

I hereby certify that the following agenda was posted at least 72 hours prior to the time of the meeting so noticed below at 24251 Los Alisos Boulevard, Lake Forest, California.



DENNIS P. CAFFERTY,
Secretary of the El Toro Water
District and the Board of Directors
thereof



AGENDA
EL TORO WATER DISTRICT
REGULAR MEETING OF THE BOARD OF DIRECTORS
September 22, 2022
7:30 a.m.

Members of the public who wish to comment on any item within the jurisdiction of the District or on any item on the agenda, may attend the meeting in person at the District's office or may observe and address the Meeting by joining at this link: <https://us02web.zoom.us/j/89131650048> (Meeting ID: 891 3165 0048).

Members of the public who wish only to listen to the telephonic meeting may dial in at the following numbers (669) 900-6833 or (346) 248-7799 with the same Meeting ID noted above. Please be advised the Meeting is being recorded.

CALL MEETING TO ORDER – President Freshley

PLEDGE OF ALLEGIANCE – Director Vergara

ORAL COMMUNICATIONS/PUBLIC COMMENTS

Members of the public may address the Board at this time or they may reserve this opportunity with regard to an item on the agenda, until said item is discussed by the Board. Comments on other items will be heard at the time set aside for "COMMENTS REGARDING NON-AGENDA ITEMS." The public may identify themselves when called on and limit their comments to three minutes.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Determine need and take action to agendize items which arose subsequent to the posting of the Agenda. (ROLL CALL VOTE: Adoption of this recommendation requires a two-thirds vote of the Board members present, or, if less than two-thirds of the Board members are present, a unanimous vote of those members present.)

1. **Consent Calendar**

(All matters under the Consent Calendar will be approved by one motion unless a Board member or a member of the public requests separate action or discussion on a specific item)

- a. Consider approving the minutes of the August 9, 2022 Special Board meeting
- b. Consider approving the minutes of the August 25, 2022 Board meeting

Recommended Action: The Board will consider approving the above Consent Calendar.

2. **Director Reports for Meetings Attended** (Oral Report)

GENERAL MANAGER ACTION ITEMS

3. **Virtual or Hybrid Board Meetings per AB 361** (Reference Material Included)

The Board will consider approving the continuation of virtual or hybrid meetings pursuant to AB 361 for an additional 30 days based on findings that 1) the Board has considered the circumstances of the state of emergency for COVID-19, and 2) state and local officials continue to impose or recommend measures to promote social distancing.

Recommended Action:

Staff recommends that the Board of Directors reaffirm the findings and determinations under Assembly Bill 361 and extend Resolution No. 22-7-4 for the continuation of virtual or hybrid meetings for the next 30 days based on the findings that (1) it has reconsidered the circumstances of the state of emergency for COVID-19, and (2) state and local officials continue to impose or recommend measures to promote social distancing.

4. **Pump Station Asset Management Plan** (Reference Material Included)

Staff will review and comment on the proposals received in response to a Request for Proposals for the Asset Management Plan Project.

Recommended Action: Staff recommends that the Board of Directors authorize the General Manager to enter into a contract with Hazen and Sawyer in the amount of \$132,170 for the development of a Pump Station Asset Management Plan. Staff further recommends that the Board authorize the General Manager to fund the project costs from the District's Capital Reserves in accordance with the District's adopted Capital Reserve Policy.

5. **WRP Optimization Study** (Reference Material Included)

Staff will review and comment on the award of an engineering contract to perform an optimization study of the Waste Activated Cell process within the WRP secondary treatment system.

Recommended Action: Staff recommends that the Board of Directors authorize the General Manager to enter into a contract with Arcadis U.S., Inc. in the amount of \$117,078 for a WRP Optimization Study. Staff further recommends that the Board authorize the General Manager to fund the project costs from the District's Capital Reserves in accordance with the District's adopted Capital Reserve Policy.

GENERAL MANAGER INFORMATION ITEMS

6. **General Manager's Monthly Report** (Reference Material Included)

Staff will review and comment on the General Manager's Monthly Report.

7. **Legislative Report** (Reference Materials Included)

Staff and General Counsel will review and comment on the Legislative reports.

8. **Public Education and Outreach Report** (Reference Material Included)

Staff will review and comment on the Public Education and Outreach report.

9. **Water Use Efficiency Report** (Reference Material Included)

Staff will review and comment on the Water Use Efficiency Reports.

10. **SOCWA Report** (Reference Material Included)
 - a. SOCWA All Hands Meeting – August 31, 2022
 - b. SOCWA Board Meeting – September 1, 2022
 - c. SOCWA Engineering Committee Meeting – September 8, 2022
 - d. SOCWA Finance Committee Meeting – September 20, 2022

11. **Municipal Water District Of Orange County (MWDOC) Report** (Reference Material Included)
 - a. MWDOC Planning/Operations Meeting – September 6, 2022
 - b. MWDOC/MET Directors Workshop – September 7, 2022
 - c. MWDOC Admin/Finance Committee Meeting – September 14, 2022
 - d. MWDOC Board Meeting – September 21, 2022
 - e. MWDOC Managers Meeting – September 22, 2022
 - f. MWDOC Legislative & Regulatory Policy Principles

12. **Local Agency Formation Commission (LAFCO) Report**
 - a. Report on the September 14, 2022 Strategic Planning meeting - canceled

13. **ISDOC Meetings Report** (Reference Material Included)
 - a. Report on the September 6, 2022 ISDOC Executive Committee meeting

14. **WACO Meetings Report** (Reference Material Included)
 - a. Report on the September 9, 2022 WACO meeting
 - b. Report on the September 20, 2022 WACO Planning Committee meeting

COMMITTEE AND GENERAL INFORMATION

15. **Dates to Remember for September/October** (Reference Material Included)

COMMENTS REGARDING NON-AGENDA ITEMS

ATTORNEY REPORT

CLOSED SESSION

At this time the Board will go into Closed Session as follows:

1. At this time the Board will go into Closed Session pursuant to Government Code Section 54956.8 to consult with its negotiator (General Manager) with respect to the terms and conditions pertaining to the potential acquisition of capacity interest in wastewater transmission pipes and facilities (appurtenant to real property) from the Irvine Ranch Water District, which property is located within the Service Area of the South Orange County Wastewater Authority.
2. Pursuant to Government Code Section 54956.9 (d) (2) to consult with legal counsel and staff – Anticipated Litigation (one matter).

REGULAR SESSION

REPORT ON CLOSED SESSION (Legal Counsel)

Mr. Granito will provide an oral report on the Closed Session.

ADJOURNMENT

The agenda material for this meeting is available to the public at the District's Administrative Office, which is located at 24251 Los Alisos Blvd., Lake Forest, Ca. 92630. If any additional material related to an open session agenda item is distributed to all or a majority of the board of directors after this agenda is posted, such material will be made available for immediate public inspection at the same location.

Request for Disability-Related Modifications or Accommodations

If you require any disability-related accommodation, including auxiliary aids or services, in order to participate in this public meeting, please telephone the District's Recording Secretary, Polly Welsch at (949) 837-7050, extension 225 at least forty-eight (48) hours prior to said meeting. If you prefer, your request may be submitted in writing to El Toro Water District, P.O. Box 4000, Laguna Hills, California 92654, Attention: Polly Welsch.

MINUTES OF THE SPECIAL BOARD MEETING
OF THE
BOARD OF DIRECTORS
OF THE
EL TORO WATER DISTRICT
August 9, 2022

President Freshley called the Special meeting of the Board of Directors of the ELTORO WATER DISTRICT to order at 7:30 a.m.

Directors KATHRYN FRESHLEY, KAY HAVENS, MIKE GASKINS, MARK MONIN, and JOSE VERGARA participated.

Also present were DENNIS P. CAFFERTY, General Manager, HANNAH FORD, Engineering Manager, GILBERT J. GRANITO, General Counsel, SCOTT HOPKINS, Operations Superintendent, JUDY CIMORELL, Human Resources Manager, CAROL MOORE, Laguna Woods Mayor, and POLLY WELSCH, Recording Secretary.

JASON HAYDEN, CFO was absent.

Oral Communications/Public Comments

There were no comments.

Action Item

JTM Pump Station Project (Reference Material Included)

Ms. Ford stated that this project benefit would prove useful when the District lacks its water supply reliability during the R-6 Reservoir outage, which is planned from October 2022 to July 2023 to replace the floating cover and liner.

She further stated that staff is pre-purchasing equipment and making every effort to expedite construction by requiring the contractor to complete construction by the end of January 2023.

Ms. Ford stated that staff put the project out for bids last month and has received three bids with the lowest bidder being Filanc at a cost very close to the Engineer's estimate. She further stated that the bid is lower than budgeted as part of the revenue bond process due to value engineering design modifications.

Ms. Ford stated that in addition to recommending the award of the construction contract, staff also recommends awarding the designer, Black and Veatch, for Engineering Services during Construction, which will include geotechnical inspection services.

Ms. Ford stated that the District's consultant Dudek prepared the Mitigated Negative Declaration (MND) for CEQA compliance, which the Board adopted. Following adoption, one of the consulted tribes sent an e-mail requesting additional mitigation. The District offered no modified mitigation measures in the MND but did offer to allow tribal observation during excavation; however they did not respond, so the District considers the tribal consultation closed.

Ms. Ford stated that, during construction, Dudek will provide paleontological monitoring services by developing a monitoring plan and witnessing excavation activities during construction.

Director Vergara stated that the budget was \$2.4 million and now the project costs are \$989,546. Ms. Ford replied yes, due to efficient design of the pump station being more cost effective.

President Freshley asked why we are tying into the gravity zone. Ms. Ford replied that the Gravity Zone is the desired location for the JTM pump discharge water; a pipeline connecting to the Gravity Zone already exists near the JTM Pump Station on the R-1 and R-2 Reservoir Site.

President Freshley asked for a Motion.

Motion: Director Vergara made a Motion, seconded by Director Gaskins and unanimously carried across the Board to authorize the General Manager to 1) enter into a contract with J.R. Filanc Construction Company, Inc. in the amount of \$475,000 for the construction of the JTM Pump Station Project, 2) amend the existing contract with Black and Veatch in the amount of \$65,788 for Engineering Services during Construction, and 3) amend the existing contract with Dudek in the amount of \$15,761 for Paleontological Services.

Roll Call Vote:

Director Vergara	aye
Director Monin	aye
Director Gaskins	aye
Vice President Havens	aye
President Freshley	aye

Information Item

Grand Jury Report Regarding MWDOC and OCWD

Mr. Cafferty stated that included in the Board package is the 2022 OC Grand Jury report, the 2013 OC Grand Jury report, the MWDOC Responses to the 2013 OC Grand Jury report, and the OCWD Responses to the 2013 OC Grand Jury report.

Mr. Cafferty stated that this report is clearly focused on MWDOC and OCWD, which are required to respond. He further stated that the water agencies mentioned in the report are requested to respond.

Mr. Cafferty stated that most of the statements in the report used to justify or substantiate a conclusion that there should be one wholesale agency in Orange County are largely without any real foundation. He further stated that the report makes references to “multiple agencies agree”, however during the interviews with water district General Managers, they are admonished about confidentiality.

Vice President Havens stated that the current report compared to the 2013 Grand Jury report it did not have the citation, the documentation of their work process, where they had been and who they had seen, so therefore the current report is highly subjective.

Mr. Cafferty stated that when they speak of missed opportunities on operating efficiency they don't identify what those opportunities are.

Mr. Cafferty stated that having one wholesale agency won't change the retail wholesaler's reliability plans. He further stated that the MWDOC Reliability Study was a specific example of centralized planning where they offer that service to all member agencies.

Mr. Cafferty stated that increased coordination between North and South Counties for water banking would assist in groundwater supply and water projects.

Director Vergara stated that OCWD is considered one of the best water managers and is the largest customer of MWDOC. He further stated that the Board is not here to make an objective decision, we are here to determine what is best for ETWD and our customers.

Director Monin stated that OCWD is an expert at underground water and MWDOC is a wholesaler for MET which are two different functions. He further stated that we should focus on what's best for ETWD.

Director Gaskins stated that when he was elected to the Board he was welcomed at MWDOC and OCWA has not provided any outreach other than to invite public to view their water treatment process. He further stated that he feels that MWDOC and OCWA's functions are so different in what they do.

Vice President Havens stated that there needed to be more backup with facts, and she asked why we were left out of Finding 4 when other water agencies were included. Mr. Cafferty replied that Finding 4 is different in that it is specifically referring to individual retail agencies.

President Freshley stated that we don't know what kind of comments were made when they interviewed other agencies. She further stated that she agrees that these are two different functions where MWDOC selects the representatives for the county. Mr. Cafferty stated that MWDOC has four representatives, one is the representative for South County and one is for North County.

At approximately 8:30 a.m. the Board took a short recess. Also at this time Ms. Cimorell left the meeting.

Regular Session

At approximately 8:35 a.m. Regular session resumed.

Grand Jury Report Regarding MWDOC and OCWD (continued discussion)

Ms. Moore commented that observations made by the OC Grand Jury and by the agencies are not similar. She further stated that she doesn't see why OCWD needs to see the other agencies positions on the report.

Mr. Cafferty stated that the report says that the lack of one voice has had a negative impact on the ability to build projects. He further stated that the MWDOC Reliability Study is available for all member agencies in assisting with projects.

Mr. Cafferty read the Findings and Recommendations from the report. The Board then discussed the potential response to the report findings and recommendations, and provided instruction for Mr. Cafferty to prepare a draft response letter to the OC Grand Jury which will be considered for approval at the August Board meeting.

Adjournment

There being no further business to come before the Board, the meeting was adjourned at 9:30 a.m.

Respectfully submitted,

POLLY WELSCH
Recording Secretary

APPROVED:

KATHRYN FRESHLEY, President of
the El Toro Water District and the
Board of Directors thereof

DENNIS P. CAFFERTY, Secretary
of the El Toro Water District and
the Board of Directors thereof

MINUTES OF THE REGULAR MEETING
OF THE
BOARD OF DIRECTORS
OF THE
EL TORO WATER DISTRICT
August 25, 2022

President Freshley called the meeting of the Board of Directors of the ELTORO WATER DISTRICT to order at 7:35 a.m. and announced that the meeting started late due to technical difficulties.

President Freshley led in the Pledge of Allegiance to the flag.

Directors KATHRYN FRESHLEY, KAY HAVENS, MIKE GASKINS, MARK MONIN (zoom), and JOSE VERGARA participated.

Also present were DENNIS P. CAFFERTY, General Manager, HANNAH FORD, Engineering Manager, SHERRI SEITZ, Public Affairs Manager, VU CHU, Water Use Efficiency Analyst, JUDY CIMORELL, Human Resources Manager, SCOTT HOPKINS, Operations Superintendent, ERIC NGUYEN, Lab Tech II, GILBERT J. GRANITO, General Counsel, MARK SERNA, South Coast Water District, RICK SHINTAKU, South Coast Water District, DOUG DAVERT , LAFCO (zoom), JIM FISLER, MESA Water District (zoom), CAROL MOORE, Laguna Woods Mayor (zoom), and POLLY WELSCH, Recording Secretary.

JASON HAYDEN, CFO, was absent.

Oral Communications/Public Comments

Mr. Davert introduced himself as President of East Orange County Water District and Chairman of LAFCO. He further stated that he, Mr. Fisler, and President Freshley serve as our Special District Representatives to LAFCO.

Mr. Davert provided an update on LAFCO's projects that assist Special Districts.

Mr. Fisler of Mesa Water District introduced himself and stated that LAFCO has seven voting members, two Orange County Supervisors from the Cities and one from the Public, and each area has an Alternate. He further stated that they have overhauled their website for direct access to their Commissioners and forms to start annexations and protest letters.

At approximately 7:45 a.m. Mr. Davert and Mr. Fisler left the meeting.

Items Received Too Late to be Agendized

President Freshley asked if there were any items received too late to be agendized. Mr. Cafferty replied no.

Service Awards

Mr. Cafferty recognized and congratulated Eric Nguyen on 5 years of service with the District.

Mr. Cafferty introduced new employee Vu Chu, Water Use Efficiency Analyst to the Board.

At approximately 7:48 a.m. Mr. Nguyen left the meeting.

Doheny Desalination Project Presentation

Mr. Shintaku and Mr. Serna of South Coast Water District provided a project overview of the Doheny Ocean Desalination Project.

President Freshley asked if the District participates, what are the issues to get the water from the Doheny Plant to us. Mr. Shintaku replied that they would work on the hydraulic issues for the water pressure and flow.

At approximately 8:35 a.m. Mr. Shintaku and Mr. Serna left the meeting.

Consent Calendar

President Freshley asked for a Motion.

Motion: Director Vergara made a Motion, seconded by Vice President Havens and unanimously carried across the Board to approve the Consent Calendar.

Roll Call Vote:

Director Vergara	aye
Director Monin	aye
Director Gaskins	aye
Vice President Havens	aye
President Freshley	aye

Director Reports for Meetings Attended

Director Monin stated that he attended the CASA conference, the CSDA conference, the WACO meeting, the MWDOC Board meeting, the ISDOC Executive Committee meeting, the MWDOC/MET Directors workshop, the South Orange County Economic Coalition meeting, the WACO Planning Committee meeting, the OCWA meeting, the OCCOG meeting, the CAG meeting, the Special Board meeting, and the regular Board meetings.

Director Vergara stated that he attended the MWDOC/MET Directors workshop, the CAG meeting, the WACO meeting, the WACO Planning Committee meeting, WaterReuse meeting, the MWDOC Admin/Finance meeting, the MWDOC Planning & Operations meeting, the City of Lake Forest City Council, the South Economic Coalition meeting, the Special Board meeting and the regular Board meetings.

Director Gaskins stated that he attended the RRC meeting, the CAG meeting, the WACO meeting, the SOCWA Board meeting, the SOCWA Finance Committee meeting, the MWDOC Board meeting, the MWDOC Admin/Finance Committee meeting, the MWDOC/MET Directors workshop, the MWDOC Planning/Operations meeting, the Special Board meeting and the regular Board meetings.

Vice President Havens stated that she attended the Agenda Review meeting, the CAG meeting, two meetings of the Pres/VP/GM, the WACO meeting, the WaterReuse meeting, the ISDOC Executive Committee meeting, the MWDOC Board meeting, the MWDOC Admin/Finance meeting, the MWDOC Planning/Operations meeting, the OCWA meeting, the MWDOC/MET Directors workshop, two LWV Third Landscape United Town Hall meetings, the Special Board meeting and the regular Board meetings.

President Freshley stated that she attended the Agenda Review meeting, two meetings of the Pres/VP/GM, the two RRC meetings, the CAG meeting, the WACO meeting, two SOCWA Board meetings, the MWDOC Planning/Operations meeting, the ACWA Engineering Committee meeting, the CASA conference, the

OCWA meeting, the MWDOC/MET Director workshop, the City of Laguna Woods Council meeting, the Special Board meeting and the regular Board meetings.

General Manager Action Items

COVID-19 Update

Mr. Cafferty stated that it is time to consider granting the General Manager discretion to extend the use of Emergency Administrative Leave as necessary up to 160 hours per employee per month.

President Freshley asked for a Motion.

Motion: Director Vergara made a Motion, seconded by Director Gaskins and unanimously carried across the Board to grant the General Manager discretion to extend the use of Emergency Administrative Leave, as necessary up to 160 hours per employee per month, until the November 22, 2022 meeting of the Board of Directors.

Roll Call Vote:

Director Vergara	aye
Director Monin	aye
Director Gaskins	aye
Vice President Havens	aye
President Freshley	aye

Resolution No. 22-8-1 Regular Board Meetings Schedule

Mr. Cafferty stated that this item is being brought before the Board today to see if the majority wishes to change the time and/or dates of the District's Board meetings. The Board had discussion and left the decision to a vote.

President Freshley asked for a Motion.

Motion: Director Vergara made a Motion, seconded by Director Gaskins to approve Resolution No. 22-8-1.

Roll Call Vote:

Director Vergara	no
Director Monin	aye
Director Gaskins	no
Vice President Havens	no
President Freshley	no

Motion failed 4-1 to approve Resolution 22-8-1 changing the District's regular Engineering/Finance Committee and regular Board meeting times/dates.

OC Grand Jury Response

Mr. Cafferty discussed the draft response letter with the Board and the Board provided comments.

President Freshley asked for a Motion.

Motion: Director Gaskins made a Motion, seconded by Vice President Havens to approve the District's response letter on the Orange County Grand Jury's Findings and Recommendations including the Board's recommendations, and have the General Manager submit the letter to the Presiding Judge of the Superior Court before September 20, 2022.

Roll Call Vote:

Director Vergara	aye
Director Monin	aye
Director Gaskins	aye
Vice President Havens	aye
President Freshley	aye

Virtual or Hybrid Board Meetings per AB 361

Mr. Cafferty discussed with the Board the need to continue virtual or hybrid meetings pursuant to AB 361 for an additional 30 days based on findings that the Board has considered the circumstances of the state of emergency for COVID-19, and state and local officials continue to impose or recommend measures to promote social distancing.

President Freshley asked for a Motion.

Motion: Director Monin made a Motion, seconded by Director Vergara and unanimously carried across the Board to reaffirm the findings and determinations under AB 361 and extend Resolution No. 22-7-4 for the continuation of virtual or hybrid meetings for the next 30 days based on the findings that it has reconsidered the circumstances of the state of emergency for COVID-19, and state and local officials continue to impose or recommend measures to promote social distancing.

Roll Call Vote:

Director Vergara	aye
Director Monin	aye
Director Gaskins	aye
Vice President Havens	aye
President Freshley	aye

General Manager Information Items

General Manager's Monthly Report

Mr. Cafferty stated that MET's Upper Feeder will be shutdown for a period of two weeks for a leak repair. He further stated that MET is asking LA County to shutdown all outdoor watering for the two week period.

Mr. Cafferty stated that there was discussion on the potential use of Irvine Lake water during this period which would come at a cost for ETWD of approximately \$30,000 - \$60,000.

Legislative Reports

There were no comments.

Public Education and Outreach Report

Ms. Seitz stated that the fall newsletter will be published and distributed in September, with topics being Drought and Water Reliability, ETWD projects, rebates, what to plant, community events, and new employee introductions.

Ms. Seitz stated that construction alerts for the Filter Site Reuse and the R-6 Floating Cover and Liner Replacement projects were mailed to residents, and zoom meetings for each project were held. She further stated that construction alert postcards will be mailed to residents surrounding the project approximately a week prior to construction start date.

Ms. Seitz stated that staff is in the process of applying for an encroachment permit for the Adopt-a-Channel program for Channel F23. She further stated that Channel F23 runs behind the business on Lake Forest Drive between Avenida de la Carlota and Mill Creek Drive.

Ms. Seitz stated that ETWD sponsored six virtual landscape workshops with MET which were held in the evening and included California Friendly Native Plant Landscape, Irrigation & Water Use Efficiency, Garden Design, Turf Removal, Deciphering your Irrigation Controller, and Drip Irrigation Fundamentals.

Ms. Seitz stated that staff had a booth at the City of Mission Viejo's National Night Out. She further stated that Mr. Cafferty presented at the United mutual meeting in Clubhouse 3 where he provided an update on current water supply, drought, and urgent need for water efficiency.

Water Use Efficiency Report

Mr. Chu commented on the rebate programs, actual customer rebates and budget analysis, total consumption compared to evapotranspiration (ET) factor, and graphs highlighting ETWD's year-to-date consumption and consumption by tier for the current fiscal year compared to the 2021/22 fiscal year, and also compared to the 2013 and 2020 years.

SOCWA Reports

President Freshley stated that at the SOCWA Board meeting they discussed a report by SMWD on their Operation Plan for the Latham Plant and taking over PC-2.

Ms. Ford stated that at the SOCWA Engineering Committee meeting they discussed Asset Management and reviewed the Audit Review Report.

Mr. Cafferty stated that at the SOCWA Finance Committee meeting they discussed their OPEB process.

MWDOC Reports

Director Vergara stated that at the MWDOC Planning/Operations meeting there was a presentation by Susan Kennedy about the Cadiz Project.

President Freshley stated that during the MWDOC Board meeting they discussed their response to the Orange County Grand Jury report letter.

Mr. Cafferty stated that at the MWDOC Managers meeting there were continued updates on the Colorado River Conditions, the OC Grand Jury letter, the Upper Feeder Shutdown, a lack of funding for the WEROC project, and finalization of member agency boundaries.

South Orange County Agencies Group Report

Mr. Cafferty stated that at the South Orange County Agencies Group meeting they discussed the OC Grand Jury report, current issues, the MET Upper Feeder shutdown, and the Colorado River issues.

LAFCO

Director Freshley stated that she had no comments on the LAFCO meeting.

ISDOC

Director Monin stated that they discussed the ISDOC election process.

Mr. Cafferty stated that the District received emails from Greg Mills of Serrano Water District pursuing the President role, and Paul Mezmer of Surfside Colony Community Service District pursuing the second Vice President position.

WACO

Director Monin stated that the program was the Evolution of MET's Agricultural Partnerships, and Bard Water District Seasonal Fallowing.

COMMITTEE AND GENERAL INFORMATION

Dates to Remember for August/September

There were no comments.

Comments Regarding Non-Agenda Items

There were no comments.

Recess

At approximately 10:15 a.m. the Board took a short recess.

Regular Session

At approximately 10:25 a.m. the Board returned to Regular Session.

Attorney Report

Mr. Granito reported that there is a need for a Closed Session today to discuss both items of today's Closed Session agenda.

Closed Session

At approximately 10:25 a.m. the Board went into Closed Session. Also at this time everyone left the meeting except the Board members, Ms. Cimorell, and Mr. Cafferty.

Open Session/Report

At approximately 10:55 a.m. the Board returned to Regular session. Also at this time Ms. Welsch returned to the meeting.

Mr. Granito reported that during the Closed Session, the General Manager and General Counsel discussed the status of the Item #1 matter and provided input. No reportable action was taken.

Mr. Granito reported that during the second phase of the Closed Session, the General Manager and Human Resources Manager led a discussion on Item #2. No reportable action was taken.

Adjournment

There being no further business to come before the Board, the meeting was adjourned at 11:00 a.m.

Respectfully submitted,

POLLY WELSCH
Recording Secretary

APPROVED:

KATHRYN FRESHLEY, President of
the El Toro Water District and the
Board of Directors thereof

DENNIS P. CAFFERTY, Secretary
of the El Toro Water District and
the Board of Directors thereof



STAFF REPORT

To: Board of Directors **Meeting Date:** September 22, 2022
From: Dennis Cafferty, General Manager
Subject: Virtual or Hybrid Board Meetings per AB 361

At the July 28, 2022 Board meeting, pursuant to AB 361, the Board of Directors adopted Resolution No. 22-7-4 and authorized the Board to hold virtual or hybrid meetings based upon the continued state of emergency for COVID-19 and the finding that state and local officials have imposed or recommended measures to promote social distancing. If the Board wishes to continue to hold virtual or hybrid meetings pursuant to AB 361, and assuming a state of emergency still is in place, it must make similar findings within every 30 days. At the time this report was prepared, there is a continued state of emergency for COVID-19 and state and local officials continue to recommend measures to promote social distancing. This item is on the Agenda for the Board to consider whether to continue virtual or hybrid meetings pursuant to AB 361 for an additional 30 days and to make the appropriate findings.

Recommended Action: Staff recommends that the Board of Directors reaffirm the findings and determinations under Assembly Bill 361 and extend Resolution No. 22-7-4 for the continuation of virtual or hybrid meetings for the next 30 days based on the findings that (1) it has reconsidered the circumstances of the state of emergency for COVID-19, and (2) state and local officials continue to impose or recommend measures to promote social distancing.



STAFF REPORT

To: Board of Directors **Meeting Date: September 22, 2022**
From: Hannah Ford, Engineering Manager
Subject: Pump Station Asset Management Plan

INTRODUCTION / BACKGROUND

As the District’s infrastructure ages, the need for optimization and defensible replacement and rehabilitation planning grows. As directed by the District’s Strategic Plan, the District is working to standardize, evolve, and enhance its asset management practices, particularly in the 10-year capital planning efforts, as part of a more formal Asset Management Program. Table 1 summarizes the different groups within ETWD and their current asset management practice.

Table 1 – ETWD Asset Groups

Department	Assets	Current Tools for Asset Management
Pump Stations	Pump stations, lift stations, reservoirs, and pressure reducing stations	Geoviewer
WRP	Water Recycling Plant (WRP)	Excel
Collections	Sewer mains, laterals, manholes, and cleanouts	Geoviewer
Operations	Water mains, laterals, hydrants, valves, and meters	Geoviewer
Fleet	Vehicles used by for pump stations, WRP, collections, operations, and mail crews	Excel
Electrical and Instrumentation	All supporting electrical and instrumentation equipment for Pump Stations and WRP assets, including the Emergency Operations Center (EOC) and WRP Supervisory Data Acquisition and Control (SCADA) systems	None
Information Technology (IT)	Software and hardware required to support all computerized practices	Excel

The first effort will focus on the assets the Pump Station Crew manages (i.e., pump stations, lift stations, reservoirs, and pressure reducing valves) as well as its associated electrical and instrumentation equipment. Future phases of the ETWD Asset Management Program will address the remaining asset classes, as shown in Figure 1. The consultant will conduct a condition assessment, categorize risk, and develop dashboards that will ultimately influence budgeting as part of the District’s capital improvement program. Methods employed as part of the Pump Station AMP shall be applicable to all other asset classes the District holds.

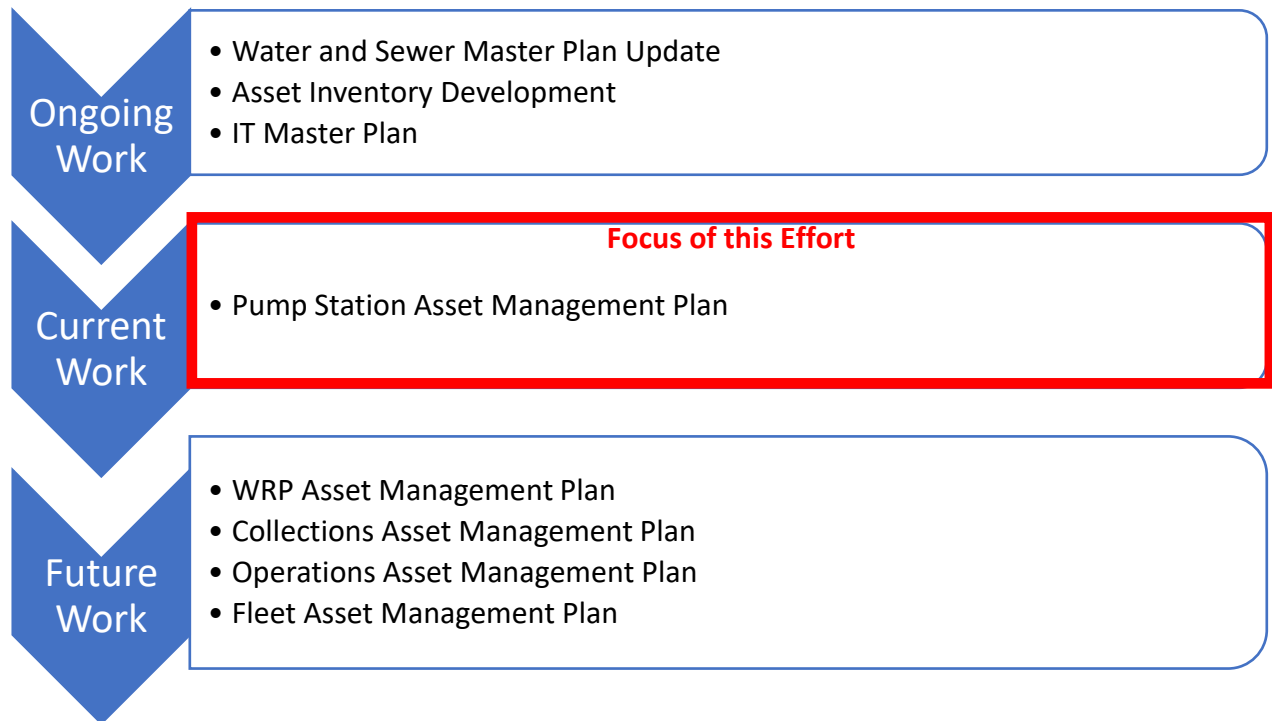


Figure 1 – Asset Management Program Work Flow

Figure 1 also illustrates the efforts the District has initiated in preparation for this AMP. These efforts include hiring an intern to develop an asset inventory. The Pump Station asset inventory is near completion and will be ready to share with the consultant upon contract execution. In parallel, the District hired a consultant to develop a Water and Sewer Master Plan Update, which is on track for completion by December 2023. The District will also be conducting an IT Master Plan in FY 2022/23 to develop recommendations related to the IT group; its scope of work related to specific asset management remains to be determined.

In 2017, ETWD implemented a new Computerized Maintenance Management System (CMMS) called Geoviewer from Nobel Systems. As part of this AMP, the District is interested in solutions to improve or replace the existing CMMS to make information gathered through work order tracking more meaningful.

In July, the District invited a shortlist of five qualified firms to respond to a Request for Proposals (RFP) for the Water and Sewer Master Plan Update. Five consulting firms subsequently attended a pre-proposal meeting. The following describes the proposal evaluation and ultimate recommendation.

PROPOSAL EVALUATION

On Friday, September 2nd, the District received four proposals for the Asset Management Plan effort from Carollo Engineers, Inc. (Carollo), Black and Veatch (BV), Hazen and Sawyer (Hazen), and Wood Rogers, Inc. (Wood Rogers). Attachment A contains a copy of each proposal, and Figure 1 summarizes the proposed fee.

