNING:

The 2021-2026+ CCWD Strategic Plan (Strategic Plan), adopted April 28, 2021 per Board of Directors' Resolution No. 2021-24, outlines several Goals and Objectives (Objectives) meant to identify organizational opportunities and measure CCWD's results over time. Consistent with the Strategic Plan, this Agenda Item supports the following Objectives:

- OI-06, Strategic Plan pg. 9: Monitor and adapt to emerging and existing regulatory requirements and mandates.
- OI-07, Strategic Plan pg. 9: Communicate on CCWD's operational efforts to effectively deliver water and wastewater services.
- PI-02, Strategic Plan pg. 10: Responsible management of groundwater resources countywide and evaluating opportunities for conjunctive use.
- PI-03, Strategic Plan pg. 10: Evaluate feasibility of and implement plan to secure new water storage (e.g., conjunctive use) for water supply reliability and resiliency.
- PI-05, Strategic Plan pg. 11: Protect, develop, and extend CCWD's water rights including, but not limited to, the specific Objectives (listed under PI-05) to ensure countywide water reliability and resilience.
- PI-06, Strategic Plan pg. 11: Protect CCWD watersheds to adapt to climate change, promote healthy forests for wildfire protection and water yield, protect water quality, and ensure sustainability.
- PI-07, Strategic Plan pg. 11: Pursue sustainable water supply projects such as recycled water.
- PI-09, Strategic Plan pg. 11: Continue to implement water conservation initiatives such as customer outreach, leak detection, and infrastructure replacement.
- PI-10, Strategic Plan pg. 11: Maintain up-to-date CCWD policies.
- PI-12, Strategic Plan pg. 11: Educate and engage communities about CCWD's commitment to healthy watersheds and forests.
- PP-03, Strategic Plan pg. 12: Create a recognizable presence in the County through thought leadership and rebranding.
- PP-04, Strategic Plan pg. 12: Continue to develop relationships with local, regional, state, and federal partners to manage CCWD's risk and leverage its assets.
- PP-05, Strategic Plan pg. 12: Closely monitor and engage in any relevant policy developments that affect CCWD.

For more info on the Strategic Plan, visit: ccwd.org/ccwd-adopts-2021-2026-strategic-plan/

Attachment:
A) Final CCWD 2020 UWMP Update
B) Final CCWD 2020 WSCP
C) Final CCWD Bay Delta Addendum for 2015 UWMP Update
D) CCWD Response to Comments Matrix
E) Resolutions

Due to document size, the following attachments for the Agenda Item entitled “Final 2020 Urban Water Management Plan Update Package” (June 23, 2021) are being made available online in digital format at https://ccwd.org/water-resources/.

Attachment A: Final CCWD 2020 UWMP

Attachment B: Final CCWD 2020 WSCP

Attachment C: Final CCWD Bay Delta Addendum for 2015 UWMP Update

For questions regarding these attachments, or to notify CCWD of issues, please contact Brad Arnold, CCWD Water Resources Program Manager, via e-mail at brada@ccwd.org or by phone at (209) 754-3094.

Calaveras County Water District Response to Comments for 2020 Urban Water Management Plan Update, 2020 Water Shortage Contingency Plan, and Delta Plan Addendum to 2015 UWMP Update

Provided June 2021

Per the Urban Water Management Planning Act (Act), Public Review Drafts of Calaveras County Water District's (CCWD/District) 2020 Urban Water Management Plan (UWMP) Update, 2020 Water Shortage Contingency Plan (WSCP), and Delta Plan Addendum to the 2015 UWMP Update (Delta Addendum) were made available for public review and comment from April 26 to May 21, 2021 (Public Comment Period), during which a Public Hearing was held on May 12, 2021. The Public Comment Period and Public Hearing were used to provide an overview of UWMP contents and to receive direct public feedback. All feedback received is provided in Attachment A. Tables 1A through 1E below contains CCWD's responses to this feedback related to specific UWMP Update, WSCP, and/or Delta Addendum contents.

Where practicable, and as noted, CCWD has incorporated these suggestions and made revisions in preparation of the Final 2020 UWMP Update, 2020 WSCP, and Delta Addendum documents considered by the CCWD Board of Directors for adoption. These responses to comments may be included in the 2020 UWMP Update as an appendix.

Table 1A. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period

No.	Commenter	Comment	Reference	Response
1	Central Sierra Environmental Resources Center (CSERC)[1]	Table 4-1 presents 1,304 AF of losses without an explanation of what they may be.	UWMP Table 4-1	A footnote was added to UWMP Table 4-1 to clarify the basis for the loss estimate. Note details regarding these losses and the UWMP estimate was presented in Section 4.3.
2	CSERC[1]	Section 4.2 presents different future water demand approaches that "justify the conclusion that CCWD may need to provide roughly 44,000 AF of water supply to meet demand in less than 25 years," but "the total amount of water supply demand has not exceeded 6,600 AF of water use."	UWMP Section 4.2, Figure 4-1	The California Department of Water Resources (DWR) provides that UWMP projected water use can be determined by examining past and current water use trends, land use planning data, climate change, or other factors for consistency with the Act. While not required, CCWD has opted to present DWR's three available methods in order to be transparent in its estimates. Attachment B contains more information regarding the analysis of potential future CCWD (and County) agricultural demands.

See footnotes under Table 1G.

Table 1B. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
3	CSERC[1]	Section 4.2 presents "unproven assumptions that significant areas of so-called 'irrigable' lands – especially lands outside of the District's service areas – will demand agricultural water from the District."	UWMP Section 4.2	CCWD holds jurisdictional water supply and wastewater responsibilities for Calaveras County (County), and as such, remains the most likely County agency having to supply new or existing water demands which may rely on collectively managed resources (e.g., surface water rights). CCWD must be prepared to meet these demands if they materialize, and its resource planning efforts, such as the UWMP, reflect this necessity and guide how the District operates and manages its water supply assets. Attachment B contains more information regarding the analysis of potential future CCWD (and County) agricultural demands.
4	CSERC[1]	Approach 1 applies a historical connection growth rate as an indicator for projected water use, but "many 'new' connections may be for second homes or for other low-use connections." An appropriate measure of historical growth rate would be to use the 2010-2020 water supply growth and "assume that 10-year growth rate would potentially be a viable estimate of growth for the next 25 years."	UWMP Section 4.2.1	The historical connection growth rate used in the UWMP to forecast demands (through 2045) was based on the actual percent change in annual residential connections from 2016 to 2020, from CCWD Admin and customer data. As such, these data take into account more recent trends in seasonal (part-time) versus permanent growth trends in the County. The 10-year suggested growth rate, which would likely incorporate trends from the tail end of the last nationwide recession period where housing developments were low, could artificially cause a more dramatic increase to current residential demands thereby skewing the UWMP forecasts (i.e., earlier data lower leading to greater slope to current data, if extended past 2020 could be incorrect).

See footnotes under Table 1G.

Table 1C. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
5	CSERC[1]	Approach 2 presents "build-out estimate and county population growth estimate that was provided in the 2019 Calaveras County General Plan" which assumed a need for large amounts of growth.	UWMP Section 4.2.2	DWR requires urban water suppliers to coordinate with local land use authorities to determine land use information when developing the UWMP. The 2019 Calaveras County General Plan was adopted in November 2019, relying on California Department of Finance (DOF) sourced from 2018, which at the time indicated County population growth trends. More up-to-date data, from the DOF per January 2020, was used to determine land use information for CCWD's UWMP. Unlike the earlier 2018 DOF data, the 2020 DOF data indicated a declining County population for various reasons beyond the scope of CCWD's UWMP.
6	CSERC[1]	Approach 3 presents population projection data from the CA Department of Finance, which estimates a high growth, even though past projections have differed from actual growth rates.	UWMP Section 4.2.3	DWR requires urban water suppliers to base their water service reliability assessment upon available data from defined state, regional, or local population projections overlying its water service area(s). CCWD used the January 2020 DOF population projection data, recommended in the DWR UWMP Guidebook, which shows a slight decrease in County-wide permanent population through 2045 (see Table 3-4). These data are consistent with state-wide trends in decreasing population, extended to 2045.

See footnotes under Table 1G.

Table 1D. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
7	CSERC[1]	The Water Waste Prevention Ordinance is presented as a conservation measure, but it "is not directly tied to intensive measurement of individual water customer use and there is no consistent customer monitoring." Consider adopting a Budget Based Rate Structure and use more outreach to promote rebates for items such as water use efficient appliances, low-flow showerheads, and soil moisture sensors.	UWMP Section 9.1	The Water Waste Prevention Ordinance gives CCWD the right to discontinue service to customers who show negligent or wasteful water use. CCWD is implementing Advanced Metering Infrastructure (AMI, see UWMP Section 9.1.2) throughout its water service areas, which will improve the detection of leaks, broken infrastructure, system flow, and pressure issues, and will alert District staff to customers potentially using water in a wasteful manner. CCWD maintains a tiered volumetric rate system that charges based on the customer's meter size and applies a usage rate charge for customers for each 100 cubic feet of water used, with additional rate increases after 1,000 cubic feet in a single billing period, which indirectly encourages water use efficiency (see UWMP Section 9.1.3). CCWD appreciates feedback on its conservation approaches and is dedicated to continuing such efforts.
8	Calaveras Planning Coalition (CPC)[2]	Protect existing ratepayers and ensure developers pay the costs associated with providing service to new development.	General Comment	CCWD is committed to transparency and fairness in its water supply pricing. The current rate structure is effective through July 15, 2021, and covers the timeline of this update to the UWMP (see UWMP Section 9.2.3).

See footnotes under Table 1G.

Table 1E. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
9	CPC[2]	Provide an assessment of groundwater production in the Wallace subregion that considers the overall decline of groundwater in the subregion and provide documentation illustrating how all groundwater production estimates for this subregion were calculated.	UWMP Section 6.10.4	General hydrogeologic conditions of the Eastern San Joaquin Subbasin (Subbasin), including declines in groundwater levels, are overviewed in UWMP Section 6.3.4. Additionally, with the Subbasin managed under the Sustainable Groundwater Management Act (SGMA), the Eastern San Joaquin Groundwater Authority, with contributions by CCWD, has performed a more-detailed assessment of groundwater production and level decline in the Subbasin in its Groundwater Sustainability Plan (GSP), available at: http://www.esjgroundwater.org/ The 61 acre-feet (AF) of groundwater projected to be available through 2045 is assumed to be reasonably available and consistent with 2020 groundwater well production figures, as noted in UWMP Table 6-25. CCWD is aware of the groundwater quality issues in Wallace and is in the process of exploring how to serve Wallace with surface water (e.g., Mokelumne River water rights availability). More information about these options considered by CCWD is provided in UWMP Section 6.3.4.

See footnotes under Table 1G.

Table 1F. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
10	CPC[2]	Issue no new connections or permits supporting new development in the Wallace subregion until alternatives to groundwater are guaranteed.	General Comment	While CCWD does not have the authority to enact growth and/or land use development moratoriums, however, it may elect to suspend new water connection installation under certain emergency conditions (see WSCP for details). CCWD is currently investigating opportunities to supplement Wallace Service Area groundwater use with local surface water, thereby offsetting its current reliance on the Subbasin, as described in UWMP Section 6.3.4. There are no plans to suspend new or existing Wallace water service at this time.
11	CPC[2]	Due to an 8.9% water loss in the Copper Cove/Copperopolis system, ensure a safe and reliable water supply is available by repairing failing infrastructure before supporting future development.	General Comment	CCWD's Copper Cove/Copperopolis Service Area Water System Capital Improvement Plan (CIP), from October 2018 following a public comment period, addresses CCWD plans for investing funds into new or improving existing service area infrastructure. Phase 1 of this CIP addresses multiple distribution system deficiencies and reduces system pumping requirements that affect customers across the service area, not solely in future developments. CCWD understands concerns regarding the need to invest in increased efficiency of its infrastructure and is committed to maintaining and enhancing its service areas' infrastructure.

See footnotes under Table 1G.

Table 1G. CCWD Responses to Public Comments received During UWMP Update, WSCP, and Delta Addendum Public Comment Period (Continued)

No.	Commenter	Comment	Reference	Response
12	CPC[2]	During the May 19, 2021, Calaveras-Amador-Mokelumne River Association (CAMRA) meeting, CCWD Director Michael Minkler disclosed that CCWD intends to look into filing for their 27,000 AF of State Reservation from the Mokelumne River over the next 6 months to 1 year. This information should be included in the UWMP update and a workshop should be held prior to filing with the state.	General Comment	The Mokelumne State Filed Application (Mokelumne SFA) is discussed in UWMP Section 4.2.6 and 7.1.3, regarding the potential for Mokelumne River Watershed supplies to offset groundwater reliance in areas such as the Wallace Service Area or Burson. These areas in the County must investigate opportunities for supplemental surface water to avoid water supply issues given aging infrastructure, SGMA requirements, etc. CCWD plans to engage with Mokelumne River Stakeholders, using forums such as CAMRA, and the public to investigate if and how it can utilize the Mokelumne SFAs to improve its water supply conditions. CCWD anticipates this work being done in the remaining months of 2021.

[1] Letter with all CSERC comments received May 19, 2021. Info in tables pulled from letter by CCWD for response, not provided as sequential question list; see Attachment A.

[2] Letter with all CPC comments received May 21, 2021. Info in tables pulled from letter by CCWD for response, not provided as sequential question list; see Attachment A.

Acknowledgements

CCWD appreciates the work of Woodard & Curran (consultant) staff, specifically Katie Cole, Lindsay Martien, and Nolan Meyer, in assisting with development of CCWD's 2020 UWMP Update, 2020 WSCP, and Delta Addendum. CCWD also appreciates the direct feedback from CPC Member Ralph Copeland, who provided several insights and suggestions which helped to improve CCWD's UWMP contents.

CCWD's 2020 UWMP Update, 2020 WSCP, and Delta Addendum were developed by Brad Arnold, CCWD's Water Resources Program Manager, in coordination with Woodard & Curran, under the direction of CCWD's General Manager, Michael Minkler, and the 2021 CCWD Board of Directors.

ATTACHMENT A

CCWD 2020 UWMP UPDATE, 2020 WSCP, AND DELTA ADDENDUM PUBLIC COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD

Central Sierra Environmental Resource Center
Box 396 • Twain Harte, CA 95383 • (209) 586-7440 • FAX (209) 586-4986
Visit our website at: www.cserc.org or contact us at: johnb@cserc.org

May 19, 2021

Brad Arnold, General Manager
Calaveras County Water District
129 Toma Court
San Andreas, CA 95249

Re: Comments for CCWD's 2020 Urban Water Management Plan Update

Dear Brad:
CSERC provides these comments in response to the CCWD 2020 Urban Water Management Plan that is intended to plan for water supply and water demand in the near and long term for CCWD in Calaveras County.

While many portions of the UWMP are informative and appropriate in content for meeting State assessment requirements, the CCWD UWMP as now presented is highly flawed, grossly misleading, and apparently intended to demonstrate a wildly inflated demand for increasingly greater supplies of water by projecting unrealistic water use projections – in particular for the addition of large amounts of agricultural lands to supposedly be served by the District.

The UWMP does not provide any solid evidence to actually substantiate the wildly inflated projected water demand, nor does the UWMP appropriately place an emphasis on enhanced water conservation and recycling of water resources that are needed to respond to the significant trend of conditions tied to climate change and increasingly frequent critical dry water years. Our Center urges CCWD to modify the highly inflated and implausible water use projections that dominate the draft UWMP and to instead adjust water use projections to be far closer to the realm of realistic possibility. We also urge CCWD with this plan to more aggressively embrace feasible, cost effective water conservation and mitigation strategies that can significantly reduce water waste by customers.

UNREASLISTIC AND MISLEADING PROJECTED WATER DEMAND CLAIMS

The UWMP shows on page 1-3 that for the six public water systems in its water supply and wastewater service areas, CCWD supplied a total volume of **5,062 AF** of water in 2020. That baseline figure may not be fully accurate, but it is provided by CCWD as the total water supply amount. At least with some

degree of being generally consistent, the UWMP shows on page 4-1 of the document that the 2020 actual water use "District-wide" was **6,597 AF**. Attempting to compare the two differing numbers, we note that on page 4-1 the District adds in 1,304 AF of "Losses" (without explanation of what those "Losses" may be) along with 174 AF of "Sales/Transfers/Exchanges to other agencies" plus a minor 4 AF of "Other." Adding the 1,304, 174, and 4 AF to the previously identified District total water use of 5,062 AF results in a total water use amount of 6,540 AF – somewhat close to the claimed actual water use of 6,597 when counting not only water supply to customers, but also losses, sales, transfers, etc.

Over the next few pages under **4.2 Water Use Projections**, the UWMP loses all credibility by misleading attempting to claim that three different future water demand approaches somehow justify the conclusion that CCWD may need to provide roughly 44,000 AF of water supply to meet demand in less than 25 years.

This is more than just speculating without tying that speculation to reality. The UWMP as now presented blatantly misrepresents the facts to portray the perception (exemplified by Figure 4.1) that CCWD faces a tremendous surge in projected future water demand. CSERC respectfully asserts that is simply misinformation.

FLAWED, HIGHLY INFLATED WATER DEMAND PROJECTION FOR AG WATER

As first presented as a scenario in the 2010 UWMP developed in 2011, CCWD "investigated" the potential for new agricultural developments around the County by reportedly looking at soil and lands that might be "irrigable." Asking a water supply district to identify lands that could need the district's water in the future is a classic example of extreme bias, but what was particularly troubling in the 2011 investigation was the conclusion that 17,000 acres might be added to agricultural production by 2050. When our Center commented on that incredibly speculative assertion back in 2011, we noted that the total demand for District raw agricultural water had actually decreased between 2000 and 2019 from 1,268 AF to 1,066 AF. So that speculation that agricultural water demand would soar was countered by facts to the contrary.

We note in this newest reiteration of speculative water supply promotions that CCWD includes the admission that many of the potential agricultural lands identified as possibilities for future water supply from CCWD actually don't lie within the current CCWD service areas (page 4-6). Further, the 2020 UWMP now claims that the past study found 29,220 acres of "potential agricultural lands" within the extent of Sub-Regions A and B. The 2020 UWMP then goes on to assume that current "and future" agricultural water demands for the Highway 4 Corridor Region located outside of the prior study areas could conceivably result in an additional amount of water demand ("a maximum of approximately 2,510 AF/year" … even though the potential lands are not necessarily within current District service areas. The UWMP goes on to state that those additional Highway 4 Corridor Region agricultural demands for CCWD are assumed to begin in 2030 and hold constant through 2045.

In reality, there is no credibility for either the 2010 UWMP's or the 2020 UWMP's unproven assumptions that significant areas of so-called "irrigable" lands – especially lands outside of the District's service areas -- will demand agricultural water from the District. That is so wildly speculative that the State should reject the UWMP for being flawed and self-serving. And that inflated assumption becomes all the more fallacious by ignoring the actual limited amount of agricultural water demand that the District

actually provides, which is shown for 2020 to be a meager 1,379 AF. The amount of increase in agricultural water demand from 2010 to 2020 is roughly 300 AF. To suggest that a enormous surge in agricultural water demand will suddenly materialize and grow rapidly is simply unsubstantiated hyperbole.

FLAWED "APPROACHES" FOR GROWTH PROJECTIONS

The 2020 UWMP further misleads with all three of the "Approaches" that are the basis for establishing projected water demand. First, Approach 1 claims to apply a "historical connection growth rate" as an indicator for what would be expected for each 5-year period on through 2045. Connections are not a valuable measure of how much water will be demanded because many "new" connections may be for second homes or for other low-use connections.

An appropriate measure of "historical growth rate" would be to look at the growth of water supply provided by the District from 2010 to 2020 and to assume that 10-year growth rate would potentially be a viable estimate of growth for the next 25 years.

The UWMP uses Approach 2 based on a highly debatable build-out estimate and county population growth estimate that was provided in the 2019 Calaveras County General Plan. The County assumed a need for 5,684 new residential units would be needed by 2030, which is truly beyond any feasible assumption of realistic expectation. First, that number of units was based on only expecting there to be 1.59 persons per household even though the Census Bureau determines Executive Summary included in its text the acknowledgment that rather than growing rapidly, the County experienced a net loss in population since 2010. Thus, instead of growing rapidly, the County did not have any measurable growth. Yet none of that is made apparent in the UWMP.

Finally, Approach 3 is supposedly based upon the CA Department of Finance population projection data. However, again, rather than acknowledging that the DOF's previous estimate of growth in the County from 2010 to the present time was significantly incorrect (and that instead the County had no measurable population growth during that period), the UWMP assumes that the DOF population project data rate can be applied to the number of District connections and then projected out through 2045. Similar to the failure of the first two Approaches to be valid, the use of DOF's growth projection rate tied to connections significantly deviates from reality.

For all of the years that the District has been operating, the total amount of water supply demand has not exceeded 6,600 AF of water use even considering 1,304 AF of water losses, along with sales/transfers/exchanges, etc. To promote as somehow being credible that -- despite only minimal growth of water use over decades – now there will be suddenly be a reversal of all of the years of trend and there will now be a soaring rise in water use demand to a level of more than 22,000 AF in the next 9 years is simply untenable as a valid UWMP projection for water demand.

CONSERVATION STRATEGIES TO MINIMIZE WATER WASTE ARE PIVOTAL

CSERC appropriately acknowledges the positive steps taken so far by CCWD to detect leaks (and repair), to have 100% metered service, and water waste prohibitions. However, the current extremely dry water year we are experiencing following the lower-than-normal water year that we experienced last year comes only a couple of years past the most significant multi-year drought period that has ever been documented in the recent history of our State. The trend toward frequent drought events is very clear.

Accordingly, while CCWD's current level of water conservation education and outreach, along with its current level of leak detection and repair, may be judged to be positive, it is certainly not at the level that is feasible and desirable given the potential for multiple drought years.

CSERC strongly asserts that the most meaningful and essential action that CCWD should commit to do within the next 18 months is to adopt a Budget Based Rate Structure approach. While conservation pricing is better than no conservation incentive, the reality is that most customers will not find it meaningful enough to motivate change. Renowned state water resource advocate Martha Davis recently presented to the Tuolumne-Stanislaus IRWM and explained in depth how financial outcomes of such a budget-based rate structure can not only assure that a water agency continues to receive a solid level of ratepayer funding, but that the budget-based rate structure approach also has significantly reduced water waste for numerous water districts elsewhere in California.

With these comments, CSERC asks that the UWMP commit for CCWD to either aim to adopt such a Budget Based Rate Structure approach for the utility district within 18 months or to adopt at a minimum as much of that strategic approach as may be judged by the CCWD board of directors to be feasible.

In the draft UWMP, the District appears to point to the CCWD Water Waste Prevention Ordinance as somehow resulting in a meaningful reduction in water waste, when in fact there is no assurance that there is any such actual on-the-ground meaningful value. Taking a position that is not directly tied to intensive measurement of individual water customer use and there is no consistent customer monitoring to make such a nicely worded, ordinance to result in any clear benefit.

The variety of public outreach and education efforts that CCWD are positive, but there is no clarity that they add up to make a significant difference in reducing water use. CSERC suggests that rebates for water use efficiency appliances are good, but without the District doing a higher level of outreach to make those rebates highly publicized there is unlikely to be a major response by CCWD customers. And rather than simply having low-flow showerheads and soil moisture sensors available upon request, the District could significantly increase the use of those kinds of devices if the District provided in bills "free coupons – come to the office to pick up your low-flow showerheads, etc."

SYSTEM LOSS AND INFRASTRUCTURE REPLACEMENT

It is positive that the District has spent significant funding for pipeline replacement projects and distribution upgrades. CSERC applauds those improvements.

CLOSING SUMMARY

It has become the norm for CCWD over the years to assert that the UWMP's future water demand scenario will be far higher than any current trend information or historic use actually reflects. CSERC strongly urges that the District scale back purported water demand expectations in the UWMP to be far more realistic at credible levels.

Executive Director

COMMUNITY ACTION PROJECT
& Calaveras Planning Coalition

P.O. Box 935, San Andreas, CA 95249 ● (209) 772-1463 ● www.calaverascap.com

May 21, 2021

Brad Arnold
Water Resources Manager
Calaveras County Water District
(Sent by email)

RE: 2021 UWMP Update

Dear Mr. Arnold:

I am writing to you on behalf of the Calaveras Planning Coalition (CPC) regarding the 2021 Urban Water Management Plan (UWMP) update for the Calaveras County Water District (CCWD).

The CPC is a group of community organizations and individuals who want a healthy and sustainable future for Calaveras County. We believe that public participation is critical to a successful planning process. United behind eleven land use and development principles, we seek to balance the conservation of local agricultural, natural and historic resources, with the need to provide jobs, housing, safety, and services.

The CPC has a history of involvement with CCWD. In 2008 and 2009 we worked with CCWD and a stakeholders group to draft a Water Element for the Calaveras County General Plan. In 2011 we commented on CCWD's Urban Water Management Plan. From 2012-2013 we worked with CCWD and other stakeholders in drafting the MAC Integrated Regional Water Management Plan. From 2013 to 2015 we worked with CCWD and other stakeholders in the MokeWise collaborative process. In 2018 we joined CCWD and others in support of Wild and Scenic Designation for segments of the Mokelumne River.

We at the CPC recognize and appreciate the effort and time CCWD has put into the April 2021 public draft of the UWMP update. The depth of information and the productive dialogue were both refreshing. The CPC is grateful that CCWD incorporated some consideration of the impacts of climate change on water demand in relation to residential water use. We appreciate the comprehensiveness of the Water Shortage Contingency Plan as well.

As the drought continues, it is critically important that we accurately assess our supply and demand for water, currently and into the future. While nothing is guaranteed, there are many modeling tools and other resources that support increasingly accurate and realistic predictions for future water demands.

Many experts like climatologist Bill Patzert believe "We've really been in a drought since 2000, with some wet years (2005, 2010, 2011 and 2017) in Central California." Patzert was also quoted as saying, "The wax and wane of wet years have given many a false sense of security; however, California has entered 'a new normal' of significantly more dry years resulting in lower lake levels, less groundwater, depleted aquifers and skimpier Sierra Nevada snowpack."[1]

After reviewing the proposed UWMP, the CPC has chosen to raise four main concerns. We sincerely hope you will consider our feedback and we appreciate you taking the time to address our concerns.

Protecting existing rate-payers by requiring developers to foot the bill

The District has a very broad program, servicing "six different water supply service areas within the County from four different water sources." The CPC understands the many challenges CCWD faces: balancing water rights; forecasting and preparing for drought conditions; predicting population fluctuations and supply and demand changes; lack of funding for many capital improvements; the dependency on grants from local, state, and federal resources; and an aging delivery system.

This balancing game creates conflict, particularly if there is a belief in a never ending water supply for CCWD. There is a difference between water rights and the water that is deliverable in a dry year. This is especially true of Bureau of Reclamation contracts and state water rights. They provide very little water in dry years due to over commitment of water. There is far more water promised "on paper" to stakeholders than there is in California's waterways.

The CPC also agrees with the County General Plan that existing ratepayers should come first, ahead of new connections and other infrastructure to support new development. The 2019 Calaveras County General Plan update also supports the need to ensure that new developers pay the costs associated with providing services, such as water, to their developments. We would like to see the UWMP better aligned with this principle.

We would like CCWD to make the following changes for the benefit of their ratepayers:

1. Set clear and specific deadlines for policy development,

[1] Lindsey, John, Drought-like conditions in California are the new normal, Santa Ynez Valley News, May 9, 2021; https://syvnews.com/news/local/lindsey-drought-like-conditions-in-california-are-the-new-normal/article_cc20b809-1598-5e5e-ae42-80d5d0549043.html#1.

    a. Specifically, please prioritize completion of the programmatic response to assess risks and vulnerabilities of drought conditions and its impact on water supplies.
2. Assign clear and specific financial liabilities for policy and program development.
3. Develop a new water permit system when CCWD emergency drought provisions reach stages 5 and 6.
    a. Alternatively, CCWD could institute a tiered permit release program.

Protect the Community of Wallace and Subregion (D)

Your partnership with the Eastside Groundwater Sustainability Authority (GSA) and in turn the Eastern San Joaquin Groundwater Authority, developed a "Groundwater Sustainability Plan (GSP) published in 2020." This is "aimed at bringing the critically overdrafted Subbasin into sustainable conditions by 2040 per the Sustainable Groundwater Management Act (SGMA)."

CCWD describes the Wallace subregion as producing 61AFY consistently from 2020-2045. Drought conditions in this critically overdrafted subbasin are highly likely to affect the ability to pull 61AFY. Other groundwater users in the area will also very likely continue to contribute to the depletion of this source. Residents in this part of the county have failing wells and have to haul water because they're located on an overdrafted groundwater basin. Surface water alternatives are extremely limited in the area. There were years of drought (1977, 1988, 1991-92, 2015), when rain and surface water runoff stored in Hogan Reservoir was dangerously low. There were times Hogan was down to 10,000-15,000 AF out of 300,000 AF. They call this "dead pool" storage, with what little water is left having terrible quality, offering little promise of help as an alternate surface water source for Wallace.

We would like CCWD to make the following changes for the benefit of the communities of Wallace:

1. Provide an assessment of groundwater production in this subregion that considers the overall decline of groundwater in this basin, and provide documentation illustrating how all groundwater production estimates for this subregion were calculated.

2. Do not issue any new connections or permits supporting new development in the Wallace subregion until alternatives to groundwater are guaranteed.

Repair failing infrastructure before allowing more development in Copperopolis

Copperopolis is both the area with the highest amount of system loss, and the highest potential for growth. Predicted increases in land development into the 2000's fell short in part due to the

2007/2008 housing market collapse. In contrast, a 2020 state analysis predicts a shrinking Calaveras County population with limited growth. Predicting the future of development is not a perfect science, but it does rely upon valid data and modeling. However, identifying which water systems are suffering the most losses and have the most infrastructure in need of repair *is* a more precise science.

In 2020 a CCWD AWWA water loss analysis exposed an 8.9% water loss in the Copper Cove/Copperopolis system. This equates to an annual loss of $224,959 and an annual loss of 141.34 MG/Yr of water. The Copperopolis system has the highest water loss (by almost double) in the District's six service areas. The need for CCWD to invest in improving efficiency of the Copperopolis system is clear.

It is imperative that CCWD prioritize these competing interests appropriately by ensuring a safe and reliable water supply to the Copperopolis area before investing existing ratepayer money in supporting future development.

These competing interests are illustrated by CCWD's current five year CIP. CCWD's five year Capital Improvement Plan (CIP) has given phase I (2019-2023) priority to the Saddle Creek transmission main. This project is a $8,142,000, 2 mile, 20" pipeline water main. Phase II and Phase III deal with repairing, replacing, and upgrading existing water and sewer infrastructure. These CIP phases need to be flipped to accommodate existing infrastructure repair first.

We believe the revised Copperopolis CIP should include the following:

1. Copper Cove/Copperopolis system replacement of the Kiva Dr sewer force main and pump stations;

2. C4 backup main for improved hydrant flow operation;

3. B4 loop main replacement of an underwater lake crossing pipeline;

4. WTP clear well improvements;

5. B water tanks 1&2 replacement; and

6. a continued annual pipeline rehabilitation, replacement, and repair program.

While CCWD is confident in their ability to provide water, their access to water is still subject to disruption. Lake Tulloch, operated by TriDam, had drawdowns during the drought year of 2015. This caused the District to extend their Lake Tulloch intake siphons because of water supply

demands by TriDam owners South San Joaquin Irrigation District (SSJID) and Oakdale Irrigation District (OID). CCWD should acknowledge the potential for difficulties delivering water to the Copperopolis area in drought years like that of 2015 due to circumstances beyond their control.

We would like CCWD to make the following changes for the benefit of the community of Copperopolis:

1. Budget accordingly and continue grant requests to repair the failing systems in Copperopolis.

2. Reprioritize their 5 year CIP by placing existing pipeline improvements ahead of new utility installation.

3. Address the potential sale of 97 acres of surplus lands in Copperopolis and explain why those lands are not being designated for watershed benefits.

4. Provide clear and specific details justifying the incredible increase in predicted agricultural water demands for the Copperopolis community.

Filling State Water Rights from the Mokelumne

During the May 19, 2021 Calaveras-Amador-Mokelumne River Association (CAMRA) meeting, CCWD Director Michael Minkler disclosed that CCWD intends to look into filing for their 27,000 AF of State Reservation from the Mokelumne River over the next 6 months to 1 year. This information is very pertinent to the UWMP and should be included in the UWMP update.

We request that CCWD provide any details they can regarding this filing.

This includes the following specific details:

1. timing, place and means of diversion from the river;

2. timing, place and means of storage;

3. timing, place and means of diversion out of storage;

4. place and means of conveyance;

5. location where the water will be put to beneficial use;

6. kinds of beneficial uses to which it will be put;

7. costs of the project;

8. anticipated revenues from the project; and

9. the burden on the ratepayers.

We also ask that CCWD hold a workshop on the project BEFORE making the filing with the state. The best way to ensure that we are all pulling together on a project is if we plan it together.

Additionally, we request CCWD provide answers to the following questions:

1. Does the operation plan for the project square with the water availability modeling done for MokeWise?

2. If this is a reservoir reoperation project, or another MokeWise project, why not plan it together with all the stakeholders as we committed to in MokeWise?

3. If this water is being shipped to San Joaquin or Cosumnes groundwater basins to help them manage their groundwater, then how is the water being used in and for Calaveras County, as is the intent of the State Reservation?

4. Will San Joaquin be building a reservoir to store the water for later use? If so, where?

5. Is this a groundwater bank? If so, what facility will CCWD be using to get the water back uphill? Just 4 years ago CCWD told us they did not even want to pump water out of the Mokelumne upstream or out of Pardee, let alone uphill from the valley? Has something changed to make it feasible to pump water uphill now?

Again, we would like to commend CCWD for the hard work that went into this extensive plan, and thank them for considering our comments. We look forward to your response and to the final plan.

Sincerely,

Megan Fiske

Megan Fiske, Outreach Coordinator
Calaveras Planning Coalition

ATTACHMENT B

CCWD AGRICULTURAL DEMAND PROJECTIONS IN 2020 UWMP

Memorandum

DATE: June 11, 2021

TO: File with Response to Public Comments

FROM: Brad Arnold, Water Resources Program Manager

SUBJECT: CCWD Agricultural Demand Projections in 2020 Urban Water Management Plan Update

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SUMMARY:

Calaveras County Water District (CCWD) developed its 2020 Urban Water Management Plan (UWMP) Update consistent with the "Urban Water Management Plan – Guidebook 2020" (Guidebook) provided by the California Department of Water Resources (DWR). By following the Guidebook, CCWD ensures that its UWMP will meet the requirements of the California Urban Water Management Planning Act (Act, per California Water Code §10610-10657). The Act requires UWMPs to provide long-term water use projections, to describe future water demands, and to define potential water supply projects which help urban water suppliers to be better prepared for future developments and demand changes. Following the Guidebook ordering, Section 4.2 of the UWMP Update contains this information for CCWD's water service areas. Consistent with prior UWMP and planning documents, CCWD projects a significant increase in potential agricultural demands within Calaveras County (County), increasing with greater magnitude over time relative to other potential sector demands. This memo provides additional context to the agricultural demand projection contents of the 2020 UWMP and explains why CCWD believes these forecasts to be reasonable in the context of planning for future water demand conditions.

UWMP Projections

Table 4-6 of the UWMP Update provides the projected CCWD demands from 2025 through 2045, a range recommended by the Guidebook. The urban and agricultural demands portions are provided in Table 1 below, for reference.

Table 1. CCWD Current and Projected Water Demands by Sector

Sector	2020[1] (Current)	Projected Water Use (AF per year)[2]				
		2025	2030	2035	2040	2045
Municipal/Residential	3,735	3,303	3,671	3,982	4,713	6,317
Agricultural (Irrigation)	1,379	7,730	16,539	22,842	29,145	35,447
Other[3]	1,482	1,355	1,445	1,513	1,691	2,096
Total CCWD Demands	6,597	12,388	21,656	28,337	35,548	43,861

[1] Data from UWMP Update Table 4-1; consolidated for non-agricultural sectors.
[2] Data from UWMP Update Table 4-6; consolidated for non-agricultural sectors.
[3] Mostly from distribution system losses (i.e., pipeline leaks, inefficiencies). Loss estimates are from annual CCWD Water Loss Audits using American Water Works Association framework.

Most sector forecasts are based on a continuation of current population and distribution system trends, consistent with multiple years of available CCWD data and analyses (e.g., real municipal/residential development and part-time to full-time conversion trends, monitored infrastructure losses via Water Loss Audits[1]). Regarding agricultural demand projections, Table 2 provides the data from the UWMP Update by Sub-Region - a set of in-County regional areas defined in the UWMPs to consolidate CCWD's independent water service areas by supply source watershed for analysis purposes (see UWMP Update Section 3.2). According to the UWMP analysis, around 73 to 87 percent of the agricultural demand is expected to occur in the Stanislaus River Watershed Sub-Region B, along the "Highway 4 Corridor", with the remaining development in and around the Calaveras River Watershed Sub-Region A in the western County lower elevation areas. These areas of the County have historically had the most potential for agricultural development based on land and soil conditions, among other factors (Tudor Engineering, 1960; Provost & Pritchard, 2011)

Table 2. CCWD Current and Projected Agricultural Demands by Sub-Region

Sub-Region	2020 (Current)	Projected Ag Demands (AF per year)				
		2025	2030	2035	2040	2045
A: Calaveras River (Jenny Lind and Sheep Ranch Service Areas)	1,379[1]	2,085	2,743	3,401	4,059	4,710
B: Stanislaus River (Ebbetts Pass and Copper Cove Service Areas)	0	5,645	13,796	19,441	25,086	30,730
C: Mokelumne River (West Point Service Area)	0	0	0	0	0	0
D: Groundwater Supplied (Wallace Service Area)	0	0	0	0	0	0
Total CCWD Demands	1,379	7,730	16,539	22,842	29,145	35,447

[1] Calaveras River riparian agricultural demands downstream of New Hogan Reservoir (New Hogan) but within the County, provided water under CCWD's contract with US Bureau of Reclamation for New Hogan water supplies.

Table 3 provides an overview of publicly available DWR[2] and US Department of Agriculture (USDA)[3] data regarding current and potential agricultural lands in Sub-Regions A and B. These data indicate that around 1,242 acres (3,605 AF/yr estimated demand based on average crop evapotranspiration (DWR, 2016)) of irrigated agricultural lands currently exists in the sub-regions, neither serviced by CCWD or another County water supplier. Based on their locations, it is assumed these lands currently rely on private

[1] More information on distribution system water losses detailed in Section 4.3 of UWMP Update.

[2] DWR Land Use Viewer provided state-wide irrigated agricultural lands in ArcGIS Online program, using 2018 LandIQ data acquired from satellite imagery and manual land verification. More information on this DWR program and datasets available at: data.cnra.ca.gov/dataset/statewide-crop-mapping.

[3] USDA CropScape data (NASS CDL Program) online mapping tool provides overview of nation-wide satellite agricultural lands data, available at: nassgeodata.gmu.edu/CropScape/. CropScape widely considered unreliable for classification of specific crops by land area, but generally works well for analysis of broad agricultural lands (i.e., current non-irrigated or potential agricultural lands).

groundwater supplies. The Salt Springs Valley area, and areas outside of the Jenny Lind (Burson/Ospital Road) and Copper Cove Service Areas (Highway 4 Corridor through Murphys), represent the greatest potential for lands being converted for irrigated agriculture – a potential up to 20,743 acres (57,127 AF/yr maximum demand), which could be developed outside of water supplier jurisdictions. These areas represent the bulk of agricultural build out forecasted in the UWMP analyses. They have been highlighted for significant agricultural development since CCWD was formed in 1947 (Tudor Engineering, 1960); however, the potential lands in these areas have not yet been developed due to various economic and land adaptability reasons.

Table 3. Calaveras County Agricultural Lands Overview

Area Basis	Current Irrigated Ag Lands		Est. Non-Irrigated/ Potential Ag Lands	
	(Acres)[2]	Est. Demand (AF/yr)[3]	(Acres)[4]	Max Build-Out (AF/yr)[3,7]
Jenny Lind Service Area[1]	564	1,379	301[5]	736
Sheep Ranch Service Area	0	0	0	0
Other Sub-Region A (Not CCWD Serviced)	573	1,845	4,362	14,046
Ebbetts Pass Service Area	0	0	0	0
Copper Cove Service Area	0	0	115	302
Salt Springs Valley Area (Not CCWD Serviced)	174	458	7,577	19,927
Other Sub-Region B (Other Supplier Serviced)[8]	910	2,392	1,306	3,435
Other Sub-Region B (Not CCWD/Supplier Serv.)	495[6]	1,302	8,804	23,154
Total	2,716	7,376	22,465	61,600
Sub-Total (CCWD Serviced)	564	1,379	416	1,038
Sub-Total (Not Serviced)[9]	1,242	3,605	20,743	57,127

[1] Incudes Calaveras River riparian agricultural users, some located outside of County. Actual water demands used for these users applied to Jenny Lind Service Area.
[2] Irrigated agricultural land data from DWR Land Use Viewer (DWR, 2016) for Sub-Region areas.
[3] Based on avg. 2011-2015 ETAW (AF/acre) data from DWR Land Use Viewer/Ag Interface (DWR, 2016) equivalent for County areas: DAUCO 18105 3.22 AF/acre per year for Sub-Region A, DAUCO 19405 2.63 AF/acre per year for Sub-Region B.
[4] Based on data of total current agricultural lands identified by USDA CropScape (NASS CDL Program) online mapping tool for Sub-Regions and water service areas; based on 2020 Cropland data. Represents proxy for potential agricultural lands based on USDA land assessment metrics in CropScpae. Current irrigated lands subtracted from CropScape values.
[5] Incudes likely service of additional agricultural along Calaveras River using New Hogan supply.
[6] Includes currently investigated Slurry Line areas with existing irrigated agriculture.
[7] Represents maximum theoretical build-out scenario for potential agricultural lands in-County.
[8] Estimated Utica Water & Power Authority (UWPA) and Union Public Utilities District (UPUD) current agricultural service lands subtracted from Other Sub-Region B for current; potential lands within UWPA/UPUD jurisdictional areas subtracted for build-out scenario.
[9] Represents lands not provided water supply service or within other supplier jurisdictional area.