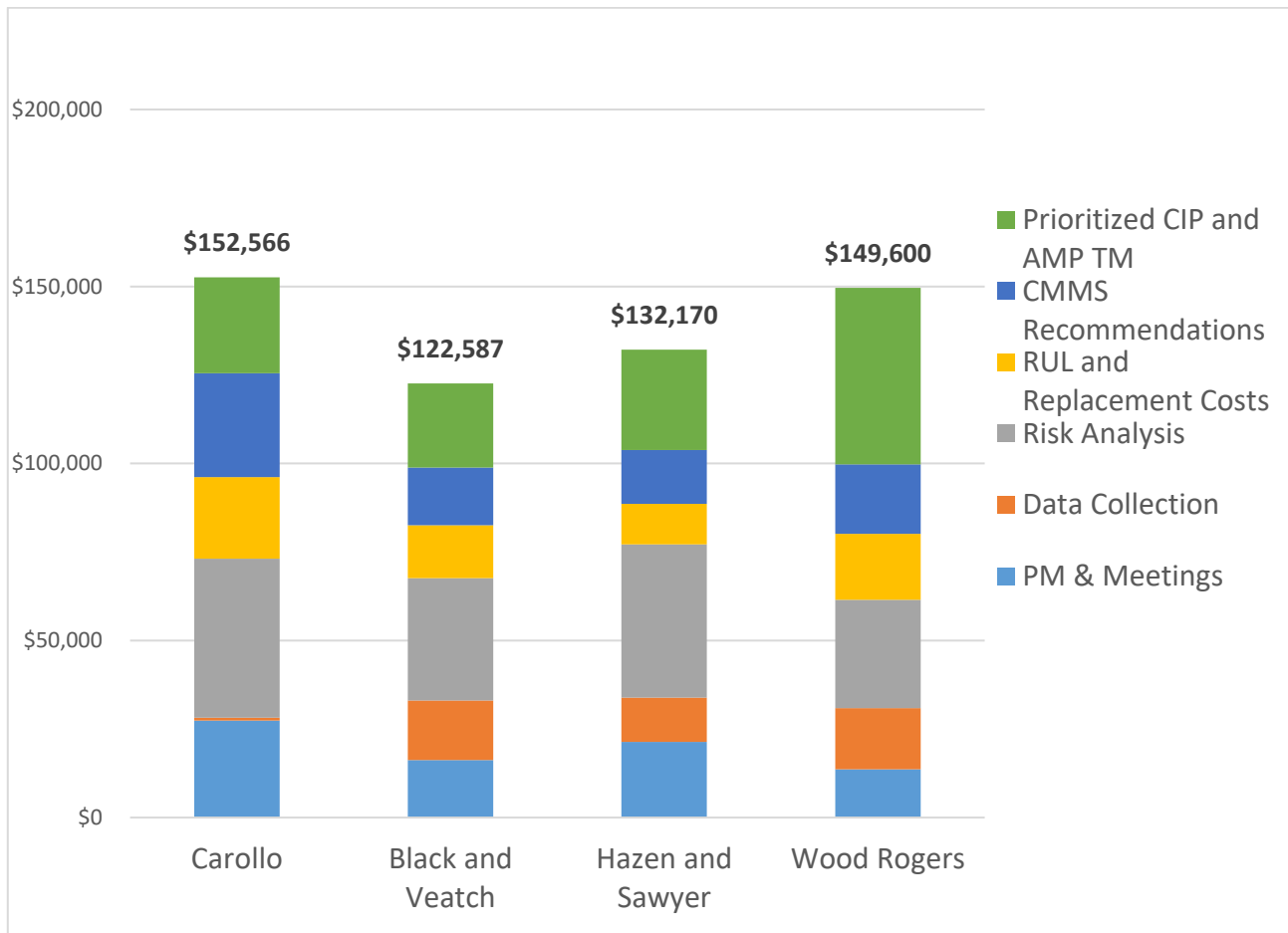


Figure 1 – Pump Station AMP Fee Summary

The spread between the low and high fee is approximately 20 percent. Each consultant that proposed is qualified to perform the work. After careful review of the proposals, District staff recommends Hazen due to the following advantages:

- Extensive experience on over 60 AMPs,
- Technical project manager who has delivered similar AMPs,
- Earlier delivery schedule for 10-year CIP recommendations,
- Value added approach to CMMS evaluation, condition assessments, critical asset identification, operation staff interviews, and dynamic dashboarding, and
- High level of quality assurance/quality control.

In addition, Hazen is a reputable consulting firm for whom the District has received positive references for local asset management work.

BUDGET

The capital budget for the Pump Station AMP was \$100,000 for Fiscal Year 2022/2023. An additional \$100,000 is budgeted in each of the following two fiscal years. The District was able to reduce overall cost through development of the asset inventory in-house. The first lift is the most expensive portion of the Asset Management Program; the District will refine future year asset management budgets based on input from the hired consultant.

District staff received input from consultants on the original CIP budget for asset management, but the recommended proposal is approximately \$32,000 over budget, likely due to the added scope related to CMMS evaluation that was not previously included in the CIP budget but remains a necessary exercise to create a dynamic asset management tool that remains relevant in the following years.

RECOMMENDATION

Recommended Action:

Staff recommends that the Board of Directors authorize the General Manager to enter into a contract with Hazen and Sawyer in the amount of \$132,170 for the development of a Pump Station Asset Management Plan. Staff further recommends that the Board authorize the General Manager to fund the project costs from the District's Capital Reserves in accordance with the District's adopted Capital Reserve Policy.



Proposal for

El Toro Water District Engineering Services Pump Station Asset Management Plan

September 2, 2022

September 2, 2022

Hannah Ford, PE
El Toro Water District
24251 Los Alisos Blvd.
Lake Forest, CA 92630
hford@etwd.com

Re: Request for Proposals – ETWD Engineering Services Pump Station Asset Management Plan

Dear Ms. Ford,

The El Toro Water District seeks a more proactive and forward-looking approach to rehabilitation and replacement planning of your Pump Station Department assets. The development of a formal asset management program meets this objective through data-driven processes based on risk. Strategic and defensible capital improvement planning results from knowing the likelihood and consequence of failure of your most critical assets. Our Hazen Utility Management Services team has successfully performed over 60 similar efforts throughout the country and looks forward to the opportunity to work with you. Our team and approach bring the following value to you:

Proactive Replacement Planning Delivered from a Diverse and Experienced Team with Owner's Perspective: Project Manager, Steve Simon, brings two decades of owner's perspective as an asset manager, project manager, engineering manager, and deputy director at municipal water organizations. Sean Pour and several of our task leads will provide local support.

Dynamic and Interactive CIP Prioritization Tool: We live in a fluid world where decision-making variables can change daily. We will deliver a user-friendly, dynamic CIP prioritization tool that provides an initial prioritization and CIP roadmap while allowing you to update changing conditions over time.

Timely Execution of Work to Ensure Institutional Knowledge Retention: We have developed a schedule and approach with initial work focusing on information gathering from District staff by the end of the year. This will ensure institutional knowledge retention and provide valuable information for budget setting in early 2023. We will utilize well-established tools built for this purpose, saving the District time and money.

Our success is built on striking the right balance between people, processes, and technology to deliver optimized management solutions to our clients efficiently and cost-effectively, providing a high-value return on this investment to the District. We look forward to working with you on this important project that establishes essential business processes that will positively impact the District decades into the future.

Sincerely,

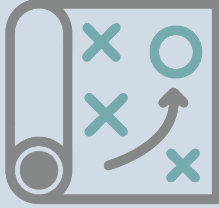


Cindy Miller, PE
Vice President

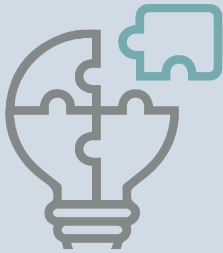


Steve Simon, PE
Associate

Hazen Delivers



**Proactive
Replacement Planning**



**Dynamic CIP
Prioritization Tool**



**Institutional
Knowledge Retention**



**Optimized Work
Management
Solutions**

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Appendix A

Resumes

Appendix B

Proposed Changes to Addendum No. 3

Appendix C

Proposed Changes to Addendum No. 3

Executive Summary



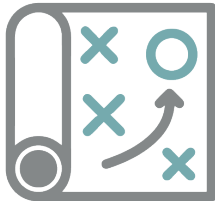
Executive Summary

*There is no one size fits all for Asset Management Services. That's why Hazen prioritizes **a custom-built solution formulated to your needs** by our team of asset management and operations experts.*

Proactive Planning Now and into the Future

The District is taking the important step of developing an asset management program. Your scope strategically focuses on the District's goals to develop a standardized, risk-based, and defensible prioritized capital improvement plan (CIP) for your Pump Station Department assets. Initiating program development within a single asset group allows the District to meet the near-term needs of the Pump Station Department and develop an asset management (AM) strategy and approach that will serve as a foundation for your remaining asset groups.

Project Objectives and Success Factors



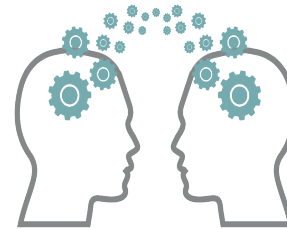
Proactive Replacement Planning

Plan for key asset replacement through proactive condition assessment that allows you to plan for budgeting, resource allocation, and operational impacts of capital improvement projects.



Dynamic CIP Prioritization Tool

Provide a dynamic and user-friendly tool that can be routinely updated as new variables and conditions impact project priorities. This tool allows automatic updates of condition scores and can be automatically connected to your existing and future asset management systems.



Institutional Knowledge Retention

Targeted discussions with key District staff are recorded and transcribed to turn soft knowledge into easily accessible information across your organization. This will be facilitated by Hazen's experienced operations staff.



Optimized Work Management Solutions

Facilitate a needs assessment of work management functionality for system users. Apply industry-wide expertise to recommend a best-fit solution to meet District needs now and into the future.

A Project Team You Can Count On



Steve Simon
will bring real world, public sector perspective.



Cindy Miller
will lead your project to successful completion.



Sean Pour
is on the cutting edge of AMP development.



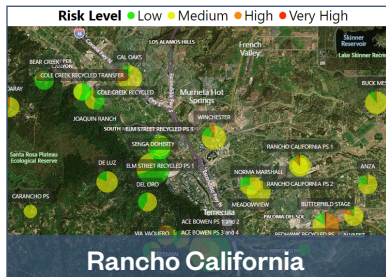
Soroush Zamanian
will develop a user friendly digital solution.



Fred Edgecomb
will provide operations and maintenance expertise.

El Toro will have a dedicated team of experts providing a full spectrum of asset management consulting services including risk assessment, technology and data management, performance management, planning, budgeting, and program management. You will receive a dedicated partner with asset management expertise with tools, technologies, and procedures that will empower you to achieve excellence in asset management.

Experience Built on Collaboration with Clients



Rancho California Water District
Pump Station Asset Management Program



Water Replenishment District of Southern California
AWTF Condition and Risk Assessment and R&R Program



Trabuco Canyon Water District
Facilities Condition Assessment

Hazen brings a comprehensive understanding of water treatment, water distribution, and sewer service operation, maintenance, and renewal and replacement strategies. We have provided asset management and planning services for nearly 30 municipal clients in California. The three projects introduced above are highlighted in the *Similar Project Experience* section.

How Does This Benefit El Toro Water District

El Toro receives a dynamic AMP incorporating a digital tool that makes the AMP a living document rather than something static that lives on a shelf.



A proven process for the successful delivery of a dynamic AMP that provides defensible justification for Board approvals.

Firm Qualifications



Firm Qualifications

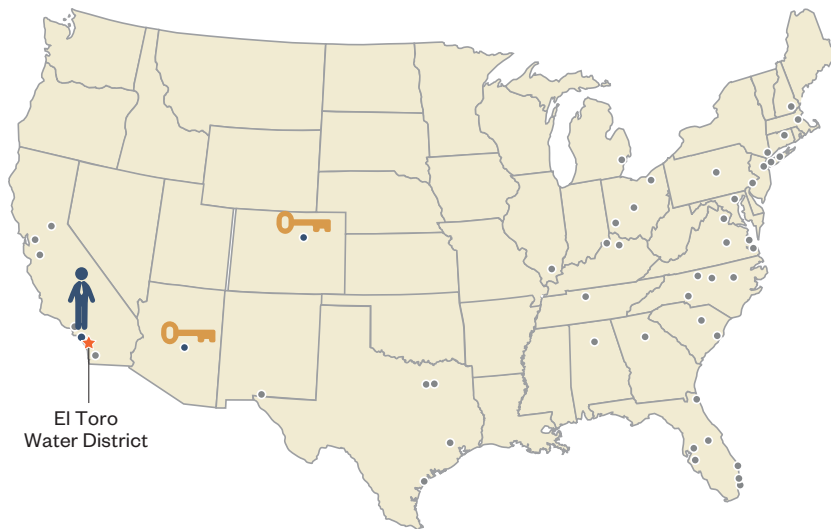
*The Hazen Team brings **industry-leading expertise** in asset management, strategic planning, CIP prioritization, and innovative digital solutions.*

Known for superior technical work, and a client-first attitude, Hazen remains one of the top firms in the nation focused entirely on water, wastewater, and stormwater. Since 1951, Hazen has been assisting water and wastewater utilities facing common challenges - rising costs, aging infrastructure, increasing regulatory requirements, and a changing workforce; all while continuing to deliver a high level of service at the lowest life-cycle cost to its customers.

Hazen’s asset management plans provide our clients with comprehensive roadmaps to address infrastructure challenges with a focus on proactive replacement planning and maximizing service life.

The Hazen Advantage

A leader in advanced water and wastewater technologies.



Local Key Staff



Key Offices instrumental in providing you with the best AMP



Believe in working together to ensure cost-effective and sustainable infrastructure



Proven experience developing and implementing prioritized condition assessment programs

Asset Management Areas of Service



Asset Inventory



Condition Assessment



Risk Assessment



Prioritized CIP



Cost Estimating



Digital Solutions

In the last ten years, Hazen’s Asset Management Services Group has assisted more than 200 clients nationwide through the development and implementation of asset management processes. This includes planning and budgeting for rehabilitation and renewal of assets, initiating proactive maintenance and repairs, and acquiring a solid understanding of the condition of their water and wastewater system assets. Hazen provides clients with the processes, practices, and tools to turn data into information to support the strategic priority, scope, schedule, and budget needs for future capital investments.

Project Team Qualifications

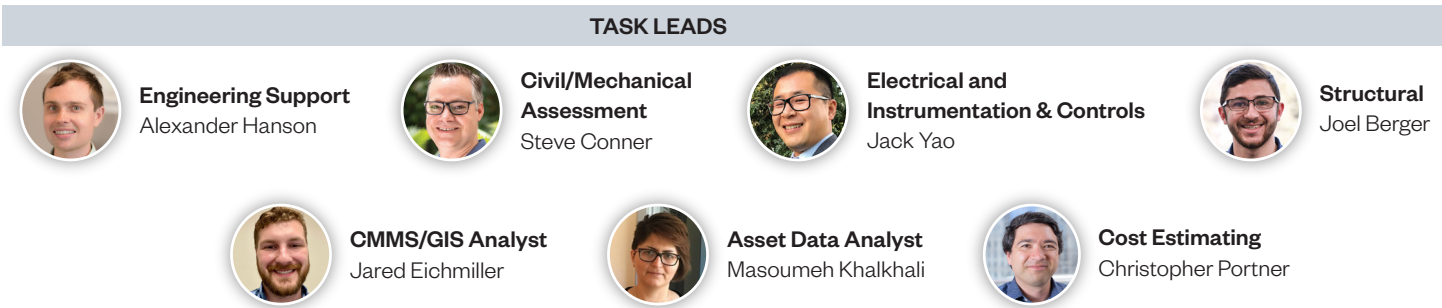
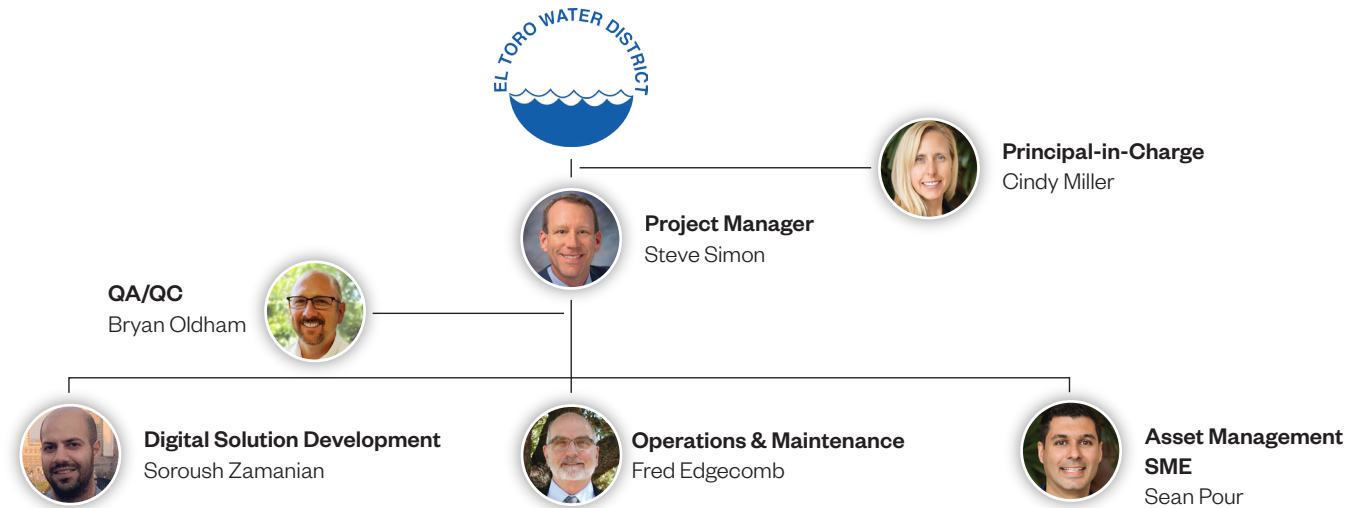


Project Team Qualifications

Our team has been assembled to provide *the best quality and value* to the District by leveraging firm-wide asset management expertise and owner’s perspective. The Hazen team has a long track record of successful delivery of similar projects to Utilities in Southern California and throughout the U.S.

Team Organizational Chart

Team members are highlighted on the following pages. Resumes including credentials, technical expertise, and experience providing similar services are included in the Appendix.



Meet Steve Simon, Your Project Manager



“I am really excited about this opportunity to serve El Toro and work with District staff to address your near-term asset management needs for your Pump Station Department and help set you up for long-term success.”

- Steve Simon, PE



Steve's Career Path

2002 to 2003

Consulting Design Engineer

2003 to 2014

Project Engineer – San Diego County Water Authority
Understanding of water challenges unique to Southern California

2015 to 2020

Asset Manager, Engineering Manager, Aurora Water
Implemented new AMP for water, sewer, and stormwater utility serving over 350,000 customers

2020 to 2022

Deputy Director Englewood Water Utilities
Implemented new CIP and asset management program for similar sized Utility to El Toro

Present

Associate, Hazen and Sawyer, Utility Management Services
Focus on asset management, strategic planning, and CIP prioritization

“

Steve, tell us a little about yourself.

I've spent over two decades in municipal water public service. I love working in the water industry, particularly out west, where water challenges extend beyond typical engineering elements. Our solutions must be creative and innovative.

What do you enjoy most about your role as project manager?

I enjoy leading project teams and engaging every individual's unique perspective and experience. I've been fortunate to manage projects in all aspects of development - planning, design, construction, and asset management. I believe in frequent, personal engagement to meet customer deliverables and expectations.

What excites you most about this project?

I've seen firsthand the positive and lasting impacts of asset management programs on water organizations. The processes you are setting up now will set you up for success well into the future. Operators, engineers, and utility managers will look back on this moment in time as an impactful and positive transition point for the District.

What drew you to Hazen and Sawyer?

Having worked with Hazen for years in my public sector roles, I appreciated Hazen's commitment to clients' needs, technical expertise, and high quality work.

”



Key Personnel

The rest of the team



Cindy Miller, PE
Principal-in-Charge
 15-50% availability,
 as needed,
 throughout project

Cindy has more than 28 years of experience leading the most challenging projects to successful completion.

- Experience extends from planning, design, construction, and owner’s agent services
- Served as Project Manager and Engineer-of-Record for the Baker Water Treatment Plant project which is a significant source of water supply to El Toro and surrounding water agencies
- Leads Hazen’s Orange County team, which includes Hazen’s West Region Asset Management Group

As PIC for the District, she will ensure our team has all of the resources it requires to deliver a successful project.



Sean Pour, PhD, PE
Asset Management
 15-50% availability,
 as needed,
 throughout project

Sean has 15 years of asset management experience working with neighboring utilities in California and brings expert strategy, practical training, and implementation to the District.

- Regional Asset Management Lead for Hazen’s West Region
- Led asset management plan development and condition assessment for more than 40 utilities
- Assists clients in performing remaining asset life calculation, risk assessment, life cycle cost projection, and project validation and prioritization

Sean will be the local technical lead in developing the asset management plan to ensure it is customized to meet the needs and objectives of the District.



Bryan Oldham
QA/QC
 15-50% availability,
 as needed,
 throughout project

Bryan has more than 33 years of experience assisting water, wastewater, storm-water, electric and gas utilities in all aspects of asset management and strategic planning.

- Regional Asset Management Lead for Hazen’s Intermountain Region
- Managed and participated in more than 20 asset management projects across the country
- Provides strategic support to clients across the data analytics, information management, asset management, and business process optimization.

Bryan will be responsible for QA/QC of the deliverables to ensure that they meet the expectations of the District.



Fred Edgecomb
Operations and Maintenance

15-50% Availability, as needed

Fred is a seasoned water, wastewater, and reuse professional with 43 years of experience managing operations and maintenance as plant manager and director of O&M. **He brings understanding of operations and maintenance to better evaluate assets and interview the District's O&M staff to retain critical institutional knowledge.**



Soroush Zamanian, PhD
Digital Solutions Development

15-50% Availability, as needed

Soroush is an Asset Management Scientist in Hazen's Irvine Office. Between research and industry, he has more than 5 years of experience in risk and reliability analysis. **He has developed digital digital asset management solutions, most recently for Water Replenishment District and is responsible for developing a dynamic asset management dashboard for the District.**

Technical Support Leads



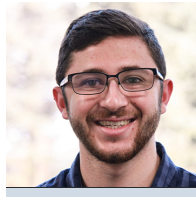
Steve Conner, PE
Civil/Mechanical Assessment

Steve is a professional civil engineer with 28 years of experience in the planning and design of water and wastewater infrastructure including production wells, storage tanks, treatment systems, pipelines, booster stations, lift stations, and sewer facilities. **He specializes in pump/lift station design and assessment and will be responsible for condition assessment of mechanical assets.**



Alexander Hanson, EIT
Engineering Support

Alex has experience in condition assessment, asset management, treatment plant design, pump stations, reservoirs, and pipelines. He has led field inventory and condition assessment of pump stations, reservoirs and wells. **His role is to incorporate the findings of the technical support leads into the asset management plan and work with the District's staff to close the gaps in the asset data.**



Joel Berger, EIT
Structural

Joel specializes in structural design of concrete, masonry, and steel structures. His project experience and skill set include structural modeling and seismic analysis of water and wastewater treatment facilities. **He is responsible for performing condition assessment of water and wastewater process structures for the District.**



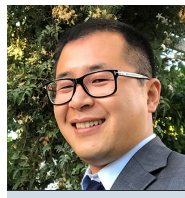
Masoumeh Khalkhali
Data Analyst

Masoumeh has over 10 years of experience in water conveyance projects. She has experience in developing asset inventories and performing risk assessment for water and wastewater infrastructure. **Her role is to assist the team in developing risk and R&R projection methodology.**



Jared Eichmiller
GIS/Data Analyst

Jared has over 2 years of experience in helping local governments and organizations achieve their infrastructure and assessment goals through using GIS tools. **He is responsible for evaluating the integration of asset data with the District's existing CMMS.**



Jack Yao, PE
Electrical and Instrumentation

Jack has over 17 years of electrical (power) engineering and discipline leadership experience. **His experience in condition assessment of electrical assets will bring the District a higher level of confidence in projecting remaining useful life of electrical assets.**

Similar Project Experience

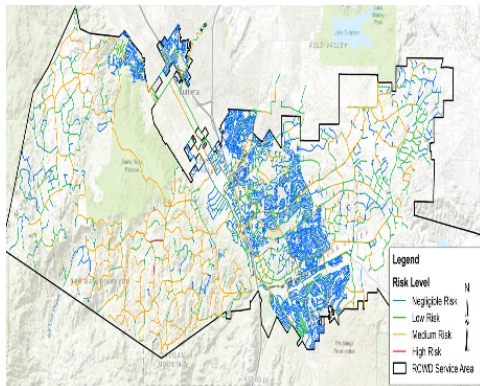


Similar Project Experience

The most important aspect of an asset management program is to provide you with clear and effective decision making tools. The following projects are examples of how we have helped our clients develop strategic and defensible capital improvement planning through custom asset management plans.

Hazen has successfully delivered projects to similar utilities seeking a proactive way to approach rehabilitation and replacement needs. We invite you to contact these clients to verify our responsiveness, quality of services provided, and the usefulness of their AMPs.

Pump Station Asset Management Program, Rancho Water, Temecula, CA



Client: Rancho California Water District

Reference:
 Jeff Kirshberg
 Water Resources Manager
 (951) 296-6973
 kirshbergj@ranchowater.com

Key Staff: Sean Pour, Masoumeh Khalkhali, Soroush Zamanian, Chris Portner, Steve Conner

Project Type: Asset Management Plan

Relevant Project Elements:

- Condition Assessment
- Risk Assessment
- Renewal Projection
- Life Cycle Cost Estimation
- Advanced Asset Management for 38 Pump Stations
- Digital Asset Management Planning Tool

Project Highlights: The risk-based prioritization approach enabled Rancho Water to focus CIP funding where it is most needed. The digital asset management plan provided an interactive and dynamic tool that Rancho Water is continuously using for planning of future renewal activities.

How this project experience benefits El Toro: Sean Pour managed the development of pump stations asset management plan and brings relevant technical expertise to the team for development of customized plan for the District. Rancho Water's digital asset management tool will be a starting point for developing a customized solution for the District.

Comprehensive Asset Management Program, Albuquerque, NM



Client: Albuquerque Bernalillo County Water Utility Authority

Reference:
Victoria Dery, PE
(505) 289-3501
vdery@abowua.org

Key Staff: Bryan Oldham, Steve Simon

Project Type: Asset Management Program

Relevant Project Elements:

- Comprehensive AMPs for
 - 45 pumps
 - stations
 - 80 mgd WTP
 - 76 mgd water reclamation facility
 - wells
 - arsenic removal facilities
 - odor control stations
 - reclamation plant
 - raw water transmission line
 - lift station lines
 - miscellaneous buildings
 - water quality labs
 - soil amendment facility
- CIP planning, development, and creation of a full dashboard
 - Presented AMPs to various stakeholder groups

How this project experience benefits The District: A robust, comprehensive set of risk-based asset management plans developed in a consistent manner for all asset grouping not previously completed. In addition, a robust dashboard that incorporates not only Hazen developed AMPs but AMPs previously completed prior to the Hazen partnership.

Robert W. Goldsworthy Desalter and Leo J. Vander Lans AWTF Condition and Risk Assessment and R&R Program, Torrance, CA



Client: Water Replenishment District of Southern California

Reference:
Jessica Koop
Senior Engineer
(562) 275-4219
jkoop@wrds.org

Key Staff: Sean Pour, Soroush Zamanian

Project Type: Risk Assessment and R&R Planning

Relevant Project Elements:

- Condition Assessment
- Risk Assessment
- R&R Projection
- R&R Prioritization Tool

Project Highlights: WRD retained Hazen to proactively plan and prioritize R&R activities for approximately 600 assets at Robert W. Goldsworthy Desalter and 1200 assets at Leo J. Vander Lans based on current condition and updated risk scores. The renewal needs were grouped into investment buckets to target rehabilitation, replacement, and condition monitoring investment.

How this project experience benefits El Toro: Hazen Team brings the experience of developing a dynamic asset management tool with automatic update of condition scores and integration with CMMS to the District.

Facilities Condition Assessment, Trabuco Canyon, CA



Client: Trabuco Canyon Water District

Reference:
 Lorrie Lausten, PE
 Principal Engineer
 (949) 858-0277, ext. 130
 llausten@tcwd.ca.gov

Key Staff: Cindy Miller, Sean Pour, Steve Conner, Steve Simon, Soroush Zamanian, Masoumeh Khalkhali, Jack Yao

Project Type: Master Planning and Condition Assessment

Relevant Project Elements:

- Condition Assessment
- Cost Estimating
- CIP Development
- Decision Support Tool

Project Highlights: A condition assessment of select critical pump stations, lift stations, reservoirs, and treatment facilities. A remaining useful life analysis was performed that combined estimated costs with project funding needs to sustain the rehabilitation and replacement needs of the facilities.

How this project experience benefits El Toro: The same team that performed condition assessment for TCWD will be engaged with the assessment of facilities for the District. The team brings in-depth understanding of water facilities’ operations and maintenance needs to the District.

Wellheads Condition Assessment, Irvine, CA



Client: Irvine Ranch Water District

Reference:
 Owen O’Neill
 Electrical and Instrumentation Manager
 (949) 453-5798
 oneill@irwd.com

Key Staff: Cindy Miller, Sean Pour, Steve Conner, Jack Yao, Soroush Zamanian

Project Type: Condition Assessment

Relevant Project Elements:

- Asset Inventory Development
- Field Condition Assessment
- Remaining Useful Life Analysis
- Decision Support Tool

Project Highlights: Performed a visual condition assessment across 21 wellheads within IRWD’s potable water network. We looked beyond the physical condition of electrical and I&C assets and provided recommendations to improve the reliability of the wellheads by identifying obsolete PLC’s, UPS batteries not providing full back ups, and pumps with pre-lube water constantly running.

How this project experience benefits El Toro: The condition assessment will go beyond physical assessment to include performance assessment considering failure modes such as efficiency and level of service to maximize reliability of operations.

Project Understanding and Approach



Project Understanding and Approach

The District requires an asset management plan for its Pump Station Department to support proactive and needs-based replacement planning, retain institutional knowledge, and optimize its work management system.

We have established a team and developed an approach that sets you up for near-term success ahead of critical staff departure and long-term success through risk-based planning of critical asset rehabilitation and replacement.



We understand that creating success for the District means proactive replacement planning, retaining institutional knowledge, providing dynamic and interactive solutions, and focusing on quality control.

Failure Avoidance through Condition Assessment

Applying a data-driven approach to condition and risk assessment ensures right-time replacement planning that maximizes the District's investment in that asset and reduces the risk of critical asset failure. The assessment will be based on consultation with operations staff, review of condition information acquired by District staff, and targeted field observation by Hazen staff.

Risk-based Capital Improvement Plan

CIP prioritization will take a data-driven approach to quantifying risk exposure through measurable values of likelihood and consequence of failure. This data will be used to develop a prioritized plan for your 10-year CIP and 11 to 50 year CIP. **This data-driven approach gives you the confidence that you are investing your money and resources where it matters most.** As a final deliverable, we will provide you with a user-friendly digital CIP prioritization tool that you can update as project conditions change over time.

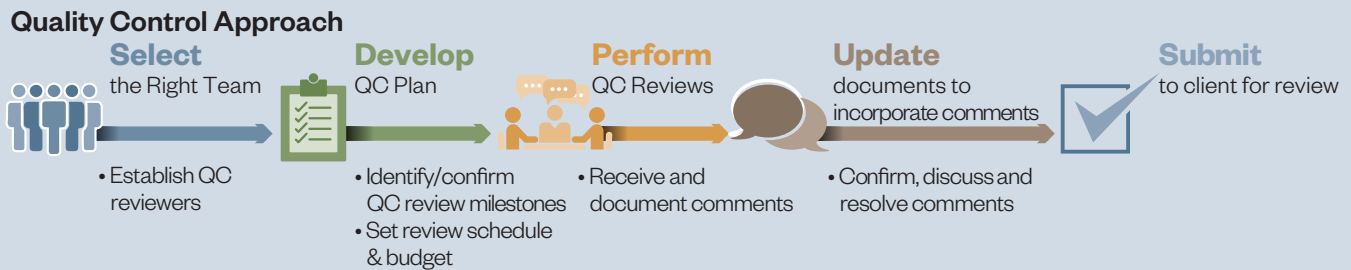
Work Management System Needs Assessment and Recommendation

We focus on the needs first. It is essential to perform a needs assessment before discussing any specific product vendors. This process is often performed backward, where products are sold to meet needs without an internal effort to identify exactly what those needs are. Once the requirements are identified and prioritized, we will present a summary of the best-fit product options to meet those needs.

Quality Assurance and Quality Control

Bryan Oldham, Hazen's intermountain region asset management lead, will perform final QA/QC of all deliverables before submittal to the District. Bryan has experience delivering similar work throughout the intermountain region. He brings subject matter expertise and a "fresh eyes" perspective that comes with not being involved in the day-to-day management and execution of the work.

This QA/QC effort will be above and beyond that of our project manager, Steve Simon, who will review all deliverables before submittal to Hazen’s internal QA/QC. Having spent over two decades reviewing consultant deliverables while working for municipal water and wastewater organizations, Steve knows what separates quality work from average work. We want to ensure you spend your valuable time reviewing concise and well-written deliverables.



Quality control is fundamental to Hazen culture.

Institutional Knowledge Retention

At project kickoff, one of the first tasks will be setting up interviews and information-gathering sessions with your forthcoming retiree. We are proposing a combination of in-person and virtual sessions. Our Operations lead, **Fred Edgecomb**, will facilitate these discussions. Fred has over 40 years of municipal water operations experience and understands the operational challenges with pumping, storage, and pressure regulating systems. He takes the approach of conducting these sessions in a casual and conversational environment. Information collected from this will be documented in audio, video, and written format and made easily accessible through our digital AMP platform. This format allows staff to bring up instructional videos or other information from their mobile devices or laptops in the office or the field.

Task 1 – Project Management and Meetings

1a – Project Management

Schedule and budget management are keys to success for any project. We will use our project controls expertise to track and control budget, schedule, and identify issues and options for resolution as early as possible. This ensures that high-quality deliverables are submitted on time and within budget.

Timely, frequent, and detailed communication. Communication is essential to inform you of project status, support decision-making, ensure project progress meets your expectations, and identify any issues that may lead to scope, cost, or schedule variances. At a minimum, we will verbally collaborate with your project manager weekly to discuss work status.

Monthly Progress Reporting and Invoicing. Progress reports will be submitted monthly with invoices. The reports will include information related to work completed that month, work expected for the next month, important upcoming milestones, and updates on schedule and budget. The percent complete, percent budget expended, and any scope, budget, or schedule issues for each task will also be provided.

Assumptions:

- Invoices and reports will be submitted monthly to the District electronically

Deliverables:

- Monthly progress report and invoice

1b – Meetings

Four workshops are proposed to provide a collaborative working environment to facilitate information sharing, brainstorming, and decision-making:

- Kickoff meeting (in-person)
- Condition assessment planning (hybrid)
- CMMS needs assessment (hybrid)
- CIP prioritization and AMP overview (hybrid)

Weekly 30-minute calls will be conducted between the District project manager and our project manager, Steve Simon. Additional attendees will be requested as needed.

Assumptions:

- Agenda, presentations, and handouts provided at least 48 hours in advance of meeting

Deliverables:

- Meeting minutes, decision log, and action items within 72 hours of meeting completion

Task 2 – Data Request and Review



2a – Critical asset identification (Value added service)

This effort includes collaboration with District staff to develop a threshold for assets that will be included in the work. Critical asset thresholds are essential to investing District funds and resources wisely. Excessive inclusion of assets into an organization-wide asset management program increases District resources to manage while diminishing returns in value.

Threshold criteria will consist of cost, procurement period, minimum estimated useful life, and criticality to operations.

We have reviewed the asset registry you provided in your appendix and would like to commend District staff for developing an extremely high-quality asset registry that is among the best in class in the industry.