Potential Agricultural Trends

Section 4.2 of the UWMP Update addresses CCWD technical analyses performed to better understand County agricultural and water demand trends used to develop the UWMP forecasts. The following analyses and considerations were referenced:

- 2011 Provost & Pritchard Technical Report (P&P Report) investigating the potential for new agricultural developments in the lower elevation and foothills parts of the County; generally, west of Highway 49. The P&P Report analyzed various land use and soil parameters (e.g., land slopes, suitability for irrigation, soil quality) to identify specific parcels which could be converted to irrigated agriculture in a maximum build-out scenario. Many of these lands fell within Sub-Regions A and B referenced above. The P&P Report identified approximately 29,220 acres of potential irrigated agricultural lands, with approximately 1,150 acres within current CCWD water service area boundaries. Since the P&P Report was developed, several lands identified in and around the Highway 4 Corridor/Murphys area have since been converted to vineyards and other high-value crops.
- A supplemental agricultural trends analysis for the Highway 4 Corridor was developed by CCWD, for areas from southeastern County boundary through Arnold, the aforementioned Highway 4 Corridor (CCWD Study). The CCWD Study anticipates approximately 2,510 AF/yr of additional Sub-Region B agricultural demands by 2030 (roughly +9.7% per year rate) based on the actual 2010 to 2020 rates of land use conversion, primarily of low-value pasture lands to irrigated vineyards and other high-value crops. This analysis did not investigate specific land parcel conversions, but rather high-level area trends. As such, it is uncertain if these lands would fall within CCWD, UWPA, or UPUD service areas, and if these agencies would be able to facilitate additional irrigation demands, if needed.
- Section 6.9 of the UWMP Update details the potential Cataract Mine Cement Slurry Line (Slurry Line) water supply project being investigated by CCWD. CCWD owns the Slurry Line, a pipeline extending from the Utica Ditch near the Ebbetts Pass Service Area towards San Andreas, which passes through several agricultural and rural lands. Landowners have expressed interest in working with CCWD to procure raw water service to these lands from the Slurry Line for their irrigation demands, and CCWD has secured the water rights permitting necessary to deliver up to 1,000 AF/yr to these areas (SWRCB Order 97-05, 1997). The Slurry Line is not within CCWD's Ebbetts Pass or Sheep Ranch Service Areas. This is an example where CCWD is working with landowners outside of its service areas to investigate potential agricultural water service, working with other water suppliers and the public to respect jurisdictional boundaries for the water supply benefit of County landowners. There may be other opportunities for similar projects or efforts to be undertaken by CCWD in the near future which are also being investigated (e.g., Salt Springs Valley area water service).
- CCWD is investigating opportunities to provide supplemental wholesale raw water supplies to in-County water agencies such as UWPA, UPUD, and/or Calaveras Public Utilities District (CPUD) (generally referred to as "Regionalization"). Several of these agencies, and a few of CCWD's water service areas, rely on one source of water making them vulnerable to dry conditions, infrastructure issues, among other risks

(e.g., wildfire and earthquake damage). CCWD's water could be used to support some of these agencies' agricultural demands, as needed to ensure compliance with local environmental streamflow regulations and to provide water supply security. More analyses and coordination with these agencies are needed to assess opportunities.

Beyond these concepts, there are also a few considerations regarding the potential for agricultural build-out in the County, as shown in Figure 1. The causes (factors) identified here may lead to the potential results including agricultural migration in California, regionalization, or other conditions, as explored below.

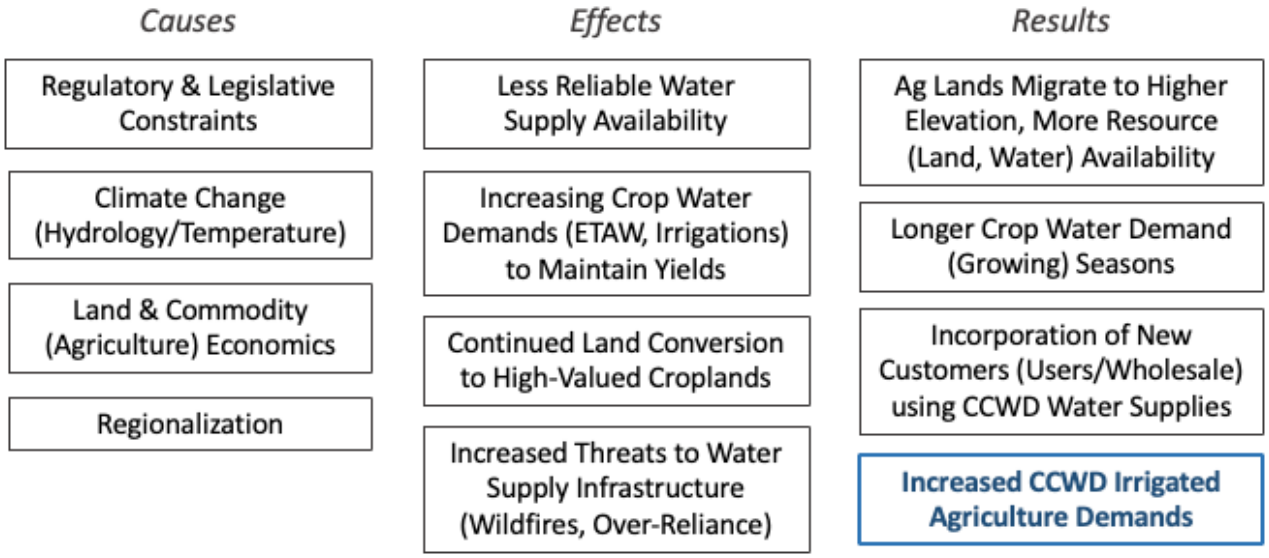

Figure 1. CCWD Agricultural Demands Cause/Effect/Result Diagram

- *Regulatory & Legislative Constraints*: new and altered regulations have been enacted over time to better protect California's population, natural resources, environments and habitats. Although these regulations have helped to improve water quality and other conditions, they have also often restricted some users' water supply availability and constrained water uses. Some examples of regulatory and legislative changes impact California agricultural users are listed below - note there are likely several more examples not listed. CCWD anticipates some irrigated lands could elect to move their crops and operations, rather than to shut down completely, out of their current regions being altered by a regulatory change, such as the Central Valley[4], to areas with fewer land use restrictions and more water supply availability[5] (e.g., County/foothills).

[4] USDA CropScape (2020 data) estimates around 489 thousand acres of irrigated croplands in the Eastern San Joaquin Groundwater Subbasin (Subbasin), parts of which underlie the County mostly in Sub-Region A, and around 5.29 million acres in the broader San Joaquin Valley (and Tulare Basin). Full build-out of currently non-irrigated lands in the County, shown in Table 3, equates to around 4.5% of current Subbasin irrigated acreage and less than 0.5% of current San Joaquin Valley acreages.

[5] Relatively low land costs and advances in irrigation technologies (e.g., micro-drip and sprinkler irrigation for higher-valued orchard crops) facilitates planting on lands without requiring land leveling or other intensive land alterations. Along with plentiful water supply availability (see UWMP Update Chapter 6), this means CCWD, and County areas could become attractive to migrating agricultural landowners.

- The Sustainable Groundwater Management Act (SGMA) represents a positive change for California in terms of needed groundwater management to curb historic over-draft conditions in many of the state's basins. However, the result is generally expected to be a decrease in Central Valley agricultural lands to meet SGMA sustainability objectives and to decrease the total number of groundwater users (PPIC, 2020; CEPB, 2018; Lubell et al., 2020). Limitations on groundwater pumping and use, which can comprise up to 80% of water supplied in dry years for the Central Valley (DWR, 2015), are likely to be enacted in some of California's key agricultural areas which overlie 'critically over-drafted' groundwater subbasins[6]. The critical subbasins will likely require additional management and groundwater reliance changes to bring them in to long-term sustainably managed conditions (most required by 2040 under SGMA). Many of the states most over-drafted subbasins are located in the Central Valley (DWR, 2018). Note the potential agricultural lands identified in Sub-Region B, for example in the Salt Springs Valley area, do not overlie a SGMA-managed groundwater basin[7].
- Proposed regulatory changes with anticipated impacts to surface water diversions and uses, especially in the agricultural heavy areas of the Central Valley, include the Bay Delta Water Quality Control Plan (BDWQCP) Update[8] and State Water Resources Control Board's (SWRCB) ability to curtail water rights in response to pervasive dry conditions or drought periods. In both cases, surface water supplies historically made available to water users are likely to decrease, either temporarily or permanently, thereby decreasing long-term water supply reliability.
- The SWRCB and other organizations, such as the Central Valley Salinity Coalition, are actively developing tools and resources to deal with land salinity and nitrate issues in many of the key agricultural parts of the state (e.g., CV-SALTS program). Legislation related to nonpoint source pollution or salinity and nitrate issues are beyond the scope of this memo. However, it is anticipated that continued salinity and/or nitrate loading in parts of California with heavy agricultural demands, due to certain crop irrigation practices and the importing of partially saline water supplies (e.g., State Water Project and Central Valley Project), and the regulations meant to manage such loading or degradation, may ultimately lead to decreased

[6] The Groundwater Sustainability Plan (GSP) for the 'critically over-drafted' Subbasin, developed by the Eastern San Joaquin Groundwater Authority (Authority) in coordination with CCWD via the Eastside San Joaquin Groundwater Sustainability Agency (Eastside GSA), identifies around 75 thousand AF per year of needed net demand decrease, most likely from decreased irrigation users (i.e., fewer cropped acres).

[7] Sub-Region A overlies parts of the Subbasin, and additional groundwater reliant irrigation demands in these areas will be discouraged by CCWD. CCWD does not have land use authorities in the County and cannot prevent development. Land use and groundwater protection aspects are being investigated by the Eastside GSA between CCWD, the Calaveras County government, and others.

[8] Developed by the SWRCB, the BDWQCP sets outflow requirements for rivers and streams which are tributary to the Sacramento-San Joaquin River Delta (Delta) region, in order to achieve certain Delta water quality and environmental objectives.

irrigable lands (i.e., lands no longer viable for cropping due to salt content, or lands 'retired' to meet regulatory constraints).

- *Climate Change*: Anticipated mid-century effects of climate change are expected to increase both daytime and nighttime temperatures in the Central Valley and eventually the lower Sierra Nevada foothill areas, resulting in longer crop production seasons under much drier conditions (DWR, 2011). Additionally, winter and nighttime chill hours are expected to continue decreasing with worsening climate change, having an adverse effect on crop yields (Luedeling et al., 2009). The general increase in temperatures, coupled with greater frequency and duration of dry hydrologic conditions, is expected to lead to increases in crop evapotranspiration (ET); increasing irrigation water demands and extending the number of irrigations across more months of the year in order to retain current crop production yields.
    - Other parts of the world are already noticing agricultural land migrations into higher elevations to avoid higher daytime and nighttime temperatures which impact farming operations and crop yields and introduce new crop pests and diseases (Gornall et al. 2010; Skarbo & VanderMolen, 2015).
- *Land & Commodity (Agriculture) Economics:* For many years, California has led the nation in farm production due to its specialization in high-value commodities such as fruits, nuts, vegetables and other horticultural crops (Martin et al. 2020). Innovation in the agricultural sector has often been driven by economic factors; yielding higher-valued crop plantings (e.g., fruit and nut orchards), more-efficient irrigation practices and land alteration processes. The economic outlook for agricultural lands and crop commodities is difficult to forecast and is beyond the scope of this memo. Existing land conversion trends, such as those in the Highway 4 Corridor per the CCWD Study, suggests the potential for continued agricultural growth in the County. How such growth materializes over time remains unclear, however, sustained high-valued commodities and active crop demand markets may continue to drive the California agricultural sector towards adaptation measures (e.g., land/operations migration, updated practices) in order to continue productivity levels and to address the other factors identified in this memo.
- *Regionalization:* issues such as infrastructure degradation (e.g., aging, overreliance), small agency overhead from operations and maintenance costs, and the ability to meet new and changing demand patterns add stressors to water suppliers. CCWD having jurisdictional authority across the entire County may be in a good position to assist with or benefit from other in-County water suppliers in helping to mitigate these issues – specifically in fulfilling existing irrigation customers. Additionally, CCWD may ultimately be required to service newly developed County lands which are not currently within any water supplier service area. There remains several 'to be determined' considerations regarding regionalization opportunities in the County. CCWD has been working with other agencies to explore potential mutually beneficial projects and programs (e.g., Slurry Line service, wholesale water service arrangements).

An overview of the potential for these factors to contribute to increased CCWD agricultural water demands over time is provided in Table 4. The role and extent of these factors remains unclear, although existing trends and crop water use data provide some insights

into what future conditions may ultimately look like (see table footnotes). As seen in Figures 2A through 2C, the most likely contributor to increased agricultural demands remains Land & Commodity Economics; the development of currently non-irrigated lands following the economics of land prices, crop developments, farming practices, and irrigation demands (e.g., high-valued orchard plantings irrigated with more efficient sprinkler or drip systems). Regionalization and regulatory changes also represent significant factors which may dictate future agricultural water services and may push CCWD towards supplying parts of the County which have historically not been part of CCWD's water service areas (e.g., County mandates for service to new areas to prevent over-use of groundwater resources). CCWD also does not have land use authorities in the County and cannot prevent private land development(s).

Planning Approach

How the factors identified in this memo materialize into increased agricultural demands for CCWD remains to be seen. As mentioned above, many of the potential agricultural lands in Sub-Regions A and B have long been identified for irrigation since early in CCWD's history, but have not yet developed (Tudor Engineering, 1960). Relatively new regulations and legislative constraints (e.g., SGMA, BDWQCP, long-term salinity and nitrate management) are likely to adversely impact water users in many parts of the state in new ways. Along with the anticipated impacts of climate change in agricultural-heavy areas, such as the Central Valley, regional demand patterns could dramatically change over the coming decades. These issues may prompt response actions from agricultural landowners, such as migration of their operations or changes to crop irrigation practices, in ways which are not yet fully understood. As the County's primary water supplier, CCWD may also be called upon to incorporate new service areas in the County or may need to work with other in-County water suppliers to provide supplemental water supplies (i.e., regionalization efforts).

In the context of the UWMP Update, it is prudent for CCWD to plan for these demands and to incorporate them into long-term forecasts, to be better prepared for potential future conditions. These demand forecasts are compiled with water supply projections in order to ensure CCWD implements reasonable supply projects and programs to avoid potential shortage conditions. The factors identified in this memo are plausible enough to warrant further investigation by CCWD as additional data, forecasts, and literature are made available. While the degree and extent of these factors remains uncertain, CCWD believes developing the forecasts based on known projects (e.g., Slurry Line) or actual trending data (CCWD Study) is reasonable for planning purposes. CCWD plans to re-investigate the forecast agricultural demands trends with each five-year update of its UWMP, consistent with the requirements of the Act. As currently non-irrigated agricultural lands are developed, and/or currently non-serviced irrigated lands are brought into CCWD's system, CCWD will continue to engage in broader resource planning and other efforts which ensure the sustainable long-term use of its water supplies within a responsible framework. For more information on CCWD water resources responsibilities, planning efforts, and ongoing analyses, visit: https://ccwd.org/water-resources/

Table 4. CCWD Agricultural Demands Forecast Components

Cause	2025 Est. Ag Demand (AF/yr)	2035 Est. Ag Demand (AF/yr)	2045 Est. Ag Demand (AF/yr)
Current (2020) CCWD Demands	1,379	1,379	1,379
Regulatory & Legislative Constraints[1]	0	+5,782	+9,637
Climate Change (Hydrology/Temperature)[2]	+542	+1,603	+2,488
Land & Commodity (Agricultural) Economics[3]	+3,010	+8,393	+14,078
Regionalization[4]	+2,797	+5,685	+7,866
Total CCWD Demands	7,730	22,842	35,447
Estimated In-County Acreage	2,520 ac	7,551 ac	11,694 ac
CCWD Service Area Fulfill	1,782	2,417	2,417
Unfulfilled Service Area	635	0	0
% Fulfilled Service Area	73%	100%	100%
Non/Other-Serviced (Existing)[5]	2,474	4,882	4,882
Unfulfilled Non/Other-Serv	3,523	1,115[6]	1,115[6]
% Fulfilled Non/Other-Serv	41%	81%	81%
Build-Out (Non-Existing)[5]	2,930	13,940	25,661
Unfulfilled Potential Build-Out[7]	57,632	46,622	34,901
% Fulfilled Potential Build-Out	5%	23%	42%
Environment/Climate Change	542	1,603	2,488

[1] Increase in irrigation demands stemming from regulatory and legislative changes (e.g., conversion of groundwater-only irrigated lands to CCWD surface water systems). Assumed conversion of potential build out areas to CCWD supply, due to SGMA and other water supply constraints. Includes both non and other serviced existing lands and future developed irrigation demands.

[2] Increase in demands due to dry hydrologic conditions increasing crop ETAW and/or extending irrigation seasons to maintain crop yields of serviced irrigated lands. Estimated by multiplying total irrigated acreage for forecast year by ETAW factor for dry versus average conditions (e.g., 2.85 dry year ETAW / 2.65 average ETAW in AF/acre = x1.075 factor); represent increase in crop demands during higher temp and drier conditions, based on Calaveras County data (DWR, 2016).

[3] Based on CCWD Study +9.7% per year increase in total agricultural demands, consistent with 2010 to 2020 trends indicating sustained conversion of low-value pasture and other prime agricultural lands to new higher-valued irrigated agriculture.

[4] Assumes CCWD water supplies used to fulfill agricultural demands in other parts of County in coordination with other water agencies (e.g., anticipated 1,000 AF/year Slurry Line service, potential UWPA wholesale water supply arrangement, potential Salt Spring Valley supplies).

[5] Assumes CCWD responsible for meeting demands for non-serviced areas of County. Depends on build out and proximity to current jurisdictional boundaries.

[6] Portion of agricultural demands currently fulfilled by UWPA and UPUD will not be supplied by CCWD; quantities per hydrologic year type to be determined (assumed approx. 50% for analysis).

[7] Water demands corresponding with maximum build-out in County areas (see Table 3); represents potential upper limit of irrigated agricultural developments.

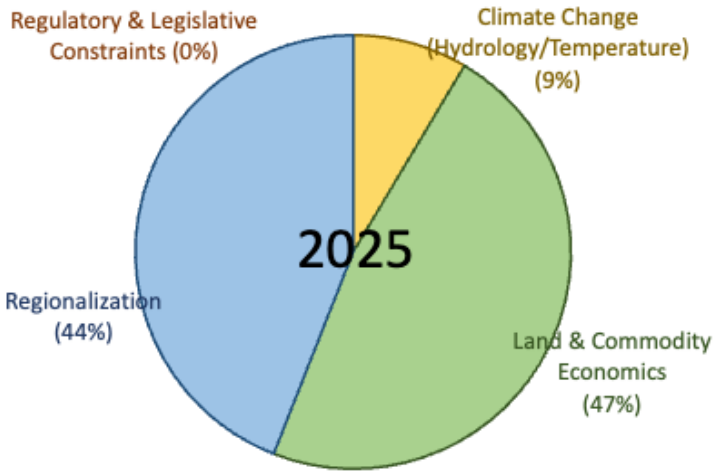

Figure 2A. 2025 Estimated CCWD Ag Demand Factors (% of Increased Demand)

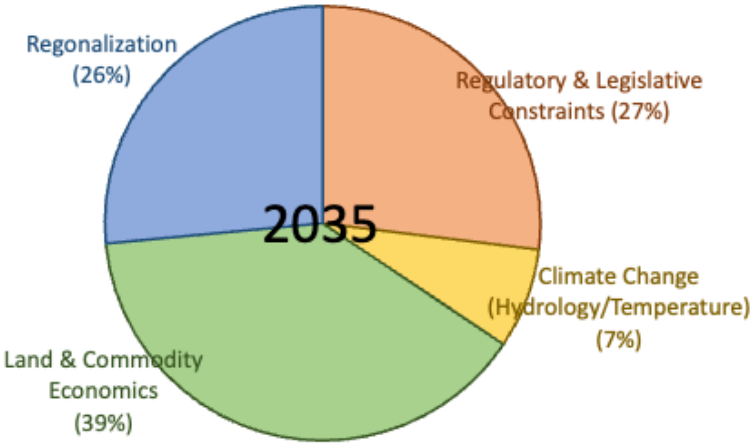

Figure 2B. 2035 Estimated CCWD Ag Demand Factors (% of Increased Demand)

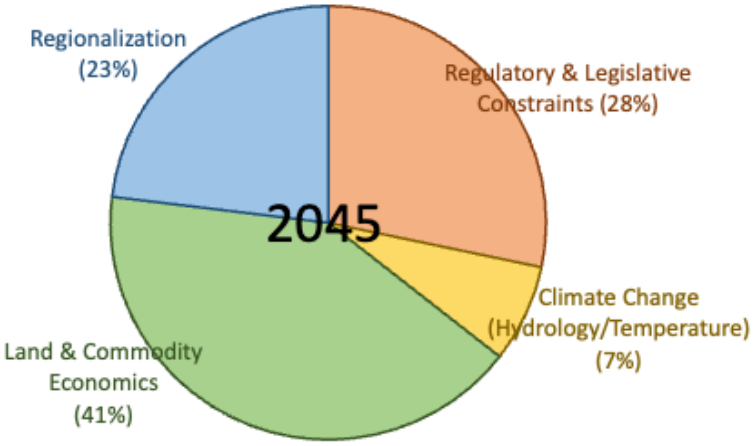

Figure 2C. 2045 Estimated CCWD Ag Demand Factors (% of Increased Demand)

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RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPT THE CALAVERAS COUNTY WATER DISTRICT 2020 URBAN WATER MANAGEMENT PLAN UPDATE

WHEREAS, Urban Water Management Plans (UWMPs) must be prepared by urban water suppliers every five years to support long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs; and

WHEREAS, the California Urban Water Management Planning Act (Act), as codified in Water Code §10610-10657 and §10608, requires that every urban water supplier that either provides over 3,000 acre-feet of water annually, or serves more than 3,000 urban connections is required to develop an updated UWMP; and

WHEREAS, the District developed its 2020 UWMP Update consistent with the California Department of Water Resources' (DWR) 2020 Urban Water Management Plan Guidebook for Water Suppliers (Guidebook); and

WHEREAS, per the Act, a Public Review Draft of CCWD's 2020 UWMP Update was made available for public review and comment from April 26 to May 21, 2021 (Public Comment Period), during which a public hearing was held on May 12, 2021, used to provide an overview of UWMP contents and to receive direct public feedback; and

WHEREAS, an adopted 2020 UWMP Update must be submitted to DWR by July 1, 2021, for their review of UWMP compliance with the Act.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors (Board) of CALAVERAS COUNTY WATER DISTRICT hereby adopts the CCWD 2020 UWMP Update, its contents and analyses, attached hereto and made a part hereof.