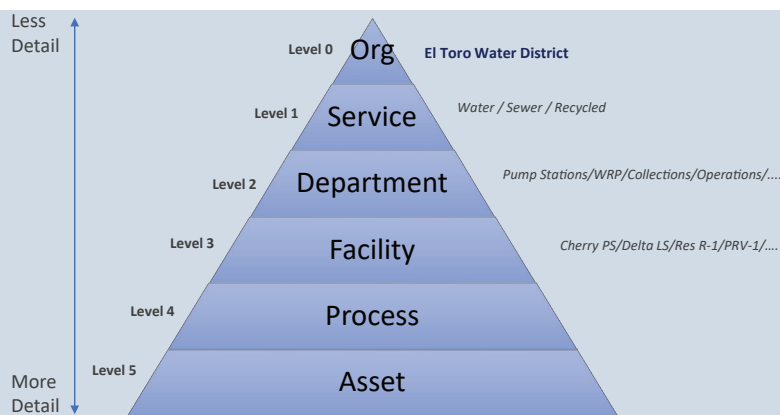
2b – Data request and review

A data request log will be submitted to District staff and a SharePoint site set up so that District staff can easily upload electronic versions of these documents for transmittal. Relevant information includes the following:

- Previous Master Plans
- Design and Record drawings
- 5-year CIP
- Active Master Plan (upon completion by others)
- Asset inventories from CMMS and GIS
- O&M records and work management history

2c – Asset Hierarchy Development

An asset hierarchy will be provided using industry best practices and methodologies that we have applied to dozens of clients throughout the U.S. Asset hierarchies are important to enable the querying and roll-up of an asset to process and facility levels.



Asset Hierarchy

2d – Key staff engagement and knowledge transfer

Our operations lead, Fred Edgecomb, will facilitate information-gathering conversations with your retiree to support the transition of institutional knowledge. These conversations will be recorded and transcribed to provide accessibility through our digital AMP dashboard. Meetings will be conducted via the four-day field condition assessment and virtually through Teams. We are proposing three 2-hour recorded sessions via Teams so the conversations can be recorded, transcribed, and provided to the District.



Assumptions:

- District provides asset inventory, WO history, and operating information

Deliverables:

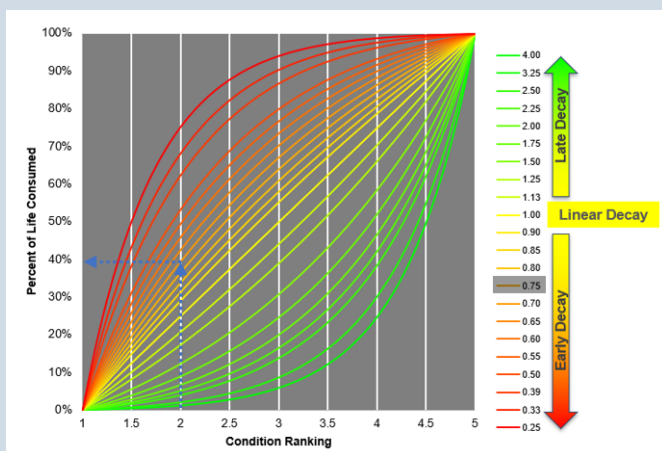
- Excel table with inventory log of all data received, reviewed, and application to project
- Recommendations to address data gaps
- Excel table with critical asset inventory with available attributes
- Asset hierarchy figure
- Recorded Teams sessions
- Summarized written transcripts of interview sessions

Task 3 – Risk Analysis

3a – Condition Assessment

A desktop and field condition assessment will be performed on the critical assets identified in Task 2 to capture the present condition. The assessment will begin with reviewing all available data for these assets already acquired by your interns and other District staff. We will then consult with District staff through our condition assessment workshop and over the course of the field inspection to acquire known conditions and operational issues. The final phase of assessment includes a four-day site inspection with Hazen staff to each of your pump stations, lift stations, and reservoirs. We have assumed the PRV stations will be assessed through the desktop phase, but can also perform select field inspection if necessary.

Hazen will use previously-developed mobile data collection tools to enable field inspectors to record key asset information and log photos for each asset. The database and pictures will be provided as a deliverable to the District.



Condition Score	PoF%
1	0%
2	39%
3	65%
4	84%
5	100%

We have developed an approach that maximizes value to the District and minimizes costs by leveraging existing District data and staff consultation before performing more resource-dependent field investigations.

3b – Consequence of Failure (COF)

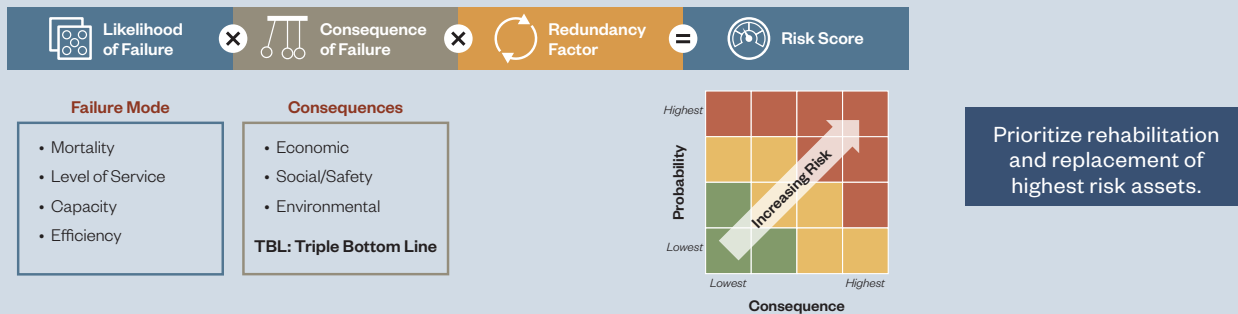
Hazen will collaborate with District staff to incorporate industry-standard COF metrics with specific criteria desired by the District. COF elements will take the triple bottom line approach and consider:

- Health and safety impacts on District staff or the public
- Regulatory impacts
- Systemwide and local facility impacts on operations
- Cost to replace
- Time to replace
- Environmental impacts on neighboring sensitive areas
- Traffic impacts
- Economic impacts

The criteria and weighting factor for each parameter will be reviewed in a workshop with District staff to ensure that the final scoring methodology captures specific focus areas of importance to the District.

3c – Risk Analysis

Risk analysis is a straightforward analysis combining the LOF and COF rankings. These will be presented as a matrix to demonstrate the number of assets within low, medium, and high thresholds. Risk will also be provided as a raw score to support CIP prioritization. CIP prioritization identifies the critical timing of tasks and informs overall investment needs.



Assumptions:

- Condition assessment will be performed on the critical assets identified in Task 2a
- Only inspect visible assessment. No process shutdown or equipment disassembly.
- Four days of field inspection will full participation by three Hazen staff and partial participation of two additional staff

Deliverables:

- LOF and COF scoring methodology TM
- Risk assessment methodology TM
- Excel table with LOF, COF, and risk ranking for all critical assets

Task 4 – Remaining Useful Life and Replacement Costs

4a – Remaining Useful Life

Hazen will develop the asset classes’ initial expected useful life (EUL) using design life as stated by the manufacturer, publications such as Engineering News Record (ENR), and our in-house expertise working on similar projects. This provides the baseline for determining an asset’s remaining useful life (RUL).

The RUL will first be calculated by subtracting the asset’s actual age, if known, and from the initial EUL. The RUL will be adjusted, as appropriate, based on findings from the condition assessment.

4b – Replacement Costs

Hazen will provide replacement costing based on our firm’s expertise with local knowledge of current asset costs, industry databases such as RS Means, and our in-house databases of recent expenses. Replacement costs will be provided in 2023 dollars at a Class 5 AACE level.

Assumptions:

- Replacement costs will be provided at AACE Class 5.
- RUL are estimated for the purposes of providing mid-term to long-term replacement planning

Deliverables:

- Draft and Final EUL, RUL, and replacement cost methodology TM
- Excel table with EUL, RUL, and replacement cost (2023\$) for all critical assets

Task 5 – CMMS Recommendations

Effective work management systems are integral to efficient operations and serve as the foundation of your asset management program. Our approach first looks at your organization’s needs and then identifies products that can best meet those needs.

Task 5a: Current Business Practices and Needs Assessment

We understand the District implemented GeoViewer in 2017 and has struggled with specific functionalities, like an inability to geospatially correlate assets and difficulty accessing asset maintenance histories. The need assessment will include a review of the functionality and usage of GeoViewer with District users to understand what is working and not working with the system.

Criteria	Weighting	CMMS/EAMS-A	CMMS/EAMS-B	CMMS/EAMS-C	CMMS/EAMS-D	CMMS/EAMS-E	CMMS/EAMS-F	CMMS/EAMS-G	CMMS/EAMS-H	CMMS/EAMS-I	CMMS/EAMS-J	CMMS/EAMS-K	CMMS/EAMS-L	CMMS/EAMS-M
Ranking		8	13	6	5	9	1	4	2	3	12	10	11	7
Asset Registry	10%	4	3	3	4	3	5	4	4	4	3	3	4	4
Scheduled Maintenance	10%	3	3	3	3	2	4	4	4	4	3	4	2	4
Work Orders	15%	4	3	4	3	4	5	3	5	4	2	4	4	3
Service Requests	5%	4	2	5	5	4	5	4	5	5	0	4	5	1
OIP or Asset Ranking	15%	0	0	3	3	4	3	3	3	3	5	3	0	3
Mapping	15%	4	2	5	5	4	5	5	5	5	5	3	3	4
GIS	15%	3	3	4	4	3	5	4	4	4	1	2	3	4
Mobile App	10%	4	3	4	3	4	5	5	4	3	3	4	3	5
Inspections	5%	4	1	4	3	2	5	3	2	5	3	4	3	5

It is essential to select and implement systems built and suited to systems with extensive horizontal and vertical assets.

Common CMMS features desired by municipal water and wastewater agencies:

- Ease of use
- Preventative maintenance scheduling
- Condition scoring
- Mobility
- GIS integration
- Dashboarding and reporting features
- Work history querying

We will identify and document a comprehensive set of requirements for a long-term CMMS solution with a thorough assessment of current business processes and functional and technical requirements.

Information will be gathered through a workshop with engineering and operations staff to discuss the core business work management processes, current systems used to support the processes, and your feedback on the effectiveness of these processes.

Task 5b: Vendor Comparison Summary

Hazen will assess alternatives for a long-term CMMS based on the findings of Task 5a. We will use our in-house subject matter expertise and access the latest product information to perform this analysis. The initial assessment outcome will identify and compare up to ten CMMS products.

Assumptions:

- One-hour information gathering interviews will be conducted with each of your identified engineering and operations groups (Eng, PS, Collections, Operations, WRP, IT, and Fleet)
- Compare current CMMS with up to 10 readily available products commonly used by municipal water and wastewater organizations

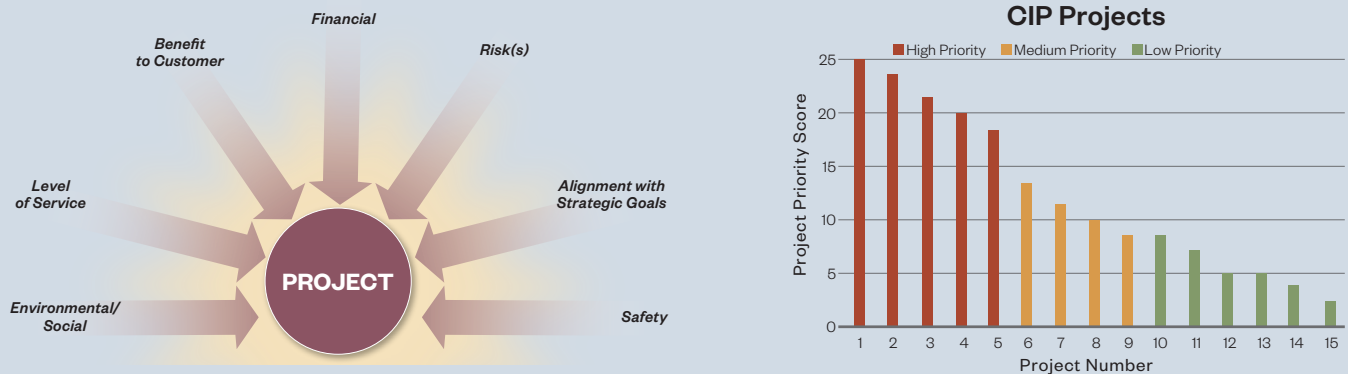
Deliverables:

- Needs assessment interview summary
- Table summarizing CMMS best-fit solutions
- Recommendation and next steps tech memo

Task 6 – Prioritized CIP and AMP TM

6a – Prioritized CIP

A 10-year prioritized CIP will be provided based on findings of the condition assessment. A longer-term, 11 to 50 year CIP, will be provided to identify major capital investment that will be required based on RUL. Projects and associated costs will be provided for each year. Hazen will facilitate a workshop with key District staff to review all the programs and projects before finalizing them in the AMP and digital CIP dashboard.



Caption

6b – AMP TM

Hazen will develop an AMP that clearly and concisely presents the findings for the project. The AMP will serve as an essential foundational document outlining the work performed and background data that supported the development of the 10-year and 50-year CIP.



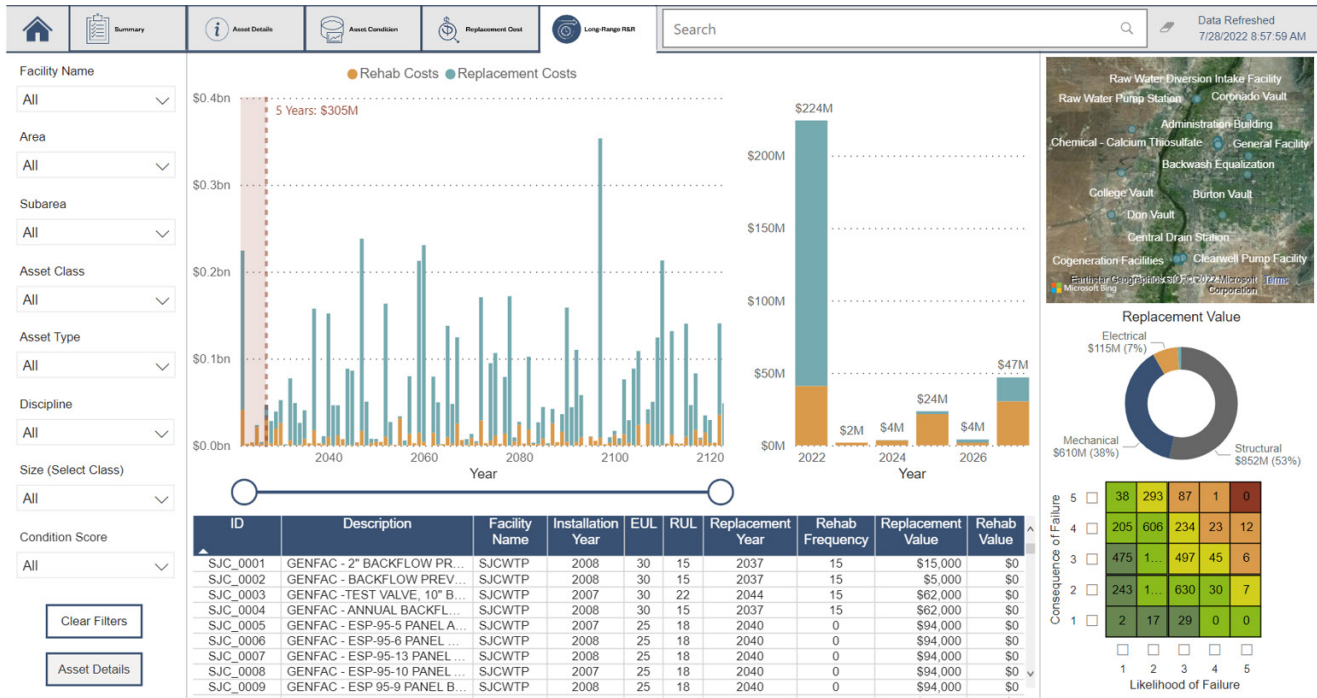
6c – CIP Dynamic Dashboard (Value added service)



Static AMP documents are an excellent resource for documentation and point-in-time prioritization of District needs. However, the environment we work in is far from static. Variable conditions and project influencers like cost, staffing resources, material availability, regulations, and operational priorities warrant a dynamic solution that District leadership can routinely monitor and adjust. This ensures that the District is continuously focusing efforts on the highest priorities.

Recognizing the highly dynamic nature of water utility management, Hazen proposes developing and delivering an interactive CIP priority tool. This is a tool that we have already built and successfully deployed at other Utilities with similar needs as the District. We can quickly and cost-effectively provide this solution to the District.

We will collaborate with District to develop the features of the digital CIP tool. The core functionality will include the 10-year CIP with associated cost, priority, and implementation schedule. Enhanced features of a dynamic dashboard include automatic data integration with other asset management systems, like your GIS and CMMS. We will discuss with District staff what desirable features may be implemented through this or a future phase of work.



DYNAMIC DASHBOARDS ARE USED TO EFFICIENTLY BUNDLE RENEWAL NEEDS INTO CIPS

Assumptions:

- Written AMP of approximately 50 pages containing executive summary, critical asset description and inventory, asset hierarchy, EUL/RUL, COF/LOF/Risk, Prioritized CIP, and CM best fit needs assessment provided in .pdf format

Deliverables:

- Draft and final 10-year CIP
- Draft and final 11 to 50-year CIP
- AMP TM in .pdf format
- Digital files for dynamic CIP dashboard

Schedule

Our proposed schedule ensures that critical staff engagement and the field condition assessment occurs by the end of the year. The prioritized CIP will be available in the first quarter of 2023 to support your 2024 and beyond budgeting process.

Task #	Task / Milestone	2022				2023				
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
	NTP issuance									
MS	Critical staff retirement									
MS	2024 budget development									
1	Project Management and Meetings	[Bar spanning Sep 2022 to Apr 2023]								
2	Data Request and Review		[Bar spanning Oct 2022 to Nov 2022]							
3	Risk Analysis			[Bar spanning Nov 2022 to Dec 2022]						
4	RUL and Replacement Costs					[Bar spanning Jan 2023 to Feb 2023]				
5	CMMS Recommendations					[Bar spanning Jan 2023 to Feb 2023]				
6	Prioritized CIP and AMP TM						[Bar spanning Feb 2023 to Mar 2023]			

The Right Team for El Toro Water District

We understand that the success of an asset management plan is directly related to the quality and completeness of the information gathered and the tools provided by the consultant. Our team has assisted in the developed of over 60 asset management plans throughout the country in recent years. We will leverage that experience and our acquired expertise for the benefit of El Toro. You will get a custom-built solution formulated to your needs by our team of asset management and operations experts.

Insurance Statement

Hazen will provide ETWD the requested insurance as outlined in the sample contract.

Contract Language

Hazen is requesting modifications to the District’s service agreement, for the following sections.

- 1.2 – Task Orders
- 5.3 – Indemnity
- 6.2 – Termination of Services
- 7.1 – Notices

Acknowledgment of Addenda

Received: Addendum #1, Addendum #2, and Addendum #3

Appendix A - Resumes





Steve Simon, PE

Associate

Steve is an associate in Hazen's Utility Management Services team. He has nearly two decades of municipal water sector experience in asset management, capital project planning and delivery, risk-based CIP prioritization, business process improvement and modernization, utility management, and utility executive leadership.

Education

BS, Civil and Environmental Engineering, University of Cincinnati, 1999

Certification/License

Professional Engineer: CA, CO

Areas of Expertise

- Asset Management
- CIP Program Planning and Delivery
- Utility Management and Strategic Planning
- Executive Leadership
- Public and Policymaker Communications

Experience

- 20 total years
- <1 years with Hazen

Master Plan, City of Louisville, Louisville, CO

Asset Management Lead. Active master planning work for the City of Louisville. The work includes performing desktop and field condition assessment for all qualifying linear and vertical assets, developing a risk matrix to prioritize asset management projects, and developing replacement and rehabilitation CIP projects.

Experience Prior to Hazen

Asset Management Strategic Plan, Aurora Water, Aurora, CO

Principal-in-charge. Responsible for developing the vision, strategy, and implementation plan for Aurora Water's asset management program covering water, wastewater, and stormwater services. Facilitated stakeholder engagement through multiple information gathering and collaboration workshops. Authored the final strategic planning document which set forth the mission, objectives, and implementation plan for the asset management program.

Tactical Asset Management Plan, Aurora Water, Aurora, CO

Author and Principal-in-charge. Responsible for developing AMPs for pumping, wastewater collection, transmission and distribution, water treatment, source water supply functional groups. Engaged stakeholders to document current operations, maintenance, and replacement planning processes. Identified critical assets within the functional group to be included in the organization-wide AM program. Developed risk-based optimized operations, maintenance, and replacement business processes.

PCCP Condition Assessment and Real-Time Monitoring, Aurora Water, Aurora, CO

Program and Project Manager. Performed a condition assessment and installed a real-time acoustic fiber optic monitoring system for a critical reach of Aurora Water's raw water delivery system consisting of pre-

stressed concrete cylinder pipe. Led the subsequent decision-support planning to replace sections of pipe found to be in an actively deteriorating state.

Sewer Rehabilitation Decision Support System, Aurora Water, Aurora, CO

Planning Lead. Led the planning and implementation of an internal decision support system to develop a risk-based replacement plan for Aurora Water's annual sewer rehabilitation program

Mobile GIS and Work Management System Deployment, Aurora Water, Aurora, CO

Planning Lead. Led the development and deployment of multiple mobile business process solutions, including field water main break data collection, mobile work order completion and mobile work order creation.

Capital Improvement Program Strategic Planning, Englewood Utilities, Englewood, CO

Planning Lead. Led the risk-based planning and execution of Englewood's capital improvement program, incorporating findings from 2020 Water and Wastewater Plans supported by Hazen and new risk exposure information encountered. Developed a weighted risk-based matrix to continuously prioritize and reprioritize work as information becomes available.

Engineering and Asset Management Team Leadership, Englewood Utilities and Aurora Water, Englewood and Aurora, CO

Development Lead. Develop strategic-direction and supervise front-line and mid-level supervisors in the execution of that plan including asset management, CIP project delivery, long-range planning, development review, hydraulic modeling, and water resources.

CIP Administrator and Principal-in-Charge, Englewood Utilities, Englewood, CO

Director and Principal-in-charge. Serve as director and principal in charge of CIP execution of the Englewood Utilities Engineering Division. Advise and direct staff on procurement, consultant selection, contract negotiations, and project management for water and wastewater capital improvement projects.

Carlsbad Seawater Desalination Facility, San Diego County Water Authority, Carlsbad, CA

Project Engineer. Planning and development of the Carlsbad Seawater Desalination Facility, a 50 million gallon per day treatment plant located adjacent to the Encina Power Station in Carlsbad, California. Performed initial project planning activities for the treatment plant and system integration analysis to deliver product water from the facility in the Water Authority's regional distribution system.



Cindy Miller, PE

Technical Advisor/QC

Ms. Miller is experienced with a long resume of leading the most challenging projects to successful completion. Her experience extends from planning, design, construction, and owner's agent services.

Education

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

Certification/License

Professional Engineer

Areas of Expertise

- Project Management
- Program Management
- QA/QC
- Project Delivery
- Groundwater Supply
- Conjunctive Use
- Well Equipping Planning and Design
- Pump Station Planning and Design
- Reservoir Storage Planning and Design
- Pipeline Planning and Design
- Drinking Water

Professional Activities

AWWA, ASCE, AMTA
CA-NV AWWA,
CA Water Reuse Assoc.

Her assignments have included providing Program Management services for a \$150 million groundwater supply project, which includes wells, pipelines, pump stations, and an advanced treatment system for R.O. concentrate reduction; Project Manager for preliminary and final design of a 28 MGD microfiltration treatment facility, and Project Manager for a 10 MGD R.O./Ion Exchange groundwater treatment plant. Ms. Miller has also led numerous water storage and conveyance infrastructure projects, including design of over 100 miles of pipeline (Ductile Iron, CML&C steel, PVC, and HDPE pipeline), design of steel, pre-stressed concrete, and cast-in-place concrete storage reservoirs, up to 10 million gallons, and numerous pump station facilities. She has led feasibility/planning studies, developed treatment process evaluations and life-cycle cost evaluations, participated in value engineering studies and operations evaluations. She has developed detailed designs of many systems and provided construction and startup services. She has experience with different project delivery methods including: design-bid-build, design-build and design-build-operate-finance.

Baker Water Treatment Plant, Lake Forest, CA

Project Manager: The project includes planning and design of a 28-mgd microfiltration treatment plant with UV disinfection. The project includes design of a 100-percent redundant flow control facility utilizing dual sleeve valves, a 56-cfs raw water pump station to convey flow to the plant from Irvine Lake, upgrades to a Metropolitan Water District turnout facility and transmission pipeline to increase deliveries to 100 cfs, a 6-cfs raw water pump station for Trabuco Canyon Water District, a fore-bay designed to provide adequate contact time for chlorine dioxide injection, feedwater pump station, coagulation injection, strainers, 14 pressure microfiltration membrane racks, UV disinfection system, chlorine contact basin, chemical building housing 9 different chemicals, an extensive chemical piping delivery system, solids dewatering facilities, civil site work, finished water pipelines, retrofit of two 16 MG pre-stressed concrete reservoirs, Product Water Pump Station, transmission pipeline and connection to Metropolitan Water District's South County Pipeline.

Chino I Desalter Expansion and Chino II Desalter Projects, Inland Empire, CA

Provided engineering services to the Chino Basin Desalter Authority (CDA) for the multimillion-dollar Chino I Desalter Expansion and Chino II Desalter projects. The assignment involved design of a new desalter facility; expansion and upgrade of an existing desalter facility; design of water distribution facilities, including pump stations, pipelines, and well equipping. The project included expansion of an existing 9 MGD reverse-osmosis treatment plant to a 14 MGD plant by adding ion exchange treatment for nitrate removal and VOC treatment for removal of TCE. Other plant improvements included the upgrading of the existing disinfection system to 0.8 -percent solution sodium hypochlorite generated on site, expansion of the on-site product water pump station, and other miscellaneous upgrades to improve plant performance.

Chino Basin Desalter Authority (CDA) Phase 3 Expansion, Inland Empire, CA

Ms. Miller is providing Program Management services to the Chino Basin Desalter Authority (CDA) for their Phase 3 Expansion Project. Once completed, the Phase 3 Expansion will increase production capacity of the CDA's groundwater desalter Facilities to over 35,000 acre-ft per year of potable water capacity. The project includes construction of new groundwater wells, pipelines, treatment facility to recover desalter concentrate (i.e. concentrate reduction facility), product water pump station expansion and new product water pump stations. The construction cost of the Phase 3 expansion is estimated at \$150 million and construction is expected to be completed early 2019.

Mojave Water Agency Regional Recharge and Recovery (R3) Project, Victor Valley, CA

Responsible as overall Project Manager. Provided engineering services to the Mojave Water Agency for the Regional Recharge and Recovery (R3) Project, a high profile water supply project in San Bernardino County. The project will ultimately recharge up to 40,000 acre-feet per year of State Water Project water into the Upper Mojave River flood plain, and will include the construction of up to 22 extraction recovery wells, three reservoirs, a 25,000 gpm pump station, and a fully integrated conveyance system to deliver water to a variety of retail agencies in the High Desert. The Phase I project included construction of six wells to extract up to 15,000 acre-ft per year, over 16 miles of 12-inch to 48-inch diameter pipe, a 2.65 MG welded steel reservoir, a flow control and recharge facility with 40,000 gpm capacity and up to 235 psi pressure drop, a pump station sized for 25,000 gpm with pumps installed to provide 15,000 gpm, and four turnout flow control facilities for delivering the water to member agencies.



Bryan Oldham, PMP, CSM

Senior Associate

Mr. Oldham has 34 years of experience working with various water, wastewater, gas, and electric utilities in an asset management capacity. This includes the City of Englewood's water, sewer, and stormwater master plan.

Education

MBA, Business Administration,
Oklahoma State University, 1986

BS, Nuclear Engineering,
University of Oklahoma, 1984

Certification/License

Project Management
Professional (PMP)

Certified Scrum Master (CSM)

Areas of Expertise

- Asset management
- IT strategy
- Business process re-engineering
- Program and project management

Experience

- 33 total years
- 1 year with Hazen

Technical Presentations

Asset Management and IT
Master Planning Presentations:

- AWWA Utility Management National Conference 2011
- Virginia Water Jam (2010 and 2011)
- Chesapeake Tri-Associate Conference (2010 and 2011)
- Pacific Northwest Clean Water Association Conference 2011

Asset Management, Aurora Water, Aurora, CO

Project Manager. Serving as the project manager to develop an asset management plan (AMP) for the 80 mgd Griswold Water Purification Facility. The project includes conducting full plant condition assessment, determining asset remaining useful lives, developing replacement costs, and creating a robust capital investment plan. In addition, the project will identify appropriate asset tagging technology such as RFID, Near Field Communication, QR Codes, etc.

Asset Management Plan, Albuquerque Bernalillo County Water Utility Authority, NM

Project Manager. Developing an Asset Management Plan (AMP) across the Authority's 46 pump stations. Initial project includes developing the asset hierarchy and registry, performing the condition assessments on a select group of pump stations. The complete project will include performing condition assessments and determining the probability of failure, consequence of failure, and overall business risk exposure across all the pump stations. The result will be a comprehensive AMP based upon risk, a long-term CIP, and robust dashboards that the Authority can use to continuously prioritize projects as needs change.

AWIA, Centennial Water and Sanitation District, Centennial, CO

Subject Matter Expert, Asset Management. Supported the district's efforts for reviewing the asset management capabilities as it supports the District's AWIA efforts. Participated in workshops and data reviews.

AWIA, Miami-Dade Water and Sanitation District, Miami, FL

Subject Matter Expert, Asset Management. Supported the district's efforts for reviewing the asset management capabilities as it supports the District's AWIA efforts. Participated in general workshops and led a workshop focused on asset management and the associated asset management systems.

Asset Management, Metro Wastewater Reclamation District, Denver, CO

Subject Matter Expert, Asset Management. Supporting client develop their strategic asset management plan to guide them in their future asset management endeavors.

Watershed Asset Management Plant, City of Fort Lauderdale, FL

Subject Matter Expert, Asset Management. Supported the effort to develop the watershed asset management plan for the client. Assisted in developing 59 recommendations covering the broad range of the City's asset management needs based upon the Institute of Asset Management principles. Developed the initial asset condition, probability of failure, consequence of failure, and overall business risk exposure methodology used across the City's ten watersheds.

Experience Prior to Hazen

Prince William County Service Authority, Woodbridge, VA

Program Manager and Lead Consultant. Worked with the General Manager, Board of Directors, senior staff, plant operators, and field crews to develop an asset management strategy and an integrated technology master plan for the Authority. The project evaluated the client's existing technology and how it met current needs versus the goals of the corporate strategic plan. Major systems reviewed included CMMS, CIS, ERP, SCADA, GIS, document management, and business intelligence. The project was estimated to return \$13 million over ten years. Managed a team of eleven consultants.

Newport News Waterworks, Newport News, VA

Project Manager and Asset Management Consultant. Assessed the asset management strategy, developed the asset hierarchy, and reviewed IT systems in support of Waterworks asset management program. The project created an effective Asset Management Plan (AMP) and IT strategy allowing Waterworks to move forward with implementing their asset management strategy to support their overall utility management goals.

Memphis Light, Gas & Water, Memphis, TN

Project Manager. Managed the total quality project that reviewed the water construction and maintenance, electric, and gas divisions. Visited plants, rode with field personnel, and discussed corporate vision with management. Project identified over \$2 million in operational improvements. In addition, the project provided a strategic plan to implement the recommendations.



Soroush Zamanian, PhD

Asset Data Analyst

Mr. Zamanian serves as Asset Management Consultant in Hazen and Sawyer's Irvine Office.

Education

PhD, Structural Engineering, Ohio State University, Columbus, OH

MS, Structural Engineering w/ Data Analysis Minor, Ohio State University, Columbus, OH

BS, Civil Engineering, Qazvin University, Qazvin, Iran

Areas of Expertise

- Asset Management
- Machine Learning and Data Analysis

Publications

Zamanian, S., Hur, J., & Shafieezadeh, A. (2021). Significant variables for leakage and collapse of buried concrete sewer pipes: A global sensitivity analysis via Bayesian additive regression trees and Sobol' indices. *Structure and infrastructure engineering*, 17(5), 676-688.

Zamanian, S., Hur, J., & Shafieezadeh, A. (2020). A high-fidelity computational investigation of buried concrete sewer pipes exposed to truckloads and corrosion deterioration. *Engineering Structures*, 221, 111043.

Zamanian, S., Rahimi, M., & Shafieezadeh, A. (2020). Resilience of Sewer Networks to Extreme Weather Hazards: Past Experiences and an Assessment Framework. In *Pipelines 2020* (pp. 50-59). Reston, VA: American Society of Civil Engineers.

He has conducted research in Risk and Reliability analysis of wastewater collection systems at The Ohio State University. He has leveraged different machine learning techniques to develop fragility models for wastewater collections systems, power plants, and levees. He developed a new framework for identifying significant factors affecting the performance of wastewater collection systems, utility poles, and power plants subjected to different types of hazards. He has experience in performing condition assessment, risk analysis and resilience assessment.

LVL Advanced Water Treatment Facility Repair & Replacement Program, Water Replenishment District of South California, Long Beach, CA

Mr. Zamanian was part of condition assessment team and involved in Field Condition Assessment and performed Risk-based Renewal Planning. This project aimed to update inventory of LVL assets, determine the remaining useful life and probability of failure of assets based on their condition, prioritize Repair & Replacement activities based on assessing the business risk exposure to the district, and monitor and update the conditions and Repair & Replacement requirements continuously.

Ground Water Treatment Plant Facility Improvement Master Plan Project, Long Beach Water, Long Beach, CA

Mr. Zamanian was part of condition assessment team and involved in developing Asset Register, Field Condition and Performance Assessment, determination of replacement costs, and risk-based prioritization. This project will be guide for planning, operating, maintaining, and renewing the GWTP's processes, systems, and infrastructure through year 2042.

MWRP Circular Clarifier Condition Assessment, Irvine Ranch Water District, Irvine, CA

Mr. Zamanian was part of condition assessment team and involved in developing Asset Register, Field Condition and Performance Assessment. This project will be guide for planning, operating, maintaining, and renewing the MWRP's primary clarifier system's processes, systems.



Frederick Edgecomb

Associate

Mr. Edgecomb is a seasoned water, wastewater and reuse professional with 43 years of experience managing operations and business units in the west. For Hazen, Fred specializes in providing Utility Management services, including operability reviews, SOP development, training programs, and asset management.