BE IT FURTHER RESOLVED that the 2020 UWMP Update shall address the revisions and feedback received during the Public Comment Period.

PASSED AND ADOPTED this 23rd day of June, 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPT THE CALAVERAS COUNTY WATER DISTRICT 2020 WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the California Urban Water Management Planning Act (Act), as codified in Water Code §10610-10657 and §10608, requires that every urban water supplier that either provides over 3,000 acre-feet of water annually, or serves more than 3,000 urban connections is required to develop an updated Urban Water Management Plan (UWMP) every five years; and

WHEREAS, per the Act, the 2020 UWMP update includes requirements for a separate 2020 Water Shortage Contingency Plan (WSCP), defining how CCWD will implement drought water shortage stages, provide water use notices, implement water conservation measures, and engage with the public during future drought conditions; and

WHEREAS, the District developed its 2020 WSCP consistent with the California Department of Water Resources' (DWR) 2020 Urban Water Management Plan Guidebook for Water Suppliers (Guidebook); and

WHEREAS, per the Act, a Public Review Draft of CCWD's 2020 WSCP was made available for public review and comment from April 26 to May 21, 2021 (Public Comment Period), during which a public hearing was held on May 12, 2021, used to provide an overview of WSCP contents and to receive direct public feedback; and

WHEREAS, an adopted 2020 WSCP must be submitted to DWR by July 1, 2021, to comply with the Act.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors (Board) of CALAVERAS COUNTY WATER DISTRICT hereby adopts the CCWD 2020 WSCP, its contents and analyses, attached hereto and made a part hereof.

BE IT FURTHER RESOLVED that the 2020 WSCP shall address the revisions and feedback received during the Public Comment Period.

PASSED AND ADOPTED this 23rd day of June, 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

ADOPT ADDENDUM TO 2015 CALAVERAS COUNTY WATER DISTRICT 2015 URBAN WATER MANAGEMENT PLAN UPDATE FOR COMPLIANCE WITH THE 2013 DELTA PLAN

WHEREAS, Calaveras County Water District's (CCWD) 2015 Urban Water Management Plan (UWMP) Update was adopted on June 22, 2016, per CCWD Board of Directors Resolution No. 2016-32; and

WHEREAS, the California Department of Water Resources (DWR) reviewed CCWD's 2015 UWMP Update for consistency with the California Urban Water Management Planning Act (Act), notifying CCWD on October 27, 2016 that its 2015 UWMP Update was found to be consistent with the then-applicable Act requirements; and

WHEREAS, California Code of Regulations §5003 required UWMPs to document their reduced reliance on water supplies with a nexus to the Sacramento-San Joaquin River Delta Region (Delta), starting in 2015, to be consistent with the California 2009 Delta Reform Act and the resulting 2013 Delta Plan (Delta Plan); and

WHEREAS, many urban water suppliers, including CCWD, did not address the Delta Plan requirements in their 2015 UWMP Updates given unclear DWR guidance, and DWR did not withhold approval of UWMPs which did not include this information; and

WHEREAS, the District developed an addendum (Delta Addendum) to its 2015 UWMP Update to incorporate the Delta Plan required contents, following DWR guidance; and

WHEREAS, a Public Review draft of the Delta Addendum was made available for public review and comment from April 26 to May 21, 2021 (Public Comment Period), during which a public hearing was held on May 12, 2021, used to provide an overview of Delta Addendum contents and to receive direct public feedback.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors (Board) of CALAVERAS COUNTY WATER DISTRICT hereby adopts the CCWD Delta Addendum, its contents and analyses, thereby integrating it as an appendix to its 2015 UWMP Update, attached hereto and made a part hereof.

BE IT FURTHER RESOLVED that the Delta Addendum shall address, to the extent possible, the revisions and feedback received during the Public Comment Period.

PASSED AND ADOPTED this 23rd day of June, 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

Agenda Item

DATE: June 23, 2021

TO: Board of Directors

FROM: Michael Minkler, General Manager

SUBJECT: Agreement for Purchase of Middle Fork Mokelumne River Water Supplies from Calaveras Public Utility District

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RECOMMENDED ACTION:

Motion ____/____ adopting Resolution No. 2021-____ executing an Agreement Between Calaveras Public Utility District and Calaveras County Water District for the Sale of Surface Water.

SUMMARY:

On July 11, 2006 (per Board of Directors Resolution No. 2006-69), the Calaveras County Water District (CCWD) executed an "Agreement for the Sale of Water" (Agreement) with the Calaveras Public Utility District (CPUD), facilitating CCWD's purchase of up to 200 acre-feet per year of water from CPUD's Middle Fork Mokelumne River, made available via Schaads Reservoir (Schaads), for use in CCWD's West Point Service Area (West Point). A copy of the Agreement is provided as Attachment A. The Agreement was set up for a period of 15 years from execution and would therefore terminate on July 11, 2021.

CCWD's primary water supply source for West Point is Bear Creek, per water rights Permit P015452, which is tributary to the Middle Fork Mokelumne River. CCWD has relied on Schaads water supplies made available under the Agreement, and the preceding contracts dating back to 1976, to supplement Bear Creek flows during certain dry hydrologic conditions or when water quality or in-creek conditions (e.g., intake clogging) limit Bear Creek water supply use. As such, the Agreement has provided key water supply security for West Point. CCWD maintains the Middle Fork Pumping Plant as intake of Schaads supplies pumped to the West Point Water Treatment Plant and/or Bummerville Regulating Reservoir. CCWD anticipates heavy reliance on Schaads supply for West Point during 2021 due to the ongoing drought conditions.

CCWD has been negotiating with CPUD to execute a new water purchase agreement to provide for continued water supply reliability for West Point. The proposed agreement (Attachment B) substantially mirrors the terms of the existing agreement with new or revised provisions intended to clarify the arrangement. As proposed, the cost per acre-foot will go up from $40 to $55 to ensure CPUD covers its costs and CCWD would pay for a minimum of 20 acre feet per year. CCWD would also make an up front payment of $3,000.

CPUD plans to take the contract to its Board for approval later this month. The new agreement will take effect when fully executed and it replaces the existing agreement at that time.

FINANCIAL CONSIDERATIONS:

The Agreement is structured such that CCWD pays only for the water supplies it uses on an annual basis. CPUD has proposed a rate of $55.00 per acre-foot, up from $40 per acre-foot. Under the proposed contract, CCWD would also pay $3,000 up-front and pay for a minimum of 20 acre feet ($1,100) per year. CCWD's proposed FY 21-22 budget includes $11,000 for CPUD water (under 61100 Purchased Water) in anticipation of heavy reliance on these supplies to supplement Bear Creek water in the summer and fall this year.

STRATEGIC PLANNING:

The 2021-2026+ CCWD Strategic Plan (Strategic Plan), adopted April 28, 2021, per Board of Directors' Resolution No. 2021-24, outlines several Goals and Objectives (Objectives) meant to identify organizational opportunities and measure CCWD's results over time. Consistent with the Strategic Plan, this Agenda Item supports the following Objectives:

- PI-04, Strategic Plan pg. 10: Consider water transfers and exchanges, as allowed by CCWD's permitted water rights, consistent with the CCWD's integrated water management strategy.
- PI-05(f), Strategic Plan pg. 11: Work collaboratively with other water rights holders to protect collective interests.
- PP-04, Strategic Plan pg. 12: Continue to develop relationships with local, regional, state, and federal partners to manage CCWD's risk and leverage its assets.

For more info on the Strategic Plan, visit: ccwd.org/ccwd-adopts-2021-2026-strategic-plan/

Attachments: *A) Original Agreement*
B) Draft Proposed New Agreement
C) Resolution No 2021-__ Approving the Agreement between CPUD and CCWD for the Sale of Surface Water

ATTACHMENT A

AGREEMENT FOR SALE OF WATER

THIS AGREEMENT, dated July 11, 2006, by and between Calaveras Public Utility District (CPUD) and Calaveras County Water District (CCWD) is for the purpose of sale of water from CPUD's Middle Fork (Schaads Reservoir) to CCWD's West Point/Wilseyville water service area.

1. CPUD agrees to make up to 200 acre-feet of water per year from Schaads Reservoir available for beneficial use by CCWD within the West Point/Wilseyville water service area.

2. CCWD shall certify its flow measuring device that records the amount of water used and shall make this information available upon request by CPUD.

3. Compensation for the sale of water shall be made annually upon receipt of an invoice from CPUD and shall be at a rate of $40.00 per acre-foot for the first five years of the contract.

4. This agreement shall become effective upon the approval of both Boards and shall replace the Agreement dated March 26, 1991 (expired). This agreement shall run for three consecutive five year terms for a total of fifteen years subject to the conditions in article 5. Both the amount of water and its price may be revised by mutual consent of both parties after each five year increment.

5. This agreement shall terminate if CPUD no longer has a facility (Schaads) to provide water, or CCWD no longer makes beneficial use of the water, or fifteen years, whichever comes first.

CALAVERAS PUBLIC UTILTITY DISTRICT

President

ATTEST:

Secretary

CALAVERAS COUNTY WATER DISTRICT

President

ATTEST:

Secretary

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AGREEMENT BETWEEN CALAVERAS PUBLIC UTILITY DISTRICT AND CALAVERAS COUNTY WATER DISTRICT FOR THE SALE OF SURFACE WATER

This Agreement for the Sale of Surface Water (the "Agreement") is between the Calaveras County Water District ("CCWD") and the Calaveras Public Utility District ("CPUD"), together referred to as the "Parties" and each separately a "Party", with reference to the following facts:

A. CPUD maintains a pre-1914 claim to water diversion and use (Statement Number 010773) under which it diverts and stores Middle Fork Mokelumne River water in Schaads Reservoir and consumptively uses this water for beneficial purposes included domestic, irrigation, and stock-watering purposes (the "CPUD Water").

B. The Parties entered into a contract dated July 11, 2006, for the sale of CPUD Water to CCWD (hereinafter referred to as the "Existing Contract"), which is set to terminate on July 11, 2021. Pursuant to the Existing Contract, CPUD sold up to 200 acre feet of water per year to CCWD, which CCWD diverted for use exclusively within the County of Calaveras and specifically within CCWD's West Point/Wilseyville service area.

C. The Parties desire enter this Agreement to provide for the continued sale of the CPUD Water under the terms and conditions set forth below.

The Parties agree as follows:

1. **Quantity and Place of Use.** CPUD agrees to sell to CCWD up to 200 acre-feet of untreated CPUD Water per year, which is available for beneficial use by CCWD exclusively within the West Point/Wilseyville water service area (the "West Point/Wilseyville Service Area") within Calaveras County.

2. **Point of Delivery.** The point of delivery for the CPUD water is CCWD's Middle Fork Pump Station on the Middle Fork of the Mokelumne River, which provides raw water to CCWD's West Point Water Treatment Plant. CCWD must maintain a measurement device that accurately records the amount of water diverted at the Middle Fork Pump Station and must make this information available to CPUD upon request.

3. **Raw Water Acknowledgement.** CCWD acknowledges that the CPUD Water diverted at the Middle Fork Pump Station is raw, non-potable water. Nothing herein obligates CPUD to divert, treat, handle, deliver or distribute the CPUD Water through any facilities owned or operated by CPUD. CCWD is solely responsible for the diversion and use of CPUD Water.

4. **Price and Payment.** CCWD must remit payment to CPUD annually for the sale of the CPUD Water within 30 days of receipt of an invoice from CPUD. The water will be sold at a rate of $55.00 per acre-foot unless an adjusted price is mutually agreed upon by the parties. CCWD will pay for a minimum of 20 acre feet per year.

5. **Up Front Payment.** Within 30 days of the effective date of this Agreement, CCWD will make an up-front payment to CPUD of $3,000.

6. **Water Usage Reporting.** By March 1 of each year during the term of this Agreement, CCWD must provide to CPUD its total monthly water used under the Agreement during the prior calendar year in acre-feet. CPUD is responsible for reporting all consumptive use under its reporting requirements for Statement 010773.

7. **Effective Date.** This agreement becomes effective once fully executed and at that point supersedes the Existing Contract.

8. **Term.** This Agreement extends for three consecutive five-year terms for a total of fifteen years from the Effective Date. Both the amount of water and its price may be revised by mutual consent of both parties after each five-year period.

9. **No Joint Venture.** Nothing in this Agreement shall be construed to create an association, joint venture, trust, or partnership, or to impose a trust or partnership covenant, obligation, or liability on, or with regard to, any of the Parties.

10. **Counterparts.** This Contract Amendment may be executed in counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument. This Agreement will not be effective until the execution and delivery between each of the parties of at least one set of counterparts; the parties authorize each other to detach and combine original signature pages and consolidate them into a single identical original. Any one of such completely execute counterparts will be sufficient proof of this Agreement.

11. **Indemnification.** CCWD will defend, indemnify and hold harmless CPUD and its officers, directors, employees, and agents from all losses, costs, damages and liability arising from or relating to any third-party judicial or administrative challenge to the transfer of water from CPUD to CCWD contemplated in this Agreement.

12. **Amendments or Supplemental Agreements.** This Agreement contains all the known and reasonably foreseeable covenants and agreements between the parties with respect to the subject matter herein; provided, however, that this Agreement may be amended and/or supplemental agreements entered into between the Parties. Any such amendment or supplemental agreement shall be in writing and be approved by the Boards of Directors of CPUD and CCWD.

13. **Authorized Representatives.** The signatories hereto warrant and represent that they have the authority and are duly authorized to enter into this Agreement on behalf of CPUD and CCWD, as applicable.

14. **Assignment.** Neither Party hereto may assign any of its rights or obligations hereunder without the prior written consent of the other party.

15. **Beneficiaries.** This Agreement shall not be construed to create any third party beneficiaries. This Agreement is for the sole benefit of the parties, their respective successors and permitted transferees and assigns, and no other person or entity shall be entitled to rely upon or receive any benefit from this Agreement or any of its terms.

16. **Severability.** If any term, provision, covenant, or condition of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions shall, unless amended or modified by mutual consent of the Parties, continue in full force and effect.

17. **Entire Agreement.** This Agreement is freely and voluntarily entered into by the Parties after having the opportunity to consult with their respective attorneys. The Parties, in entering into this Agreement, do not rely on any inducements, promises, or representations made by each other, their representatives, or any other person, other than those inducements, promises, and representations contained in this Agreement. This Agreement represents the entire agreement of the Parties.

18. **Waiver of Rights.** Any waiver at any time by either Party of its rights with respect to a breach or default, or any other matter arising in connection with this Agreement, shall not be a waiver with respect to any other breach, default, or matter.

By signing below, the Parties, through their duly authorized representatives, agree to comply with and be bound by the terms of this Agreement.

CALAVERAS PUBLIC UTILITY DISTRICT

_____Date:_____
J.W Dell'Orto
Chair, CPUD Board of Directors

ATTEST:
_____Date:_____
Carissa Bear, CPUD Board Clerk

CALAVERAS COUNTY WATER DISTRICT

_____Date:_____
Jeff Davidson
President, CCWD Board of Directors

ATTEST:
_____Date:_____
Rebecca Hitchcock, CCWD Board Clerk

RESOLUTION NO. 2021-

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

AGREEMENT BETWEEN CALAVERAS PUBLIC UTILITY DISTRICT AND CALAVERAS COUNTY WATER DISTRICT FOR THE SALE OF SURFACE WATER

WHEREAS, on July 11, 2006, the Calaveras County Water District (CCWD) executed an "Agreement for the Sale of Water" (Agreement) with the Calaveras Public Utility District (CPUD) for the purpose of sale of up to 200 acre-feet per year of water from CPUD's Middle Fork Mokelumne River Schaads Reservoir (Schaads) to CCWD for use in the West Point/Wilseyville water service area (West Point); and

WHEREAS, the Agreement is the third in a series of water purchase contracts, first executed in 1976 and renewed in 1991, facilitating CCWD's purchase of Schaads water from CPUD; and

WHEREAS, CCWD understands that CPUD's pre-1914 claim to water diversion and use, under which they store Middle Fork Mokelumne River water in Schaads, allows for CCWD's re-diversion of that water at the Middle Fork Pumping Plant and for its consumptive use in West Point; and

WHEREAS, the Schaads water supplies made available to CCWD under the Agreement have provided a key supplemental water supply to West Point during dry hydrologic years and drought conditions, or under certain water quality or infrastructure limitations on Bear Creek; and

WHEREAS, the Agreement was set up for a period of 15 years from execution, comprised of three consecutive five-year terms, and would therefore terminate on July 11, 2021 if not replaced.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors (Board) of CALAVERAS COUNTY WATER DISTRICT that the "Agreement Between Calaveras Public Utility District and Calaveras County Water District for the Sale of Surface Water" (New Agreement) be executed, attached hereto and made a part hereof.

BE IT FURTHER RESOLVED that the Board President are hereby authorized to sign said New Agreement and any other pertinent documents related thereto.

BE IT FURTHER RESOLVED that pursuant to the California Environmental Quality Act (CEQA), following execution CCWD shall submit the Notice of Exemption for the New Agreement, attached hereto and made a part hereof, to the California Office of Planning and Research and Calaveras County Clerk pursuant to CEQA Guidelines Section 15301, Class 1 (Existing Facilities use).

PASSED AND ADOPTED this 23rd day of June. 2021 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Jeff Davidson, President
Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

Agenda Item

DATE: June 23, 2021

TO: Board of Directors

FROM: Brad Arnold, Water Resources Program Manager
Rebecca Callen, Director of Administrative Services

SUBJECT: New Hogan Reservoir OM&R Charges Update

RECOMMENDED ACTIONS:

Motion by Minute Entry ____/____ authorizing total payments of $496,753.17 for New Hogan Reservoir Operations, Maintenance, and Repair (OM&R) Charges.

SUMMARY:

CCWD's Fiscal Year 20/21 Budget included $293,262 for New Hogan OM&R charges. The adjusted amount due is $468,359. Staff seeks to pay the amount due prior to June 30th, however, Board authorization is requested because the difference of $175,396 exceeds the General Manager's purchasing authority. No budget amendment is necessary as the cost can be covered within the overall budget.

BACKGROUND:

Calaveras County Water District (CCWD) obtains water from the Calaveras River Watershed at New Hogan Reservoir (New Hogan) for its Jenny Lind Service Area, and on behalf of some downstream irrigation users[1], in western Calaveras County (County). New Hogan water supplies are made available to CCWD pursuant to agreements with the US Bureau of Reclamation (Reclamation) and Stockton East Water District (SEWD) for New Hogan water supplies and OM&R[2] repayment responsibilities (New Hogan Agreement, Contract No. 14-06-200-5057A executed August 1970, as amended December 1987), and one between SEWD and CCWD detailing repayment and water allocations (Allocation Agreement, also executed August 1970). USACE built and owns New Hogan and surrounding recreational facilities, while Reclamation holds the underlying diversion and storage water rights, subject to USACE's use for flood control operations. Reservoir releases for water supply purposes are controlled by SEWD according to projected demands, per the Allocation Agreement – in coordination with CCWD. Per the New Hogan Agreement, both CCWD and SEWD annually reimburse USACE for OM&R related expenses based on 5-year accumulated cost periods

[1] CCWD provides approximately 1,200 acre-feet per year of its New Hogan contract supplies to riparian irrigation users located downstream on the Calaveras River within the County.

[2] Operations, Maintenance, and Repairs (OM&R) of New Hogan infrastructure and facilities. Typically, OM&R costs are expenditures necessary to provide for the efficient functioning of the facilities throughout the design life, including refurbishment and repair, and reliable operations.

proportional to New Hogan supplies made available. Neither the New Hogan Agreement nor the Allocation Agreement have a set term limit.

Water Supply Arrangement

Reclamation holds water rights Permit No. 014434 (priority date 6/19/1959), which allows for wet season diversion and up to 325,000 acre-feet of storage at New Hogan. USACE may require releases when the water level rises in the reservoir to warrant flood control operations, and they are entitled to maintain some capacity for recreational and incidental uses. Per the New Hogan Agreement, the remaining "conservation pool" is divided between CCWD and SEWD.

The Allocation Agreement sets the methods and guidelines for dividing New Hogan water supplies and OM&R costs between CCWD and SEWD. In June 1982, CCWD and SEWD entered into a Memorandum of Understanding (MOU) to further clarify New Hogan water supplies made available to both parties, coinciding with CCWD's construction of the New Hogan Power Project (a 3.0 MW hydroelectric facility at New Hogan Dam). The result of the Allocation Agreement and MOU was a review of total water available from New Hogan, and details regarding each party's share of water supplies and OM&R costs. CCWD's total water available was estimated as 31,665 acre-feet per year (including water for in-County irrigation users); effectively setting an upper limit for CCWD's New Hogan allocation. However, 7,700 acre-feet per year from New Hogan remains firm and must be made available to CCWD in all year types.

Each year, CCWD reviews annual Jenny Lind, La Contenta Golf Course[3], and Calaveras River irrigation users' data[4] and submits a forecast of New Hogan demands to SEWD. CCWD's demands for 2021 were forecast as 4,220 acre-feet. The Allocation Agreement and MOU stipulate that CCWD is required to pay for OM&R costs proportional to the (maximum) water made available, not based on CCWD's annual usage. The Allocation Agreement recognizes that CCWD does not currently utilize its full allocation and it permits SEWD to use the excess New Hogan water until CCWD requests additional supplies.

OM&R and Recreational Commitments

USACE ultimately determines the operational, maintenance, and repair/refurbishment needs of New Hogan facilities following its New Hogan Water Control Manual (from June 1983). Per the New Hogan Agreement, CCWD and SEWD repay 38 percent of New Hogan OM&R costs in equal annual amounts over a 5-year period (i.e., USACE incurs 5-years of OM&R costs and collects corresponding amount from parties during subsequent 5-year period). Proportional to the water supply allocation under the Allocation Agreement, CCWD is responsible for 43.5 percent of those costs. In addition, CCWD is obligated to pay for the New Hogan water supplies received, including any amount in excess, and for repayment to SEWD for New Hogan construction costs.

CCWD annually submits a prepayment to SEWD for the OM&R and other costs (OM&R Prepayment), based on the forecasted water use for that year. That OM&R Prepayment

[3] La Contenta Golf Course in Valley Springs may divert raw water from New Hogan under CCWD's contract allocation, when needed to supplement their recycled water supplies from CCWD.

[4] Data are collected via Water Use Surveys of these irrigation users, typically mailed every March.

is applied to actual water use and OM&R costs at years end, when SEWD submits an annual "Statement of Charges under the New Hogan Water Contract" to CCWD. An overview of costs from prior CCWD Fiscal Years (FY) is provided in Attachment A.

The USACE Sacramento District manages New Hogan's recreational areas and facilities. Popular recreational opportunities at New Hogan include boating and fishing, picnic day-use sites, swimming, and hiking in surrounding lands[5]. These areas are staffed by USACE park rangers and patrolled by the County Sheriff's Department. These recreational and area management costs are not part of the OM&R costs repaid by CCWD or SEWD.

2021-2025 OM&R Expenses

A new 5-year OM&R repayment period has started in 2021. For the prior period of 2016 through 2020, USACE incurred roughly $14.6 million in total non-recreational OM&R costs, of which $5.55 million will be repaid by CCWD and SEWD in the years 2021 through 2025 (38 percent per OM&R Agreement). As currently structured, CCWD will be responsible for around $2.4 million over the next 5-years (43.5 percent allocation), not including water supply and SEWD construction repayment costs. These figures equate to approximately $483,000 per year for CCWD. With the estimated additional supply and SEWD repayment costs, New Hogan water supplies may ultimately cost CCWD around $540,000 per year through 2025 ($40,000 as OM&R Prepayment). These costs will not change until the following 5-year repayment period starting in 2026.

Versus the prior period, New Hogan OM&R costs by USACE increased by roughly $5.5 million. The main reason is the Tainter Gate Project (Project), a 10-year refurbishment project on the main New Hogan Dam outlet, completed in February 2021. The Project involved the full mechanical replacement of several outlet gate components, upgraded seals and hoist systems, and other improvements for environmental flow requirements on the Calaveras River, necessary to ensure the continued operation of New Hogan Dam facilities. Project expenses are incorporated into the New Hogan OM&R costs.

The dramatic increase in New Hogan OM&R costs is concerning. Going forward, USACE has agreed to provide annual updates to SEWD and CCWD in order to better plan and prepare for the next 5-year repayment period. CCWD staff will continue to monitor and update the CCWD Board of Directors (Board) regarding water supply conditions at New Hogan with SEWD, and as more information is provided by USACE.

FINANCIAL CONSIDERATIONS:

CCWD budgeted a total of $293,262 in its FY 20/21 budget for New Hogan OM&R payments, based on prior 5-year OM&R repayment period costs.

Total FY 20/21 New Hogan OM&R costs are $468,659. FY 20/21 total budgeted amount is $175,396 below the actual OM&R cost. As such, notice of this increase in costs has been brought to the Board for review and approval.

[5] For more information, visit: https://www.spk.usace.army.mil/Missions/Recreation/New-Hogan-Lake/

STRATEGIC PLANNING:

The 2021-2026+ CCWD Strategic Plan (Strategic Plan), adopted April 28, 2021 per Board Resolution No. 2021-24, outlines several Goals and Objectives (Objectives) meant to identify organizational opportunities and measure CCWD's results over time. Consistent with the Strategic Plan, this Agenda Item supports the following Objectives:

- OI-07, Strategic Plan pg. 9: Communicate on CCWD's operational efforts to effectively deliver water and wastewater services.
- PP-04, Strategic Plan pg. 12: Continue to develop relationships with local, regional, state, and federal partners to manage CCWD's risk and leverage its assets.
- PP-05, Strategic Plan pg. 12: Closely monitor and engage in any relevant policy developments that affect CCWD.

For more info on the Strategic Plan, visit: ccwd.org/ccwd-adopts-2021-2026-strategic-plan/

Attachment: A) Historic New Hogan OM&R Costs

ATTACHMENT A
HISTORIC NEW HOGAN OM&R COSTS

Year[1]	CCWD Water Use[2] (AF)	Total OM&R[3]	Constr. Repay[4]	Total Cost[5]
2010	3,221	$107,288	$75,000	$198,877
2011	2,945	$138,229	$91,590	$227,382
2012	3,091		$89,153	$224,879
2013	3,324		$86,650	$222,418
2014	3,640		$84,190	$219,929
2015	3,119	$293,262	$81,700	$373,074
2016	3,281		$79,812	$370,597
2017	3,361		$77,335	$368,122
2018	3,735		$74,860	$365,619
2019	3,625		$72,357	$363,131
2020	3,882	$468,659	$69,869	$536,035

[1] Calendar year shown.

[2] Incudes water for CCWD Jenny Lind Service Area, La Contenta Golf Course, and Calaveras River irrigation users downstream of New Hogan.

[3] Portion of prior 5-year period OM&R costs incurred by USACE, repaid by CCWD per Allocation Agreement.

[4] CCWD annual repayment of New Hogan construction costs SEWD, includes interest after 2010.

[5] Total including CCWD OM&R Prepayment.

Agenda Item

DATE: June 23, 2021

TO: Board of Directors

FROM: Brad Arnold, Water Resources Program Manager

SUBJECT: AWIA Risk and Resiliency Assessment Update

RECOMMENDED ACTION:

Receive and discuss information regarding development of Calaveras County Water District's Risk and Resiliency Assessment (RRA) for compliance with America's Water Infrastructure Act of 2018. This is an information-only item, and no action is required.

SUMMARY:

America's Water Infrastructure Act of 2018 (AWIA) is a federal law requiring community (drinking) water systems serving more than 3,300 people to conduct a Risk and Resilience Assessment (RRA). AWIA specifies the water system assets (infrastructure) that the RRA must address. Per AWIA, the primary objectives of an RRA are to:

1. Become more aware of the risks to water service continuity, and
2. Identify options that can mitigate undesirable consequences.

Calaveras County Water District (CCWD), by combination of its service area populations – estimated around 17,500 people served in 2020 – fits the AWIA definition of a "small community water system" (Small CWSs) and is therefore required to prepare and self-certify an RRA with the US Environmental Protection Agency (EPA) by June 30, 2021 (Deadline). CCWD developed an RRA document to address the objectives above, and to analyze the risks to CCWD's water supply operations and infrastructure from malevolent acts and natural hazards. The RRA provides in-depth review of CCWD's water service areas (no wastewater topics covered) and related infrastructure, supply risks, and vulnerabilities in a narrative document and via the EPA RRA Assessment Checklists, provided as an appendix. As such, the RRA contains sensitive information related to CCWD operations, infrastructure, asset management, and technological vulnerabilities, which could place public water supply systems and Calaveras County (County) communities at risk. A Public Version of the RRA is provided as Attachment A, in which several sections, tables, figures, and other sensitive materials have been excluded, as noted. Several of the concepts and analyses in the RRA also borrow from CCWD's 2018 Local Hazard Mitigation Plan (LHMP) which provided in-depth assessment of County hazards and potential CCWD mitigation measures – that LHMP is available to the public. A (Confidential) Internal Version of the RRA with all content will be made available to the CCWD Board of Directors (Board) and individuals directly involved in CCWD emergency planning and response activities.

Follow Up Actions

Following this Board meeting, the RRA will be finalized for certification with EPA by the Deadline. The RRA is neither submitted to nor reviewed by EPA for AWIA compliance. After certification of this initial RRA, AIWA mandates that the RRA be periodically updated and re-certified, to address changes in federal legislation and/or updates to CCWD system infrastructure (every 5-years, next update therefore due June 30, 2026). In addition, CCWD must prepare a follow-up Emergency Response Plan (ERP) due no later than six months after each RRA certification, which incorporates the findings of an RRA into strategies and resources to improve water systems resiliency. Per AWIA, the first ERP for Small CWSs will be due December 31, 2021. CCWD is anticipating releasing a Request for Proposals (RFP) in the start of the upcoming Fiscal Year 2021-2022 (FY 2022) for consultant services to develop an ERP. More information on the RRA certification and ERP development process will be provided as it becomes available.

FINANCIAL CONSIDERATIONS:

None at this time. CCWD's FY 2022 budget includes funds for development of an ERP, as required by AWIA (Water Resources Dept. 60, Fund 61450 'Mandated Plans' line-item). The Board will be considering approval of the FY 2022 budget.

STRATEGIC PLANNING:

The 2021-2026+ CCWD Strategic Plan (Strategic Plan), adopted April 28, 2021 per Board Resolution No. 2021-24, outlines several Goals and Objectives (Objectives) meant to identify organizational opportunities and measure CCWD's results over time. Consistent with the Strategic Plan, this Agenda Item supports the following Objectives:

- FR-05, Strategic Plan pg. 8: Review financial budget systems and tools and update if needed.
- OI-06, Strategic Plan pg. 9: Monitor and adapt to emerging and existing regulatory requirements and mandates.
- OI-07, Strategic Plan pg. 9: Communicate on CCWD's operational efforts to effectively deliver water and wastewater services.
- PP-05, Strategic Plan pg. 12: Closely monitor and engage in any relevant policy developments that affect CCWD.

For more info on the Strategic Plan, visit: ccwd.org/ccwd-adopts-2021-2026-strategic-plan/

Attachment: A) CCWD RRA Public Version

(RRA Internal Version provided to Board members)

Calaveras County Water District

America's Water Infrastructure Act of 2018 (AWIA)
Risk and Resiliency Assessment

Public Version
Released June 2021

Disclaimer

This Risk and Resiliency Assessment (RRA) was developed to comply with America's Water Infrastructure Act of 2018 (AWIA). As such, this RRA contains sensitive information related to CCWD operations, infrastructure, asset management, and technological vulnerabilities, which could place public water supply systems and Calaveras County communities at risk. As such, several sections, tables, figures, and other sensitive materials have not been included in this Public Version of the RRA, as noted.

List of Contents

The following sections are included in this document:

1.0 Basis for Preparing an RRA

America's Water Infrastructure Act of 2018 (AWIA) is a United States federal law that requires community (drinking) water systems serving more than 3,300 people to conduct a Risk and Resilience Assessment (RRA). AWIA specifies the water system assets (infrastructure) that the RRA must address, as listed in **Appendix A**. The primary objectives of an RRA are to:

1. Become more aware of the risks to water service continuity, and
2. Identify options that can mitigate undesirable consequences.

In this context, a "community water system" (CWS) is defined by the U.S. Environmental Protection Agency (EPA) as a water supplier which provides its water and/or wastewater services to the same population on a consistent basis. The Calaveras County Water District (CCWD/District), by combination of its service area populations – estimated around 17,500 people served in 2020 - fits this definition and is therefore required to prepare and certify[1] an RRA by the small CWS[2] deadline of June 30, 2021. Additional information on the preparation and certification processes is provided in **Section 10.** Following certification of this initial RRA, AIWA mandates that the RRA be updated and re-certified, to address changes in federal legislation and/or updates to District system infrastructure (next update due June 30, 2026). In addition, CCWD must prepare a follow-up Emergency Response Plan (ERP) due no later than six months after each RRA certification, which incorporates the findings of an RRA into strategies and resources to improve water systems resiliency.

CCWD has prepared this RRA to comply with the requirements associated with AWIA, the EPA guidelines for small CWSs, and to meet the following planning objectives:

- Improve understanding of risks to the District from malevolent acts and natural hazards.
- Define improvements to the resiliency of pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the District.
- Review District infrastructure monitoring practices.
- Review District financial infrastructure risk and vulnerabilities.
- Review the District's use, storage, or handling of various chemicals, and
- Define District systems operations and maintenance.

[1] Each community water system must self-certify the completion of its RRA for each individual Public Water System ID (PWSID) service area using the EPA online portal.

[2] Small Community Water Systems are defined by EPA as systems serving more than 3,300 people, but less than 50,000.

CCWD has utilized the EPA "Guidance for Small Community Water Systems on Risk and Resilience Assessments under America's Water Infrastructure Act" document (Guidance) in preparation of this RRA. In an effort to verify the District has met all the requirements put forth in AWIA, a Guidance-based contents 'checklist' is provided in **Appendix B.**

2.0 Risk and Resilience Defined

EPA Guidance provides the following definitions to assist in preparation of the RRA:

- **Risk** to critical infrastructure, including water systems, is a function of **threat likelihood**, **vulnerability**, and **consequence**.
- **Threat** can be a malevolent act, like a cyberattack or process sabotage, or a natural hazard, such as a flood or hurricane.
    - **Threat likelihood** is the probability that a malevolent act will be carried out against the water system or that a natural hazard will occur.
- **Vulnerability** is a weakness that can be exploited by an adversary or impacted by a natural hazard. It is the probability that if a malevolent act or natural hazard occurred, then the water system would suffer significant adverse impacts.
- **Consequences** are the magnitude of loss that would ensue if a threat had an adverse impact against a water system. Consequences may include:
    - Economic loss to the water system from damage to utility assets;
    - Economic loss to the utility service area from a service disruption, and
    - Severe illness or deaths that could result from water system contamination, a hazardous gas release, or other hazard involving the water system.
- **Resilience** is the capability of a water system to maintain operations or recover when a malevolent act or a natural hazard occurs.
- **Countermeasures** are steps that a water system implements to reduce risk and increase resilience. They may include plans, equipment, procedures, and other measures.

CCWD has utilized these terms as defined to develop this RRA, given they are compatible with CCWD's jurisdictional provisions for public water service, wastewater treatment and disposal, and water supply development and planning within the County. To the extent these terms appear in other CCWD planning efforts, such as CCWD's Urban Water Management Plan (UWMP), they may use alternate definitions to better match the applicable mandates or guidance.

3.0 Related Planning Efforts

The following sub-sections outlines some of CCWD's planning efforts related to the requirements or concepts defined under AWIA.

3.1 Local Hazard Mitigation Plan

CCWD's 2018 Local Hazard Mitigation Plan (LHMP) identifies several hazard and disaster events which may impact Calaveras County (County) resources and infrastructure. That plan also defines CCWD's mitigation measures meant to reduce vulnerabilities associated with these events, and provides information related to County response actions. The LHMP was developed per Federal Emergency Management Agency (FEMA) guidelines, in coordination with a Hazard Mitigation Planning Committee (HMPC) comprised of key District, County, and regional representatives.

Several of the concepts and analyses in this RRA borrow from broader LHMP materials. More information on the District's LHMP and a copy of the latest plan is available online at: https://ccwd.org/water-resources/

3.2 Water System Emergency Response Plans

The Federal Safe Drinking Water Act (SDWA) §1433(b), as amended by the Public Health Security and Bioterrorism Preparedness Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety), required CCWD to develop water supply system Emergency Response Plans (ERPs). The ERPs incorporated the results of a then-current Vulnerability Assessment (VA) to identify plans, procedures, and equipment needed in the event of a terrorist attack on a water supply system. CCWD developed its ERPs in early-2004, certified completion with EPA, and submitted a copy to the local California Department of Health Services (CDHS) Drinking Water Field Operations Branch District Office (DWFO Office).

Several of the malevolent act hazards and water system response actions identified in the ERPs remain applicable to CCWD's current water systems. As such, many of the concepts and analyses in this RRA borrow from the ERPs. Because of the sensitive nature of the information contained in the ERPs, distribution of the ERPs is limited to those individuals directly involved in CCWD emergency planning and response activities.

4.0 District Overview

CCWD is a California Special District (local government) located with its jurisdiction covering the entire County, as shown in **Figure 1**, governed by a publicly elected five-member Board of Directors (Board). CCWD acts as the largest County water supplier and maintains water resources management authority for several key watersheds of the Sierra Nevada Mountains – which drain to the Sacramento-San Joaquin River Delta (Bay Delta), diverted for use in the San Francisco Bay and Los Angeles Metropolitan Areas. CCWD provides water service to approximately 17,500 people, mostly in the residential and commercial sectors, from six water treatment facilities each forming CCWD's independent water service areas located throughout the County. CCWD also operates 12 wastewater treatment facilities, provides recycled water supplies, and actively manages a portion of the 'critically over-drafted' Eastern San Joaquin Groundwater Subbasin (Subbasin). Owing to CCWD's complex water and wastewater services, vulnerable groundwater resources, and reliance on surface water diversion and storage rights, CCWD understands that water is a limited, vulnerable, and often contentious resource. Proper resource planning and coordination is therefore essential to protect local and

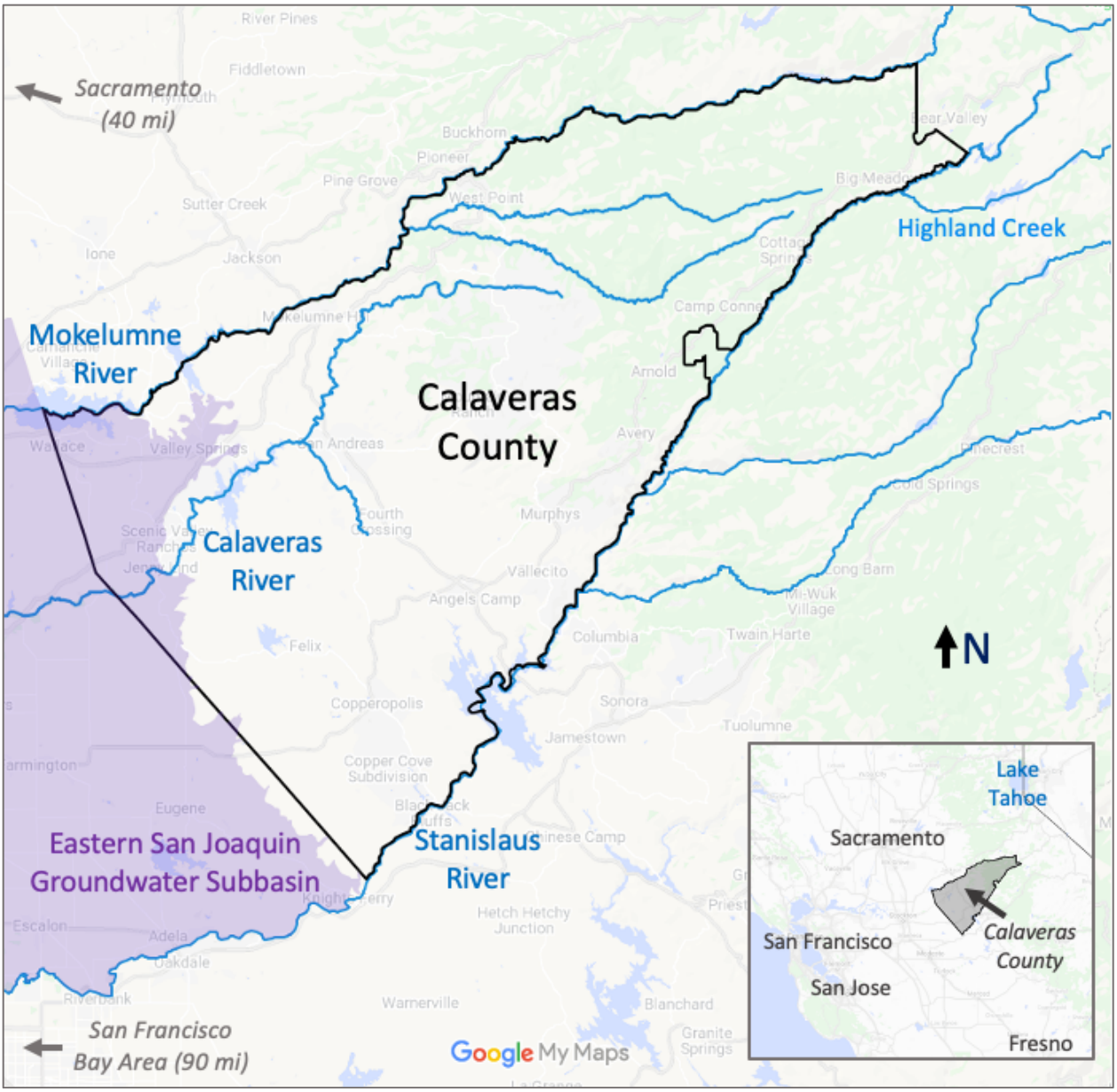

Figure 1. CCWD Map (Jurisdictional Area/County)

downstream communities, economies, and environmental health from both natural hazards and malevolent acts.

4.1 Water System Infrastructure

Descriptions of CCWD's key water systems, and infrastructure facilities, are provided below. A list of CCWD infrastructure within the scope of this RRA is also provided in **Appendix C**.

- CCWD's six water supply systems (service areas) are defined in **Table 1**, with a map of these areas within the County shown in **Figure 2**. CCWD procures water supplies for these areas from one of four watershed sources, and/or their tributaries: 1) the

Calaveras River, 2) the Stanislaus River, 3) the Mokelumne River, or 4) groundwater from the portions of the Subbasin underlying the County. Each service area has a sole raw water intake to the area's water treatment plant (WTP), used to supply that area's customer demands and wholesale customers, if applicable. These sources and associated water systems are largely independent of one another with no interties, and each relies on separate diversion, storage, and use water rights[3] providing the legal basis for CCWD's water supplies.