Education

MPA, Public Management,
California State University

BS, Business Management,
University of Phoenix

Certification/License

Grade IV Wastewater, Grade IV
Water, Grade IV Collection
System, Grade IV Distribution
System - Arizona

Grade V Wastewater, Grade T-4
Water - California

Grade IV Wastewater - Oregon
40-Hour OSHA Health and Safety
Training

8-Hour OSHA Health and Safety
Supervisors Training

Areas of Expertise

- Water reuse
- Wastewater treatment and recycling

Experience

- 43 total years
- 1 year with Hazen

Professional Activities

Water Environment Federation

- Plant Operations and
Maintenance Committee
Member

California Water Environment
Association

AZ Water

Asset Management, Albuquerque Bernalillo County Water Utility Authority, NM

Providing operations and maintenance (O&M) technical support to develop an Asset Management Plan (AMP) across the client's 45 pump stations, water treatment facilities and wastewater treatment facilities (which includes anaerobic digesters). The project encompasses developing the asset hierarchy and registry; performing condition assessments; determining the likelihood of failure and consequence of failure; and overall business risk exposure across the water and wastewater systems. The result will be a comprehensive AMP based upon risk, a 100-year CIP, and robust dashboards that the Authority can utilize to continuously prioritize projects as needs change.

91st Avenue – Plant 2B Rehabilitation, City of Phoenix, AZ

Performing condition assessment, operability reviews and Maintenance of Plant Operations Planning as part of the design, construction administration and inspection services for the rehabilitation and replacement of equipment throughout 91st Avenue WWTP's Plant 2B, including, but not limited to, primary sedimentation basins and equipment, aeration basins and equipment, secondary sedimentation basins and equipment, pumps, motors, piping, control instruments and panels, and electrical equipment including panels, variable frequency drives, transformers, and motor control centers.

Central Water Reclamation Facility, City of Buckeye, AZ

Leading the development of the operational SOP for Task 1: Aeration Basin Commissioning Plan. The goal of the plan is to bring refurbished Aeration Basin B back online next month. Project includes hydraulic evaluation, review of current operating parameters (for existing basin), recommendations for operational parameters for Basin B, and development of SOP for the switch over.

Experience Prior to Hazen

Rancho California Water District, Temecula, CA

Water Reclamation Manager/Director of Operations and Maintenance. Responsible for the District's 75-person Operations and Maintenance Division. Functional areas included operations for dam and reservoir, water production and distribution, wastewater conveyance and treatment, water reclamation and reclaimed water distribution. Also responsible for groundwater recharge and production, potable and recycled water production, construction, maintenance programs, annual groundwater production audit, production budget planning, development and implementation of asset management, and compliance with water rights obligations, as well as electrical services, facilities, fleet, production and customer metering, well and pump services, and pipeline construction and repair services.

Veolia Water North America, Murrieta, CA

Technical Director/Area Manager/Project Manager/Startup Coordinator. Responsible for due diligence in the pursuit of new business and technical support for more than 50 water and wastewater facilities in the West Region. Additional duties included managing the transition for the Stringfellow Superfund site extraction well system and groundwater treatment systems, and the Palm Springs, Rio Vista, Richmond, and Rialto wastewater reclamation facilities. Oversaw the startup, staffing, financial management, operation, and maintenance of the following projects: 25-mgd South Bay International WWTP, 10.9-mgd Palm Springs WWTP, 30-mgd North City water reclamation plant, San Diego water treatment systems at the Richwood Mutual Water Company, and groundwater extraction, fuel recovery and treatment systems for the March Air Force Base.

Neely Wastewater Reclamation Facility, Town of Gilbert, AZ

Project Manager for Gilbert's Neely Wastewater Reclamation Facility (WRF). This facility treats 11-mgd for 100% reuse in the Town's golf courses, schools and public parks. The reclaimed water is also used in two wildlife sanctuaries and multiple groundwater recharge facilities.

City of Prescott, AZ

Utilities Manager. Responsible for managing, supervising, and coordinating a variety of programs and activities, including water production, distribution, wastewater collection, treatment, reuse, and associated utilities business/enterprise funded operations – while working closely with all Division Managers within the Department. Also responsible for planning, organizing, coordinating, directing, and supervising the work of the Utilities Division of the Public Works Department.



Sean Pour, PhD

Principal Scientist

Mr. Pour has made significant advancements towards developing and implementing new condition assessment and asset management methodologies. Mr. Pour is actively engaged in development of asset inventory list, advanced strategies for evaluation of asset conditions, and long-range rehabilitation and replacement needs projections for a variety of assets.

He has assisted a number of clients in asset inventory and condition assessment including Moulton Niguel Water District, Goleta Sanitary District, Central Basin MWD, City of Carlsbad, West Basin MWD, Santa Clara Valley WD, Eastern MWD, City of Chino Hills, Port of San Diego, City of Chula Vista, and City of Coronado.

Education

Ph.D., Civil and Environmental Engineering, concentration in Const. Eng. and Mgmt., Oklahoma State University, 2013

MS, Civil and Environmental Engineering, concentration in Const. Eng. and Mgmt., Amirkabir University of Technology (Tehran Polytechnic), 2008

BS, Civil and Environmental Engineering, concentration in Const. Eng. and Mgmt., Amirkabir University of Technology (Tehran Polytechnic), 2005

Areas of Expertise

- Asset Inventory / Condition Assessment
- Asset Management
- Life Cycle Cost Analysis
- Risk Assessment
- Capital Improvement Project Validation

Experience

- 13 total years
- 4 years with Hazen

Professional Activities

American Society of Civil Engineers (ASCE)

American Water Works Association (AWWA)

Orange County Water Authority Association (OCWA)

Chi Epsilon (The civil engineering honor society)

Vertical Assets Inventory Pilot Project, Moulton Niguel Water District, Laguna Hills, CA

Worked with the District to develop an asset register framework and hierarchy, facilities inspection form, and led the field inventory and condition assessment of a pump station, lift station, reservoir and pressure regulating station. Grouped the assets into asset classes based on their physical, operational, and location attributes. Utilized existing data, the maintenance history and condition assessment score, to determine the expected useful life for each asset class and calculated the remaining useful life of each asset in the pilot project.

Prioritization of Sewer Pipes and Rehabilitation Guidance Document, Moulton Niguel Water District, Laguna Hills, CA

Developed a risk methodology and prioritized the collection system replacement, rehabilitation and condition assessment activities considering both pipe condition and consequence of failure. Reviewed the CCTV inspection database and correlated the defect codes and modifiers to the NASSCO's PACP coding standards. Created a decision tree to assist the District in selecting rehabilitation or replacement methodology using the frequency and type of sewer pipe defects.

Asset Management Plan for Wastewater Treatment Plant, Goleta Sanitary District, Goleta, CA

Led the inventory and condition assessment of the wastewater treatment plant to develop the asset register and identify the remaining useful life

Select Publications

Pour, S. A., and Jeong, H. S. (2012). "Realistic Life-Cycle Cost Analysis Using Typical Sequential Patterns of Pavement Treatments via Association Analysis," *Transportation Research Record: Journal of the Transportation Research Board*, No. 2304, Transportation Research Board of the National Academies, Washington, D.C., 2012, pp. 104-111.

Pour, S. A., Jeong, H. S., Burman, R. R., and Gunsaulis, F. (2012). "Performance Assessment of On-Grade Horizontal Directional Drilling," *ASCE Journal of Construction Engineering and Management*, Vol. 138, No. 458, March, pp. 458-468.

of assets. Developed an asset management program for the District using a phased approach. First phase included field inventory, condition assessment, risk assessment and long-range funding needs projection for the influent pump station at the wastewater treatment plant. The next phase comprised expansion of the asset management program developed during the pilot project to the full wastewater treatment plant and assistance with integration with a new CMMS.

Evaluation Study for the Operation of the Maerke Reservoir System, Carlsbad, CA

Reviewed the City's existing asset register and identified a list of high risk/critical assets associated with the operation of the Maerke Reservoir. Following a field condition assessment of the identified critical assets, updated the asset register and provided recommendations for assets in need of repair, rehabilitation, or replacement at the Maerke Reservoir.

Condition Assessment and Risk Analysis Rio Hondo Recycled Water Pump Station, Central Basin Municipal Water District, Commerce, CA

The project entailed a condition assessment, risk of failure analysis, determination of remaining useful life and recommendations for rehabilitation or replacement of a critical recycled water pump station.

Replacement and Rehabilitation Planning Model, Eastern Municipal Water District, CA

Consolidated water, wastewater, and reclaimed water assets owned and managed by the District in the asset register, led the data gap closure effort for treatment plant facility assets owned and managed by the District. Asset information from Maximo was compared to actual asset configuration on the site. Missing assets were added and missing attributes were captured to project rehabilitation and replacement needs.

Citywide Utility Asset Management Program, Carlsbad, CA

Developed the first Asset Management Plan for the City's assets including city-wide water distribution system, recycled water distribution system, wastewater collection system, and storm drain system. Conducted a field data inventory and condition assessment for facilities including water pump stations, reservoirs, pressure reducing stations, and wastewater lift stations. Several risk assessment methodologies were developed to help prioritize the replacement and rehabilitation efforts. A GIS based risk assessment was used for linear assets, while multi-hierarchical risk methodology used for vertical assets (e.g., reservoirs, pump stations, pressure reducing stations). The resulted Asset Management Plan was later used to develop a CIP validation tool.



Alexander Hanson, EIT

Assistant Engineer

Mr. Hanson has provided construction observation support for water mains and wastewater treatment facilities. He has experience in condition assessment, asset management, treatment plant design, pump stations, reservoirs, and pipelines.

Education

BS, Civil Engineering, Arizona State University, 2018

BS, Biochemistry, Arizona State University, 2014

Certification/License

Engineer-in-Training, AZ (O12780)

Grade 2 Water Treatment Plant Operator, AZ (OP033336)

Areas of Expertise

- Water sampling & testing
- Condition assessment
- Plant decommissioning
- Water & Wastewater

Experience

- 4 total years
- 3 years with Hazen

Professional Activities

American Water Works Association

AZ Water Association, Young Professional Committee

Society of Water & Environmental Leaders

- Arizona State University

Water Authority SAMP Framework and CAMP Completion, Albuquerque Bernalillo County Water Utility Authority (ABCWUA), Albuquerque, NM

Assistant Engineer. The purpose of this project is to assist ABCWUA to enhance its asset management framework to be used in future asset management plan (AMP) development and a roadmap for completing the AMPs that have been identified in the Draft 2020 Comprehensive Asset Management Plan (CAMP). The project included developing the asset hierarchy and registry, performing field condition assessments, determining the likelihood of failure, consequence of failure, and overall business risk exposure across all vertical and linear assets.

Improvements to Transfer Station No. 2, City of Mesa, Mesa, AZ

Assistant Engineer. The purpose of this project is to assess the condition of the existing Transfer Station No. 2 (TS2) facility and design the associated upgrades to expand the capacity to 31.5 mgd. Mr. Hanson performed a desktop analysis of the facility to determine the number of assets, asset register attributes, installation years, and remaining useful life of the equipment. The condition assessment was focused on identifying assets with less than twenty (20) years of useful life, these assets would be in consideration for replacement in the facility design.

Lindsay and Brooks Reservoirs Roof Condition Assessment, City of Mesa, Mesa, AZ

Assistant Engineer. The purpose of the Lindsay and Brooks Reservoir roof inspection was to perform a condition assessment to determine the scope of repair for both reservoirs. Assisted with the field coordination and maintenance of plant operation (MOPO) development for the reservoir inspection. Was part of the inspection team that went inside of the reservoir to document the condition of the roof and supporting structure. Drafted the technical memorandum that summarized the findings and rehabilitation recommendations for both reservoirs.

91st Avenue Wastewater Treatment Plant – Plant 2B Rehabilitation, City of Phoenix , Tolleson, AZ

Assistant Engineer. The purpose of this project is to rehabilitate or replace assets throughout Plant 2B at the 91st Avenue Wastewater Treatment Plant (WWTP) and incorporate current technologies and equipment. Mr. Hanson led the coordination and field team for the condition assessment. He developed electronic forms based on current work asset management (WAM) standards with coordination from the core project team. He created a presentation that summarized the existing condition of Plant 2B, identifying the mechanical, structural, electrical, and instrumentation assets in need of replacement or rehabilitation.

Kyrene Water Reclaimed Facility – Process Evaluation Study, City of Tempe , Tempe, AZ

Assistant Engineer. Hazen has been selected to provide engineering services for the rehabilitation and re-start of the decommissioned 9 mgd Kyrene WRF in Tempe, AZ. This project is a study and conceptual design to select the optimal treatment process for the restarted plant. Mr. Hanson evaluated the findings and recommendations from a previous facility condition assessment performed by the operation consultant and construction manager at risk. The evaluation resulted in 24 technical memoranda regarding process mechanical items and nine (9) technical memoranda regarding electrical and instrumentation and control (I&C) systems.

Transfer Station No. 2, Mesa AZ

Assistant Engineer performing field inspection of site infrastructure and equipment as part of a condition assessment to identify any infrastructure with less than 20 years remaining useful life. Field inspection results will be used to develop prioritized rehabilitation and replacement recommendations, which will be incorporated in the design to expand the pumping facility from 22-mgd to 31.5-mgd.

Central Water Reclamation Facility Influent Flow Evaluation, City of Buckeye, Buckeye, AZ

Assistant Engineer in the evaluation of options to enhance flow monitoring and accuracy results for the influent flow. Assisted with the evaluation of Buckeye's influent flow conditions and hydraulic evaluation for a new flow meter and pump at the plant's headworks. Also assisted in drafting a flow monitoring memorandum highlighting Hazen's recommendations for improving influent flow monitoring.

Wastewater System Rehabilitation Project, Town of Kearny, AZ

Assistant Engineer. Assisted with evaluating the condition of Kearny's existing sewer system by CCTV inspection. Also wrote a sewer condition memorandum highlighting Hazen's recommendations for repairs/replacements within the constraints of Kearny's project budget.



Steven Conner, PE

Civil/Mechanical Lead

Mr. Conner has 24 years of experience in the planning and design of water infrastructure including pump stations and booster stations. He is an expert in pump station design and has managed and served in a key technical role on projects ranging in size up to 600 mgd capacity.

Education

BS, Civil Engineering/Water Resources, University of California

Certification/License

Professional Engineer
Transportation Worker Identification Credential (TWIC), CA

Areas of Expertise

- Pump stations
- Pipeline design
- Trenchless pipeline rehabilitation and installation
- Well equipping

Professional Activities

American Society of Civil Engineers

Reservoirs 1 & 2, Pumps, Controls and Chemical System Assessment, Mesa Water District, Costa Mesa, CA

Completed an assessment of the condition and operation of the pumps and controls system at two domestic water reservoirs, developed a plan for removal and testing of pumps as well as completed an evaluation of the existing chemical dosing system. Prepared a preliminary design report and 30-percent design plans and specifications to replace the existing chemical feed systems and install new reservoir mixers.

Pump Electrification Project, Eastern Municipal Water District, Riverside County, CA

Pump electrification project which included the conversion of engine driven pumps at the Heacock/Pettit and Oleander Booster Pump Stations to electric motor driven pumps. The improvements at the Heacock/Pettit Booster Pump Station included the installation of a new electric utility service and electrical distribution system, new variable frequency drives, and conversion of an existing chemical storage room into a new standby generator room. Improvements to the generator room included structural, architectural, and HVAC upgrades. The project also included a surge analysis to confirm the pump conversion did not introduce surge events.

Manor Pump Station, Milpitas, CA

Project Manager responsible for developing design alternatives, plans, specifications and cost estimates for the rehabilitation of an existing storm water pump station. The main project goal was to increase the capacity of the station from 60-cfs to 106-cfs. Project included installation of new pumps, electrical equipment, and an emergency backup generator. Air quality permit coordination and acquisition was performed as part of the project.

Reconstruction of the Los Alamitos Pump Station and Retarding Basin, County of Orange, CA

Pump Station Technical Advisor for the final design for the pump station facility and retarding basin. Responsibilities included preparation of a value engineering report; final engineering report; hydrology and hydraulic routing; best management practices for improving water quality; inspection and analysis of existing 2,400 lineal foot of 54-inch discharge piping; Phase I and II environmental assessments; geotechnical investigation; CEQA; and permit processing and coordination with agencies and homeowner associations. The pump station includes four vertical mixed flow pumps with a design capacity of 129 mgd each. Each pump is driven by a 1500 hp dual-fuel engine (natural gas and propane).

Sterling Pump Station, Riverside, CA

Project Manager responsible for developing preliminary design alternatives, plans, specifications, and cost estimates for the construction of a new water pump station to deliver flow from the Arlington Desalter to two separate pressure zones in Western Municipal Water District's distribution system. Preliminary engineering studies included: comprehensive hydraulic analyses of the supply and distribution systems, evaluation of pump station operations, life-cycle cost analyses for alternative configurations of pumps, primary power (natural gas engines versus electric motors), and backup power. The final design included a 1.1 mg partially buried prestressed concrete forebay; a pump station building housing six 700 hp electric motor driven pumps, two 700 hp natural gas engine driven pumps, and motor control center; a chemical building for storage and feeding of sodium hypochlorite and ammonium sulfate; and a diesel driven backup generator to power one electric motor. The pump station is designed for an ultimate capacity of 30 cfs at 450 psi discharge pressure, and is currently out for bids.

Whittier Pumping Plant No. 2 Replacement Project, Pico Rivera, CA

Pump Station Design Manager for the replacement of its Pumping Plant No. 2, which provides 100% of the potable water supply to WUA's 48,000 customers. Extensive preliminary engineering studies were completed, including: comprehensive hydraulic analyses of the supply and distribution systems, evaluation of pump station operations and control schemes, life-cycle cost analyses for alternative configurations of pumps, primary power, and backup power, project phasing to ensure the existing facility remains in operation throughout construction, and evaluation of remedial soil treatment alternatives to mitigate potential liquefaction to depths of 30 feet below grade. The new facility includes an 18.9-mgd pumping station (with 17,500 gpm capacity to enable WUA to pump during off-peak periods), two 2.2 mg reservoirs, and a new 6,400 s.f. pump building, including office space for operations personnel.



Jack Yao, PE

Electrical

Jack Yao is a Senior Associate in the Electrical Department located in Hazen's Irvine office.

Education

B.S., Electrical Engineering, UCLA

Certification/License

Professional Electrical Engineer

Areas of Expertise

- MV & LV power distribution system (up to 35kV)
- Power Distribution Center (PDC) design

Although he is relatively new to Water/Wastewater, he has over 17 years of electrical (power) engineering and discipline leadership experience in the Oil & Gas industry. He has successfully lead dozens of multi-national EPC type projects in the Continental USA, North Slope Alaska, Middle East, and New Zealand. He is experienced in MV & LV power distribution system design, hazardous area classification, motor & generator applications, aboveground and underground installation design, grounding system, lighting design, power system automation, and etc.

Substation 33 Replacement Project, Chevron El Segundo Refinery; El Segundo, CA

Lead Electrical Engineer responsible for designing a new MCC lineups in a recently installed Power Distribution Center (PDC) to replace an aging existing distribution substation. The new 2.4kV and 480V MCC's are added to refeed sixteen (16) existing MV and LV motors.

Substation 33/34 Switchrack Replacement Project, Chevron El Segundo Refinery; El Segundo, CA

Lead Electrical Engineer responsible for designing six (6) new 480V switchracks to replace existing 50 year old units. The project involved replacing existing main incoming cables to each switchrack, design new switchrack components (bus boxes, breakers, motor starters, and distribution panelboards), and refeed all existing loads.

F-720/731 SCR Retrofit Project, Chevron El Segundo Refinery; El Segundo, CA

Lead Electrical Engineer responsible for designing a new Power Distribution Center (PDC) to support new plant loads added to retrofit a new SCR system to the existing furnaces. The project involves adding new 15kV breakers sections at the refinery main substation and routing new 15kV feeders via pre-fabricated duct banks to new 15kV Load Interrupting Switches closed-coupled with 13.8-2.4kV and 13.8-0.48kV oil-filled transformers to provide power to the new PDC.

Fuel Gas Analyzer Retrofit Project, Chevron El Segundo Refinery; El Segundo, CA

Lead Electrical Engineer responsible for designing electrical tie-ins for five (5) new Analyzer Shelters at various plants inside the refinery.

Refinery Wireless Project, Chevron El Segundo Refinery; El Segundo, CA

Lead Electrical Engineer responsible for designing refinery-wide wireless system to allow plant operators to use mobile devices to communicate back to the main control room. The project involves collaborating with wireless equipment vendor, design wireless access points, and provide 120V UPS power to each access point enclosure.

Nanushuk Development Project, Armstrong Energy; North slope AK

Lead Electrical Engineer responsible for the conceptual design of power generation and distribution system consist of four (4) 13.8kV gas-turbine generators, 13.8kV switchgears, 4.16kV and 480V switchgear and MCC lineups feeding a dozen enclosed sea-lift and truckable type modules in the central processing facility and three (3) remote drill sites.

Compressor Station Upgrade Program, SoCalGas; Various Site, CA

Lead Electrical Engineer responsible for preliminary design of electrical distribution system upgrade at three (3) compressor stations to increase the natural gas throughput. The project involves designing a new Power Distribution Center (PDC) to increase the electrical capacity to support additional natural gas compressors and other auxiliary loads.

Compressor #3 Addition Project, Hess Corporation; Tioga, ND

Lead Electrical Engineer responsible for upgrading the existing power distribution system to feed a new gas-driven compressor package. The project involves adding a new 480V switchrack fed from the existing 2.4kV overhead pole line, and a new electric heat trace system.

Seep Ridge EPS Project, Red Leaf Resources; Uintah County, UT

Lead Electrical Engineer responsible for designing a new power generation and distribution system to feed a pilot shale oil collection, separation, and storage unit. The project involves adding a new 20MW steam turbine generator and a new Power Distribution Center (PDC) to feed MV and LV plant loads.

Te Mahi Hou Project, Refining New Zealand, Marsden Point, NZ

Lead Electrical Engineer responsible for designing a new electrical distribution system to feed a new Continuous Catalytic Reformer Unit. The project involves designing a stick-built Power Distribution Center (PDC) housing 6.6kV and 415kV switchgears and MCC's feeding MV and LV plant loads via direct buried cables.



Joel Berger, EIT

Assistant Engineer

Mr. Berger specializes in structural design of concrete, masonry, and steel structures. His project experience and skill set include structural modeling and seismic analysis of water and wastewater treatment facilities.

Education

MS, Civil Engineering, University of Colorado at Boulder, 2019

BS, Civil Engineering, University of Colorado at Boulder, 2018

Certification/License

Engineer-in-Training: CO

Areas of Expertise

- Concrete design
- Structural and seismic evaluation
- Structural modeling

Experience

- 2 total years
- 1 year with Hazen

Professional Activities

American Society of Civil Engineers

Chi Epsilon

Tau Beta Pi

Chino EWTF Expansion Project, City of Chino, CA

Assistant Engineer. The City has engaged Hazen to expand the capacity of the existing Eastside Water Treatment Facilities from 3,500 gpm to 7,000 gpm. The expanded facilities will allow the City to maximize use of available groundwater supply, either through connecting Well 16, equipping Well 17 or construction of additional wells in the new well field. Responsible for backchecking structural drawings.

San Mateo WWTP Pump Pit Stair Replacement, City of San Mateo, CA

Assistant Engineer responsible for construction phase services for the pump pit stair replacement project. Hazen worked with another firm to conduct an onsite visit for visual only inspection and assessment of the concrete stairs. A detailed inspection using field testing services was not performed. Based on the visual observations and findings, most of the concrete stairs showed signs of deterioration and corrosion of exposed reinforcing steel. The result of the assessment recommended replacement of the stairs in lieu of repairs in-place. Tasks included responding to RFIs and reviewing submittals to confirm compliance with technical specifications for the aluminum guardrails, FRP staircase, and concrete repair products.

Blower Electrification Project, Eastern Municipal Water District, Riverside County, CA

Assistant Engineer. Eastern Municipal Water District retained the services of Hazen for the preliminary and detailed design for the replacement of five gas driven blowers with high speed turbo blowers due to air quality regulatory drivers, at three regional water reclamation facilities including San Jacinto, Temecula, and Moreno Valley. Tasks comprised of construction phase services that included the review of and response to submittals.

Marston & Moffat WTPs Chemical Feed & Solids Handling, Denver Water, CO

Assistant Engineer to the structural load on the Marston & Moffat WTPs Chemical Feed & Solids Handling Project. Performed construction phase services, which included responding to RFIs and reviewing submittals to confirm compliance with structural drawings and technical specifications.

Structural scope at the Marston WTP included repurposing a portion of an existing warehouse building to house sodium silicofluoride storage. This included demolishing the floor slab, constructing a recessed slab foundation two feet lower and constructing reinforced masonry partition walls to enclose the chemical storage room from the rest of the warehouse storage. The structural scope included a building expansion on top of the existing product water pump station for two phosphoric acid bulk storage tanks. The building consists of a conventional pre-engineered, prefabricated metal type building to enclose the tanks and ancillary equipment. The storage tanks are surrounded by concrete walls for containment and are anchored to the roof slab of the pump station. The containment walls are also used as base support for the metal building. The existing pump station roof structure was checked for new loads from the building expansion in accordance with current local building code.

Experience Prior to Hazen

Gross Reservoir Dam Expansion, University of Colorado at Boulder, CO
Team Lead and Structural Design Lead for in-depth analysis and design of Gross Reservoir Dam Expansion project. Collaborated with Denver Water and dam design experts for complete design of dam expansion. Responsible for the structural design and analysis of the new dam under both static and seismic loads.

Water Storage and Distribution, Engineers Without Borders, Boulder, CO

Design Team Lead. Aided in the design of a water storage and distribution system in a small village in Paraguay.

WAWA Sustainable Infrastructure, City of Givatayim, ISR

Intern. Performed passive heating and cooling calculations and radiation analyses for multiple local multistory residential buildings. Assisted in writing Construction Waste Management Plan and Indoor Air Quality Management Plan for LEED certification for a proposed Intel Building in Israel.

Pomona Unified School District, Construction Company, Garden Grove, CA

Energy Engineer Intern. Responsible for creating and organizing site maps of schools and their existing HVAC equipment for schools in the Pomona Unified School District. Assisted energy engineers in data collection and analysis of electrical equipment in utility buildings. Researched and studied shifting rate policies and energy incentive programs of local utilities.



Jared Eichmiller

GIS Analyst

Mr. Eichmiller serves as Hazen and Sawyer's GIS Analyst in the Irvine Office. He has over 2 years of experience in helping local governments and organizations achieve their infrastructure and assessment goals through using GIS tools. He is experienced in cartography for print along with developing web applications, dashboards, and story maps. Mr. Eichmiller is also skilled in developing field collection tools through Survey123 to conduct field assessments.

Hazen Office Location

Irvine, CA

Education

BA, Geography, Indiana University, 2019

Areas of Expertise

- Geographic Information Systems
- Asset Management

Experience

- 2 total years
- <1 year with Hazen

Trabuco Canyon Water District Master Plan and Condition Assessment, Trabuco Canyon, CA

GIS Analyst. Mr. Eichmiller developed deliverables for this project which involves field and desktop condition assessment data for several lift stations, pump stations, water and wastewater treatment plants.

Napa Sanitation Capital Improvement Plan, Napa, CA

GIS Analyst. Mr. Eichmiller is utilizing StoryMaps to create a visual, electronic submittal of Napa Sanitation's Capital Improvement Plan.

San Bernardino Municipal Water District Condition Assessment, San Bernardino, CA

GIS Analyst. Mr. Eichmiller is supporting the Asset Management team by developing Survey123 field collection forms. Surveys will be customized to meet the needs of collection type along with levying task assignments through an Operations Dashboard. These advancements will reduce data collection time.



Masoumeh Khalkhali, PhD

Data Analyst

Ms. Khalkhali serves as Hazen and Sawyer's Irvine Office Asset Management Analyst. She has over 10 years of experience in water consulting firms in Iran. She has experience in hydraulic modeling, engineering design, and water conveyance project management. She also has 6 years of collaborative research experience on sustainability and resiliency of critical infrastructure throughout her PhD studies at the University of New Hampshire and post doctoral research experience at the University of Southern California.

Education

PhD, Civil/Environmental Engineering, University of New Hampshire, 2020

MS, Irrigation and Drainage Engineering, Tehran University, Iran, 2005

BS, Irrigation Engineering, Tehran University, Iran, 2003

Areas of Expertise

- Asset Management
- Hydraulic Modeling and Water Conveyance and Distribution System Design

Professional Activities

AWWA

Technical Publications

Khalkhali, Dilkina, B.; Mo, W., "The role of climate change and decentralization in urban water services: A dynamic energy-water nexus analysis", Journal of Water Research 2021, 117830.

Stang, S., Khalkhali, M., Petrik, M., Palace, M., Lu, L., Mo, W. "Spatially Optimized Distribution of Household Rainwater Harvesting and Greywater Recycling Systems", Journal of Cleaner Production 2021, 127736.

Li, Y., Khalkhali, M., Lu, L., Mo, W. "Integrated Agent-based and System Dynamics Modeling of the Spatial Diffusion of Home-based Decentralized Water Technologies and the Impacts on the Water System", Journal of Cleaner Production, 2021, 128169.

Khalkhali, M., Mo, W. "The Energy Implication of Climate Change on Urban Wastewater systems",

Trabuco Canyon Water District Master Plan and Condition Assessment, Trabuco Canyon, CA

Data Analyst. Ms. Khalkhali performed horizontal and vertical asset's inventory and condition assessment in this project. It involved fields visit and visually inspection of the assets associated with water and wastewater facilities. She contributed to the asset register development and asset replacement cost estimation. She also conducted workshops for the client to communicate the outcomes and get feedbacks. The deliverables to this project such as the condition assessment chapter of the master plan, PowerBI dashboard to dig into the collected data was developed by her.

Groundwater Treatment Plant Facility Improvement Master Plan, Long Beach, CA

Data Analyst. Ms. Khalkhali was part of the asset management team and involved in developing asset register, and performance assessment, and risk-based prioritization of replacement and rehabilitation asset list. The deliverables to this project such as the asset inventory, condition assessment, and risk assessment chapter of the master plan report as well as the PowerBI dashboard to dig into the collected data were developed by her.

Irvine Ranch Water District El Modena Natural Treatment System, Orang, CA

Data Analyst. Ms. Khalkhali performed asset's field condition assessment in this project and prepared the reports on the conditions of the assets

Journal of Cleaner Production
2020, 121905.

Khalkhali, M., Westphal, K., Mo, W.
"The Water-Energy Nexus at
Water Supply and its Implications
on the Integrated Water and
Energy Management", Science of
The Total Environment 2018, 636,
1257-1267.

Daniel, J. S., Jacobs, J. M., Miller,
H., Stoner, A., Crowley, J.,
Khalkhali, M., Thomas, A. Climate
change: potential impacts on
frost-thaw conditions and
seasonal load restriction timing
for low-volume roadways. Road
Materials and Pavement Design
2018, 19, (5), 1126-1146

and provided some suggestions for the operation improvements of the plant. She also conducted the workshops with the client to communicate the outcomes and get their feedbacks. She helped the client to have a narrowed list of the assets to be replaced or rehabbed taking into account their condition and the potential performance improvement scenarios.

Rancho Water Maintenance Management Program Optimization and Asset Management Plan for Pump Systems and Mechanical Piping and Controls, Temecula, CA

Data Analyst. Ms. Khalkhali performed long range maintenance, rehabilitation and replacement cost estimation of this asset management project. She also contributed to the upgrade of the survey 123 developed for this project to be tailored to the needs of the client. She also helped with the PowerBI dashboard development for this project to dig into the collected data and get a better understanding about the status of the facilities' assets.

Encina Asset Management Planning Services, Encina Wastewater Authority, Carlsbad, CA

Data Analyst. Ms. Khalkhali contributed to the development of the asset management gap closure approach technical memorandum on this project. The goal in this project was to enhance the client's ability to make informed decisions on maintenance activities and replacement and rehabilitation of the assets and serve as the foundation for updating their Comprehensive Asset Management Plan.

Pre-Hazen Experience

Irrigation and Drainage Network Design, Chaparabad, W. Azarbaijan, Iran

Irrigation Engineer. performed agricultural water conveyance system design in all these projects and prepared the reports. She also attended meetings with the client to communicate the outcomes and get feedback. These projects also involved design of farm level distribution systems and sprinkle and drip irrigation systems.

Pressurized Irrigation Network Design, Sistan & Balouchestan, Iran

Irrigation Engineer. Ms. Khalkhali performed farm level irrigation system design. It included pumping and treatment system design for the sprinkle or drip irrigation system. Also farm level distribution systems were designed for sprinkle or drip irrigation systems. She was in touch with the pressurized irrigation systems adopter clients and provided consultant to them.



Christopher Portner, PE, CEP

Principal Engineer

Mr. Portner has provided cost estimating services for a wide-range of infrastructure related projects, including, but not limited to: water treatment and distribution, wastewater treatment and distribution, CSO reduction, recycled water treatment and distribution and roadway reconstruction. He is an AACE Certified Estimating Professional.

Education

MS, Environmental Engineering,
University of California at
Berkeley, 2007

BS, Civil and Environmental
Engineering, University of
California at Berkeley, 2006

Certification/License

Professional Engineer: CA

Certified Estimating Professional
(CEP)

Areas of Expertise

- Cost estimating
- Construction management
- Scheduling
- Change order preparation and negotiation
- Design services during construction

Experience

- 11 total years
- 9 years with Hazen

Professional Activities

Water Environment Federation

American Association of Cost
Engineers

California Water Environment
Association

Chromium-6 Treatment and Compliance Study and Design, Coachella Water Authority, CA

Cost Engineer for compliance study alternatives and detailed design for removal of chromium-6 from groundwater drinking wells. Potential alternatives analyzed included ion exchange technology including onsite and offsite regeneration of resins. Detailed design for this \$200M+ project included a central regeneration facility, remote well treatment sites with both strong base and weak base ion exchange systems and transmission pipelines.

Cr6 Treatment Facilities for Wells 13A, AA and 1E, Indio Water Authority, CA

Cost Engineer for design of groundwater treatment systems to remove chromium 6 from affected wells. Ion exchange units were used for the treatment system, other work included additional conveyance and the required supporting mechanical, structural, electrical and instrumentation equipment. The project was fast-tracked, requiring the cost estimate to be prepared in parallel with design, requiring close coordination with the Design Team to incorporate and track changes.

Hexavalent Chromium Removal Project, California American Water, CA

Cost Engineer for a pilot study to treat groundwater to meet the Chromium (VI) Maximum Contaminant Level. The pilot provides for testing of a Strong-Base Anion Resin System with brine regeneration and onsite brine treatment at various flows.

**Domestic Water System Source of Supply/Treatment Study,
Coachella Valley Water District, Riverside, CA**

Cost Estimator and Scheduler for an alternative analysis portion of a Consent Order Decree project to provide additional levels of treatment to groundwater and surface water. The scope of work included alternative analysis of ground water treatment systems at remote wellhead locations, traditional centralized surface water treatment plants and point-of-use systems.

**Phase IIIB Assessment of Ion Exchange and Adsorptive Media for
Hexavalent Chromium Removal from Drinking Water, City of Glendale, CA**

Cost Engineer for an investigative study to identify potential groundwater treatment systems for chromium removal. The scope of the work included identification and evaluation of a suite of technologies suitable for chromium removal as well as bench scale and pilot testing.

**Southern Solutions Water Supply Project, Newland Real Estate
Group, Goodyear, AZ**

Cost Engineer for design of a reverse osmosis treatment system for groundwater supply wells. Scope included pretreatment (chemical and mechanical), reverse osmosis and disinfection.

Replacement Well 274, City of Modesto, CA

Cost Engineer for design of the replacement of an existing drinking water well. Project scope included replacement of existing 220gpm well with a new 400gpm well. Also included are new aboveground facilities for disinfection and electrical and control.

**Reservoirs 1 & 2 Chemical Facilities, Mesa Water District, Costa
Mesa, CA**

Cost Engineer for design of upgrades at two reservoirs to address nitrification in the distribution system. Scope of work included addition of mixing to the reservoirs and chemical injection and monitoring systems and associated structures and appurtenances.

**High-Quality Industrial Water Supply Feasibility Study, EPCOR
Water, Phoenix, AZ**

Cost Engineer for a feasibility study to provide advanced treated water for use in cooling towers of an industrial power generation facility. Scope included transmission and treatment of the water with ultrafiltration and reverse osmosis, along with chemical addition.

Appendix B - Proposed Changes to Addendum No. 3





Board of Directors

Kathryn Freshley
President

Kay Havens
Vice President

Mike Gaskins
Director

Mark L. Monin
Director

Jose F. Vergara
Director

General Manager
Dennis P. Cafferty

El Toro Water District

"A District of Distinction"

Serving the Public – Respecting the Environment

ADDENDUM NO. 3

TO REQUEST FOR PROPOSALS FOR PUMP STATION ASSET MANAGEMENT PLAN

THE CONTRACT DOCUMENTS ARE HEREBY MODIFIED AS FOLLOWS:

Request for Proposals

Item 1: Article II – Proposal and Site Inquiries

Add the following sentence to the end of the paragraph:

Questions related to the sample agreement may be addressed to Hannah Ford by e-mail at hford@etwd.com by Wednesday, August 24th at noon.

Appendix D – Sample Agreement

Item 1: **Delete** the appendix in its entirety. **Replace** with Exhibit 1.

END OF ADDENDUM NO. 3

The contract documents require that this Addendum No. 3 be executed and submitted with the bid.

Date: August 17, 2022

Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 3 and accept all conditions contained herein.

Dated: _____

BIDDER: _____

BY: _____



El Toro Water District

"A District of Distinction"
Serving the Public – Respecting the Environment

Consulting Contract # 131
W.O. # 31-050

Board of Directors

Kathryn Freshley
President

Kay Havens
Vice President

Jose F. Vergara
Director

Mark L. Monin
Director

Mike Gaskins
Director

General Manager

Dennis P. Cafferty

CONSULTING AGREEMENT # 131

PUMP STATION ASSET MANAGEMENT PLAN

THIS CONSULTING AGREEMENT ("Agreement") is entered into this _____ day of _____, 2022, by and between the El Toro Water District, a public agency (hereinafter referred to as the "DISTRICT"), and _____ (hereinafter referred to as the "CONSULTANT").

WITNESSETH:

WHEREAS, DISTRICT and CONSULTANT wish to enter into this Agreement for the furnishing of consulting services in connection with the Pump Station Asset Management Plan (hereinafter referred to as the "Project"), and

WHEREAS, CONSULTANT is qualified and prepared to perform the necessary professional services ("Services") in connection with the Project.

NOW, THEREFORE, THE PARTIES HERETO HEREBY AGREE AS FOLLOWS:

SECTION 1 - CONSULTING SERVICES.

1.1 Independent Contractor Status. The relationship of DISTRICT and CONSULTANT shall be that of an independent contractor with all of the rights, duties, and obligations pursuant thereto as provided pursuant to California law. CONSULTANT shall not be considered an employee of the DISTRICT at any time or to any degree whatsoever. Anything in this Agreement which may appear to give DISTRICT the right to direct CONSULTANT as to the details of the performance of the Services or to exercise a measure of control over CONSULTANT shall mean that CONSULTANT shall follow the desires of DISTRICT only in the results of the work.

1.2 Task Orders. The Services furnished by the CONSULTANT will be defined by Task Orders which will set forth the CONSULTANT's Services, time of performance, and payment. Each Task Order, after execution and approval by both parties, shall be incorporated herein by reference and shall become a part of this Agreement. The terms and conditions of each Task Order shall be developed by DISTRICT. The approval and execution of a Task Order shall constitute authorization for CONSULTANT to proceed with the provision of Services.

1.3 Services as Project Manager. The individual designated as the Project Manager shall be named in the Task Order. If the individual becomes unavailable to act as the Project Manager, CONSULTANT may designate another individual who shall be the replacement upon the written approval of DISTRICT. In the event that the designated individual is no longer capable of performing the Services as Project Manager, as determined in DISTRICT's discretion, and/or DISTRICT does not approve of the individual designated by CONSULTANT to replace the then designated Project Manager, DISTRICT may, in its discretion, terminate this Agreement.

El Toro Water District

Work Order # 31-050 Pump Station Asset Management Plan

1.4 Suspension of Work. During the performance of any Task Order, DISTRICT may, in its discretion, by written notice to CONSULTANT, suspend further performance of the Services. Performance by CONSULTANT shall resume upon receipt of written notice from DISTRICT. If the Project is suspended by DISTRICT for more than 30 consecutive days, CONSULTANT shall be compensated for Services performed prior to notice of said suspension and when the Project is resumed, CONSULTANT's compensation shall be adjusted to provide for expenses incurred in the interruption and resumption of the Services. If the Services are suspended by DISTRICT for more than 90 consecutive days, CONSULTANT may, in its discretion, terminate this Agreement pursuant to the terms of this Agreement.

1.5 Governmental Permits. CONSULTANT shall, without additional compensation, keep current all governmental permits, certificates, and licenses necessary for CONSULTANT to perform the Services described herein.

1.6 Subcontracting of Services. This Agreement is personal to CONSULTANT and CONSULTANT shall not subcontract nor assign the performance of any portion of these Services without first obtaining the prior written consent of DISTRICT. Any individual or entity who provides any such assistance to CONSULTANT and who is not listed in the Task Order and approved by DISTRICT shall be considered an employee of CONSULTANT, and CONSULTANT shall assume full responsibility for the additional services provided and the work product derived therefrom.

1.7 Competency of Services Provided. The standard of care for all Services and related services performed or furnished by CONSULTANT under this Agreement will be the care and skill ordinarily used by members of CONSULTANT's profession practicing under similar conditions at the same time and in the same locality. CONSULTANT warrants to DISTRICT that all Services supplied by CONSULTANT in the performance of this Agreement shall be supplied by personnel who are careful, skilled, experienced and competent in their respective trades or professions.

SECTION 2 - PAYMENT TO CONSULTANT.

2.1 Payment Terms. DISTRICT shall compensate CONSULTANT for the Services performed pursuant to this Agreement in accordance with the amounts and payment terms set forth in the applicable Task Order.

2.2 Billing Procedure. Invoices for compensation to be paid to CONSULTANT shall be submitted monthly. Payments are due within thirty (30) days of the date of the invoice. Payments not received by CONSULTANT within thirty (30) days shall be considered delinquent and subject to a finance charge of one percent (1%) per month for each month unpaid after the date of invoice. All invoices shall include supporting documentation for direct expenses including, but not limited to, mileage logs and paid reprographic expense invoices.

2.3 Amount of Payments. The aggregate total of all payments made to CONSULTANT (including payments for fees, expenses and assigned or subcontracted services) for full and complete performance by CONSULTANT of all the Services pursuant to this Agreement shall not exceed the amount established in each Task Order without the prior written approval of DISTRICT.

SECTION 3 - CHANGED CONDITIONS.

3.1 Representations by DISTRICT. DISTRICT makes no representations concerning the condition of any real property and/or the condition of any project or facilities that are the subject of the Services provided by CONSULTANT, except that DISTRICT shall provide such actual knowledge, information or data respecting site conditions, project or facility conditions as it may have available and which may impact CONSULTANT's scope of services.

3.2 Responsibility of CONSULTANT. It shall be the responsibility of CONSULTANT to immediately advise DISTRICT of any changes or other impediments which might affect CONSULTANT's ability to

El Toro Water District

Work Order # 31-050 Pump Station Asset Management Plan

completely perform the required Services within the time allotted by the schedule established in the Task Order.

3.3 Request for Change Order. CONSULTANT shall give DISTRICT written notice within five (5) days after any event which may give rise to a claim by CONSULTANT for a change in the schedule for performance or price provided in each Task Order. Said notice shall contain a written statement supporting CONSULTANT's claim along with a detailed estimate of the change in the price or scheduled time of performance. DISTRICT shall not be bound to any adjustments in this Agreement unless expressly agreed to by DISTRICT in writing and no claims shall be allowed if asserted after the final payment is made pursuant to the Task Order.

3.4 Changes Requested by DISTRICT. DISTRICT shall have the right at any time prior to the expiration or termination of the Agreement, or the applicable Task Order, to request changes and/or additional work as part of the Services. Changes shall be used for additions, deletions and revisions to the Services specified in each Task Order. Changes shall be instituted by means of a written communication prepared by DISTRICT and signed by DISTRICT and CONSULTANT in the form of a Task Order.

3.5 Delays. CONSULTANT is not responsible for damage or delay in performance caused by events beyond the reasonable control of CONSULTANT. If delays occur beyond the reasonable control of CONSULTANT, an equitable adjustment in CONSULTANT's time of performance and cost of CONSULTANT's personnel and subcontractors may be made. In no event shall the contract amount exceed the budget defined in Task Order No. 1. If a subsequent increase in budget is proposed, the DISTRICT and CONSULTANT will review the matter in good faith and negotiate a new Task Order to reflect amended terms and conditions that are mutually agreed to.

SECTION 4 - WORK PRODUCT/PROPRIETARY INFORMATION.

4.1 Proprietary Information. For the purpose of aiding CONSULTANT in the performance of its obligations under this Agreement, DISTRICT may, from time to time, furnish CONSULTANT with data in its possession relevant to the Project. It shall be the responsibility of CONSULTANT to apply reasonable caution in its review, use and interpretation of the data in order to prevent the disclosure of said data to any third party. CONSULTANT is entitled to rely on such information and data but shall advise DISTRICT if it believes such data or information is inaccurate using reasonable engineering skill in reaching such conclusions. All such data furnished to CONSULTANT shall be returned to DISTRICT within thirty (30) days of the date of termination of this Agreement. Notwithstanding the foregoing, CONSULTANT shall be entitled to keep one (1) copy of all such furnished data that CONSULTANT used, relied upon and/or incorporated into any deliverables produced hereunder.

4.2 Work Product. All original papers, documents, drawings, and other work product of CONSULTANT produced by CONSULTANT pursuant to this Agreement, except documents which are required to be filed with public agencies, shall be deemed solely the property of DISTRICT. All materials which CONSULTANT is required to prepare or develop in the performance and completion of the Services hereunder shall become the sole and exclusive property of DISTRICT without limitation when made whether the work for which they are made is completely or partially executed. Reuse of the Work Product for any other project or purpose shall be at DISTRICT's sole risk. Such materials prepared by CONSULTANT, or provided by any person or entity to assist CONSULTANT in performing under this Agreement, shall be delivered to DISTRICT within thirty (30) days of completion of the Services required under this Agreement or within thirty (30) days of the date this Agreement is terminated if this Agreement is terminated before the completion of all such Services.

4.3 Access to Work Product. DISTRICT shall, at all times, have access to the CONSULTANT's work product developed under this Agreement wherever in preparation and CONSULTANT shall facilitate such access and inspection thereof. Inspection or lack of inspection by DISTRICT shall not be deemed to be a waiver of any of its rights under this Agreement nor the acceptance, nor rejection, of the Services provided.

El Toro Water District

Work Order # 31-050
Pump Station Asset Management Plan

SECTION 5 - INSURANCE/INDEMNITY.

5.1 Insurance. CONSULTANT shall carry and maintain, at CONSULTANT's expense, at all times during the term of the Agreement, not less than the following coverage and limits of insurance which shall be maintained with insurers and under forms of policy satisfactory to DISTRICT:

- (a) Professional Liability Insurance: \$2,000,000.00 per claim for errors and/or omissions of CONSULTANT.
- (b) Workers Compensation and employers liability:
 - (i) State Workers Compensation - coverage as required by law;
- (c) Comprehensive bodily injury liability - except automobile: \$ 2,000,000 per occurrence and aggregate
- (d) Comprehensive bodily injury liability - automobile: \$ 1,000,000 combined single limit
- (e) Comprehensive property damage liability - except automobile: \$ 1,000,000 each loss
- (f) Comprehensive property damage liability - automobile: \$ 1,000,000 combined single limit

5.2 Provisions of Insurance.

- (a) All insurance required pursuant to the expressed provisions of this Agreement shall:
 - (1) Provide that coverage shall not be, cancelled, nonrenewed or reduced in contract limits until at least thirty (30) days written notice of such revision, cancellation, or reduction shall have been given to DISTRICT.
 - (2) Be reasonably satisfactory to DISTRICT in all other reasonable respects.
 - (3) Be documented/evidenced by a Certificate of Insurance to be submitted to DISTRICT upon execution of this Agreement.
- (b) The comprehensive general liability insurance to be maintained by CONSULTANT pursuant to this section above shall:
 - (1) Name DISTRICT as an additional insured.
 - (2) Be primary insurance with any other valid and collectable insurance available to the aforesaid insured constituting excess insurance.
- (c) DISTRICT reserves the right at any time to review the coverage, form and amount of insurance required hereby. If, in the opinion of DISTRICT, the insurance provisions in this Agreement and/or a particular policy do not provide adequate protection for DISTRICT, DISTRICT may require CONSULTANT to obtain additional insurance (including "Project Insurance" for design professionals involved in the Project, if deemed necessary by DISTRICT). Providing further that responsibility for payment of the cost of additional insurance pursuant to the terms of this paragraph shall be agreed upon by the parties prior to implementing such additional insurance requirements.

El Toro Water District

Work Order # 31-050 Pump Station Asset Management Plan

(d) The procuring of such required policies of insurance shall not be construed to limit CONSULTANT's liability, nor shall it be construed to fulfill the indemnification provisions and requirements of this Agreement.

(e) CONSULTANT shall consult an insurance broker who specializes in the type of insurance required by this Agreement and who shall arrange such insurance only with insurance companies acceptable to DISTRICT, of good reputation, of sound and adequate financial responsibility (Best's Rating of "A" or better) and licensed to issue such insurance in California. Said rating requirement shall not be applicable to policies underwritten by Lloyds of London.

5.3 Indemnity. CONSULTANT shall indemnify and hold harmless DISTRICT from and against any and all claims, ~~liabilities, damages, and actions of~~ any nature whatsoever to the extent caused by CONSULTANT's negligent acts or willful misconduct pursuant to this Agreement ~~and from and against all costs, attorneys' fees, expenses and liabilities incurred in the defense of any claim or any action or proceeding brought thereon.~~ CONSULTANT, upon notice from DISTRICT, shall defend the same at CONSULTANT's expense by counsel satisfactory to DISTRICT. In no event shall the cost to defend charged to CONSULTANT exceed CONSULTANT's proportionate percentage of fault.

SECTION 6 - TERM OF AGREEMENT.

6.1 Term. This Agreement may be terminated by either party at any time upon thirty (30) days prior written notice to the other party. The date for termination of this Agreement shall be in accordance with, and shall not be sooner than, the date for expiration or termination of the term of any Task Order which may still be in effect. In any event, once notice is given of the desire of either party to terminate this Agreement pursuant to this Section 6.1, said date for termination shall not be longer than the date for expiration or termination of any outstanding Task Order.

6.2 Termination of Services.

(a) Notwithstanding the provisions for termination set forth in this Section 6, this Agreement shall be deemed terminated upon the default of either party and pursuant to the procedures set forth herein. In the event all or any portion of the Services or work product prepared or partially prepared by CONSULTANT be suspended, abandoned or terminated, DISTRICT shall pay CONSULTANT for all fees, charges and Services provided for the Project, pursuant to a Task Order, ~~not to exceed any limit specified herein.~~ If this Agreement is terminated in whole or in part by the DISTRICT for reasons of default by the CONSULTANT, a negotiated adjustment in the price provided for in this Agreement shall be made, however, no amount shall be allowed for anticipated profit of unperformed Services. If termination for default is effected by the CONSULTANT for reasons of default by the DISTRICT, the negotiated adjustment of compensation shall include a reasonable profit for performed and unperformed Services.

SECTION 7 - GENERAL PROVISIONS.

7.1 Notices. Any and all notices or other communications which are required or permitted by this Agreement or by law to be served on or given to DISTRICT or CONSULTANT shall be in writing and shall be deemed duly served and given when personally delivered to DISTRICT or CONSULTANT, or in lieu of such personal delivery, on receipt by DISTRICT or CONSULTANT, ~~or return undelivered,~~ when deposited in the United States mail; first-class, certified mail, postage prepaid, return receipt requested, addressed to DISTRICT or CONSULTANT at addresses which are provided below.

El Toro Water District

Work Order # 31-050
Pump Station Asset Management Plan

DISTRICT

EL TORO WATER DISTRICT
P.O. Box 4000
Laguna Hills, CA 92654
(949) 837-7050
Attn: Hannah T. Ford

CONSULTANT

CONSULTANT
ADDRESS 1
ADDRESS 2
ADDRESS 3
Attn: NAME

7.2 Attorneys' Fees. In the event of any controversy, claim or dispute between the parties which arises out of or relates to this Agreement or to the breach of the same, the prevailing party shall be entitled to recover from the losing party reasonable expenses, attorneys' fees and costs.

7.3 Severability. If any provision of this Agreement is found by a court of competent jurisdiction to be void, invalid or unenforceable, then the parties agree that such invalidity or unenforceability shall have no effect whatsoever on the balance of this Agreement.

7.4 Counterparts. This Agreement may be signed and delivered in any number of counterparts, each of which, when signed and delivered, shall be an original, but all of which shall together constitute one and the same agreement.

7.5 Entire Agreement. This Agreement contains the entire agreement between the parties with respect to the subject matter of this Agreement and any agreement or representation with respect to the same or the obligations of either party with respect to the same which is not expressly provided in this Agreement or in a written document which is signed by the party to be charged, shall be null and void.

7.6 Amendment. This Agreement may not be amended except by a subsequent writing which is signed by the parties.

7.7 Incorporation of Recitals. The Recitals and section titles set forth herein are incorporated herein and are an operative part of this Agreement.

7.8 Successors and Assigns. This Agreement shall be binding upon the heirs, administrators, successors and assigns of DISTRICT and CONSULTANT.

7.9 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

7.10 Effect of Waiver. The failure of either party to insist on strict compliance with any of the terms, covenants or conditions of this Agreement by the other party shall not be deemed a waiver of that term, covenant or condition, nor shall any waiver or relinquishment of any right or power or any one time or times be deemed a waiver or relinquishment of that right or power for any other times.

El Toro Water District

Work Order # 31-050 Pump Station Asset Management Plan

7.11 Estimates and Projections. In providing opinions of cost, financial analyses, economic feasibility projections, schedules, and quantity and/or quality estimates for potential projects, CONSULTANT has no control over cost or price of labor and material; unknown or latent conditions of existing equipment or structures that may affect operation and maintenance costs; competitive bidding procedures and market conditions; time or quality of performance of third parties; quality, type, management, or direction of operating personnel; the incoming water quality and/or quantity; the way the DISTRICT's plant(s) and/or associated processes are operated and/or maintained; and other economic and operational factors that may materially affect the ultimate project elements, including, but not limited to, cost or schedule. Therefore, CONSULTANT makes no warranty that the DISTRICT's actual project costs, financial aspects, economic feasibility, schedules, and/or quantities or quality realized will not vary from ENGINEER's opinions, analyses, projections, or estimates.

7.14 Performance of Services by CONSULTANT to District. The services to be performed by CONSULTANT are intended solely for the benefit of the DISTRICT. Nothing contained herein shall confer any rights upon or create any duties on the part of CONSULTANT toward any person or persons not a party to this Agreement including, but not limited to any contractor, subcontractor, supplier, or the agents, officers, employees, insurers, or sureties of any of them.

IN WITNESS WHEREOF, the parties have hereunto set their hands on the first day above written.

EL TORO WATER DISTRICT

CONSULTANT

By _____

By _____

DENNIS P. CAFFERTY
General Manager

NAME
TITLE


Appendix C - Acknowledgment of Addenda



END OF ADDENDUM NO. 1

The contract documents require that this Addendum No. 1 be executed and submitted with the bid.

Date: 08/01/2022



Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 1 and accept all conditions contained herein.

Dated: 08/01/2022

BIDDER: Hazen and Sawyer

BY: 

END OF ADDENDUM NO. 2

The contract documents require that this Addendum No. 2 be executed and submitted with the bid.

Date: 8/9/2022

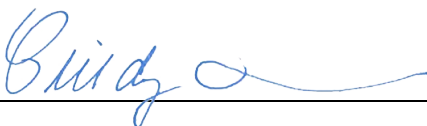
Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 2 and accept all conditions contained herein.

Dated: 08/10/2022

BIDDER: Hazen and Sawyer

BY: 

END OF ADDENDUM NO. 3

The contract documents require that this Addendum No. 3 be executed and submitted with the bid.

Date: August 17, 2022

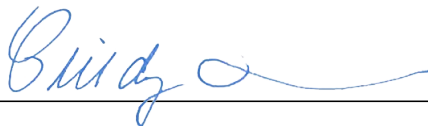
Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 3 and accept all conditions contained herein.

Dated: 08/17/2022

BIDDER: Hazen and Sawyer

BY: 



Hazen

Hazen and Sawyer
7700 Irvine Center Drive • Suite 200 • Irvine, CA 92618

Proposed Fee ETWD Pump Station AMP Proposal



Proposed Fee - ETWD Pump Station AMP Proposal

Hazen and Sawyer



September 2, 2022

		Proj Dir	PM	AM SME	Civil/ Mech	EI&C	Structural	Eng Support	Cost Estimating	Asset Data Analyst	Digital Solutions	CMMS/GIS Analyst	O&M	QA/QC				
		CM	SS	SP	SC	JY	JB	AH	CP	MK	SZ	JE	FE	BO	Total	Fee		
Task	Description	SPC	A	A	SA	SA	AE	AE	A	S	S	GA	A	SA	Hours	Labor	Expense	Total
1	Project Management and Meetings	2	52	8	2	2	0	8	0	0	2	2	4	0	82	\$20,340	\$1,000	\$21,340
1a	Project management	0	24	0	0	0	0	0	0	0	0	0	0	0	24	\$6,360	\$0	\$6,360
1b	Meetings	2	28	8	2	2	0	8	0	0	2	2	4	0	58	\$13,980	\$1,000	\$14,980
2	Data Request and Review	0	11	8	0	0	0	12	0	4	2	0	16	3	56	\$12,585	\$0	\$12,585
2a	Critical asset identification (value added)	0	2	1	0	0	0	0	0	0	0	0	0	1	4	\$1,085	\$0	\$1,085
2b	Data request and review	0	1	0	0	0	0	8	0	4	0	0	0	1	14	\$2,155	\$0	\$2,155
2c	Asset hierarchy development	0	2	1	0	0	0	4	0	0	0	0	0	1	8	\$1,585	\$0	\$1,585
2d	Key staff engagement and knowledge transfer	0	6	6	0	0	0	0	0	0	2	0	16	0	30	\$7,760	\$0	\$7,760
3	Risk Analysis	2	18	12	4	32	8	32	0	0	32	4	38	5	187	\$41,490	\$1,800	\$43,290
3a	Condition assessment	0	2	2	2	32	8	0	0	0	32	4	32	1	115	\$26,650	\$1,800	\$28,450
3b	Consequence of failure	0	8	8	0	0	0	16	0	0	0	0	4	2	38	\$7,880	\$0	\$7,880
3c	Risk analysis	2	8	2	2	0	0	16	0	0	0	0	2	2	34	\$6,960	\$0	\$6,960
4	RUL and Replacement Costs	0	4	2	0	0	0	16	24	6	0	0	0	2	54	\$11,430	\$0	\$11,430
4a	Remaining useful life	0	2	1	0	0	0	8	0	2	0	0	0	1	14	\$2,385	\$0	\$2,385
4b	Replacement costs	0	2	1	0	0	0	8	24	4	0	0	0	1	40	\$9,045	\$0	\$9,045
5	CMMS Recommendations	0	10	10	0	0	0	32	0	0	0	12	12	4	80	\$15,200	\$0	\$15,200
5a	Current business practice/needs assessment	0	8	8	0	0	0	16	0	0	0	8	8	2	50	\$9,980	\$0	\$9,980
5b	Vendor comparison	0	2	2	0	0	0	16	0	0	0	4	4	2	30	\$5,220	\$0	\$5,220
6	Prioritized CIP and AMP TM	4	26	10	3	3	0	56	0	12	20	6	3	7	150	\$28,325	\$0	\$28,325
6a	Prioritized CIP	1	8	4	1	1	0	16	0	2	4	0	1	1	39	\$7,605	\$0	\$7,605
6b	AMP technical memorandum	3	16	4	2	2	0	40	0	2	0	2	2	4	77	\$14,640	\$0	\$14,640
6c	Dynamic CIP dashboard (value added)	0	2	2	0	0	0	0	0	8	16	4	0	2	34	\$6,080	\$0	\$6,080
Grand Total		8	121	50	9	37	8	156	24	22	56	24	73	21	609	\$129,370	\$2,800	\$132,170

**El Toro Water District
Pump Station AMP Schedule**

		2022												2023						
		Sep	10/3	10/10	10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5	12/12	12/19	12/26	Jan	Feb	Mar	Apr	May
	ETWD Board Meeting Week																			
1	Project Management and Meetings																			
1a	Project management																			
1b	Meetings		1		2						3		4						5	6
2	Data Request and Review																			
2a	Critical asset identification																			
2b	Data request and review																			
2c	Asset Hierarchy Development																			
2d	Key staff engagement and knowledge transfer																			
3	Risk Analysis																			
3a	Condition assessment																			
3b	Consequence of failure																			
3c	Risk Analysis																			
4	RUL and Replacement Costs																			
4a	Remaining useful life																			
4b	Replacement costs																			
5	CMMS Recommendations																			
5a	Current business practice/needs assessment																			
5b	Vendor comparison																			
6	Prioritized CIP and AMP TM																			
6a	Prioritized CIP																			
6b	AMP technical memorandum																			
6c	Dynamic CIP dashboard																			

- 1 - Kickoff meeting (intros, data review, objectives, deliverables, CA scheduling)
- 2 - Critical asset identification, asset hierarchy, CA approach
- 3 - COF/LOF scoring review, risk analysis findings
- 4 - 10-year CIP deliverable review
- 5 - CMMS needs assessment
- 6 - Project closeout



PREPARED FOR
EL TORO WATER DISTRICT



Engineering Services for
Pump Station
Asset Management Plan



FEE PROPOSAL | SEPTEMBER 2022

September 2, 2022

Hannah Ford, PE, Engineering Manager
El Toro Water District
2451 Los Alisos Boulevard
Lake Forest, California 92630

Subject: Pump Station Asset Management Plan

Dear Ms. Ford and Selection Committee Members:

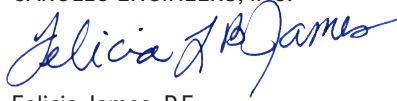
In accordance with the El Toro Water District's Request for Proposals, Carollo has prepared and is submitting herewith our Fee Proposal for providing professional engineering services for the Pump Station Asset Management Plan. Carollo's people-focused approach to asset management means that your staff will be engaged and armed with clear and comprehensive information to move forward.

This Fee Proposal is an estimate of engineering costs to furnish our Approach and Scope of Services as defined in Carollo's proposal to the District, which is consistent with the requirements of the RFP. The Fee Proposal prepared is included as an attachment to this letter. The Fee proposal shows the estimated hours and expenses for each major task to be completed by Carollo. Direct expenses consist of Carollo labor costs, project equipment and computer costs (PECE). Indirect costs for printing and travel are invoiced at cost.

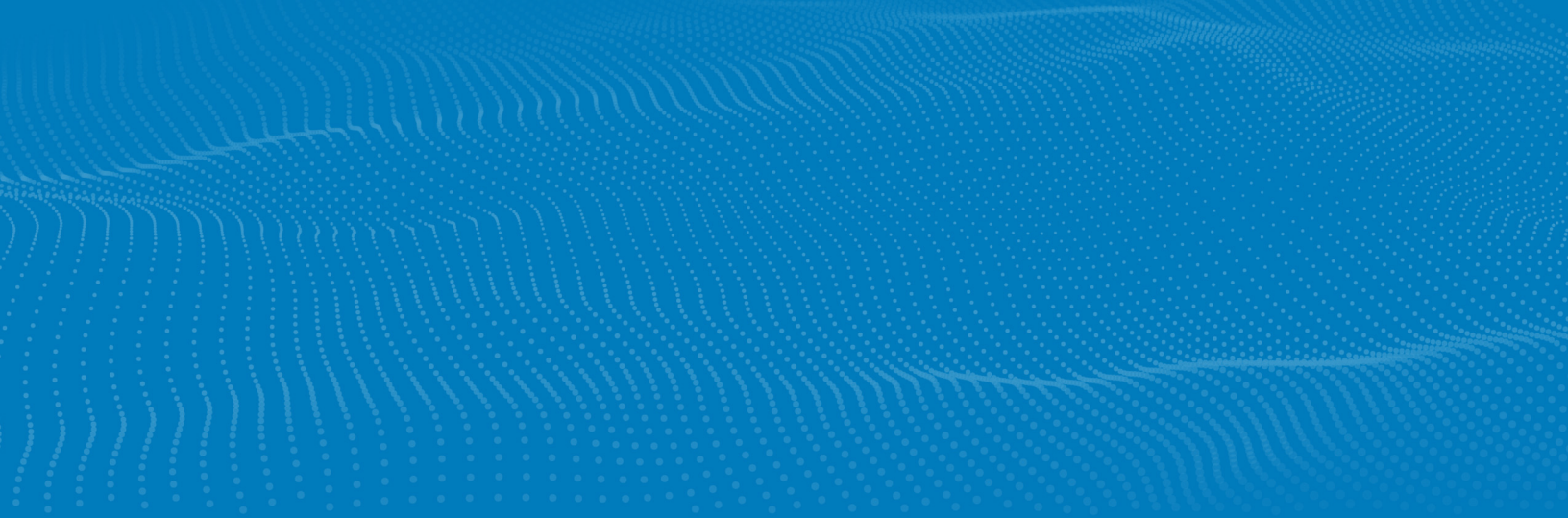
Thank you for the opportunity to serve the El Toro Water District on this important project. We appreciate the trust you have in us by allowing us to provide a proposal. Please contact us with any questions you may have regarding our Fee Proposal.

Sincerely,

CAROLLO ENGINEERS, INC.



Felicia James, P.E.
Associate Vice President



 **carollo**
Engineers...Working Wonders With Water®

carollo.com

EL TORO WATER DISTRICT



SEPTEMBER 2, 2022

PROPOSAL FOR
PUMP STATION ASSET
MANAGEMENT PLAN



BLACK & VEATCH

September 2, 2022

Hannah Ford
District Engineer
El Toro Water District
Administration Office
24251 Los Alisos Blvd.
Lake Forest, CA 92630

RE: Proposal for Pump Station Asset Management Plan

Dear Ms. Ford,

As El Toro Water District (ETWD) enters into this phase of formalizing its Asset Management Program, Black & Veatch is excited about the opportunity to collaborate with you and form a long-term partnership implementing your Asset Management Program. Key offerings we bring to ETWD that will ensure an effective and efficient Pump Station Asset Management Plan are:

- **Collaborative Project Leaders.** The Black & Veatch team is led by Derek Kurtti and Lani Good who have both spent significant parts of their careers in the field and the utility owner's seat, respectively, and they understand how to collaborate across diverse teams with competing priorities. Derek has been working with your Pump Stations group on the JTM Pump Station project, so he provides valuable continuity in connecting your team with ours to develop a long-term rehab/replacement program. Lani's broad experience, collaborative style, and practical approach will help your team reach consensus and develop an Asset Management approach that applies to all of your facilities.
- **Schedule and People Focused.** This project will be awarded September 22nd and on January 1st a significant amount of experience-based knowledge will be lost with the retirement of your Pump Station leader, Mr. Troy Davis. Derek is working with Mr. Davis on the JTM Pump Station and will ensure effective collaboration during October and November, before the holiday season and Mr. Davis' final weeks.
- **Long-Term Approach.** Our approach is to begin with the end in mind by developing an Asset Management Framework that can establish district-wide strategies that can be applied to the Pump Station Asset Management Plan. Our approach includes:
 - **Asset Management Best Practices.** Instill confidence and gain staff buy-in by leveraging well-established industry standards, best practices, and certified experts.
 - **Asset Management Framework.** Establish ETWD staff buy-in and a district-wide framework to guide the development of AMPs and tools.
 - **Data Management & Tools.** Develop data management strategies, CMMS recommendations and tools driven by ETWD goals established in the AM Framework.
 - **Proven, Efficient Process.** Gain efficiencies by leveraging tried-and-true Black & Veatch asset management templates, tools, and data libraries.

Black & Veatch will provide ETWD the requested insurance coverage and we agree to the standard contract language with no exceptions. We acknowledge receipt of three addenda. We look forward to continuing to work with you and are excited to partner with you on your asset management journey.