- CCWD also has 12 wastewater service systems which are also disconnected and located throughout the County, but do not necessarily coincide with the water service areas referenced above. No water service area has return flows to its original raw water sources (i.e., waterways), owing to a combination of private septic tank systems and CCWD's wastewater treatment plants (WWTPs), with effluent impounded in regulated ponds and later applied to spray and/or leach fields per applicable Federal and California Waste Discharge Requirements (WDRs). Some of CCWD's WWTPs contain facilities which treat wastewater to sufficient standards for recycled water use, primarily for nearby golf course and landscape irrigation purposes. However, no recycled water is used in CCWD's service areas to supply drinking water to customers. As such and given wastewater systems are not covered in AWIA, CCWD's wastewater infrastructure is not addressed in this RRA.
- Beyond CCWD's WTPs, WWTPs, and service area pipeline conveyance infrastructure, CCWD owns and operates several reservoir storage (dams) and open water facilities which are upstream of water supply systems, as listed in **Table 2A** and shown in **Figure 3**. Where required by the California Governor's Office of Emergency Services (Cal OES), California Department of Water Resources' (DWR) Division of Safety of Dams (DSOD), and/or the Calaveras County Office of Emergency Services (Calaveras OES), CCWD has prepared and maintains dam/reservoir Emergency Action Plans (EAPs), which document dam owner responsibilities, provide up-to-date emergency contact information, define monitoring and preparedness efforts, and analyze failure conditions. The EAPs are based around legislative requirements of California Water Code (CWC) §6160 and §6161, and California Government Code §8589.5, which includes FEMA's Federal Guidelines for Dam Safety.
    - As noted in **Table 2A**, CCWD owns two reservoirs currently operated by the Northern California Power Agency (NCPA) for hydropower production under a Power Purchase Agreement (PPA) executed in March 1985. These facilities are part of the North Fork Stanislaus Hydroelectric Development Project (North Fork Project, FERC[4] Project No. 2409), which also includes the roughly 13-kilometer Collierville Diversion Tunnel and Powerhouse, capable of generating 253 megawatts (MW) of power along the Stanislaus River. Related North Fork Project EAPs, federal and state operating requirements, and other conditions and vulnerabilities assessments for these facilities are handled by NCPA and are therefore not included in this RRA. Note the PPA and current FERC license are set to expire in 2032.

[3] Details regarding the extents, limitations to, and permitted uses of the District's water rights are provided in CCWD's 2020 UWMP Update, available at: https://ccwd.org/water-resources/

[4] U.S. Federal Energy Regulatory Commission (FERC).

Table 1. CCWD Water Service Areas Information

CCWD Service Area Name	Water Treatment Plant(s)		PWSID[1]	Watershed/ Source	Number of Connections[2]	Est. Population Served[2]
	Name	Capacity				
Copper Cove/ Copperopolis Service Areas (Copper Cove)	Copper Cove WTP	4 MGD	CA0510017	Stanislaus River (Lake Tulloch)	2,664	5,187
Ebbetts Pass Service Area (Ebbetts Pass)	Hunters WTP	4 MGD	CA0510016	North Fork Stanislaus River, Highland Creek	5,991	7,280
Jenny Lind Service Area (Jenny Lind)	Jenny Lind WTP	6 MGD	CA0510006	Calaveras River (New Hogan)	3,858	9,861
Sheep Ranch Service Area (Sheep Ranch)	Sheep Ranch WTP	20,000 GPD	CA0510004	Big Trees Creek, San Antonio Creek (Calaveras River Tributaries)	48	89
Wallace Service Area (Wallace)	Wallace WTP	273,000 GPD	CA0510019	Subbasin (Groundwater)	110	255
West Point Service Area (West Point)	West Point WTP	1 MGD	CA0510005	Bear Creek, Middle Fork Mokelumne River	584	1,043
Total CCWD					**13,255**	**23,715**

MGD = Million Gallons per Day; GPD = Gallons per Day.

[1] Public Water Systems Identification Number (PWSID), as defined by EPA for CWSs.

[2] As of calendar year 2020. Population estimates include part-time and full-time service area residents.

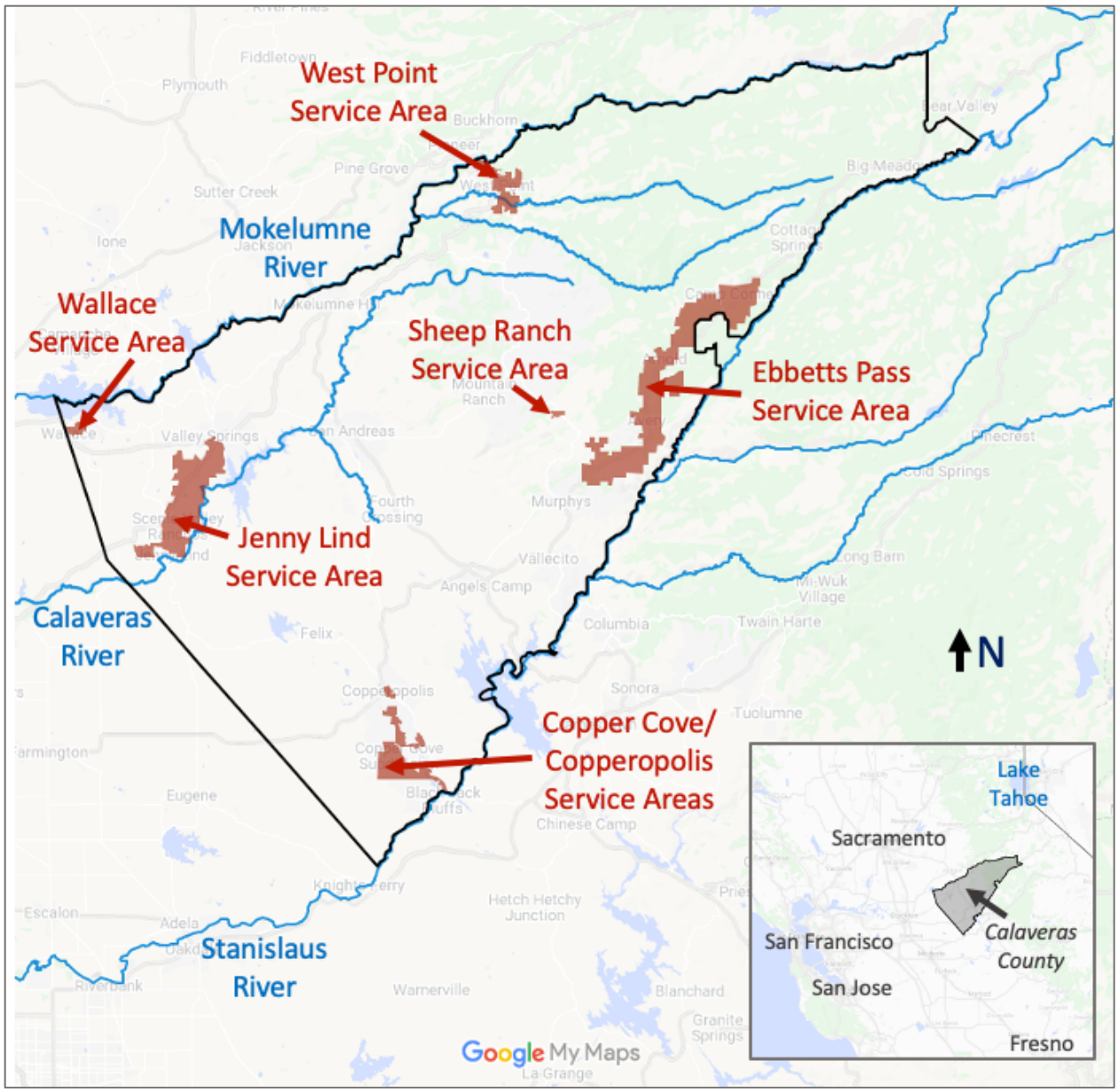

Figure 2. CCWD Map (Water Service Areas)

Table 2A. CCWD Owned Reservoir and Open Water Facilities

Reservoir Name	Dam Height (ft) and Type	Reservoir Capacity (acre-feet)	Approx. Water Surface Area (acres)	Watershed/Source	Uses	Public Access	EAP[4]	DSOD Downstream Hazard Rating
Beaver Creek Diversion	50 ft Gravel	20	2	Beaver Creek (Stanislaus River Tributary)	Water Supply (Ebbetts Pass, Copper Cove); Hydropower	No	Managed by NCPA (CA01259)	Low
Blaggen Mill Pond (Mill Pond)	None	25[1]	6	San Antonio Creek (Calaveras River Tributary)	Recreation[1]	Yes[1]	None	Not Applicable
Bummerville Regulating Reservoir (Bummerville)	60 ft Earthen Embank.	60	6	Bear Creek, Middle Fork Mokelumne River	Water Supply (West Point)[2]	No	Managed by CCWD (CA00846)	Significant
Copper Cove Regulating Reservoir (CCRR)	42 ft Earthen Embank.	205	11	Copper Cove WWTP Effluent	Recycled Water Supply (Copper Cove)[5]	No	Managed by CCWD (CA01356)	Low
La Contenta Lower Effluent Storage Pond (La Contenta)	43 ft Earthen Embank.	172	19	La Contenta WWTP Effluent	Recycled Water Supply (Jenny Lind)[5]	No	Managed by CCWD (CA01464)	High
North Fork Diversion	53 ft Gravel	120	8	North Fork Stanislaus River	Water Supply (Ebbetts Pass, Copper Cove); Hydropower	No	Managed by NCPA (CA01234)	Low

Owned, but not operated by CCWD. Not analyzed in RRA.

See footnotes in continued table below.

Table 2A. CCWD Owned Reservoir and Open Water Facilities (Continued)

Reservoir Name	Dam Height (ft) and Type	Reservoir Capacity (acre-feet)	Approx. Water Surface Area (acres)	Watershed/Source	Uses	Public Access	EAP[4]	DSOD Downstream Hazard Rating
New Spicer Meadow Reservoir (New Spicer)	262 ft Rock-Fill	190,000	2,000	Highland Creek, North Fork Stanislaus River	Water Supply (Ebbetts Pass, Copper Cove); Hydropower; Recreation	Yes	Managed by NCPA (CA01224)	High
McKays Point Reservoir (McKays)	233 ft Concrete Arch	1,928	35	North Fork Stanislaus River, Beaver Creek, Highland Creek	Water Supply (Ebbetts Pass); Hydropower[2]	No	Managed by NCPA (CA01257)	High
White Pines Lake (White Pines)	35 ft Earthen Embank.	250	26	San Antonio Creek, Big Trees Creek (Calaveras River Tributaries)	Recreation	Yes	Managed by CCWD (CA01005)	Low
Wilson Lake	32 ft Earthen Embank.[3]	25	2.5	Bear Creek (Mokelumne River Tributary)	Incidental Environmental and Recreation	Yes[3]	None	Not Applicable

Owned, but not operated by CCWD. Not analyzed in RRA.

[1] Not currently cleared for access, water storage, or used to impound water. Theoretical capacity and (potential) use based on permitted storage.
[2] Recreational uses and public access not permitted at reservoir.
[3] Generally understood to be in need of significant restoration (e.g., edge cleaning, dredging, and dam repair), public access not encouraged.
[4] Emergency Action Plan (EAP) developer listed. U.S. Army Corps of Engineers National Dam ID number (NID ID) also provided.
[5] Recycled water used for local golf course irrigation only.

Table 2B. Non-CCWD Owned Reservoir and Open Water Facilities (Continued)

Reservoir Name	Dam Height (ft) and Type	Reservoir Capacity (acre-feet)	Approx. Water Surface Area (acres)	Watershed/Source	Uses	Public Access	Owner(s)/Operator(s)
Lake Tulloch	205 ft Gravel	68,400	1,152	Stanislaus River	Water Supply (Copper Cove)[1]; Hydropower; Recreation	Yes	Tri-Dam Project (CA00265)[2]
New Hogan Reservoir (New Hogan)	210 ft Earthen Embank.	317,100	3,206	Calaveras River	Water Supply (Jenny Lind)[1]; Hydropower; Recreation	Yes	U.S. Army Corps of Engineers (USACE), U.S. Bureau of Reclamation (Reclamation), Stockton East Water District (SEWD) (CA10109)[2]
New Melones Reservoir (New Melones)	625 ft Earthen Embank.	2,400,000	12,500	Stanislaus River	Water Supply (Copper Cove)[1]; Hydropower; Recreation	Yes	Reclamation (CA10246)[2]
Schaads Reservoir	112 ft Earthen Embank.	2,500	41	Middle Fork Mokelumne River	Water Supply (West Point)[1]; Hydropower; Recreation	Yes	Calaveras Public Utilities District (CPUD) (CA00307)[2]

[1] Water supply for several downstream users and uses. CCWD service area(s) receiving water supplies from facility listed for reference.
[2] U.S. Army Corps of Engineers National Dam ID number (NID ID).

Figure 3. CCWD Map (Reservoir and Open Water Facilities)

- CCWD also owns the New Hogan Power Project (New Hogan Project, FERC Project No. 2903) on the Calaveras River, a powerhouse capable of generating 3.0 MW at New Hogan Reservoir (New Hogan). New Hogan is owned by the U.S. Army Corps of Engineers (USACE) and operated by the Bureau of Reclamation (Reclamation) for flood control and water supply purposes, respectively. Additionally, the New Hogan Project facility is currently operated by the Modesto Irrigation District (MID) for hydropower production under an agreement with CCWD executed in August 1985. As such, related New Hogan Project analysis is handled by MID and is not included in this RRA. This FERC license is also set to expire in 2032.

- Other reservoirs and open water systems not owned by CCWD, but which are upstream of or impact CCWD's water supplies, are listed in **Table 2B**.

For the purposes of this RRA, the water supply, wastewater, and reservoir facilities are consolidated by service area, based on geographic proximity, as shown in **Table 3** below.

Table 3. CCWD Facility Consolidation by Service Area

Service Area Name	Water Supply Facilities (Table 1)	CCWD Reservoir & Open Water Facilities (Table 2A)	Non-CCWD Reservoir & Open Water Facilities (Table 2B)[2]
Copper Cove	Copper Cove WTP	Beaver Creek Diversion[1], CCRR, North Fork Diversion[1], New Spicer[1]	Lake Tulloch, New Melones
Ebbetts Pass	Hunters WTP	Beaver Creek Diversion[1], North Fork Diversion[1], New Spicer[1], McKays[1]	
Jenny Lind	Jenny Lind WTP	La Contenta	New Hogan
Sheep Ranch	Sheep Ranch WTP	Mill Pond, White Pines	
Wallace	Wallace WTP		
West Point	West Point WTP	Bummerville, Wilson Lake	Schaads Reservoir

*Other Service Area infrastructure within the scope of this RRA is defined in **Appendix C**.*

[1] Facilities owned, but not operated by CCWD. Not analyzed in RRA beyond risks to CCWD supplies.

[2] Non-CCWD facilities not analyzed in RRA beyond potential risks to CCWD water supplies.

Due to the sensitivity of information contained in Sections 4.2 through 4.5, they are not included in this RRA Public Version.

4.2 Monitoring Practices

Not included in RRA Public Version.

4.3 Financial Infrastructure

Not included in RRA Public Version.

4.4 Operations & Maintenance

Not included in RRA Public Version.

4.5 Use, Storage, and Handling of Chemicals

Not included in RRA Public Version.

4.6 Advanced Metering Infrastructure

CCWD is implementing an advanced, fixed network, Advanced Metering Infrastructure (AMI) system to replace all existing analog customer volumetric meters throughout CCWD's service areas. The implementation phase started in February 2021 and is anticipated to be completed by Spring of 2022. The new AMI digital metering system will transmit end usage data to CCWD through a new wireless network, allowing CCWD to monitor real-time data usage. In addition, CCWD will have the capability to facilitate the detection of potential leaks, broken infrastructure, system flow issues, or other water systems failures. CCWD is in the process of reviewing wireless network security and information technology (IT) infrastructure options, to ensure data monitoring and collection procedures with the new AMI system are protected. Review of potential AMI risks and vulnerabilities is beyond the scope of this RRA, given the system is not yet implemented by CCWD. For more information and updates regarding CCWD's transition to the AMI system, visit: https://ccwd.org/projects/ami-implementation/.

5.0 District Service Goals

CCWD was founded in 1946 to develop and secure adequate water supply sources to meet the County's anticipated needs. To this end, CCWD maintains, protects, and enhances its water resources and legal diversion and storage rights, and uses water supply reliability metrics to ensure it is consistently able to fulfill its water supply obligations. As such, CCWD's water supply resilience metrics are based on a measure of its ability to meet its service area demands with available supplies (as defined in UWMP). CCWD strives to make sure it can consistently supply 100 percent of its service areas' annual demands regardless of hydrologic (wet or dry) conditions. To date, CCWD has been able to utilize its surface water, groundwater, and recycled water resources to consistently satisfy demands with minimal water supply interruptions[5].

CCWD's surface water supplies are largely dictated by the volume, nature, and timing of precipitation in its watersheds; primarily the Calaveras River, Stanislaus River, and Mokelumne River. CCWD has been able to withstand much of this variability owing to its established water rights and reservoir storage facilities. However, there are several factors which could result in constraints on CCWD's water supplies going forward, as explored in **Table 6**. CCWD has devoted much of its Capital Improvement Program (CIP), engineering and planning analyses, and has undertaken several countermeasures towards bolstering its water supply systems in response to these potential constraints. Additionally, CCWD developed a Water Shortage Contingency Plan (WSCP) which defines the analysis, public outreach protocols, and 'shortage response actions' used to address local water supply shortage conditions. CCWD relies on the WSCP and these other efforts to better prepare for droughts or water shortage which may limit CCWD's water supply availability. In any event, CCWD's water service goals remain fulfilling 100 percent of customer demands[6] and avoiding the consequences of not fulfilling that goal.

[5] Water supply outages interruptions have historically been from instances of infrastructure issues (treatment or distribution, or from required maintenance, not generally due to unavailable water supply.

[6] For context, CCWD's water supplies are generally on order of 65,400 AF to 76,600 AF per year made available, while service areas' treated water demands total only around 8,400 AF per year.

5.1 Systems Resiliency

In the context of this RRA, resilience (as defined in **Section 2.0**) relates to CCWD's ability to maintain its service goals given the potential impacts to CCWD's water supplies explored in **Table 6**. CCWD benefits from the fact that its service areas are spread across the County and rely on different water sources and infrastructure systems, meaning lower potential for consequences to impact CCWD's entire system at once. However, several of these areas have low population densities and relatively small rate-payer bases, which can lead to management and financial challenges for CCWD as a whole. It also makes planning and O&M of the system more challenging (i.e., assessing six different WTPs, sets of infrastructure, and water sources).

CCWD's ability to be resilient due to natural hazards and/or malevolent acts depends on the extent, location, and severity of such events. As described in **Section 4.1**, CCWD has adequate water storage and availability under its water rights to withstand much of the annual hydrologic variability and 'low-level' natural hazards (e.g., severe weather).

However, more dramatic events such as large-scale wildfires affecting customers and water quality and/or malevolent acts aimed at reservoir infrastructure would cause more severe water supply shortages (impacting repair costs and/or timeline). More information regarding County local hazards and CCWD's potential water shortage actions are covered in the LHMP and WSCP, respectively. The WSCP also includes a description of actions given a catastrophic supply interruption, including the local and regional agency coordination needed to withstand such an event.

Subsequent sections address some of the countermeasures led by CCWD to plan and prepare for water supply interruptions. CCWD maintains some reserve funding for emergency repair purposes but has continued to explore grant options and other funds to support its CIP and other water supply needs.

Table 6. Factors Resulting Reductions to Water Supply

Factors	Surface Water	Groundwater	Recycled Water
Naturally Occurring Factors			
Limited Quantity (e.g., minimal snowpack, more liquid precipitation runoff)	Hydrologic variation could result in limited storage carryover, either by lack of inflow supply or increased required outflows to account for flood control. Additionally, this variation could lead to minimal flows in key water sources being inadequate for diversions.	Limited surface water supplies have historically caused users to depend more on groundwater. This dependency has caused over-draft (unsustainable) conditions and subsequent permanent lowering of groundwater levels, which has caused wells to go dry for periods of time.	Conservation during water shortage and reduced inflow and infiltration from stormwater could theoretically lead to less wastewater intake, thereby decreasing recycled water availability.
Water Quality (e.g., changing in-stream quality conditions)	Variable flow of surface water sources can dramatically change the water quality composition from year to year. This can include higher naturally occurring levels of algae or manganese, increased nitrates from local runoff, nutrients, or other constituents, all which create long-term nuisance issues for water supply treatment. Additionally, wildfires and resulting forest biomass issues has caused several issues with water quality in the past.	Groundwater in CCWD's portion of the underlying subbasin has historically not had major water quality issues. However, continued over-draft conditions would eventually lead to high levels of iron and manganese, nitrates, nutrients, and other constituents associated with agricultural production, common to many other subbasin.	None beyond temporary wastewater treatment plant outages or issues leading to recycled water not meeting water quality requirements for use. This would be resolved by the District as any issues occur.
Natural Disasters (e.g., Wildfires, Earthquakes, Erosion, etc.)	Several natural disaster events could threaten natural streamflow or the water quality in waterways which CCWD relies on for its supplies (e.g., wildfire sediment runoff, massive erosion/slides from earthquake, which prevents river flow). These disasters could also adversely impact CCWD reservoirs and other surface water systems. *See LHMP for more information.*	Several natural disasters could significantly damage groundwater pumping facilities or cause hydrogeologic changes to groundwater levels, meaning no temporary access to groundwater (or permanent depending on damage extent).	Several natural disasters could significantly damage WWTP or related infrastructure, meaning no production of recycled wastewater available for CCWD demands.