Very truly yours,
Black & Veatch Corporation



Leynep Erdal, P.E.
Associate Vice President



Derek Kurtti, P.E.
Project Manager



A

Relevant Experience

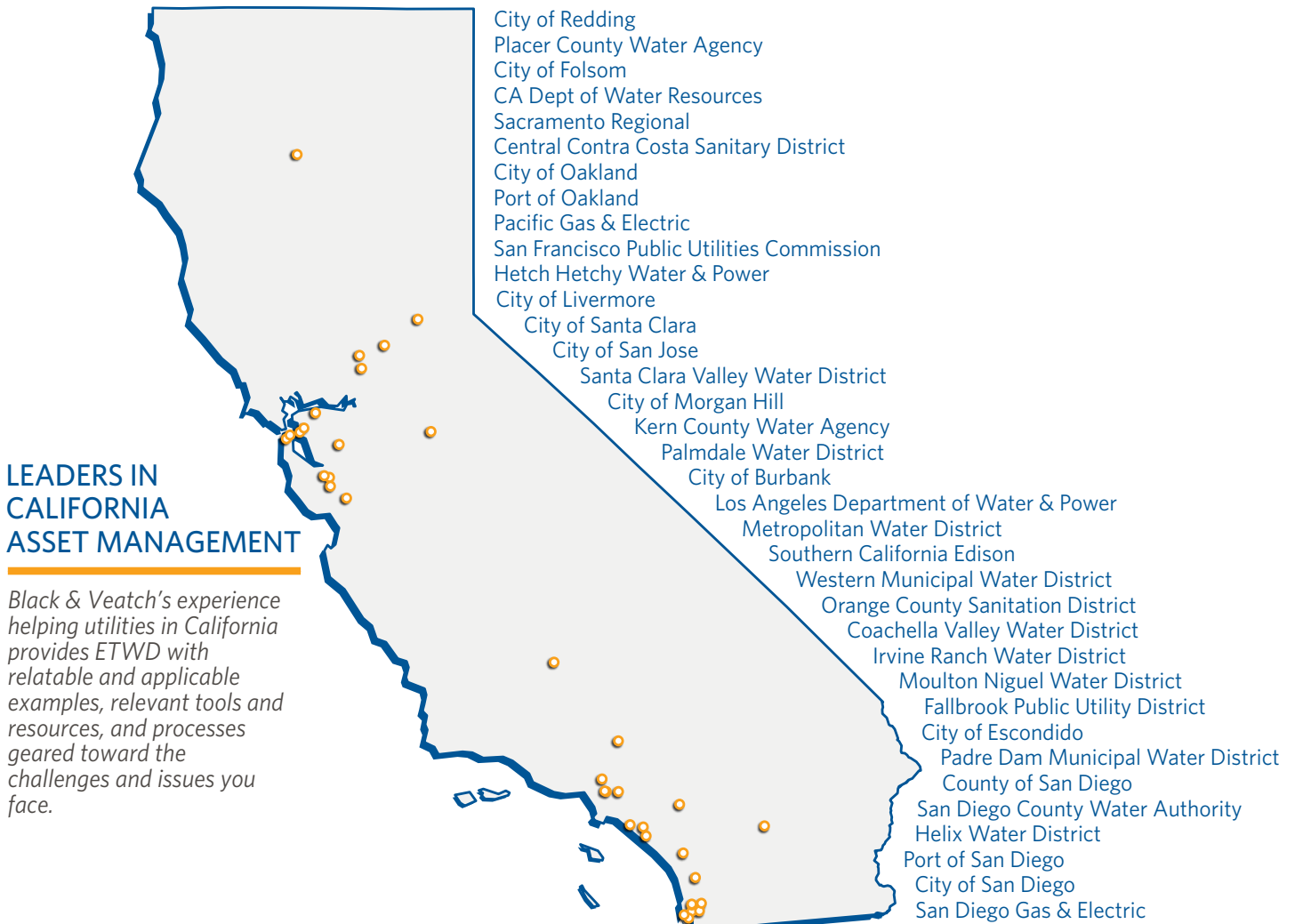


A Relevant Experience

EXPERIENCE MATTERS

Black & Veatch is a global leader in asset management with a highly skilled local group that is available to help formalize and advance your Asset Management Program and your Pump Station Asset Management Plan. **Condition and risk assessments, data management solutions, and rehab/replacement planning for capital prioritization are key focuses in Black & Veatch's repertoire of assessing and improving water and wastewater facilities throughout California, the United States, and the world.** We understand that each utility is unique, and we apply experience and expertise gained on our past projects and through our research initiatives to bring the best solutions to our clients, to support their mission of delivering safe, reliable, and affordable water to their customers. Leveraging recent project experience, our team will bring lessons learned, recent industry trends, and project successes to ETWD and your Pump Station Assessment Management Plan.

Gaining stakeholder support for your AMP requires that you get this initial phase of the program right. We have the experience needed to get it right, every time. A sampling of our asset management project experience is provided here, along with references. The team that successfully delivered the reference projects would be the team delivering your project. We hope you have the opportunity to discuss our performance with these client references.



Representative Asset Management Plan Experience

To highlight our experience, we have included the following summary matrix of our team’s recent projects with similar components. A selection of key project descriptions from the matrix are included in this section to showcase our unparalleled experience in implementing asset management projects.

	ASSET INVENTORY	CONDITION ASSESSMENT	RISK MANAGEMENT	RENEWAL FORECAST	DATA MANAGEMENT/ TOOLS
Irvine Ranch Water District, CA 5-Year CIP and Asset Management Plan*	■	■	■	■	■
Coachella Valley Water District, CA Asset Management Program Support*	■	■	■		■
Helix Water District, CA 2030 Capital Improvement Program Master Plan*	■	■	■	■	■
Western Municipal Water District, CA Asset Management Program Support*	■	■	■	■	■
California Department of Water Resources (DWR), CA Asset Management Program*	■	■	■	■	■
City of Burbank Water and Power, CA Reservoir 2 Condition Assessment*	■	■		■	■
Hetch Hetchy Water and Power, CA Asset Capital Program Management and Risk Analysis	■		■	■	
City of Oakland, CA Wastewater Collection System Master Plan	■	■	■	■	■
City of Morgan Hill, CA Wastewater Collection System Asset Management Plan	■	■	■	■	■
San Diego County Sanitation District, CA Asset Management and Condition Assessment		■	■	■	■
City of Fairfield, CA Potable Water Pump Station Asset Management Plan Fairfield, CA	■	■	■	■	■
City of Dixon, CA Water Master Plan and Asset Management Plan	■	■		■	
City of Yuba City, CA Water Treatment Plant and Distribution System Master Plan	■	■	■	■	■
Dublin San Ramon Services District, CA Wastewater Treatment and Biosolids Facilities Master Plan	■	■		■	■
Carmel Area Wastewater District, CA Collection System Hydraulic Model and Asset Management Plan	■	■	■	■	
City of Carlsbad, CA Asset Management Planning		■	■	■	■
Hampton Roads Sanitation District, VA ISO 55001 AM Program Services	■	■	■	■	■
Tulsa Metropolitan Utility Authority, OK Utility Enterprise Initiative, AM Program	■	■	■		■
City of Glendale, AZ AM Program Implementation	■	■	■		■
City of Emporia, VA Emporia WTP Asset Management Plan	■	■	■	■	■
Charleston Water System, SC Plum Island WWTP Asset Valuation	■	■	■	■	■
City of Dunedin, FL Dunedin WTP Asset Management Plan	■	■	■	■	■
Broward County, FL Regional Wastewater Master Plan	■	■	■		■
Polk County, FL Asset Management Services	■	■			■
City of Topeka, KS WTP Facility Master Plan	■	■	■	■	■
City of Grand Rapids, MI Master Plan Update	■		■	■	■
City of Wilmington, DE Sewer Asset Management Plan	■	■	■	■	■

* Project write-up included



The thing I love about Black & Veatch’s prioritization process is that it clearly quantifies the benefits of reducing risk in a tangible way to help my team and I make strategic decisions..”

MARGARET HANNAFORD

HETCH HETCHY WATER & POWER DIVISION MANAGER
SAN FRANCISCO PUBLIC UTILITIES COMMISSION

IRVINE RANCH WATER DISTRICT, CA

5-Year CIP and Asset Management Plan

Black & Veatch developed an asset management CIP for 56 pump stations, 21 lift stations, 49 tanks, and 32 wells, which represented over 9,717 assets. This CIP was a new and major initiative put forth by IRWD to expand and optimize the District's approach to planning capital rehabilitation and replacement projects. The intent of this project was to develop condition and risk-based decision processes to develop a decision support tool that IRWD will use to establish the initial 5-year CIP and annual updates thereafter. A Dynamic Asset Management Platform was developed using the Microsoft Power BI tool, which was designed to facilitate easy interpretation, comparison, and prioritization of alternative actions and investments that should occur to optimize lifecycle cost and reduce risk.



RELEVANCE

- Pump/Lift Stations, Tanks, EI&C
- Asset Inventory
- Condition Assessment
- Risk Assessment
- Rehab/Replacement Plan
- Capital Prioritization
- Data Management/Tools
- Training & Support



BLACK & VEATCH TEAM MEMBERS

- Lani Good
- Clinton McAdams
- Jeff Stillman
- Connie Hu
- Scott Peters



CLIENT REFERENCE

Eric Akiyoshi
 Planning Director
 (949) 453-5552
 akiyoshi@irwd.com



COACHELLA VALLEY WATER DISTRICT, CA

Asset Management Program Support

This comprehensive asset management foundation includes field validation of existing inventory for both horizontal (e.g. manholes, valves, catch basins, inlets, etc.) and vertical (treatment plants, lift stations, etc.) assets. The asset data inventory and condition assessment provides an updated asset registry that contains key information including location, descriptive attribution, photographs, and baseline asset valuation data, setting the stage for CMMS implementation. Black & Veatch is currently providing implementation support for the District's Nexgen CMMS.

RELEVANCE

- Pump/Lift Stations, Tanks, Valves, EI&C
- Asset Inventory
- Condition Assessment
- Rehab/Replacement Plan
- Capital Prioritization
- Data Management/Tools
- Training & Support



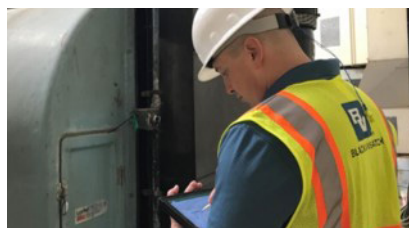
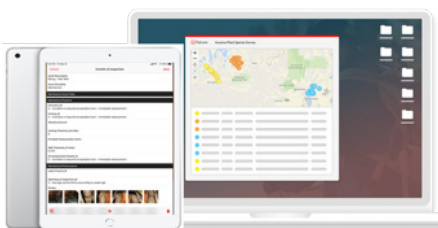
BLACK & VEATCH TEAM MEMBERS

- Clinton McAdams
- Scott Peters
- Jeff Stillman



CLIENT REFERENCE

Dan Charlton
 Assistant GM O&M
 (760) 398-2661 x 2316
 dcharlton@cvwd.org



Black & Veatch did an outstanding job leading the implementation of our Asset Management Program. Their team was professional, diligent and strategically developed a solid integration plan!"

Dan Charlton, CVWD, AGM

HELIX WATER DISTRICT, CA

2030 Capital Improvement Program Master Plan

Black & Veatch was retained by the District to utilize a portfolio optimization and project scheduling tool to develop a proposed 10-year CIP for each developed business case budget scenario focused on maximizing risk reduction. A comprehensive condition assessment is integrated with the needs resulting from the CIP master plan update to assist the District with identifying top priorities for rehabilitation investment decisions as well as opportunities to combine different improvement needs into one project to maximize the use of CIP funds.



RELEVANCE

- Pump/Lift Stations, Tanks, Valves
- Asset Inventory
- Condition Assessment
- Rehab/Replacement Plan
- Capital Prioritization
- Data Management/Tools
- Training & Support



BLACK & VEATCH TEAM MEMBERS

- Jeff Stillman



CLIENT REFERENCE

Jim Tomasulo
 Director of Engineering
 (619) 466-0585
 jim.tomasulo@helixwater.org



WESTERN MUNICIPAL WATER DISTRICT, CA

Asset Management Program Support

Black & Veatch developed a Dynamic Asset Management Plan using modules in PowerBI to serve as a management and communication tool for the District. The team began by assessing the District's water system data for availability, completeness, and gaps; and then developed a high-level roadmap for near-term asset management activities with a focus on developing LoF and CoF criteria, forecasting CIP needs, optimizing CIP spending, and communicating needs to District managers and policy makers. Black & Veatch has developed Asset Management Plan modules for the District's distribution system and is currently inventorying and assessing the condition of the District's pump stations to include within the Dynamic Asset Management Plan.

RELEVANCE

- Pump Stations, Valves, EI&C
- Asset Inventory
- Condition Assessment
- Risk Assessment
- Rehab/Replacement Plan
- Capital Prioritization
- Data Management/Tools
- Training & Support



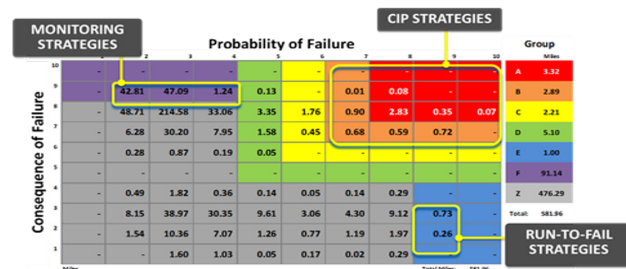
BLACK & VEATCH TEAM MEMBERS

- Jeff Stillman
- Clinton McAdams
- Connie Hu



CLIENT REFERENCE

Derek Kawaii
 Director of Engineering
 (951) 571-7100
 dkawaii@wmwd.com



Black & Veatch provided an extremely practical approach that was ideal for an agency of our size. They collaborated well with our team to evaluate and fill data gaps, and prepared a powerful PowerBI analytical tool that actually resulted in a less expensive program than we originally envision"

Derek Kawaii, Director of Engineering, WMWD

CALIFORNIA DEPARTMENT OF WATER RESOURCES, CA

O&M Asset Management Plan

Since 2015, Black & Veatch has been implementing an Asset Management Program for the Division of O&M. Among its assets, the California State Water Project (SWP) includes 36 dams, 275 miles of pipelines, 412 miles of canals, 374 buildings, 31 pump stations and hydro power plants, 694 miles of roads, and 220 bridges. Black & Veatch began with developing an Asset Management Strategy, a rehab/replacement methodology and tool to forecast a 50-year CIP, and templates and guidance documents for developing AM Plans based in the IIMM structure. Black & Veatch is now in the AM Plan production phase, recently completed the Transformer AM Plan and the South Bay Aqueduct AM Plan (pipelines and canals) and is currently developing AM Plans for Pipelines and Valves.



RELEVANCE

- Pump Stations, Reservoirs, Valves, EI&C
- Asset Inventory
- Condition Assessment
- Rehab/Replacement Plan
- Capital Prioritization
- Data Management/Tools
- Training & Support



BLACK & VEATCH TEAM MEMBERS

- Lani Good
- Jeff Stillman
- Connie Hu



CLIENT REFERENCE

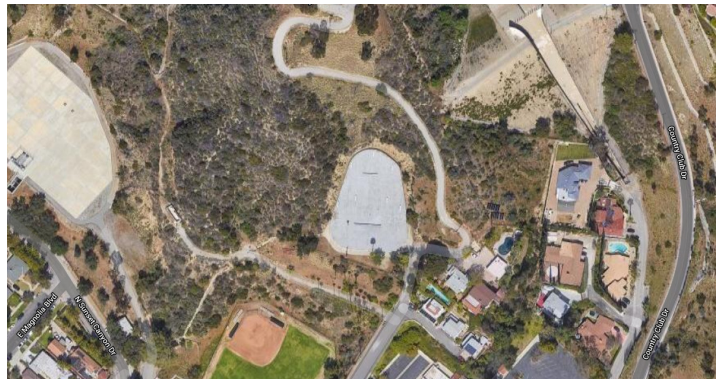
David Rennie
Project Manager
(916) 653-2827
David.Rennie@water.ca.gov



CITY OF BURBANK WATER AND POWER, CA

Reservoir 2 Condition Assessment

Black & Veatch conducted a conceptual, high-level analysis of Reservoir 2 to provide a report to justify viable corrective alternatives. Reservoir 2 is a 2.5-million gallon water storage reservoir within Zone 2 of BWP's drinking water distribution system. Existing physical and operating issues justified this study to support determination of next steps to manage the reservoir which is an essential structure to the health and safety of the general public. Our team performed record data review, data gap analysis, desktop condition assessment, and conceptual level alternative viability assessment.



RELEVANCE

- Asset Inventory
- Condition Assessment
- Risk Scoring
- Opinion or Probably Lifecycle Cost
- Capital Prioritization



BLACK & VEATCH TEAM MEMBERS

- Clinton McAdams
- Mark Lowe



CLIENT REFERENCE

Asif Sheikh
Principal Civil Engineer
(818) 238-3504
asheikh@burbankca.gov



B

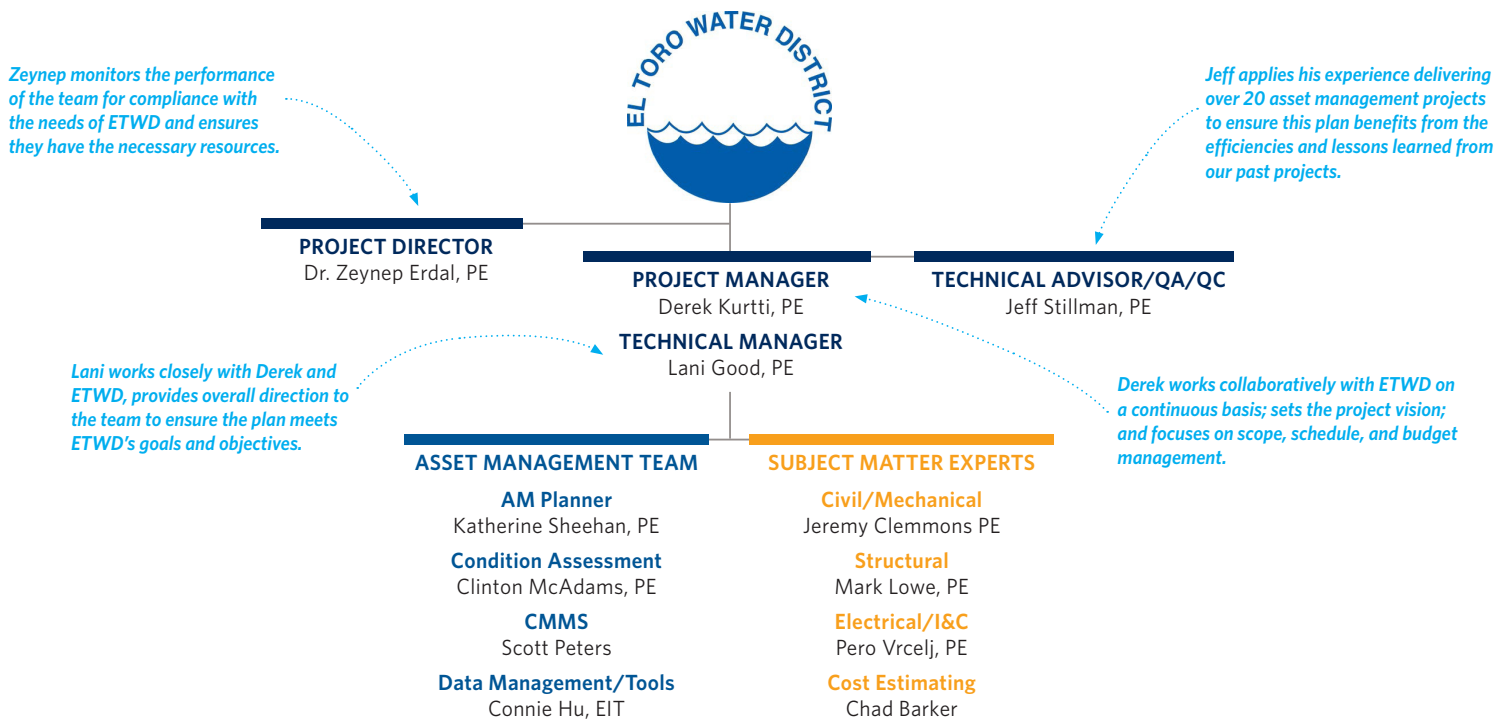
Project Team



B Project Team

INNOVATIVE TEAM FOCUSED ON DELIVERING SOLUTIONS

Black & Veatch is committed to providing ETWD with a timely, cost-effective project that will meet your objectives and your cost and schedule goals. The Black & Veatch team is led by **Derek Kurtti** and **Lani Good**. Derek spent the first part of his career as a construction engineer and manager working for two large contractors before transitioning to engineer consulting. This experience has provided him with a balanced perspective of the capital improvement process which helps him guide and support our team to meet each project’s goals. Lani has spent a significant part of her career in the utility owner’s seat and knows what it’s like to “be in your shoes.” This owner’s perspective gives her a deep understanding of your asset management journey and the support you’ll need along the way to gain staff buy-in and make sustainable improvements to your business processes. Both Derek and Lani know how to deliver projects because they understand how important it is to maximize staff time and budget constraints. This leadership team brings value to ETWD at every meeting and workshop by driving the project team to present the appropriate level of detail to each group of stakeholders. Derek and Lani will be supported by Technical Advisor Jeff Stillman, who’s long-term experience for Hampton Roads and Tulsa brings a wealth of experience, libraries, and templates. For more information on each team member, please review their short bio paragraphs on the following pages and resumes in the Appendix.





Derek Kurtti, PE — PROJECT MANAGER

Years of Experience: 16 | **Professional Registration:** PE, CA, 84676 | **Workload:** Current: 75% Future: 55%

Drawing on his experience with ETWD and many other utilities, Derek will serve as Project Manager and be your primary point of contact for the execution of this Asset Management Plan. A cornerstone of Black & Veatch's commitment to ETWD, Derek is an effective communicator and collaborator with a proven ability to identify and resolve challenges. He works closely with ETWD and our Asset Management team to provide the resources and tools, expertise, and guidance to support the advancement of your Asset Management Program. Derek brings:

- A balanced perspective of the capital improvement process which helps him guide and support our team to meet each project's goals
- Experience with utility infrastructure including pumping, storage, conveyance, and treatment
- Successful track record managing the Asset Management team to deliver tangible, usable asset management solutions for similar utilities including Irvine Ranch Water District

Relevant Experience

- El Toro Water District, JTM Pump Station
- Irvine Ranch Water District, 5-Year CIP and Asset Management Plan
- Moulton Niguel Water District, Eastern Transmission Main Condition Assessment



Derek Kurtti, PE — TECHNICAL MANAGER

Years of Experience: 22 | **Professional Registration:** PE, CA, 73677 | **Workload:** Current: 65% Future: 45%

Lani brings a unique blend of capital improvement planning and asset management expertise, along with an owner's perspective from her five-year term as consulting District Engineer at Castro Valley Sanitary District. Lani is an expert in guiding utilities of all sizes through the decision-making process, from long-term asset management strategies to urgent rehabilitation/replacement projects. Lani has developed capital improvement and/or rehab/replacement plans for over 30 utilities and 50 capital programs. She's managed the condition assessment of over 350 miles of large-diameter pipe, 1,700 miles of mains, and more than 50 pumping and treatment facilities. Lani's big-picture vision and ability to communicate technical information to diverse stakeholders will help ensure staff buy-in and the advancement of your Asset Management Program.

Relevant Experience

- California Department of Water Resources, O&M Asset Management Program
- Irvine Ranch Water District, 5-Year CIP and Asset Management Plan
- Castro Valley Sanitary District, District Engineer and Gravity Sewer and Lift Station Asset Management Plan
- City of Fairfield, Pump Station Asset Management Plan and CMMS Selection



Jeff Stillman, PE — TECHNICAL ADVISOR & QA/QC

Jeff is Black & Veatch's Asset Management Practice Lead and has over 25 years of experience in a wide variety of asset management projects and programs, including risk-based rehab and replacement programs and computerized maintenance management systems. Jeff brings innovative approaches for visualizing and analyzing data using business intelligence and leading asset management knowledge as an IAM Endorsed Assessor and Trainer.

Relevant Experience

- Irvine Ranch Water District, CA | 5-Year CIP and Asset Management Plan
- Helix Water District, CA | 2030 Capital Improvement Program Master Plan
- Western Municipal Water District, Asset Management Program Support
- California Department of Water Resources (DWR) Asset Management Program

Years of Experience
25

Professional Registration
PE, MA, 45416

Workload
Current: 60%
Future: 70%

TEAM MEMBERS THAT WILL DELIVER AN EFFICIENT ASSET MANAGEMENT PLAN

Our Asset Management Team and Subject Matter Experts are dedicated to delivering streamlined and efficient asset management solutions you can apply district-wide.

Asset Management Team



Katherine Sheehan, PE — AM PLANNER

Katherine's broad infrastructure experience ranges from master planning and asset management through design and construction management. Katherine has also worked in multiple City staff augmentation capacities advancing CIP projects and program objectives. Katherine's experience in the full asset life-cycle will make your CIP more realistic and implementable.

Relevant Experience

- City of Morgan Hill, Collection System Asset Management Plan
- San Diego County Water Authority, Water Facilities Master Plan
- City of Livermore, Condition Assessment and Asset Management Plan

Years of Experience
10

Professional Registration
PE, CA, 82702

Workload
Current: 60%
Future: 30%



Clinton McAdams, PE — CONDITION ASSESSMENT

Clinton has extensive background in assessment planning, data analysis, and rehabilitation. Emphasizing the importance of resolution and coverage during data collection has enabled him to successfully execute prioritization efforts, remediation design, CMMS implementation, and Asset Management Program development.

Relevant Experience

- Irvine Ranch Water District, 5-Year CIP and Asset Management Plan
- City of Burbank Water and Power, Reservoir 2 Condition Assessment
- Coachella Valley Water District, Asset Management Program Support

Years of Experience
9

Professional Registration
PE, CA, 88281
PE, NV, 024998

Workload
Current: 50%
Future: 55%



Scott Peters — CMMS

Scott is a Senior Information Solutions Consultant. He has over 20 years of program management, consulting, and systems implementation and integration experience on projects for multiple clients including public and private sector utilities. He specializes in the practical application of technologies to enable objective decision making for infrastructure management programs.

Relevant Experience

- Irvine Ranch Water District, 5-Year CIP and Asset Management Plan
- Coachella Valley Water District, Asset Management Program Support

Years of Experience
21

Professional Registration
N/A

Workload
Current: 55%
Future: 35%



Connie Hu, EIT — DATA MANAGEMENT/TOOLS

Connie serves as a Business Intelligence specialist focusing in tools to develop dashboards and reporting tools to provide business analytics, data visualizations, data tools and infrastructure and best practices to help clients make data-driven decisions. In addition, Connie's experience includes data catalog, data connection, data engineering, dashboards, user experience and implementation of raw data analytics, analysis, dashboard-focused deliverables and dynamic Business Intelligence Implementation.

Relevant Experience

- Irvine Ranch Water District, 5-Year CIP and Asset Management Plan
- City of Burbank Water and Power, Reservoir 2 Condition Assessment
- California Department of Water Resources (DWR), Asset Management Program

Years of Experience
9

Professional Registration
EIT, CA, 138155

Workload
Current: 70%
Future: 60%

Subject Matter Experts



Jeremy Clemmons, PE — CIVIL/MECHANICAL

Jeremy is a dedicated and accomplished Engineer with over 27 years of progressively responsible experience managing all technical aspects of highly complex water and wastewater infrastructure projects. Skilled in multiple aspects of water, wastewater and general civil engineering; major project management; hands-on reservoir, pump station and pipeline design; proactive client management and coordination; budgetary and labor cost controls; project cost estimating; and construction engineering services.

Relevant Experience

- Vallecitos Water District Water, Wastewater, and Recycled Water Master Plan
- City of Oceanside, Wastewater Facilities

Years of Experience
28

Professional Registration
PE, CA, C7140

Workload
Current: 70%
Future: 45%



Mark Lowe, PE — STRUCTURAL

Mark is a licensed Structural Engineer in five western states with more than 38 years of experience in structural design, project engineering and management. He has worked on various and numerous projects including water and wastewater treatment facilities, seismic retro-fit/rehabilitation/improvements, industrial & process facility plants.

Relevant Experience

- City of Burbank Reservoir 2 Condition Assessment
- Orange County Water District, Groundwater Replenishment System (GWRS) Project Final Expansion

Years of Experience
38

Professional Registration
PE, CA, 43603
See all in Resume

Workload
Current: 65%
Future: 40%



Pero Vrcelj, PE — ELECTRICAL/I&C

Pero is an electrical engineer with nearly 25 years of experience in the design and construction of water and wastewater systems and facilities in the public and industrial sectors. His public-sector background includes serving as Senior Electrical and I&C Engineer for: detailed design of wastewater and water treatment plants; process upgrades to existing facilities; odor control facilities design; water and wastewater electrical condition assessments; lift and pump stations design; and construction services.

Relevant Experience

- City of Burbank Water and Power, Reservoir 2 Condition Assessment
- San Jose - Santa Clara Regional Wastewater Facility, Pump Station Condition Assessment Study

Years of Experience
24

Professional Registration
PE, AZ, 59230

Workload
Current: 60%
Future: 60%



Chad Barker — COST ESTIMATING

Chad over 30 years of experience in the civil, water, and wastewater construction industry, with experience on multiple sizes and types of sitework, pipeline, WWTP, WTP, industrial process and other utility infrastructure projects. In addition to developing detailed project cost estimates, he has also developed detailed cost tracking systems, effectively managed projects, and personnel.

Relevant Experience

- City of Morro Bay, Water Reclamation Facility Design-Build
- Palos Verdes, Pipeline Project Progressive Design-Build

Years of Experience
31

Professional Registration
N/A

Workload
Current: 85%
Future: 65%

C

Project Approach



C Project Approach

APPROACH & SCOPE

ETWD is entering an exciting phase in its Asset Management journey to formalize its Asset Management Program and develop an Asset Management Plan for Pump Stations that can establish and apply district-wide strategies for condition and risk assessment and rehab/replacement forecasting. We are excited to join you on this journey. Our approach is to begin with the end in mind for your Asset Management Program as we hope to build a long-term partnership with you and your staff. Formalizing ETWD's Asset Management Program will require focus in the following areas:



FOCUSED WORKPLAN & SCHEDULE

To most efficiently meet your budget and schedule constraints, we will dedicate a focused team and streamline our approach and schedule.



ASSET MANAGEMENT BEST PRACTICES

Instill confidence and gain staff buy-in by leveraging well-established industry standards, best practices, and certified experts.



ASSET MANAGEMENT FRAMEWORK

Establish ETWD staff buy-in and a district-wide framework to guide the development of AMPs and tools.



DATA MANAGEMENT & TOOLS

Develop data management strategies, CMMS recommendations and tools driven by the ETWD goals established in the AM Framework.



PROVEN, EFFICIENT PROCESS

Gain efficiencies by leveraging tried-and-true Black & Veatch asset management templates, tools, and data libraries.



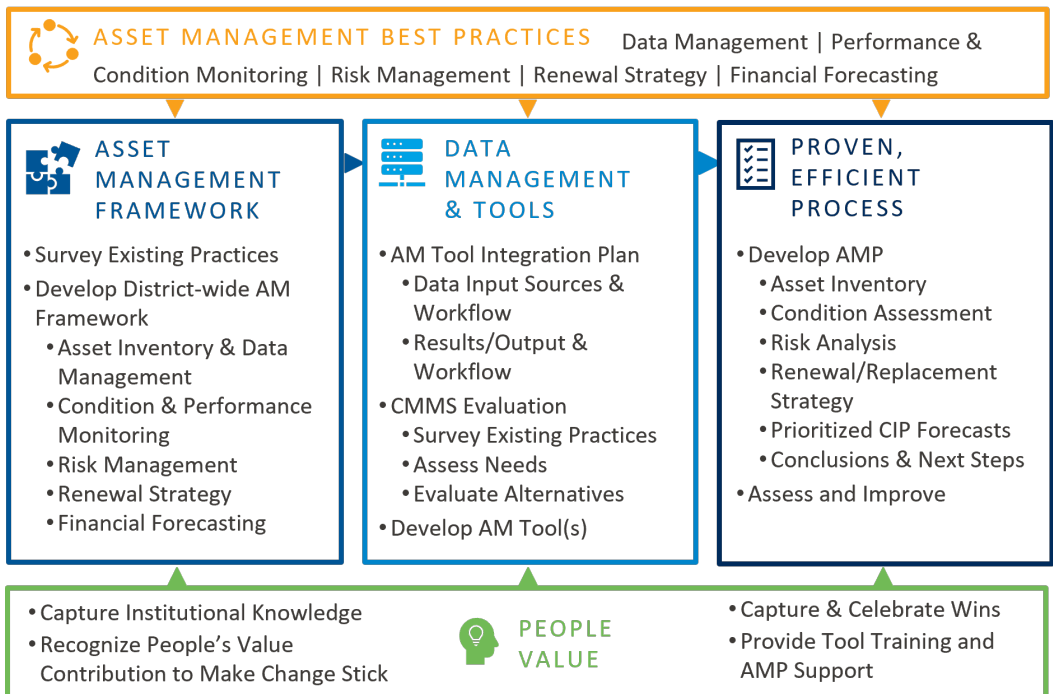
PEOPLE VALUE

Recognize people's value contribution, capture institutional knowledge with them in the field, and train and support them to make change stick.



A Focused Workplan to Efficiently Support ETWD

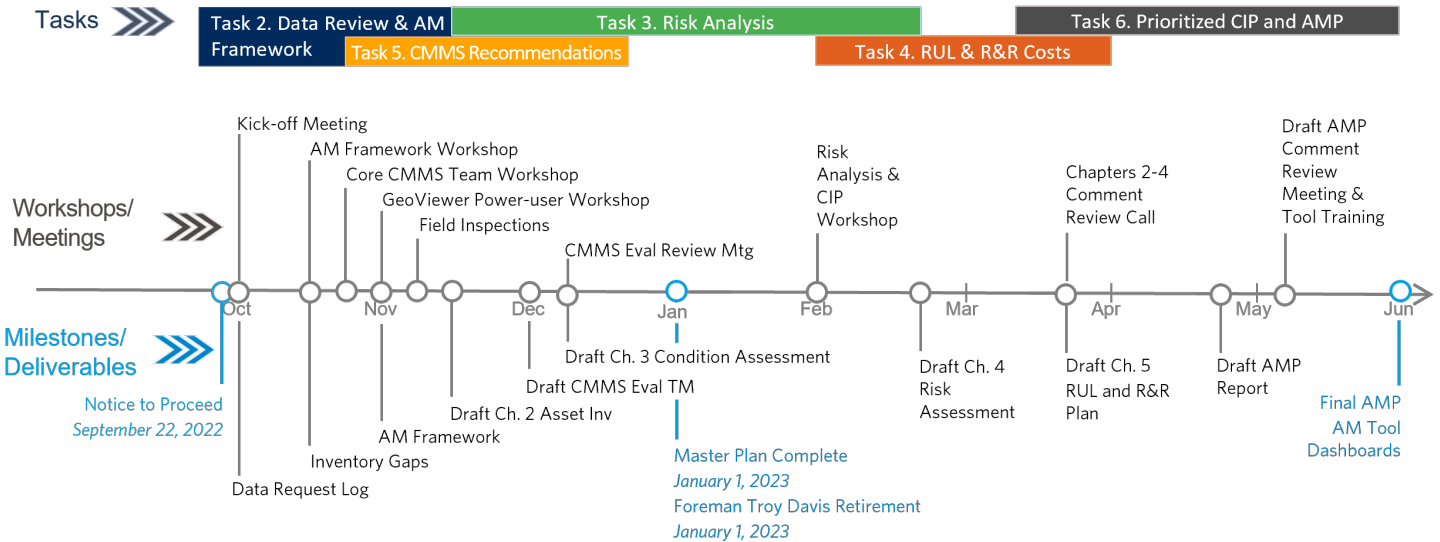
Success for your formal Asset Management Program starts with a well thought out workplan. The workplan shown is a deliberate process based upon our experience that focuses on engaging ETWD staff to establish an AM Framework, integrate data management in the process, build useful tools, and train and support you as you implement the AMP.





A Streamlined Schedule That Captures Institutional Knowledge

The schedule presented below is a streamlined, focused schedule that allows time for staff collaboration on district-wide needs and asset management strategies; spends key time in the field downloading institutional knowledge from your retiring staff; develops the AMP in an efficient and streamlined way to maximize resources, and trains and supports staff along the way. Submitting draft chapters along the way allows you to have long review times before comments are needed four weeks before the Draft AMP is submitted. We recommend keeping workshops and AMP chapter development activities nested close together to keep up momentum and a sense of success and progress.



Asset Management Best Practices



Gain Efficiencies and Instill Confidence

Tailored Approach Grounded in Asset Management Standards and Best Practices

Black & Veatch is an Institute of Asset Management (IAM) Endorsed Assessor for ISO 55001 (the most prominently used asset management standard). However, rather than rigidly adhering to ISO 55001 (which tends to overwhelm agencies like ETWD with burgeoning Asset Management Programs), we propose taking a tailored, more collaborative approach for ETWD. Our approach draws from ISO 55001, the International Infrastructure Management Manual (IIMM), and the Water Research Foundation SIMPLE tools (successor to the EPA’s ten steps) to best fit district-wide needs.

These standards provide guidance, templates, and best practices that will save time in developing your AMP and help instill confidence in your staff as many of them formalize their first AMP.

Asset Management Framework

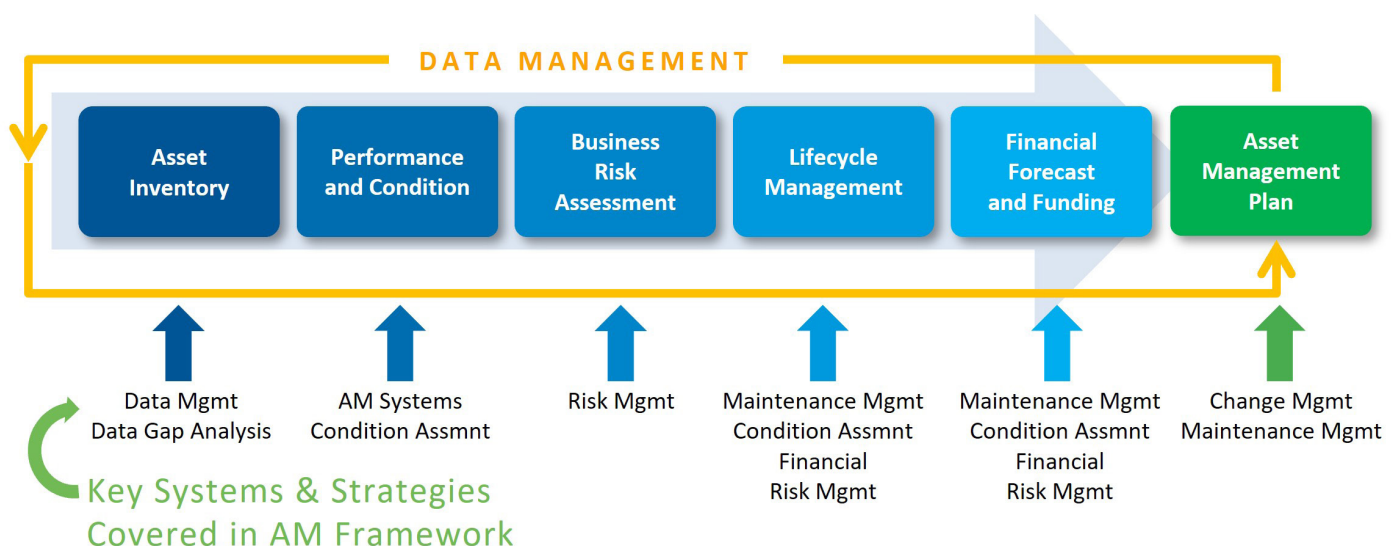
District-Wide Alignment

In developing the AM Framework, we collaboratively guide ETWD through the process of establishing district-wide strategies that will guide the development of AMPs and data management tools in this project and in the coming years as you develop AMPs for your water recycling plant, collection system, distribution system, fleet, etc. Key considerations include:

- Incorporating existing/differing data management tools and practices;
- Leveraging existing business processes and procedures while ensuring any new data that is collected is actionable for data-driven decisions in the future;
- Establishing standard asset data fields for each type of asset that contribute to cost, risk or other data-driven factors;
- Deciding as an organization on condition and risk scoring, remaining useful life, replacement cost, and CIP prioritization methodologies.

As the Pump Station and future AMPs are developed, there are key systems and strategies that contribute to each part of the AMPs. The process of developing the AM Framework will vet these strategies and systems (shown along the bottom of the graphic below) for your internal stakeholders and establish standardized strategies and methodologies for all of ETWD's facilities. This AM Framework then guides the subsequent tasks to make the process of developing and implementing AMPs more streamlined.

ASSET MANAGEMENT PLAN DEVELOPMENT PROCESS



CASE STUDY

Irvine Ranch Water District

Black & Veatch recently created a dynamic Asset Management Plan for IRWD that is linked to their CMMS with live condition data. This effort led to a Rehab/Replacement plan that uses a repeatable process for bundling CIP projects. The output gave the District a great visual tool for communicating internally and with their Board of Directors.



Black & Veatch helped us implement our Asset Management Plan in an efficient and sustainable way – standardizing, evolving, and enhancing our asset management practices.”

- MITCH ROBINSON
IRVINE RANCH WATER DISTRICT



Data Management & Tools

Driven by District-Wide Strategies in the AM Framework

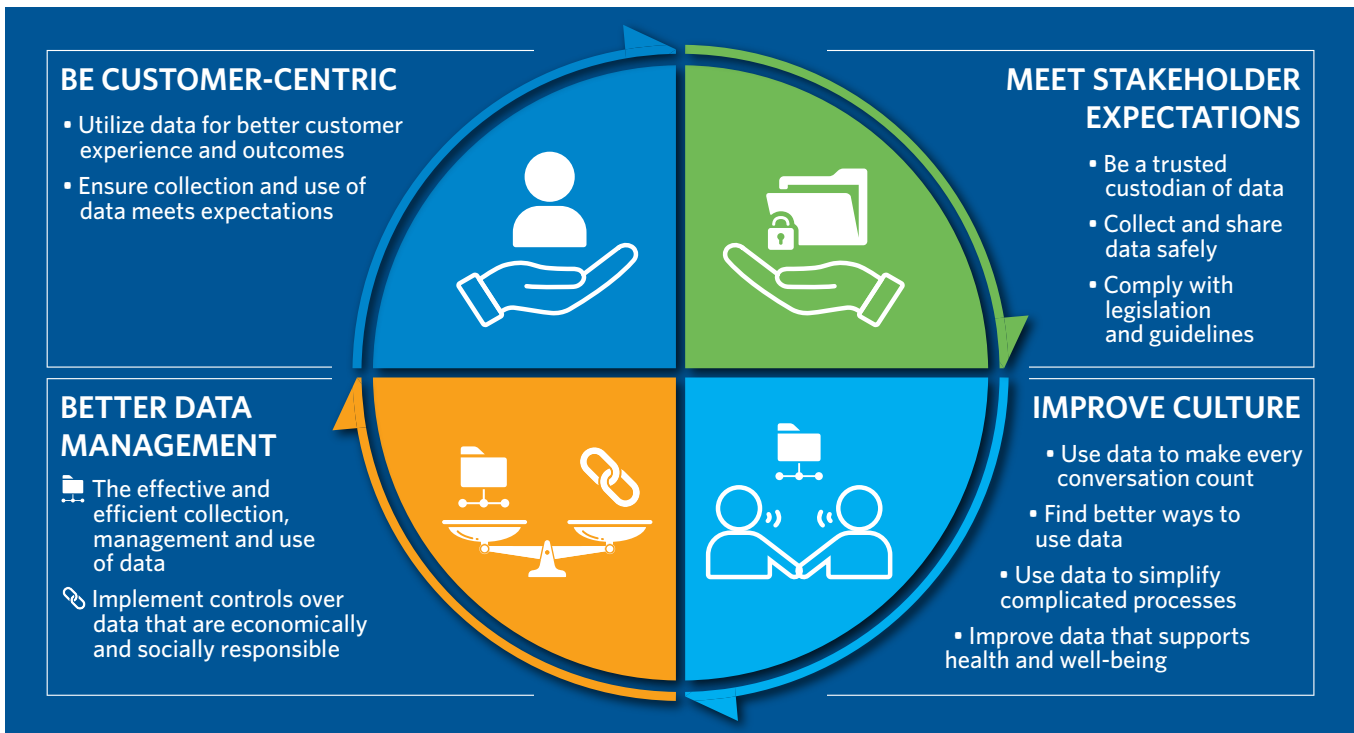
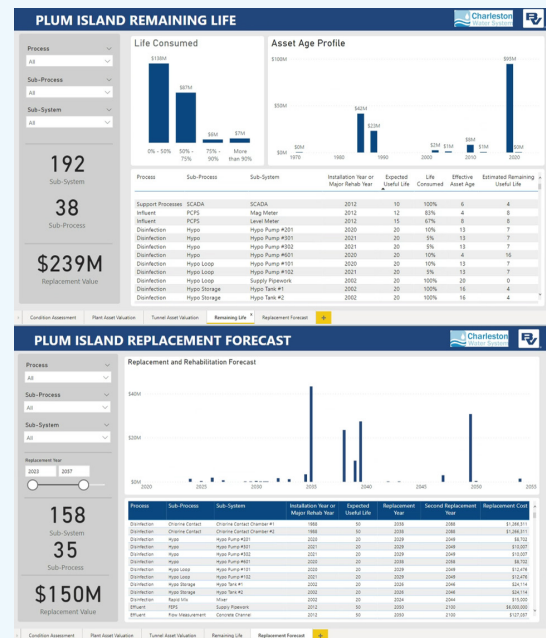
Build-on and Improve Existing Systems Our goal is not just to develop a Pump Station AMP, but to integrate with your existing programs and systems and harness information and feedback to better inform policy and decision makers. We understand that there are many parts of this AMP (and future AMPs) that already reside in many different places (GeoViewer, Excel, GIS, etc.). Our goal will be to help bring them all together into one place and develop a standardized data management process and CMMS recommendation that will empower that data to be used easily for data-driven decisions in the future across ETWD departments.

Deliver Easy-to-Use and Useful Tools We plan to deliver our tried-and-true simple Excel-based AM Model that performs the risk assessment, remaining useful life calculations, and cost projections all in one transparent place that is easy to use. We will also deliver a PowerBI file of a set of dynamic dashboards to improve efficiency in reviewing, improving, analyzing, and communicating results.

Black & Veatch's proven approach to data management improvements will help fast track ETWD's Asset Management Program in a cost effective, efficient way.

VISUALIZATIONS ARE WORTH A THOUSAND WORDS

One thing that sets Black & Veatch apart from other consultants is our ability to develop user-friendly information solutions. "Dashboarding" is business as usual for us, so that "Clear Communication" becomes business as usual for you.

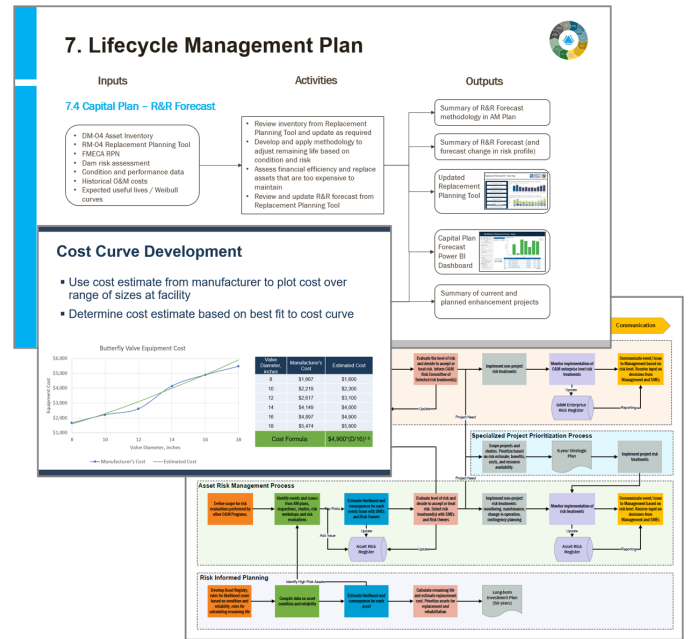




Proven, Efficient Process

Accelerate your AMP using Black & Veatch templates, tools, and data libraries. At Black & Veatch, our staff play on a big team of over 50 asset management professionals, bringing templates and lessons learned from your peer utilities around the country. From day one, we bring proven methodologies and workshop materials to help kick-start your AM Framework – allowing your team of internal stakeholders to focus on refining the processes for use district-wide, rather than re-inventing the wheel. These small, quick wins in the beginning of formalizing your AM program will help team-building efforts and give your staff confidence and a sense of accomplishment.

Once we start developing the Pump Station AMP, our “accelerators” such as templates, tools, and data libraries will help us **effectively** and **efficiently** produce the Pump Station AMP.



Our templates and tools have been successfully applied to prioritize over \$30B of infrastructure projects.



People Value

Recognize people’s value contribution to make changes stick. Sustaining change in an organization and realizing the value of the improvements is not possible without the buy-in and commitment of the people involved in the execution of the work. Through our experience with several extensive change management plans (most recently for California DWR and Hampton Roads Sanitation District), we have learned that there are five key ingredients to successfully sustaining change, which are highlighted in the figure below. We keep these elements in mind at each workshop and through all phases of the project to help set you and your team up for success. And just as importantly – we help you capture and celebrate each “win” for the team.

Focus on capturing institutional knowledge. We realize that you have a key staff retirement occurring at the end of the year, so rather than doing a desktop condition assessment, we have proposed dedicating time for our Condition Assessment and Electrical leads **Clinton McAdams** and **Pero Vrcelj** to walk the facilities with Troy Davis to capture institutional knowledge on the condition and the performance of key assets that can only be gained face-to-face with Troy and the assets he has taken care of for so long.

Provide training and support. Our objective at each workshop is to train and support your staff throughout the process. We have also included time at the end of the project to train your staff on use of the Excel-based AM tool and the dashboards we deliver.



Our approach will implement the Five Key Elements of Successful Change Management

PROJECT MANAGEMENT APPROACH

Black & Veatch operates under a comprehensive Project Management System. We use best practices, technologies and deliverables to continually align the project's scope of work directly with its cost, schedule and quality goals. One of our planning tools is a Project Execution Plan (PEP). It describes the approach, systems and procedures to be followed from design development to construction and finally to commissioning and startup. Our comprehensive planning approach sets the stage for efficient execution of the project. Our Project Manager, **Derek Kurtti**, will utilize the PEP to track the project's process.

Black & Veatch tracks our budgets monthly and update our Earned Value Tracking (EVT) to monitor the project budget. The main tool in monitoring the budget will be earned value analyses that compare the amount of work planned with the actual amount of work accomplished. Utilizing this tool, we will be able to react early to correct any deviation quickly to get the project back on track.



QUALITY MANAGEMENT

Our desire is to always provide services that meet the quality expectations and requirements of our clients. Achieving this goal is the function of Black & Veatch's Quality Management System (QMS). Our QMS is based on ISO 9001, Quality Management System Requirements, and addresses all elements of the standard. Used by all project team members and familiar to all Black & Veatch professionals, our QMS includes detailed policies, procedures, and work instructions to foster a common understanding of work processes and expectations.

Our QA/QC Lead, **Jeff Stillman**, will create a project-specific Quality Management Plan (QMP) outlining how we intend to manage quality objectives against cost and schedule commitments, project communications, document management and control, engineering design, audit plans, and construction goals. The QMP establishes roles and responsibilities and documents the quality management activities that our project team will implement. We create the plan based on Black & Veatch's QMS governance documents and modify it to include necessary activities that establish a thorough framework defining all QA/QC activities.

DETAILED SCOPE OF WORK

Task 1 – Project Management and Meetings

1.1 Project Management and Administration

Black & Veatch will provide overall project management, including coordination and progress review meetings with ETWD staff, maintenance of the budget, schedule, and quality of the Pump Station Asset Management Plan (Project); and management of internal Black & Veatch staff. Black & Veatch will prepare and submit a concise monthly status report with the monthly invoice statement that includes the following:

- ETWD’s standard form that includes a summary of expenditures by task showing total budget, billing to date, current billing, remaining amount.
- A summary of work progress/items complete for all work tasks;
- An estimate of actual percent complete based on progress compared to percent complete based on budget expended; and
- An updated progress schedule using a Gantt-type format.

1.2 Meetings

Black & Veatch will conduct a one-hour kick-off meeting with District staff at the start of the project to introduce project participants; establish lines of communication; discuss the goals of the Project, scope, overall project schedule, and the data request log; and set project workshop dates critical to maintaining the project schedule.

Black & Veatch will conduct up to eight one-hour monthly progress meetings with ETWD’s Project Manager to review progress of the Project, address any risks or issues arising, discuss an updated project schedule and milestones, and agree on any required actions. The Black & Veatch Project Manager will be present in person for half of the progress meetings, but other members of the project team may join virtually as needed.

For all workshops and meetings, Black & Veatch shall prepare and submit a meeting agenda to ETWD staff at least one (1) business day in advance of the meeting and shall document and submit meeting minutes, highlighting action items and decisions, to ETWD staff within five (5) days of each meeting.

1.3 Quality Assurance and Quality Control (QA/QC)

Prior to submitting any materials to ETWD, Black & Veatch will provide QA/QC reviews that include careful checking of data, calculations, and risk/rehab model results, as well as review of proposed criteria, recommendations, and key deliverables by qualified individuals who are not directly involved in developing the work products. The hours and fee for quality assurance and quality control are located within each of the subsequent work tasks.

Meetings/Workshops

- Kick-off Meeting (virtual)
- Monthly Progress Meetings (4 in person, 4 virtual)

Deliverables

- Monthly Invoices & Status Reports
- Meeting Materials

Task 2 – Data Review and AM Framework

2.1 Data Request and Review

Prior to the Kickoff Meeting, Black & Veatch will develop a preliminary Data Request Log that includes a list of data required to develop the AMP. The Data Request Log will be maintained for the duration of the project to note what items have been received, and to request additional data if needed to support the Project.

Black & Veatch will research, obtain, and review all relevant information, including previous master plans, the ArcGIS model, record drawings, and operation and maintenance records, as it pertains to the assets to be assessed by this Project. Black & Veatch will review the existing ETWD 5-year capital improvement plan, which defines certain projects ETWD has already defined as necessary to maintain the infrastructure or that may yield significant improvements in efficiency. Black & Veatch will also review the Water and Sewer Master Plan Update once completed.

Black & Veatch will review the City's asset inventory as it pertains to the assets to be assessed by this Project and assess the remaining data gaps that are critical to the management of the system and the development of the AMP. Black & Veatch will submit a list of Asset Inventory Gaps for ETWD to fill.

2.2 Asset Management (AM) Framework

Black & Veatch will conduct a 6-hour AM Framework Workshop with ETWD to establish asset management criteria and methodologies that can be applied district-wide to all of its assets and facility types. This workshop will establish asset inventory standards; condition assessment scoring; remaining useful life, LOF, COF, and Risk methodologies; cost estimating methods; rehab/replacement assumptions; and CIP prioritization criteria. The results of the workshop will be documented in a PowerPoint and distributed to the project team for use in subsequent tasks.

Meetings/Workshops

- 6-hour AM Framework Workshop

Deliverables

- Data Request Log
- Asset Inventory Gaps
- AM Framework in PowerPoint

Task 3 - Risk Analysis

3.1 Condition Assessment

Using the condition rating criteria established in the AM Framework, Black & Veatch will conduct up to two days of field visits with ETWD staff most familiar with the condition and performance of the assets and will develop high-level visual scores for each asset. The results of the condition assessment and the methodology used will be summarized in Draft Chapter 3. Condition Assessment and submitted to ETWD for review.

3.2 Likelihood of Failure Analysis

Using the LOF rating criteria established in the AM Framework, Black & Veatch will assess failure modes for system components and analyze the likelihood of failure (LOF) using available information for each major asset class. The LOF will integrate desktop and field condition assessments performed by Black & Veatch or ETWD staff prior to the start of the LOF analysis. In addition to the condition assessment, other LOF factors for consideration may include age and remaining useful life, work order history, historic stoppages, or other data which is retrievable from the asset inventory. The LOF methodology will be set up such that inputs from the CMMS, condition assessment field forms, and remaining useful life will automatically update the LOF scoring.

3.3 Consequence of Failure Analysis

Using the COF rating criteria established in the AM Framework, Black & Veatch will conduct an analysis of the consequence of each major asset class failing using available information, which may include, but is not limited to, potential spill volumes, exposure to human contact with wastewater, impacts to environmentally sensitive areas, community impacts, and regulatory violations. The consequence of failure (COF) factors will aim to address each of the triple-bottom-line categories of social, environmental, and economic consequences.

3.4 Risk Analysis

Using the risk assessment criteria established in the AM Framework, Black & Veatch will assign risk for each asset incorporating any risk mitigation factors that may be implemented in the system such as equipment redundancy and emergency response plans. The risk assessment will be built in excel and displayed using PowerBI.

Black & Veatch will facilitate a 2-hour Risk Assessment Workshop with ETWD to review the risk analysis findings and discuss and adjust the risk mitigation factors. Following the workshop, Black & Veatch will populate risk scoring fields for each asset. The final risk analysis methodology and results will be summarized in Draft Chapter 4. Risk Assessment and submitted to ETWD for review.

Meetings/Workshops

- 2-day Field Inspections ETWD Staff
- 2-hour Risk Analysis Workshop (combined with the CIP Workshop on the same day)

Deliverables

- Draft Ch 3. Condition Assessment
- Draft Ch 4. Risk Assessment

Task 4 - Remaining Useful and Replacement Costs**4.1 Remaining Useful Life**

Concurrently Black & Veatch will conduct a remaining life methodology established in the AM Framework, Black & Veatch will assign expected and remaining useful life for each asset based on asset class, age, and condition. Black & Veatch has a library of expected useful lives for different asset classes that can be applied along with an algorithm for adjusting remaining life based on age and condition. The expected and remaining useful life methodology will be summarized in Draft Chapter 5. Remaining Life and Replacement Plan and submitted to ETWD for review.

4.2 Replacement Costs

Using the remaining life methodology established in the AM Framework, Black & Veatch will develop planning level unit costs for pump station asset rehab and replacements using ETWD design standards, construction bid results, cost estimating tools, and team experience with similar projects. AACE Class 5 cost estimates will be developed for all rehabilitation and replacement (R&R) activities and the methodology and results will be summarized in Draft Chapter 5. Remaining Life and Replacement Plan and submitted to ETWD for review.

Deliverables

- Draft Ch 5. Remaining Life and Replacement Plan

Task 5 - CMMS Recommendations**5.1 CMMS Evaluation**

Black & Veatch will identify a “Core CMMS Team” with at least one person from each business unit (Engineering, Pump Stations, Collections, Operations, WRP, IT, Electrical and Instrumentation, and Fleet) to establish the team that will implement any changes that are made to the CMMS (update or replacement). Each Core CMMS Team member will be provided with a survey of how they use GeoViewer, what functionality is missing, and what they need a CMMS to accomplish. ETWD will provide all documents that provide insight into the current state of the system (“As Built” configuration documents, integration documents, user / training manuals, etc.) and the current cost structure for maintaining GeoViewer. Black & Veatch will conduct a 4-hour Core CMMS Team Workshop to review the survey results and establish a weighted set of criteria by which CMMS alternatives will be evaluated.

Black & Veatch will facilitate a 2-hour Power-user Workshop with one or more ETWD staff that are the most knowledgeable with GeoViewer (a.k.a. “power-users”) who will provide a “Day in the Life” tour of how it is currently used. In this workshop, we will also discuss the GeoViewer workflow, better understand the limitations, and gain additional insights about needed functionality.

5.2 CMMS Recommendations

Black & Veatch will provide ETWD with recommendations on either leveraging the current CMMS or evaluate up to three alternatives. The alternatives will provide ETWD with desired functionality, such as modifying the LOF score based on condition assessments and work orders. The recommendations will be provided in a draft and final CMMS Evaluation TM to ETWD and will be included as an Appendix in the AMP.

Meetings/Workshops

- 4-hour Core CMMS Team Workshop
- 2-hour GeoViewer Power-user Workshop (virtual)
- 1-hour CMMS Evaluation Comment Review Meeting (virtual)

Deliverables

- Workshop survey results
- Draft and Final CMMS Evaluation TM

Task 6 – Prioritization CIP AND AMP

Task 6.1 Develop R&R Tool and CIP

Black & Veatch will develop a R&R forecast based on the results of the risk assessments in Task 3, remaining useful life and costs in Task 4, and typical industry renewal activities and frequencies. The calculations will be performed in an Excel workbook and visualized in Power BI; this will be the AM Tool.

Black & Veatch will conduct a 2-hour CIP workshop with ETWD to discuss the current CIP and projects from the Master Plan and close gaps and criteria scoring needed to include those projects in the CIP. Black & Veatch will develop a 10-year (Fiscal Years 2023/24 to 2032/33) priority CIP project list based on the R&R tool and the current 5-year CIP plan, along with a 50-year projection of R&R cost that will also be calculated the R&R tool. The CIP will be documented in Chapter 6 – Capital Improvement Plan, which will be submitted to ETWD for review as a part of the Draft AMP report.

Task 6.2 Develop Comprehensive Asset Management Plan

Black & Veatch will develop a comprehensive AMP Report in MS Word incorporating the information gathered and deliverables from Tasks 2 to 5, including the development of an Executive Summary, Chapter 1 - Introduction, and Chapter 7 - Summary and Next Steps. Chapters will include:

Executive Summary (Task 6)

1. Introduction (Task 6)
2. Asset Inventory (Task 2)
3. Condition Assessment (Task 3.1)
4. Risk Assessment (Tasks 3.2 – 3.4)
5. Remaining Life and Replacement Plan (Task 4)
6. Capital Improvement Plan (Task 6)
7. Summary and Next Steps (Task 6)

Appendix A. CMMS Evaluation (Task 5)

Black & Veatch will develop a Draft AMP Report for ETWD and will facilitate a 1-hour Meeting to review and receive comments. The AMP will be revised based on comments received and Black & Veatch will issue the Final AMP Report.

Meetings/Workshops

- 2-hour CIP Workshop (combined with the Risk Analysis Workshop on the same day)
- Draft AMP Report Comment Review Meeting and Tool/Dashboard Training

Deliverables

- Draft and Final AMP Report
- AM Tool in MS Excel
- Results Dashboards in PowerBI

SCOPE OF WORK ASSUMPTIONS

The following assumptions have been made to develop this scope of work:

- The project duration will not exceed eight (8) months.
- The last rehabilitation date and action for all assets will be provided along with the asset inventory prior to the start of work.

The following work is not included, but can be provided as additional scope:

- Updates to ETWD databases
- Hydraulic modeling of ETWD's systems
- Further development of the existing GIS model
- Performance of any condition assessment or inspection except as specifically noted above
- CMMS implementation or integration
- Business process mapping

APPENDIX

Resumes



Appendix Resumes

Resumes for all team members can be found in this section.

BLACK & VEATCH

Zeynep Erdal

Derek Kurtti

Lani Good

Jeff Stillman

Katherine Sheehan

Clinton McAdams

Scott Peters

Connie Hu

Jeremy Clemmons

Mark Lowe

Pero Vrcelj

Chad Barker

Zeynep K. Erdal, PhD, P.E.

Project Director

Dr. Erdal leads Black & Veatch's Integrated Solutions practice and brings extensive design and startup/commissioning and regulatory certification/ permitting experience for water and wastewater facilities. She is an expert specialist in Biological Nutrient Removal and worked on over 200 BNR facilities across US and the globe. She brings 25 years of hands on experience in development and technical delivery aspects of resource recovery, facility optimization, process intensification, nutrient removal, biosolids handling and odor issues, water recycling and membrane technologies, odor control, organics-to-energy systems, energy efficiency, renewable energy, sustainable performance metrics and implementation through process development, pilot testing, modeling and design. She serves on the WaterReuse CA Board, and brings hands on working knowledge of EMWD's reclamation and water systems, and key issues.

PROJECT EXPERIENCE

El Toro Water District | Diffuser Replacement Project, Lake Forest, CA

Project Manager. Led the design, bid package development and engineering services during construction for replacement of diffusers at the ETWD WWTP. Coordinated with the O&M staff to establish operational and equipment preferences, coordinated with vendors, led process evaluation and supported ETWD during construction.

Coachella Valley Water District | WRP4, WRP 7, and WRP 10 Tertiary Treatment System Improvements and Design, Coachella, CA

QA/QC Lead. Provided technical leadership in evaluation, selection and implementation of tertiary treatment system improvements, filtration and disinfection technologies review, design development and existing assets review and incorporation to the new facilities. The integrated systems at each facility as well as the multi-facility treatment complex of the District was provided with an increased water recycling capacity. Black & Veatch also completed a whole system condition assessment and asset management program for the District, establishing asset management strategies, data management tools, and information services.

SOCWA | Coastal Treatment Plant Facility and Aeration Upgrades Design, Dana Point, CA

Project Manager. Dr. Erdal was the Project Manager for this design project that aimed to master plan the future use of the facility for aligning it's functions as a "resource recovery" facility especially in support of water supply reliability in the watershed. System deficiencies in terms of capacity, operability, turn down, power peaking and reliability, and energy efficiency issues were addressed. New high efficiency turbo blowers, nutrient removal, and water harvesting were included as part of the design in addition to the plant process control improvements.

SOCWA | Process Controls and SCADA Master Plans, Dana Point, CA.

Project Manager. Dr. Erdal led this SCADA Master Plan covering three treatment plants operated by SOCWA: Regional, Coastal and JB Latham. She oversaw the development of existing systems assessment, process controls strategies and monitoring diagrams for the facilities, coordination with SCADA system provider, ultimately establishing a roadmap for SOCWA to continue to improve process control, energy efficiency and treatment performance.



OFFICE LOCATION

Irvine, CA

EDUCATION

PhD, Civil Engineering, Virginia Tech, 2002

MS, Environmental Engineering, The Ohio State University, 1995

BS, Environmental Engineering, Middle East Technical University (METU), Ankara, 1991

PROFESSIONAL REGISTRATION

PE – CA, C74679

PROFESSIONAL AFFILIATIONS

Water Environment Federation (WEF)

WaterReuse Association

Smart Networks Forum (SWAN)

National League of Cities

American Water Works Association (AWWA)

International Water Association (IWA)

YEAR STARTED CAREER

1997

[SOCWA | J.B. Latham Advanced Wastewater Treatment Plant Preliminary and Final Design, Dana Point, CA](#)

Project Manager. Dr. Erdal was the Project Manager for this 7-MGD advanced wastewater treatment facility with secondary treatment improvements, membrane microfiltration, UV disinfection and high head pumping, as well as solar panels for the AWT Building. The facility was designed to mimic the daily peaking of the main treatment plant with no flow equalization. She also led coordination of the State Revolving Funds (SRF) loan and CA State Proposition 50 grant process, and development of the equipment procurement packages development and bid processes in alignment with these requirements.

[SOCWA | Nitrification Study, Dana Point, CA.](#)

Senior SME. Dr. Erdal conducted a process evaluation at three plants of SOCWA reviewing the viability and means to implement nutrient removal while also improving sludge settleability, given the secondary clarification limitations and sludge settleability issues. Selector technologies, energy optimization, and process controls options were evaluated as part of the detailed process modeling and recommendations for each plant were made.

[Soquel Creek Water District | WRF IPR/DPR Facility Design; CA](#)

Senior SME & QA/QC. Dr. Erdal is providing specialty advisory services for the upgrades and IPR facility design as well as value engineering. Design includes Ozone/BAF/MF/RO/UVAOP systems and post treatment for groundwater injection of the recycled water. Providing guidance on permit and regulatory compliance and to achieve potable reuse. Project is being delivered using design-build delivery model.

[City of Morro Bay | WRF IPR Facility Design; CA](#)

Senior SME & QA/QC. Dr. Erdal provided regulatory advisory and QA/QC services for the new IPR facility design consisting of MBR/RO/ UVAOP systems and post treatment for groundwater injection of the recycled water. Providing guidance on permit and regulatory compliance, as well as validation/LRV considerations to achieve potable reuse. Project is being delivered using design-build delivery model.

[Eastern Municipal Water District | Regional Water Reclamation Facilities Master Plan Update, CA](#)

Technical Director. She was the Technical Director for the project that covered four reclamation facilities of the District. She led the facility capacity assessments, and optimized prioritization of facility upgrades and new projects to meet water recycling, groundwater basin TDS & nitrogen goals as well as NPDES discharge TDS and nitrogen goals as key project criteria.

[Eastern Municipal Water District Perris Valley Regional Water Recycling Facility \(PVRWRF\) BNR Evaluation and Preliminary Design, CA](#)

Process Lead. Dr. Erdal led evaluation of the biological nitrogen removal (BNR) alternatives for the PVRWRF Plant 1 considering the conventional and membrane bioreactor (MBR) technologies. The evaluation included a detailed cost-benefit analysis for an objective evaluation of the process and tankage alternatives to be able to select the one with the highest benefit for EMWD in return for the corresponding investment. The conventional and MBR technologies were sized, and preliminary sizing, site layout, yard piping and P&ID drawings as well as cost estimates were developed for decision making by the stakeholders.

[Elsinore Valley Municipal Water District | Regional Reclamation Plant Concept Design, Lake Elsinore, CA](#)

Technical Director. Dr. Erdal was the Senior Technical Consultant (STC), and led development of WRP capacity and alternatives evaluation using whole-plant process modeling. The facility has low nutrient requirements (Lake Elsinore discharge). Liquid and solids handling options were selected, and sizing, construction requirements, footprint and site plans were developed for 16-MGD Bardenpho/MBR expansion followed with tertiary filtration and future IPR systems.

[City of San Luis Obispo | WRF Upgrades and Water Resource Recovery Design, San Luis Obispo CA](#)

Senior SME. Dr. Erdal served as the STC for the facility upgrades design and value engineering workshops, for the stringent SLO Creek discharge requirements surpassing drinking water standards, including nutrient and DBP limits (e.g.; NDMA). Design included conversion of the facility to MBR technology and UV disinfection providing short term permit compliance with ability to achieve potable reuse in the later phases of the project. Design also included ability to manage wet weather peak flows, produce Title 22 equivalent discharge quality, and Title 22 reuse.