Table 6. Factors Resulting Reductions to Water Supply (Continued)

Factors	Surface Water	Groundwater	Recycled Water
Non-Naturally Occurring Factors			
Legal/ Regulatory (e.g., new legislation or SWRCB orders)	In certain dry conditions mandatory curtailments of water rights usage can create inconsistency and impact the reliability of these supplies. Additional legal issues include inconsistent supply availability due to delays in construction, approval of water rights applications /extensions, or required environmental analysis.	There are likely to be several constraints on groundwater use resulting from implementation of the California Sustainable Groundwater Mgmt. Act (SGMA). CCWD is not a large groundwater user but does overlie a 'critically over-drafted' subbasin, meaning more stringent management to achieve sustainability.	Once permitting for use is acquired there are several monitoring and management requirements to ensure continued use (e.g., Waste Discharge Requirements, Title 22). Additionally, there are often several constraints to obtaining permits.
Environmental (e.g., new legislation, outside legal challenges)	Future changes to instream flow requirements in key rivers and/or changing downstream flow requirements could decrease District surface water supplies by impacting CCWD's ability to divert water (e.g., California Bay Delta Water Quality Control Plan Update).	Several questions remain regarding environmental criteria of SGMA (e.g., requirements for hydro-connectivity of streams and groundwater tables). This could require additional surface water releases and/or mgmt. steps to achieve, all which decreases supply.	WDRs often set criteria for applications of treated wastewater (e.g., timing, weather conditions, and constraints on use). WDR changes for environmental factors could further impact recycled water use opportunities.
Malevolent Acts (Terrorism, Significant Vandalism)	*Not included in RRA Public Version.*		
Anthropogenic Climate Change	Climate change threatens the volume, nature, and timing of precipitation in key watersheds, which dictates the amount of surface water made available to CCWD. It is anticipated a warming climate would decrease average snowpack and induce more frequent and intense drought conditions, impacting the reliability and availability of supplies.	Limited surface water supplies have historically caused users to depend more on groundwater. Climate change impacts threatens to increase landscape and irrigation demands, increasing this dependency. If possible, more runoff from liquid precipitation can be used for conjunctive management efforts.	Few climate change impacts are anticipated for recycled water supplies. Changing urban water use under a warmer climate could theoretically alter wastewater treatment operations and impact recycled water availability, but the potential impacts remain unclear.

6.0 Planning Integration (Countermeasures)

CCWD has committed to developing short- and long-term comprehensive management strategies for maintaining and protecting its water system assets. CCWD's staff develop these strategies through carefully planned, proactive, flexible countermeasures which review holistic watershed management, water supply reliability, and infrastructure needs. CCWD also frequently works with a variety of federal and state agencies, local and regional water suppliers, community partners, tribal entities, and other interested parties in its planning and project implementation efforts[7]. **Table 7** lists a number of the countermeasures led by or in coordination with CCWD to incorporate risk and resiliency concepts into its long-term planning.

Table 7. Key CCWD Planning Efforts

Planning Effort Name [Latest, Update Cycle]	Lead	Description
DSOD EAPs [2020, Updated per DSOD Requirements]	CCWD	Documents dam owner responsibilities, provides up-to-date emergency contact information, defines monitoring and preparedness efforts, and analyzes failures and threats. See **Table 2A**.
Integrated Regional Water Management Plans (IRWMPs) [2018, Updated per IRWM Program Requirements]	Applicable IRWM Group(s), *see Footnote 7*	Details IRWM vision, analyzes local conditions, project and program needs, and establishes collaborative framework for participants to engage in planning at regional level.
LHMP [2018, Updated per FEMA Requirements]	CCWD	See Section 3.1 description.
Groundwater Sustainability Plan (GSP) [2020, Updated per SGMA Requirements]	Eastern San Joaquin Groundwater Authority	Details groundwater and hydrogeologic conditions in Subbasin, and defines plan and monitoring needs to achieve long-term sustainability (i.e., reduce historic over-draft conditions and repair other undesirable impacts).
UWMP [2021, 5-yr Updates for Legislative Changes]	CCWD	Contains details on water supply and use trends, water conservation programs, and water supply reliability risks under varied planning scenarios.
EPA Watershed Sanitary Surveys (WSS) [2021, 5-yr Updates for Conditional Changes]	CCWD, CPUD (Upper Mokelumne) SEWD (Stanislaus/Calaveras)	Provides overview of source watershed water supply quality and reviews WTP operational vulnerabilities and risks. CCWD participates in Stanislaus and Calaveras Rivers combined WSS and leads Upper Mokelumne River WSS.

[7] Examples include the California Integrated Regional Water Management (IRWM) Program - which CCWD participates in the Mokelumne-Amador-Calaveras (MAC) and Tuolumne-Stanislaus (T-Stan) IRWM groups - the Mountain Counties Water Resources Association, Upper Mokelumne River Watershed Authority (UMRWA), and Subbasin groundwater management under SGMA.

Table 7. Key CCWD Planning Efforts (Continued)

Planning Effort Name [Update Cycle]	Lead	Description
WSCP [2021, 5-yr Updates for Legislative Changes]	CCWD	Contains details on CCWD water shortage condition planning, sets procedures for annual assessment(s) of water supply and demand conditions, and defines shortage response stages and actions.
Water Systems Master Plans [Varied 2005 to 2018 for Areas, Updated as Needed]	CCWD	Developed for a particular service area, documents infrastructure conditions and risks, and sets a guide for operating, maintaining, and constructing the water system. Often used to set CIP projects and priorities.
Infrastructure Operations Plans, Operations & Maintenance Manuals [Varies, Updated as Needed]	CCWD	Developed for a particular set of infrastructure or purpose (e.g., WTP operations), documents infrastructure conditions and risks, and sets the procedural guidance for operations and/or maintenance.
Organization Strategic Plan [2021, Updated as Needed]	CCWD	Defines the organizational strategy, direction, and analysis of CCWD service goals and objectives.
Technical Analysis [As Needed]	CCWD (and Partners)	As needed technical analysis for specific investigations or analyses (e.g., Highway 4 Corridor Demands Study, Amador and Calaveras Counties Hydrologic Assessment).

6.1 County Planning Efforts

The County of Calaveras government and other in-County water suppliers also frequently work together on several key planning and coordination efforts in order to better prepare for extreme conditions and potential utility service impacts. The follow lists some of the County-wide efforts[8], and describes the applicability to CCWD's water services:

- *Calaveras County General Plan:* Provides a long-term outlook of County policies, programs, and development objectives aimed at sustainable population growth. Plan includes assessment of resource demands and public safety concerns, which guides County governance and coordination with CCWD on water-related issues.
- *Calaveras County Mass Fatality Plan:* Establishes the policies, responsibilities, and procedures required to serve the County populace during incidents that result in significant loss of life, both from malevolent acts and natural hazards (e.g.,

[8] List originates from 2021 Calaveras County Multi-Jurisdictional Hazard Mitigation Plan (pgs. 312-314). Plans can be found online at: https://oes.calaverasgov.us/Pre-Planning

emergency response organization, operational and response procedures). Plan addresses fatality events from catastrophic failure of CCWD facilities.

- *Calaveras County Terrorism Plan:* Establishes a concept of operations for County consequence management of a domestic terrorist incident which impacts life, property, or utility systems. This plan provides the basic field Incident Command System (ICS) and emergency operations guidance for actions to take for terrorist and malevolent actor situations (e.g., analysis, initial response, recovery, and mitigation). Plan applies broadly to terrorist incident response at CCWD facilities.
- *Calaveras County Emergency Operations Plan (EOP):* Outlines the functions, responsibilities, and regional risk assessment of large-scale emergencies (e.g., wildfire, hazardous materials incidents, flooding, dam failure, airplane crashes, etc.) Plan sets forth an operating strategy for managing and responding to these incidents, including CCWD's role in maintaining and responding to emergencies involving water supply and wastewater systems infrastructure.
- *Calaveras County Area Plan:* Also known as the Calaveras County Hazardous Materials Emergency Response Plan. It establishes the policies, roles and responsibilities, and procedures required of County agencies to protect the health and safety of people, the environment, public and private property from the effects of hazardous materials incidents.
- *Calaveras County Wildfire Protection Plan:* Identifies the risks and hazards associated with wildfires in the Wildland-Urban Interface (WUI)[9] areas of the County. Proposes projects and programs aimed at reducing infrastructure and ecosystems damage from possible wildfire events (e.g., fuel reduction projects).
- *Multi-Agency Coordinating Group (MAC):* An emergency-response management team composed of major jurisdictional representatives in the County, who are responsible for responding to and managing broad-based emergency events. CCWD acts as liaison for all wastewater and water suppliers in the MAC. More info can be found online at: https://oes.calaverasgov.us/Multi-Agency

6.2 Other Countermeasures

CCWD also maintains other countermeasures efforts to plan for and analyze specific water systems risks and vulnerabilities, and to provide appropriate response protocols. A couple examples are provided below. CCWD Operations staff will often monitor and assess local, regional, or statewide events which may prompt the need for these efforts and will update planning documents accordingly.

- *Public Safety Power Shutoffs (PSPS) Strategic Plan*: CCWD developed a water systems operational procedures guide for PSPS conditions enacted by the Pacific Gas & Electric Company (PG&E) where they shut off portions of the electric grid in the County to minimize wildfire risks during certain weather conditions. CCWD maintains some electric generation facilities at its WTPs, as listed in **Appendix C**, which allows for continued treatment operations during these conditions. However, localized wildfire risks from weather, along with distribution systems and end user

[9] Defined as areas of County populations most at risk from large-scale wildfires originating in rangelands.

power shut offs, may cause issues and constraints to CCWD operations, which are addressed in the PSPS Strategic Plan for all water systems.

- *Chemical Delivery SOPs:* As discussed in **Section 4.5**, CCWD maintains chemical storage, handling, and delivery SOPs at its facilities. These documents also provide information on chemical spills, notification and cleanup procedures.
- *IT Health Assessment Report:* In response to cybersecurity concerns for utility and infrastructure IT systems, CCWD is working with Coneth Solutions (Coneth), a local IT services and support company, to assess its IT-specific risks and opportunities for improved security (both hardware and software). Coneth developed an IT Health Assessment Report (IT Assessment Report) which details existing systems and highlights the standardization of CCWD staff policies regarding equipment use. CCWD Administrative Services anticipates working through the IT Assessment Report and analyses throughout 2021 with implementation of recommended actions enacted shortly thereafter. Note CCWDs service area operations (e.g., SCADA) and other network infrastructure are on separate systems and network infrastructure.

7.0 Risk Focus Areas

AWIA requires CWSs to analyze assets for the following risk focus areas in the RRA:

- *Malevolent Acts,* such as: assault on utility (physical), contamination of source or finished water (intentional or accidental), theft or illegal diversion, cyberattack(s) on enterprise or process control systems, or sabotage (collectively referred to as “Threat Categories”).
- *Natural Hazards,* such as: hurricanes, floods, earthquakes, tornados, ice storms, or fires/wildfires.

The ERPs provide some information on malevolent acts and CCWD emergency response actions for its primary water supply facilities (mainly for WTPs). A few of the primary catastrophic vulnerabilities identified by CCWD in the LHMP, which could lead to significant water supply interruptions and other consequences, are listed below:

- *Severe Weather: Heavy Rains and Storms* (Section 4.2.3 of LHMP): large precipitation accumulation, generally as snow in the higher elevation service areas, typically several issues with infrastructure operations related to inaccessibility or delayed operations for post-storm event clean up (e.g., manual customer meter readings delayed due to large winter storms). CCWD’s water supply infrastructure is generally capable of handling large storm events without complete failure given preparation for these types of conditions. However, changes to weather intensity or patterns could threaten subsequent actions which impact CCWD systems (e.g., Pacific Gas & Electric Public Power Safety Shutoff events).
- *Dam or Reservoir Failure* (Section 4.2.8 of LHMP): CCWD develops and maintains the EAPs for each of its dams per DSOD requirements for dam owners and operators (see Table 2A). EAPs typically contain emergency situation details, notification lists, and other coordination materials to prepare for failures or other

problematic conditions. Owing to several CCWD owned open surface reservoirs, and many non-CCWD owned reservoirs scattered across County watersheds, there are several vulnerabilities associated with reservoir infrastructure failure and/or water quality degradation.

- *Wildfires* (Section 4.2.18 of LHMP): as with much of the forest-heavy Sierra Nevada Mountains, CCWD is susceptible to large wildfires which dramatically impact natural alpine environments and threaten County urban areas. CCWD spends much of its planning resources and staff time coordinating with agencies aimed at preparing its water supplies to withstand wildfire conditions and to aid in regional fire suppression needs.
    - The US Forest Service (USFS) maintain a collection of wildfire risk assessment tools, which includes nationwide zonal statistics in Geographic Information Systems (GIS) to illustrate the intersections of high population density and wildfire risks. The USFS "Wildfire Risk to Communities" database (WRC)[10] for the County is shown in **Figure 4A**, with the corresponding risk graphic shown in **Figure 4B.** The USFS WRC is intended to help inform risk-based decision making while increasing wildfire risk awareness. As shown in the figures, the County is generally at very high wildfire risk as compared with other areas of California.

Given these risk focus area priorities, CCWD often incorporates risk and resiliency concepts in its operational and planning processes (listed in **Table 7**). CCWD programs, such as staff and facility safety and security, operational procedures, and regional coordination, are examples of the ways that CCWD attempts to manage its vulnerabilities. **Figure 5** provides a diagram for how CCWD generally identifies risks, analyzes and priorities the vulnerabilities from those risks, and incorporates them into various efforts.

[10] USFS GIS tool which ranks wildfire likelihood (i.e., annual probability of wildfire event) with wildfire consequences (i.e., general susceptibility of buildings to wildfire damage). Maps can be found online at: https://wildfirerisk.org/explore/0/06/06009/

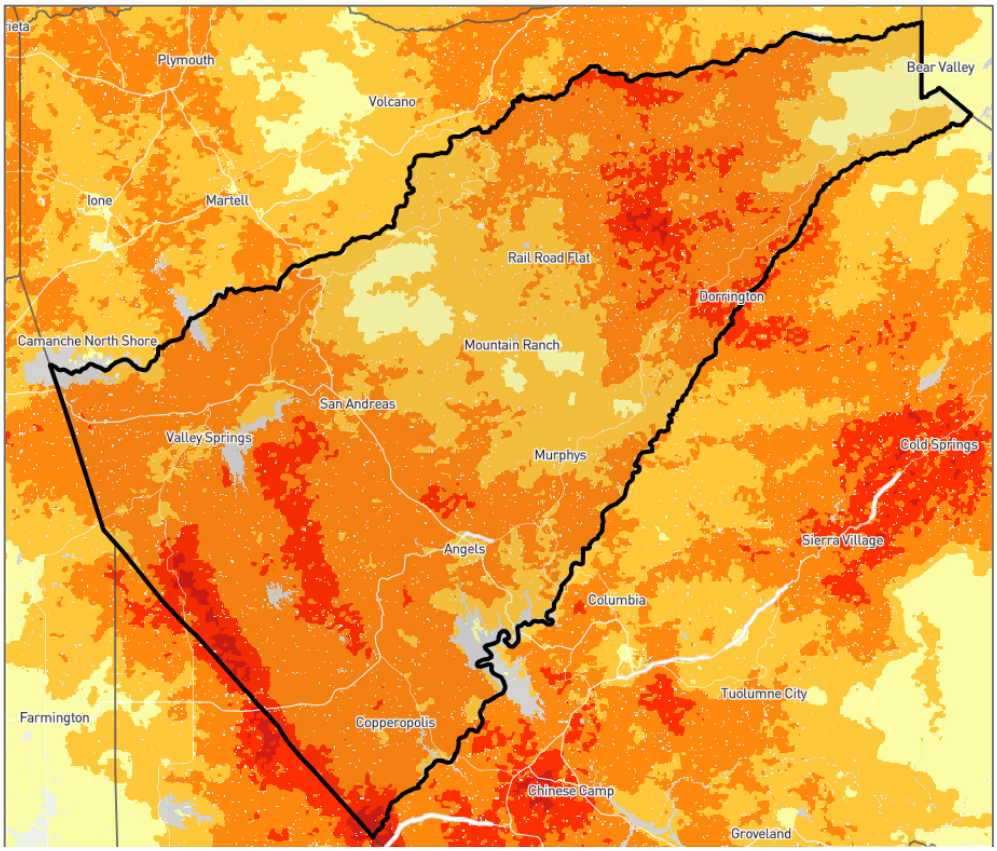

Figure 4A. USFS WRC Wildfire Risk Assessment Map for Calaveras County

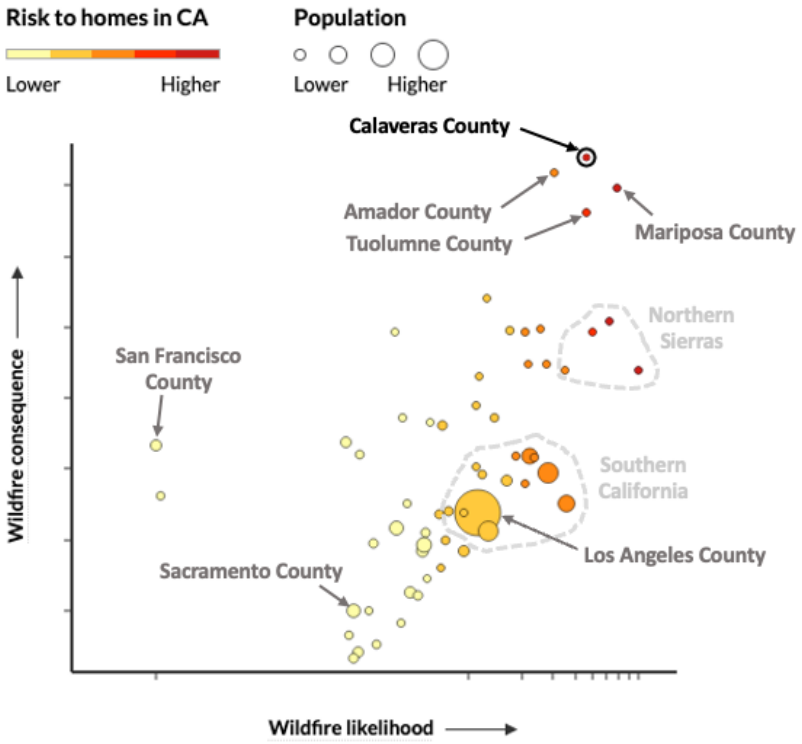

Figure 4B. USFS WRC California Wildfire Severity Rankings

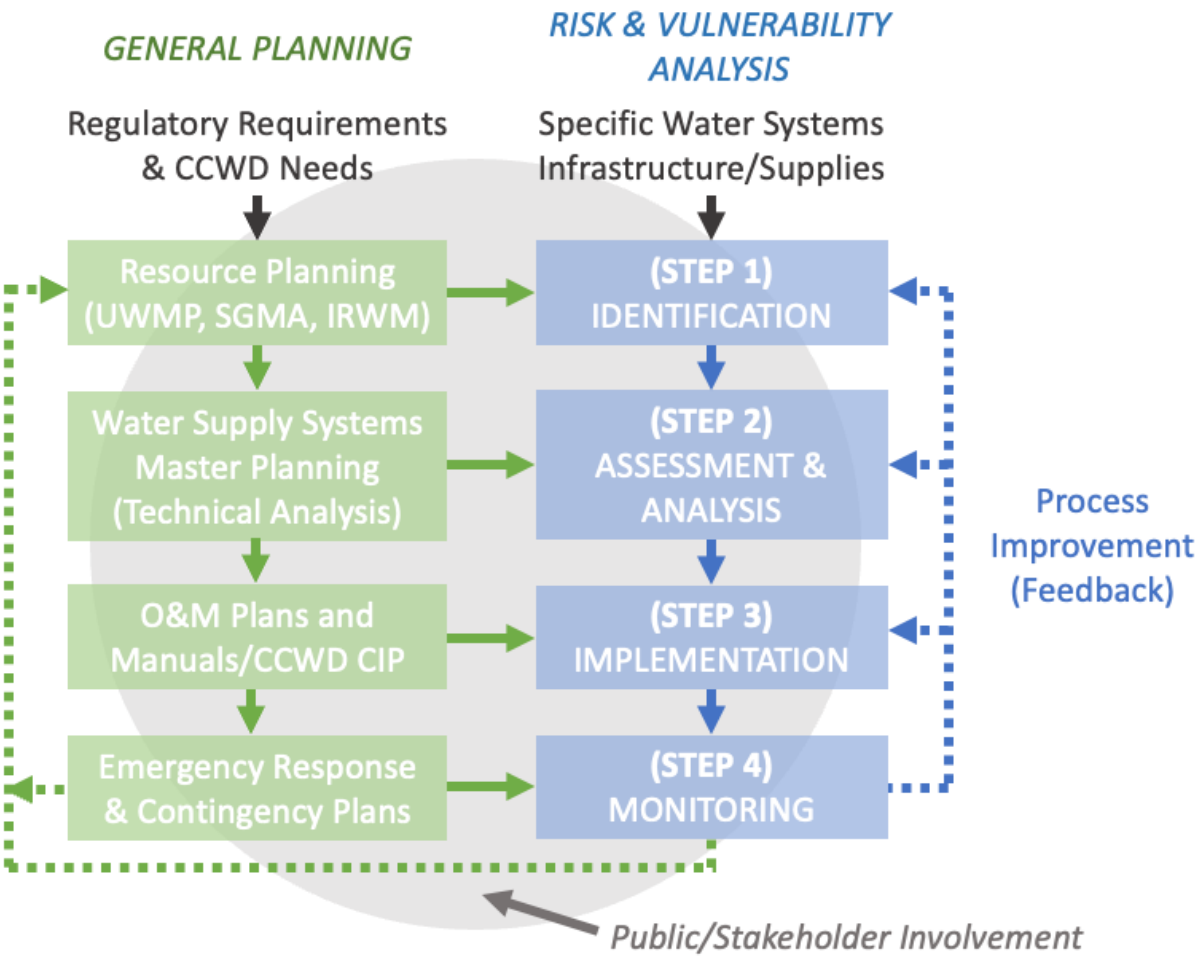

Figure 5. CCWD General Risk and Vulnerability Framework

7.1 Malevolent Acts Review

EPA released the "Baseline Information on Malevolent Acts for Community Water Systems" document (Baseline Document) to assist CWSs with analyzing Threat Categories when preparing the RRA. Per the Baseline Document, these Threat Categories encompass actions that could be taken by a malevolent actor to either (1) substantially disrupt the ability of a system to provide a safe and reliable supply of drinking water, or (2) cause significant public health or economic impacts in the community served by the CWS. Malevolent acts may be perpetrated by individuals or groups operating outside or inside the CWS.

Threat likelihood can be impacted by many factors, such as adversary intent and capability, target visibility and potential impact, awareness, ease of discovery, ease of exploitation of water system vulnerabilities, and the probability of detection and intervention. The Baseline Document presents several factors to consider for malevolent act likelihood. Although CCWD's service areas vary in location, water resources and supplies, and infrastructure, the malevolent act risks are generally similar and are investigated in **Table 8**.

Table 8. Factors for Malevolent Acts Likelihood

Not included in RRA Public Version.

7.2 National Risk Index

FEMA's National Risk Index (NRI)[11] was developed to help inform risk-based decision making while increasing the awareness of economic impacts from specific natural hazards. NRI data are provided at the Census Tract level, as listed in **Table 9** for the County. Combined with the overview of hazards described above, CCWD is able to confirm several of the known and previously assessed vulnerabilities using the NRI scoring system. Moreover, these data can often be used to justify certain mitigation measures based on potential losses from inaction. As described in the LHMP and confirmed by the NRI data, wildfire risk and resulting damages continue to be the most potentially catastrophic threat to the County and CCWD facilities – accounts for most of NRI estimated in-County monetary losses.

7.3 Cybersecurity Guidance

Within the last several decades, cybersecurity threats, including such thinks as cyber-terrorism and ransomware attacks, have grown into a problem of concern and a potential vulnerability for IT-dependent utility systems. In response to these threats, a wide array of standards and guidelines are available to assist organizations with implementing security controls to mitigate the risks from cyber-attacks. One such guideline is the AWWA 2019 Cybersecurity Guidance document (AWWA Guidance)[12], which provides key information on IT prioritization, recommended controls, and tools to help implement response actions. An overview of CCWD's network architecture, existing control systems, and IT procedures is beyond the scope of this RRA. However, some of the key cybersecurity risks areas identified in the AWWA Guidance were analyzed for CCWD, as shown in **Table 10.** This provides a high-level overview used to guide the ongoing IT cybersecurity efforts and IT Assessment Report noted in **Section 6.2**.

Table 10. IT Cybersecurity Risks per AWWA Guidance

Not included in RRA Public Version.

[11] NRI conveys the average expected annual monetary loss for buildings due to wildfire in a neighborhood or region. GIS data can be found at: https://hazards.geoplatform.gov/portal/apps/MapSeries/index.html?appid=ddf915a24fb24dc88 63eed96bc3345f8

[12] AWWA Guidance online at: https://www.awwa.org/Portals/0/AWWA/ETS/Resources/AWWACybersecurityGuidance2019.pdf?ver=2019-09-09-111949-960

Table 9. NRI Risk Factors for Calaveras County Census Tracts

Census Tract	Tract Name	Popul.	Est. Building Value ($)[1]	Est. Agricultural Value ($)[2]	Hazard Risk Ratings (NRI Score)[3]																	NRI Est. Loss[4] ($/yr) (Rating)	Risk National/ State Percentile[5]
					Avalanche	Coastal Flooding	Cold Wave	Drought	Earthquake	Hail	Heat Wave	Hurricane	Ice Storm	Landslide	Lightning	Riverine Flood	Strong Wind	Tornado	Tsunami	Volcanic Activity	Wildfire	Winter Weather		
06009000210	Valley Springs	9,515	$1.085B	$6.67M	18.2		0.0	21.2	22.1	7.9	11.5			17.4	26.6	15.3	14.3	3.9		0.0	43.3	2.5	$1.25M (Very Low)	27/26
06009000300	Mountain Ranch	6,969	$921M	$2.44M	18.3		0.0	14.3	20.8	7.7	32.5			54.8	24.2	11.8	11.8	2.9		0.0	38.3	7.2	$3.82M (Relatively Low)	51/52
06009000400	Rail Road Flat	4,032	$474M	$377k	21.5		0.0	8.4	17.3	8.5	30.8			26.7	23.1	9.3	11.6	2.7		0.0	34.6	9.3	$614k (Very Low)	21/18
06009000504	Cottage Springs	942	$468M	$1.4k	22.8		0.0	1.4	15.1	6.3	12.6			11.1	20.3	5.6	6.9	2.8		3.9	44.6	9.8	$579k (Very Low)	23/20
06009000503	Arnold	2,330	$841M	$5.8k	17.3		0.0	1.9	20.1	6.3	13.5			9.8	16.8	5.6	7.1	5.4		0.0	33.6	10.4	$681k (Very Low)	13/9
06009000501	Avery	3,332	$778M	$23.4k	19.7		0.0	3.52	18.4	7.5	23.8			13.9	21.3	7.4	8.9	5.4		0.0	31.2	11.3	$474k (Very Low)	10/12
06009000122	Murphys	4,046	$436M	$897k	21.2		0.0	12.6	18.8	7.9	30.7			14.5	22.2	9.9	11.5	3.8		0.0	36.5	6.6	$519k (Very Low)	17/13

See footnotes on following page.

Table 9. NRI Risk Factors for Calaveras County Census Tracts (Continued)

Census Tract	Tract Name	Popul.	Est. Building Value ($)[1]	Est. Agricultural Value ($)[2]	Hazard Risk Ratings (NRI Score)[3]																	NRI Est. Loss[4] ($/yr) (Rating)	Risk National/ State Percentile[5]
					Avalanche	Coastal Flooding	Cold Wave	Drought	Earthquake	Hail	Heat Wave	Hurricane	Ice Storm	Landslide	Lightning	Riverine Flood	Strong Wind	Tornado	Tsunami	Volcanic Activity	Wildfire	Winter Weather	
06009000121	Angels Camp	4,463	$494M	$2.08M	21.5		0.0	16.9	20.9	8.2	32.1			13.6	21.8	11.1	12.8	4.1		0.0	33.3	6.9	$488k (Very Low)	16/12
06009000220	Salt Spring Valley	5,515	$633M	$4.59M	17.1		0.0	18.2	15.8	6.2	11.5			12.9	21.1	7.4	11.8	3.1		0.0	38.4	2.5	$903k (Very Low)	17/13
06009000120	Copper-opolis	4,434	$630M	$10.34M	17.6		0.0	24.6	17.2	6.2	18.4			13.4	19.9	9.4	14.6	2.6		0.0	40.8	3.9	$1.13M (Very Low)	23/21
County Total		*45,578*	*$6.76B*	*$27.4M*	*19.5*		*0.0*	*12.3*	*18.7*	*7.3*	*21.8*			*18.8*	*21.7*	*9.3*	*11.1*	*3.7*		*0.4*	37.5	*7.1*	*$10.5M (Very Low)*	*22/20*
County Risk Ranking (1 = Worst)					4		14	7	6	10	2			5	3	9	8	12		13	1	11		

Note: Higher risk scores (>30) highlighted orange for reference purposes.

[1] FEMA-estimated monetary value of buildings within census tract based on type and property value (e.g., low-density residential, high-density residential, commercial).

[2] FEMA-estimated cropped and potentially cropped acreage property value and livestock production value.

[3] Scores range from 0 (lowest possible) to 100 (highest possible); describes relative position among all other communities (nationwide) for given hazard.

[4] Represents dollar loss from building value, population, and/or agricultural exposure each year due to natural hazards.

[5] Percentage of communities (Census Tracts) with lower NRI estimated losses on nation and state-wide basis (i.e., lower number means fewer communities with lower risk).

8.0 Assessment Checklists

For small CWSs the Guidance document provides a "Risk and Resilience Assessment Checklist" (Assessment Checklist) to assist in analyzing the water system assets, provided in **Appendix A**, that a CWS must assess in it an RRA per AWIA. CCWD utilized the Assessment Checklist to analyze its assets of each service area, for the assets listed in **Appendix C**, following the instructions provided by the Guidance. Particular focus was placed on the Risk Focus Areas described in **Section 7.0**. Copies of the service area Assessment Checklists are provided in **Appendix D**. For malevolent act portions of the Assessment Checklist, supplemental checklist questions from the Baseline Document are also provided. *Due to the sensitivity of information contained in the Assessment Checklists, they are not included in the RRA Public Version and distribution is limited to those individuals directly involved in CCWD emergency planning and response activities.*

8.1 Matrix Assessment

The Assessment Checklists qualitatively highlight several of CCWD's most-pressing risks and vulnerabilities in its service areas. Each service area is unique in its water supply systems, water treatment facilities, and infrastructure, as described in **Section 4.1**. However, many of the specific risks and vulnerabilities are similar between these systems owing to the mostly rural and low-density nature of the County. To better understand these issues, the most frequently noted risks from the Assessment Checklists were collected and consolidated into high-level events/issues[13]. The consolidated list of risks was re-forwarded to the Assessment Checklist evaluators to rank-order the risks and to provide insights to potential (generalized) cost-impacts and operational impact details CCWD from such an event occurring. More work is needed to assess the degree of risk impacts to CCWD, but this "matrix assessment" helps to focus the list of major risks and vulnerabilities and provides some insight into CCWD staff perception of potential impacts. The results of this assessment are shown in **Table 11.**

It is worth noting that several Risk Factors identified in the matrix are likely interconnected and could cause successive damages to CCWD operations, water services, and employee communications in response to such events. For example, pervasive dry conditions and drought may lead to forest tree death and other conditions which may increase wildfire likelihood and the potential for large-scale damages. Regarding individual Risk Factors, as noted in Section 7.0, large and devastating wildfire events remain the greatest risk to CCWD facilities, operations, and administration in the more rural County areas of the Sierra Nevada Mountains. A few recent wildfire events are provided in Section 4.2.18 of the LHMP, these past wildfires have devastated CCWD and in-County community resources (e.g., 2015 Butte Fire in Amador and Calaveras Counties). Resulting or independent utility outages, water quality contaminations, and other Risk Factors continue to threaten CCWD, as provided in the Matrix Assessment. These factors will be further investigated in CCWD's upcoming ERP document.

[13] For instance, wildfire threats to specific service area facilities identifies in the Assessment Checklists were broadened to a wildfire risk threatening all CCWD facilities.

Table 11. CCWD Risks & Vulnerabilities Matrix Assessment

Not included in RRA Public Version.

9.0 Recommendations

This RRA has detailed CCWD service area infrastructure in the context of risks and resiliency vulnerabilities, via the Assessment Checklists and matrix assessment. Per the requirements of AWIA, CCWD must prepare a follow-up ERP within six months after certification of this RRA, to incorporate its findings into strategies and resources aimed at improving water systems resiliency. As discussed in **Sections 3.0 and 6.0**, CCWD has several related planning efforts which will be utilized to develop the ERPs comprehensive strategies for responding to water systems threats and vulnerabilities. It is likely that CCWD will build from the prior service area ERPs to incorporate new RRA elements (e.g., malevolent acts). Beyond the AWIA requirements, the following recommendations are provided to improve CCWD risk management and to continue developing an analysis framework:

- Develop a complete inventory (database) of existing infrastructure, georeferenced and with operational details provided. *Made available only the CCWD personnel.*
- Develop a risk and vulnerability matrix to quantity and prioritize service area infrastructure and opportunities for countermeasures, expanding upon or embedded within CCWD's CIP. Build from qualitative matrix assessment shown in this RRA to incorporate more details on disaster cost-impacts, constraints, etc.
- Identify critical interdependencies with other County and regional water suppliers and reservoir/systems operators (examples in Table 2B) and establish regular communication and/or coordinated emergency response procedures.
- Establish a standardized cost-benefit analysis for projects and programs that support risk reduction.
- Develop tools and analysis methodology to prepare for real-time customer AMI data used to quickly identify infrastructure issues or problems, once implemented.
- Continue with IT cybersecurity review efforts and develop strategies to mitigate risk levels identified in **Table 10**.
- Hold community workshops aimed at discussing water supply risks, emergency response actions, and other related topics.
- Continue to incorporate water supply risk and resiliency concepts in other CCWD planning efforts, following the generalized framework shown in **Figure 4**.

10.0 RRA Procedures

This RRA was developed and reviewed by CCWD staff. Prior to certification the RRA was presented to the CCWD Board, for review and in preparation of subsequent AWIA ERP

requirements. The RRA Public Version[14] and Board meeting agenda materials were released consistent with the Brown Act contained in §54950 et seq. of the California Government Code. EPA provides instructions for how to electronically certify the RRA on its website[15], a statement used to certify this RRA following the aforementioned the Board meeting. The public Board meeting materials and certification statements are contained in **Appendix E**.

The service area Assessment Checklists contained in **Appendix D** may require periodic updates to be responsive to changing conditions, including the analysis following any attempted malevolent acts and/or natural hazards, prior to the next scheduled re-certification update.

10.1 District Contacts

For more information on this RRA, or regarding other CCWD efforts involving risk and resiliency concepts applied to review of its water supply systems, please use the following CCWD contact information:

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[14] *RRA "Public Version" does not include some materials, as noted, due to the sensitivity of information contained within. The RRA "Internal Version" contains all such information, but its distribution is limited to those individuals directly involved in CCWD emergency planning and response activities.*

[15] EPA Certification Info Website available at: https://www.epa.gov/waterresilience/certification-statements-risk-and-resilience-assessment-or-emergency-response-plan

Appendix A
AWIA Water Systems Assets List

The following water systems assets are listed in available EPA Guidance:

1. *Physical Barriers*: Encompasses physical security in place at the CWS. Possible examples include fencing, bollards, and perimeter walls; gates and facility entrances; intrusion detection sensors and alarms; access control systems (e.g., locks, card reader systems); and hardened doors, security grilles, and equipment cages.
2. *Source Water:* Encompasses all sources that supply water to a water system. Possible examples include rivers, streams, lakes, source water reservoirs, groundwater, and purchased water.
3. *Pipes and Constructed Conveyances, Water Collection, and Intake:* Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances.
4. *Pretreatment and Treatment:* Encompasses all unit processes that a water system uses to ensure water meets regulatory public health and aesthetic standards prior to distribution to customers. Possible examples include sedimentation, filtration, disinfection, and chemical treatment. For the risk assessment, individual treatment processes at a facility may be grouped together and analyzed as a single asset if they have a similar risk profile.
5. *Storage and Distribution Facilities:* Encompasses all infrastructure used to store water after treatment, maintain water quality, and distribute water to customers. Possible examples include residual disinfection, pumps, tanks, reservoirs, valves, pipes, and meters.
6. *Electronic, Computer, or Other Automated Systems (including the security of such systems):* Encompasses all treatment and distribution process control systems, business enterprise information technology (IT) and communications systems (other than financial), and the processes used to secure such systems. Possible examples include the sensors, controls, monitors and other interfaces, plus related IT hardware and software and communications, used to control water collection, treatment, and distribution. Also includes IT hardware, software, and communications used in business enterprise operations. The assessment must account for the security of these systems (e.g., cybersecurity, information security).
7. *Monitoring Practices*: Encompasses the processes and practices used to monitor source water and finished water quality, along with any monitoring systems not captured in other asset categories. Possible examples include sensors, laboratory resources, sampling capabilities, and data management

equipment and systems. Examples are contamination warning systems for the source water or distribution system.

8. *Financial Infrastructure:* Encompasses equipment and systems used to operate and manage utility finances. Possible examples include billing, payment, and accounting systems, along with third parties used for these services. This asset category is not intended to address the financial "health" of the water utility (e.g., credit rating, debt-to-equity ratios).
9. *The Use, Storage, or Handing of Chemicals*: Encompasses the chemicals and associated storage facilities and handling practices used for chemical disinfection and treatment. Assessments under this asset category should focus on the risk of uncontrolled release of a potentially dangerous chemical like chlorine where applicable.
10. *The Operation and Maintenance of the System:* Encompasses critical processes required for operation and maintenance of the water system that are not captured under other asset categories. Possible examples include equipment, supplies, and key personnel. Assessments may focus on the risk to operations associated with dependency threats like loss of utilities (e.g., power outage), loss of suppliers (e.g., interruption in chemical delivery), and loss of key employees (e.g., disease outbreak or employee displacement).

Appendix B
AWIA Guidance Checklist

Table B1 lists RRA required contents from the available EPA Guidance, and the corresponding section(s) included in CCWD's RRA document.

Table B1. RRA Requirements per EPA Guidance

RRA Requirement	Section(s)
Describe malevolent acts that pose a significant risk to the asset category of the CWS.	Section 7.1, Section 8.1, Appendix D
For each malevolent act that you identify as a significant risk, briefly describe how the malevolent act could impact the asset category at the CWS. Include major assets that might be damaged or disabled, water service restrictions or loss, and public health impacts as applicable.	Appendix D
Describe natural hazards that may pose a significant risk to the asset category at the CWS.	Section 7.0, Section 7.2, Section 8.1, Appendix D
For each natural hazard that you identify as a significant risk, briefly describe or provide examples of how the hazard could impact the asset category at the CWS. Include major assets that might be damaged or disabled, water service restrictions or loss, and public health impacts as applicable.	Appendix D
Identify countermeasures that the CWS could potentially implement to reduce risk from the malevolent acts and natural hazards that you selected in this assessment.	Section 3.0, Section 6.0, Section 9.0, Appendix D

Table B2 lists additional RRA required contents defined in the Baseline Document, and the corresponding section(s) included in CCWD's RRA document.

Table B2. RRA Requirements per EPA Baseline Document

RRA Requirement	Section(s)
Identify the most significant malevolent acts and natural hazards to a CWS's critical assets, systems, and networks.	Section 7.0, Section 8.1, Appendix D
Account for threats to source water (ground and surface), treatment and distribution systems, and business enterprise systems.	Section 5.0, Section 7.0, Appendix D
Consider risks posed to the surrounding community related to attacks on the CWS.	Appendix D
Serve as guide to facilitate a prioritized plan for security upgrades, modifications of operational procedures, and policy changes to mitigate the risks to the CWS's critical assets.	Section 5.0, Section 7.0, Section 9.0, Appendix C, Appendix D

Table B3 lists the basic requirements of AWIA §2013(D), provided by Federal Document 2019-05770, and the corresponding section(s) included in CCWD's RRA document.

Table B2. RRA Requirements per AWIA §2013(D)

§2013(D) ¶	RRA Requirement	Section(s)
(1)	The risk to the system from malevolent acts and natural hazards.	Section 3.0, Section 5.0, Section 7.0, Section 8.1, Appendix D
(2)	The resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system.	Section 5.1, Appendix C, Appendix D
(3)	The monitoring practices of the system.	Section 3.0, Section 4.2, Appendix D
(4)	The financial infrastructure of the system.	Section 4.3, Appendix D
(5)	The use, storage, or handling of various chemicals by the system.	Section 4.5, Appendix D
(6)	The operation and maintenance of the system.	Section 4.4, Appendix D
	The assessment *may* also include an evaluation of capital and operational needs for risk and resilience management for the system.	Section 5.1

Appendix C
Service Area Infrastructure Lists

The water systems assets within the scope of this RRA are listed in Appendix A. For the purposes of the CCWD RRA, these assets are analyzed by water supply service area. Applicable service area assets are listed in **Appendix C** of the RRA Internal Version; however, *due to the sensitivity of information contained in that appendix (e.g., infrastructure importance and capabilities) it is not included in this RRA Public Version.*

Appendix D
RRA Service Area Checklists

Appendix D of the RRA Internal Version contains the following Assessment Checklists for each service area, as follows, per the EPA Guidance for small CWSs. RRA **Table 3** outlines the service area infrastructure considered in each area's Assessment Checklist.

1. Copper Cove/Copperopolis Service Areas (PWSID CA0510017)
2. Ebbetts Pass Service Area (PWSID CA0510016)
3. Jenny Lind Service Area (PWSID CA0510006)
4. Sheep Ranch Service Area (PWSID CA0510004)
5. Wallace Service Area (PWSID CA0510019)
6. West Point Service Area (PWSID CA0510005)

Due to the sensitivity of information contained in the Assessment Checklists, they are not included in this RRA Public Version. The service area Assessment Checklists may require periodic updates to be responsive to changing conditions, including the analysis following any attempted malevolent acts and/or natural hazards, prior to the next scheduled re-certification update. The original Assessment Checklists were developed and reviewed by CCWD management and operations staff during a May 10, 2021 meeting regarding review of CCWD water systems risks and vulnerabilities.

Appendix E
Outreach & Notification Documents

Subsequent pages contain the public Board Meeting materials and applicable RRA certification statements.

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