Derek Kurtti, P.E.

Project Manager

Derek has 16 years of experience in water and waste water infrastructure construction, design, and planning. He has recently supported BV's efforts as Project Manager for IRWD's 5-Yr CIP and AMP Phase I. Derek has worked with your team on the JTM Pump Station and understands you have many internal stakeholders who will be critical to the planning process. He will guide our team to effectively collaborate across your groups to ensure the solutions chosen for the pump stations will be ready for implementation among other asset classes.

PROJECT EXPERIENCE

Irvine Ranch Water District | 5-CIP and Asset Management Plan Phase 1; Orange County, CA

Project Manager. This project is a first step in IRWD's AMP and focused on wells, pump stations, and tanks (reservoirs). Derek oversaw the project schedule which included a desktop data and gap assessment, risk assessment, and development a risk-based 5-yr CIP. Additionally, this project implemented a PowerBI solution to enhance data usability. During collection of field condition scores (to fill data gaps) BV provided hands on training for IRWD staff to use PowerBI and to customize the dashboards to specific needs, including CIP forecasts. BV provided data handling guidance for data storage and compatibility with CMMS.

Moulton Niguel Water District | Eastern Transmission Main Condition Assessment; Laguna Niguel, CA

Project Manager. Derek is managing the condition assessment of the ETM, a key potable water transmission main within OC. The project included selection of condition assessment technology, design of access points for the CA equipment to enter the pipe, and was performed without shutdown. The assessment will be completed by the end of 2022, recommended improvements will occur in the near future.

El Toro Water District | Joint Transmission Main Pump Station, Laguna Hills, CA

Project Manager. The project adds one new pump to the existing R-1 and R-2 Site. The new "JTM Pump Station" will supplement ETWD's potable water supply an additional 2 CFS to capture their full water allowance from the JTM. The project requires a coordinated effort with SCWD who will be replacing the site flow meter. The pump station is open-air and will be constructed within an area that avoids impacting access throughout the site such as chemical deliveries.

Walnut Valley Water District | Sylvan Glen Reservoir Seismic Retrofit and Site Improvements Project; Diamond Bar, CA

Project Manager. Provided engineering manager, engineer of record, and construction inspector roles for the seismic retrofit and site improvement project. Provided project support from initial design inception through construction completion including oversight and coordination of special inspections for soils and concrete testing. Project included adding seismic anchors to an existing above-ground steel reservoir; removal and replacement of interior coating system; inlet and outlet piping improvements; site security upgrades; and miscellaneous electrical improvements.

Moulton Niguel Water District | East Aliso Creek Pipe Replacement, Laguna Niguel, CA

Project Manager. East Aliso Creek is MNWD largest reservoir at 10 MG and the existing altitude valves, and isolating valves will be replaced by this project. The project also



OFFICE LOCATION

Irvine, CA

EDUCATION

BS, Civil Engineer,
California Polytechnic
State University, San Luis
Obispo, CA 2006

PROFESSIONAL REGISTRATION

PE – 2016, CA, C84676

PROFESSIONAL ASSOCIATIONS

Orange County Water
Association

*Board Director 2021 -
present*

WaterReuse Association

American Society of Civil
Engineers

YEAR CAREER STARTED

2006

YEAR STARTED WITH BV

2020

includes new Tide-Flex seismic connections, new reservoir penetrations, relocation of existing storm drain line, and ongoing stakeholder coordination with telecom agencies to relocate existing conduit that conflict with the pipeline alignment. This project will be constructed by the end of 2022.

[Moulton Niguel Water District | Reservoir Management System Phase 1 and 2; Orange County, CA](#)

Project Engineer. The project replaced existing chlorine gas disinfection systems with bulk sodium hypochlorite and ammonia chemical delivery systems at three reservoir sites. Project scope included designing new chemical facilities, demolishing existing facilities, making SCADA connections, improving site security, and performing reservoir mixing systems analysis. Derek completed multiple design tasks and provided support during the construction phase.

[Coachella Valley Water District | Booster Pump Station 3501 Replacement Project; Desert Hot Springs, CA](#)

Project Engineer. Preparation of the preliminary design for the replacement booster pumping station consisting of four 500 horsepower (hp) vertical turbine pumps delivering a maximum flow of 3,320 gpm from the Improvement District 1 (ID 1) Pressure Zone to the Sky Valley Pressure Zone. Project elements include new a booster pump station, inlet/outlet and pump piping enhancements (with flexibility for a future reservoir), new power service and electrical building, connections to two lower pressure zones and a surge tank, and an emergency generator.

[City of Burbank | Beachwood Sparks Force Main and Pump Station Replacement; Burbank, CA](#)

Project Engineer and Construction Manager. Provided project and construction management support throughout the lifecycle of the project. Assisted in quality control reviews prior to bid and construction. Reviewed and responded to submittals and request for information (RFI)s, assisted in resolution of field construction issues and public outreach. The project included 12,000 linear feet of 24-inch HDPE pipe along the Sparks-Chandler alignment, replacement of three dry-pit submersible 150 hp pumps, construction of a new valve vault, removal and replacement of valves and appurtenances, and recoating the pump station wet well. The project also included construction of new sewer maintenance manholes, air relief valves, blow-off assemblies, and tie-in to the new 24-inch force main.

[City of Santa Monica | Moss Avenue Pump Station Evaluation Report; Santa Monica, CA](#)

Project Engineer. Developed two technical memorandums and a final preliminary design report to summarize the impact of projected future flows on the pump station and determine if existing facilities/capacities would accept the additional flows. Provided recommendations for upgrades to increase station capacity; performed pump testing to verify existing efficiencies/capacities; assessed the condition of existing structural, mechanical, and electrical facilities and provided recommendations for improvements. Evaluation included field testing of pumps in various configurations/combinations, an electrical stress test evaluation, visual inspections, and historical data and performance analysis.

Lani Good, P.E.

Regional Planning & Asset Management Lead

Lani specializes in water and wastewater planning and asset management. She is an expert in guiding utilities of all sizes through the decision-making process, from long-term asset management and capital improvement planning to urgent regulatory compliance projects. Lani has completed over 25 water and wastewater master plans and developed capital improvement and/or rehab/replacement plans for over 30 utilities and 50 capital programs. She's managed the condition assessment of over 350 miles of large-diameter pipe, 1,700 miles of mains, and more than 50 pumping and treatment facilities.

PROJECT EXPERIENCE

Castro Valley Sanitary District | District Engineer; Castro Valley, CA

District Engineer. As Consulting District Engineer for a five-year term, developed and implemented District programs. Oversaw the Engineering Department efforts including regulatory compliance, asset management, collection system project planning and design, and management of the District's capital improvement program. In developing the District's Asset Management Program, refined the District's standardized methodology for prioritizing capital improvement funds by developing risk and rehab/replacement models for the District's 9 lift stations and 150 miles of sewers and force mains to manage the identification of the District's assets with the highest risk of failure or overflow, prioritization of high-risk assets for inspection, assessment of the severity of defects, and identification of repair or replacement methodologies. Used the District's goals of reducing inflow/infiltration, reducing the risk of SSOs, avoiding third-party lawsuits and regulatory violations, and replacing aging assets to guide the asset management decision processes. Led efforts for hydraulic improvements, I/I reduction, odor control, aerial creek and fault crossing risk mitigation, pump station condition assessment and rehabilitation, and force main condition assessment and replacement.

City of Fairfield | Potable Water Pump Station Asset Management Plan; Fairfield, CA

Asset Management Lead. Developed a Potable Water Pump Station Asset Management Plan, which included condition assessment of the City's 18 water pump stations and the development of a customized asset management database using component asset condition and performance information gathered during field investigations. Developed an inventory/registry of the assets at each pump station, analyzed the risk of asset failure at each pump station, identified and prioritized near-term repairs and maintenance modifications, and developed a long-term rehab/replacement plan for the City. Conducted a series of multi-disciplined internal stakeholder workshops to develop selection criteria for a new computerized maintenance management system (CMMS) for the water department. Conducted a thorough evaluation of available packaged CMMS software programs and recommended a shortlist for City staff to use in their final selection.

Dublin San Ramon Services District | Wastewater Treatment and Biosolids Facilities Master Plan; Dublin, CA

Asset Management Lead. Developed a complete wastewater treatment facility asset inventory with a new asset hierarchy that was importable into the District's Lucity computerized maintenance management system. Developed a replacement cost model and long-term rehabilitation and replacement model for the District's wastewater treatment plant and provided model training to District staff. Also oversaw Level 1



OFFICE LOCATION

Walnut Creek, CA

EDUCATION

BS, Civil Engineering,
Arizona State University,
2001

PROFESSIONAL REGISTRATION

PE – 2008, CA, 73677
PE – 2017, OR, 91834

PROFESSIONAL ASSOCIATIONS

California Water
Environment Association,
San Francisco Bay Section
Board Member, Santa
Clara Valley Section
Committee Chair, Past
State Committee Chair,
Annual Conference
Committee Member

California Association of
Sanitation Agencies

Bay Area Clean Water
Agencies Active
Committee Member

Northern California Pipe
Users Group

American Public Works
Association

Bay Area Water Works
Association

WaterReuse Association

Central Valley Clean
Water Association

Toastmasters
International, Past
Chapter President

YEAR CAREER STARTED

2000

YEAR STARTED WITH BV

2019

condition assessment of the plant's four primary clarifiers, which were taken off-line and drained for the assessment. Worked with District staff to develop detailed condition assessment forms that the consulting team of structural, mechanical, and coatings inspectors used to document the inspections. These condition assessment forms were developed in such detail that District staff could use the forms to consistently assess other treatment processes on a periodic basis to develop long-term condition patterns for critical facilities.

[California Department of Water Resources | O&M Asset Management Program; Sacramento, CA](#)

Funding Advisor/Asset Management Plan Coordinator. Advised the technical team and provided quality control for a funding assessment that outlined the applicability of state and federal funding sources to support DWR's capital improvement program and included FEMA Benefit-Cost Analysis and funding application support. Currently developing the Pipeline Asset Management Plan and aligning it with DWR's strategic asset management plan; asset management framework; Failure Mode, Effects & Criticality Analysis (FMECA) library; and other established program guidance documents.

[City of Yuba City | Water Treatment Plant and Distribution System Master Plan; Yuba City, CA](#)

Asset Management Lead. Managed the water treatment plant and distribution system asset management planning portion of Yuba City's comprehensive Water Master Plan. The master plan included a baseline condition assessment, asset inventory improvements, asset hierarchy and classification system implementation, and asset valuation for the City's treatment, storage, pumping, and well facilities that resulted in a prioritized short-term and 30-year rehab/replacement and O&M improvement programs for all of the City's water facilities. InfoMaster Water was used to develop a risk assessment model for the City's water transmission and distribution pipelines that considered leak history, pipeline material, pipeline age, hydraulic capacity deficiencies, emergency response impacts, and critical customers. The results of the risk assessment were used to prioritize a 30-year waterline rehab/replacement program.

[Irvine Ranch Water District | CIP and Asset Management for Pump Stations, Lift Stations, Tanks and Wells; Irvine, CA](#)

Technical Advisor/QA/QC. Project includes asset management services to assess the condition of the District's pump stations, lift stations, tanks and wells, develop an asset management plan including a 5-year capital improvement plan, and develop a dynamic business intelligence dashboard and reporting tool.

[Carmel Area Wastewater District | Collection System Hydraulic Model and Asset Management Plan; Carmel, CA](#)

Asset Management Lead. The project included flow monitoring, hydraulic modeling, pump station and pipeline condition assessment, a risk assessment developed in InfoMaster Sewer, a rehabilitation and replacement program, and an asset management plan. The risk assessment results were used to prioritize both capacity and condition improvements. Developed an Asset Management Plan that presented the condition and risk assessment methodologies so that District staff could repeat them, and presented a detailed 20-year rehabilitation and replacement plan, and recommended a plan for further condition assessment efforts for force mains. This Asset Management Plan gave the District a clear plan for kick-starting their collection system rehab/replacement program.

[Hetch Hetchy Water and Power \(HHWP\) | Risk-Based Capital Planning; San Francisco, CA; San Francisco, CA](#)

Technical Advisor/QA/QC. Finalizing the development of a short- and long-term capital planning processes, supporting risk and financial models, and PowerBI dashboard interface. This project was accomplished by adopting a three-phase approach of definition (data review, scope definition, schedule, and fees), investment plan (risk model development and investment plan development), and support to communicate with decision makers. The output forms the core of HHWP's strategy to address investment drivers such as growth, regulatory, safety, efficiency or cost savings, repair and rehabilitation, and customer service in their asset replacement strategy.

[City of Dixon | Water Master Plan and Asset Management Plan; Dixon, CA](#)

Asset Management Lead. Prepared a water system asset management plan which established a consistent process to manage the City's water system assets and meet the requirements of the City's Water Supply Permit. Conducted a visual condition assessment of the City's well, booster pump, and storage assets and created a custom risk assessment that considered the likelihood and consequence of a failure occurring in each asset. Used the model to develop a list of prioritized rehabilitation and replacement projects as part of the 30-year CIP. Developed a systematic preventative maintenance schedule for the water system to maximize the life of each asset.

Jeff Stillman, P.E., BCEE

Technical Advisor QA/QC

Mr. Stillman is a Practice Leader in Asset Management and Infrastructure Planning. He has executed a wide variety of asset management and infrastructure planning projects and programs, including risk-based facility prioritization; computerized maintenance management systems; sewer system evaluation surveys; and capacity, management, operations, and maintenance (CMOM) programs.

Throughout his career, Jeff has focused on building tools, developing processes, and conducting training and workshops to facilitate ultimate use by clients. Such tools have included hydraulic and water quality models, prioritization databases, relationships with SCADA and maintenance management systems, flow/capacity allocation, and more. He has extensive experience in utilizing asset information databases and geographic information systems (GIS) to aid development and analysis of various model software packages and prioritization databases to support master planning and development of capital improvements plans.

PROJECT EXPERIENCE

[Irvine Ranch Water District | 5-year Capital Improvement Program; Irvine, CA](#)

Technical Director. Jeff led the CIP development and prioritization for the 5-year CIP. Tasks included the development condition assessment dashboards, risk-based prioritization of assets, bundling of condition-based projects for CIP development.

[Helix Water District, California | Capital Improvement Program Master Plan Update; La Mesa, CA](#)

Technical Director. Jeff led the technical efforts of the team in updating the CIP Master Plan for Helix Water District. Tasks included the development of risk criteria, development of a risk model to prioritize capital spending and developing and evaluating the financial investment for multiple spending scenarios for risk-informed decision making in the capital planning process.

[Metropolitan Water District of Southern California | Asset Management Program Development Support; Los Angeles, CA](#)

Principal Asset Management Specialist. Black & Veatch is assisting Metropolitan with developing the vision and content for a risk management framework associated with the asset management program. As principal specialist, Jeff has been responsible for preparing documents and leading workshops to develop the Risk Framework.

[California Department of Water Resources | O&M Asset Management Plan](#)

Asset Management Consultant. Jeff Supported the development and implementation of the risk management and remaining useful life calculation procedures for development of asset management plans.

[Western Municipal Water District | Asset Management Support Services; Riverside, CA](#)

Technical Director. Jeff has led the efforts in advancing the Asset Management Program at WMWD, with an emphasis on developing a viable implementation plan for the utility to undertake in concert with consultant support. The project has also included a data assessment and implementation of business intelligence dashboards for rehabilitation and replacement planning in the water transmission and distribution system.



OFFICE LOCATION

Denver, CO

EDUCATION

MS, Civil Engineering and Environmental, North Carolina State University, 1997

BS, Civil Engineering and Environmental, University of Illinois, 1995

Certificate, Finance, Northeastern University, 2002

PROFESSIONAL REGISTRATION

PE – 2003, MA, 45416

Board Certified Environmental Engineer (BCEE)

PROFESSIONAL ASSOCIATIONS

American Water Works Association

Water Environmental Federation

Collection Systems Committee

YEAR CAREER STARTED

1997

YEAR STARTED AT BV

2002

[City of Glendale Water Services Department | Asset Management Program Services](#)

Asset Management Director. In 2017, Glendale embarked on building an asset management program. Jeff was responsible for leading an ISO 55001 gap assessment and developing a roadmap for implementation of the program as well as procurement and implementation of an enterprise asset management software system (EAMS). This has included developing a comprehensive asset management strategy, resource planning, levels of service, and development of risk assessments for tactical asset management plans.

[County of San Diego | Wastewater System Asset Management Consulting; San Diego, CA](#)

Asset Management Director. Jeff has led asset management-related activities in the As-Needed Water and Wastewater Engineering Services contract. This has included risk-based prioritization of assets in the collection system, development of a CCTV inspection plan and business intelligence dashboards to review inspection results and plan renewal activities, development of business intelligence dashboards for O&M data, linked to the County's Cityworks system (also implemented as part of the project), and risk-based prioritization of projects in the capital improvements plan.

[Hampton Roads Sewer District \(HRSD\) | Asset Management Program, Virginia Beach, VA](#)

ISO 55001 Endorsed Assessor. Supported ISO 55001 gap assessment and improvement roadmap development. Conducted interviews and evaluated program according to ISO 55001 standards. Also providing technical review and support in development of dynamic asset management plan development.

[Milwaukee Metropolitan Sewerage District | Asset Management Program Consulting; Milwaukee, WI](#)

Technical Director. Building on efforts in the 2050 Facilities Plan, MMSD selected Black & Veatch to continue with Asset Management Program Implementation services. This has included a strategic ISO 55001 gap assessment and implementation plan development, developing of standard operating procedures as part of the risk framework, developing a business intelligence platform for asset renewal and risk planning, and advancing the development of asset management plans.

[Southern California Edison | Asset Management Program; Rosemead, CA](#)

Asset Management Leader. Responsible for coordination of asset management and model development activities in building a risk-based prioritization and life cycle cost development model. Building on asset data from the SAP enterprise asset management system, worked with subject matter experts to identify appropriate condition assessment activities and develop deterioration and probability of failure models for generator, dam, and conveyance assets.

[City of Grand Rapids, MI | Master Plan Update; Grand Rapids, MI](#)

Asset Management Segment Leader. Responsible for coordination of asset management activities in the master planning process. Led the asset management program assessment, which was conducted according to ISO 55001 principles and was used to develop an organizational asset management strategy and subsequently in developing an asset management plan for the water distribution system.

[Milwaukee Metropolitan Sewerage District | 2050 Facility Plan; Milwaukee, WI](#)

Asset Management Task Leader. Responsible for coordinating development of asset management for each utility asset system in the 2050 Facility Plan. This has included working with the District to define levels of service, key performance indicators, and specific performance measures, which are subsequently used as a basis for triple bottom line assessment and prioritization in a business case evaluation process. The asset management plans are being developed according to principles in the International Infrastructure Management Manual.

[Tulsa Metropolitan Utilities Authority | TMUA Utility Enterprise Initiative \(UEI\); Tulsa, OK](#)

Asset Management Program Implementation Leader. Responsible for technical coordination and leadership of all asset management activities in the UEI. This program is building Tulsa's asset management capabilities according to PAS 55 standards. Program implementation tasks include developing asset management policies, strategies, objectives, and plans, as well as other framework activities to support overall implementation of asset management. There is a large focus on developing and consolidating information systems to provide a cohesive asset management system that is aligned with the City's Business Intelligence and Performance Management Systems. The UEI and associated activities build upon the work and recommendations from TMUA's Comprehensive Assessment project and constitute a continuous program of asset management and planning activities since 2011.

Katherine Sheehan PE, QSD/QSP, ENV SP

AM Planner



In Katherine's role as a Senior Engineer at Black & Veatch, she helps to deliver a variety of water, stormwater, and wastewater projects, ranging from master planning, asset management, condition assessment, policy assessment, feasibility studies, risk and resilience assessments, and capital project design. She brings over a decade of experience working for municipal agencies and has supported the design and bid packages for over twenty-five capital improvement projects. Katherine is passionate about renewal and management of existing systems and has focused her career on supporting municipalities in their efforts to build resilience, comply with regulatory requirements, optimize processes, and implement effective solutions.

PROJECT EXPERIENCE

[San Diego County Water Authority | Water Facilities Master Plan; San Diego, CA](#)

Project Engineer. Katherine is supporting the development of the 2023 Water Facilities Master Plan. Current tasks include data request and data review, performance criteria development, supply and demand analysis, and planning scenario development. Katherine also helps support interactive workshops with Water Authority staff and its member agencies.

[Moulton Niguel Water District | Potable Reuse Framework Study; Laguna Hills, CA](#)

Project Engineer. Katherine developed a potable reuse framework study which assessed the feasibility and potential cost of implementing a potable reuse program at the Moulton Niguel Water District. The study evaluated the potential amount of tertiary treated effluent available for reuse, developed potable reuse concepts, identified potential siting locations for advanced water treatment, identified treatment train elements, and developed cost estimates for different scenarios. Several workshops were conducted with District and South Orange County Water Authority (SOCWA) staff.

[City of Oakland | Wastewater Master Plan Update; Oakland, CA](#)

Project Engineer. Katherine evaluated private-property inflow and infiltration policy and funding options and helped kick off a wastewater rate and connection fee study. Katherine also assisted in the development of an Operations and Maintenance Master Plan including preventative and predictive maintenance and inspection programs.

[City of Morgan Hill | Sanitary Sewer System Asset Management Plan; Morgan Hill, CA](#)

Project Engineer. Katherine developed a wastewater collection system Asset Management Plan to help the City comply with its settlement agreement with the Regional Water Quality Control Board that resulted from several large wet weather sewer overflows. The project includes making significant asset inventory improvements through record reviews and field investigations, assessing gravity sewer condition using the City's CCTV records, developing a risk assessment in InfoAsset Planner with consideration of both likelihood and consequence of failure, and establishing a rehabilitation and replacement program. The risk assessment results were used to prioritize both capacity and condition improvements.

[Port of Oakland | Maritime Sewer Collection System Rehabilitation Project; Port of Oakland, CA](#)

Engineering Manager. Katherine evaluated and designed improvements for a sewer collection system to reduce I/I and the occurrence of sanitary sewer overflows (SSOs). Contract documents for bidding and construction are being prepared. The Project

OFFICE LOCATION

Walnut Creek, CA

EDUCATION

MS, Civil Engineering
Santa Clara University

BS, Civil Engineering Santa
Clara University

PROFESSIONAL REGISTRATION

PE – 2014, CA, #82702

PROFESSIONAL ASSOCIATIONS

American Public Works
Association (APWA)

East Bay Municipal
Engineers (EBME)

American Society of Civil
Engineers (ASCE)

YEAR CAREER STARTED

2012

YEAR STARTED WITH BV

2021

consists of the rehabilitation, replacement, or abandonment of multiple reaches of sanitary sewer gravity mains and force mains within the Oakland Army Base and Oakland International Container Terminal.

[County of San Mateo | Hillside/Adeline Area Sanitary Sewer Collection System Replacement Project; Burlingame, CA](#)

Project Engineer. Katherine evaluated and designed improvements for a wastewater collection system to reduce I/I and the occurrence of sanitary sewer overflows (SSOs). prepare the project contract documents for bidding and construction. The Project consisted of the rehabilitation or replacement of multiple reaches of sanitary sewer gravity mains at various locations by open trench or CIPP methods over a total of approximately 6,744 linear feet.

[City of Livermore | Stormwater Asset Condition Assessment and 20-Year O&M and CIP Forecast; Livermore, CA](#)

Engineering Manager. Katherine developed a risk-based selection approach to select a portion of each stormwater asset type (field inlets, catch basins, manholes, pipes, v-ditches, trash capture screens, and stormwater treatment measures) to inspect. Assets were then inspected in the field in order to develop the asset likelihood of failure and remaining useful life. The condition assessment information was then extrapolated to the rest of the stormwater system to develop a 20-year O&M and CIP program forecast using Weibull deterioration curves. Recommendations for future data collection and condition assessment efforts were developed and included in the final report to the City. A

[San Diego County Water Authority | Urban Stormwater Capture and Use Feasibility Study; San Diego, CA](#)

Project Engineer. In coordination with Authority staff, Katherine helped to advance further review of potential urban stormwater capture and use opportunities for water supply to inform future planning efforts within the San Diego Region. The study considered the costs and benefits of stormwater diversion from a major river followed by reservoir augmentation, groundwater infiltration, and groundwater injection. The study analyzed regulatory and treatment requirements and conducted a sensitivity analysis to optimize the storage and capture volume.

[City of Salem | Seismic Resiliency Analysis; Salem, CA](#)

Project Engineer. Katherine supported the development of a Seismic Resiliency Analysis for the City of Salem's water system. Efforts included development of levels of service goals, definition of a water system backbone, and a pipeline system vulnerability assessment. Feedback was integrated from City staff at several stages in the process through interactive workshops.

[City of Morgan Hill | Risk and Resiliency Assessment and Emergency Response Plan; Morgan Hill, CA](#)

Project Engineer. Katherine supported the completion of a Risk and Resiliency Assessment (RRA) and Emergency Response Plan (ERP) update for the City of Morgan Hill's water facilities and pipelines, to assist the City in complying with the American Water Infrastructure Act. She led the assessment of system risks from natural hazards and conducted a physical security assessment of City facilities. She coordinated efforts for the risk mitigation plan (RMP) development and ERP update following completion of the RRA.

[City of San Carlos | Sewer and Stormwater Program Management; San Carlos, CA](#)

Associate Engineer. Katherine assisted the City with managing its sewer stormwater program during the 2016-2017 Fiscal Year, due to a staff vacancy. This service included overseeing current sewer projects (flow monitoring, Sanitary Sewer Master Plan update, Sanitary Sewer Rehabilitation, and Sanitary Sewer Lateral On-Call Repairs), managing the stormwater compliance program, design and construction management for a trash capture device installation project. Katherine also developed the City's Green Infrastructure Workplan.

[City of Pittsburg | Waterline Replacement; Pittsburg, CA](#)

Design Engineer. Katherine assisted in field reconnaissance and the development of the 30% PS&Es for this waterline replacement project. She also prepared a Rainfall Erosivity Waiver to the Construction General Permit. The project involved work within both County and Railroad right-of-way.

[Water System Pump Station Capital Improvements | Contra Costa Water District](#)

Engineering Intern. Katherine assisted in the management and coordination of the District's capital improvements program, including sending relevant project history information (as-builts, field monitoring data, photos, etc.) to the project design consultant. She also supported the contract management and coordination of consultant meetings and site reconnaissance efforts.

Clinton McAdams, P.E., ENV SP

Condition Assessments

Clinton has helped utilities navigate the dilemma of civil infrastructure degradation by implementing asset management strategies for various water industries. Emphasizing the importance of resolution and coverage during data collection has led to him successfully executing prioritization efforts, remediation design, CMMS implementation, asset management program development, and serving as the owner's advisor. He feels there is always something new to be learned from each project, place, and person

PROJECT EXPERIENCE

Irvine Ranch Water District | Capital Improvement Plan and Asset Management for Pump Stations, Lift Stations, Tanks, and Wells; Irvine, CA

Condition Assessment Lead. Black & Veatch developed an asset management CIP for 56 pump stations, 21 lift stations, 49 tanks, and 32 wells for IRWD's potable, sewer, and recycled water systems, which represented over 9,717 assets. This CIP was a new and major initiative put forth by IRWD to expand and optimize the District's approach to planning capital rehabilitation and replacement projects. The intent of this project was to develop condition and risk-based decision processes to develop a decision support tool that IRWD will use to establish the initial 5-year CIP and annual updates thereafter. A Dynamic Asset Management Platform was developed using the Microsoft Power BI tool, which was designed to facilitate easy interpretation, comparison, and prioritization of alternative actions and investments that should occur to optimize lifecycle cost and reduce risk.

City of Burbank Water & Power | Reservoir 2 Condition Assessment; Burbank, CA

Engineering Manager. Black & Veatch conducted a conceptual, high-level analysis of Reservoir 2 to provide a report to justify viable corrective alternatives. Reservoir 2 is a 2.5-million-gallon water storage reservoir within Zone 2 of BWP's drinking water distribution system. The buried, concrete reservoir was originally constructed in 1933 and had rehabilitation projects implemented in 1989 and 2001. Existing physical and operating issues justified this study to support determination of next steps to manage the reservoir which is an essential structure to the health and safety of the general public. Our team performed record data review, data gap analysis, desktop condition assessment, and conceptual level alternative viability assessment.

Coachella Valley Water District | Asset Inventory and Related Services; Palm Desert, CA

Engineering Manager. Black & Veatch is currently providing asset management program implementation services for CVWD's over \$6.5B portfolio of water, wastewater, recycled water, irrigation, groundwater replenishment, and stormwater assets. This comprehensive asset management program built a foundation of field validated asset inventories, baseline visual condition assessments, opinions of valuation, and risk-based prioritization criteria for all existing horizontal and vertical assets. The second phase that is currently underway includes: • Business process mapping for both as-is and to-be work order processes. • CMMS implementation support with a third-party software vendor, including user acceptance testing, system integration testing, and training plan development.



OFFICE LOCATION

Los Angeles, CA

EDUCATION

BS, Civil Engineering,
California State University,
2013

PROFESSIONAL REGISTRATION

PE—2017, CA, #88281

PE—2017, NV, #024998

NASSCO PACP, MACP, and
LACP, #U-114-0619893,
2014

Envision Sustainability
Professional, 2014

Lean Six Sigma Green Belt
Trained, 2021

Institute of Asset
Management
Certification, 2021

PROFESSIONAL ASSOCIATIONS

ASCE – M.ASCE

AWWA

WEF/CWEA

IAM

SELECTED PUBLICATIONS

McAdams, C., et. al.
(2021). Out of Sight yet
Still in Mind - Success of
San Diego's Programmatic
Condition Assessments.
Utility Engineering &
Surveying Institute 2021
Pipelines Conference.
American Society of Civil
Engineers, Reston, VA.

YEAR CAREER STARTED

2013

YEAR STARTED WITH BV

2018

[Moulton Niguel Water District | Eastern Transmission Main Condition Assessment; Aliso Viejo, CA](#)

Engineering Manager. As the owner's advisor, Black & Veatch is providing insight on the approach and execution of the Eastern Transmission Main inspection. Support includes coordination with six entities regarding access and shutdowns, development of contractor procurement specifications, bidding support, and field investigation support to ensure contract compliance. Post field efforts, Black & Veatch will perform data analyses to identify damage mechanisms, develop an opinion of remaining life, and develop recommendations for asset remediation and management. The District requested an amendment to prepare design exhibits of access point installations, services to facilitate the condition assessment, and isolation valve replacement. The amendment also included support during construction

[Western Municipal Water District | Asset Management Program Support; Riverside, CA](#)

Condition Assessment Lead. Black & Veatch researched, collected, and reviewed the District's horizontal asset data to assess availability, completeness, and gaps to compile LOF and COF criteria. Black & Veatch developed a high-level roadmap for near-term asset management activities with a focus on forecasting CIP needs, optimizing CIP spending, and communicating needs to District managers and policy makers. Black & Veatch is now inventorying and assessing the District's potable, wastewater, and nonpotable water pump stations to include within the asset management dashboard developed using Microsoft PowerBI. This pilot pump station condition assessment will put in place a standardized approach for data needs and condition assessment procedures and rating systems; apply them to a subset of the District's pump station assets; then incorporate lessons learned before moving forward with the District's remaining stations and ultimately other asset types.

[City of Vista and Buena Vista Sanitation District | Pump Station Rehabilitation Study, Vista, CA](#)

Project Engineer. A condition assessment was conducted for the Buena Vista Pump Station, the Buena Creek Pump Station, and the Raceway Pump Station, which are owned by the City of Vista or Buena Sanitation District, and operated by the Encina Wastewater Authority. The City and District wanted to assess the condition of assets for rehabilitation planning and provide the necessary upgrades to improve the safety, reliability, and efficiency of the stations, and meet current applicable treatment codes, standards, and guidelines. Preliminary Design Reports were prepared for these pump stations to outline capital projects and budgets for future fiscal years. A condition assessment was performed that included visual evaluation of material surfaces (concrete, coatings, metal), ultrasonic testing on exposed piping, motor and pump vibration analysis, and soil resistivity corrosivity testing, and foreign utility investigation along the pipeline alignments.

[County of San Diego | Comprehensive Asset Management Program; San Diego, CA](#)

Project Engineer. In 2017 the County of San Diego (County) began a comprehensive asset management program for their entire wastewater system, including 432 miles of sewer lines, 8,200 manholes, 8 pump stations, and 3 wastewater treatment plants in largely rural and unincorporated areas of San Diego County. This is the first program of its kind for the County and will develop and implement a comprehensive asset management and condition assessment program over a 5-year period. Project elements include:

- Enhancing the County's GIS to support asset management and condition assessment initiatives
- Developing inspection policies and procedures for consistent and structured condition assessment information of pipes and manholes
- Creating competitive vendor inspection and assistance with vendor selections
- Targeted inspection and condition assessments of large diameter sewer lines
- Developing risk and capital project prioritization tools to identify high risk infrastructure, aggregate into executable projects, and develop a defensible CIP program.

[Inland Empire Utilities Agency | EN14042 RP-1 Recycled Water Pump Station Upgrades; Ontario, CA](#)

Project Engineer. The 1993 era concrete structure distributes recycled water from Regional Plant-1 to the nearby pressure zones. An upgrade project was proposed to meet growing demands by increasing the pump station capacity. To support this project, a condition assessment was conducted to investigate the facility for concrete deterioration and evaluate its structural condition. Results were used to evaluate the impact of increased loading from the proposed installation of new pumping equipment and to determine needed repairs or rehabilitation to prolong the facility's remaining service life. Coating systems were recommended above the water line and technical assistance was provided during design.

Scott Peters

CMMS

Scott is a Senior Information Solutions Consultant for Information Solutions supporting Black & Veatch's Water Division. He has over 20 years of program management, consulting, and systems implementation and integration experience on projects for multiple clients including public and private sector utilities. He specializes in the practical application of technologies to enable objective decision making for infrastructure management programs. His expertise with multiple enterprise CMMS/EAM solutions – with a focus on IBM Maximo – has been a key factor in client organizations achieving their goals with their asset management programs.

PROJECT EXPERIENCE

Irvine Ranch Water District | 5-year Capital Improvement Program; Irvine, CA

CMMS Functional Lead. Advised team regarding the configuration and master data of the CMMS (Maximo) to ensure proper alignment of people, process and technology in the execution of the plan.

Coachella Valley Water District, Coachella, CA

EAM Implementation Lead. Accountable for delivering the functional design for the NexGen solution that is being implemented at CVWD. NexGen is an asset management system that is being integrated to their financial system (Naviline). Scott will be supporting the testing, training and change management components of the program as the team work to achieve a January 2023 Go Live.

Southern Nevada Water Authority, Las Vegas, NV

CMMS Owner/Operator Lead. Accountable for completing an evaluation of CMMS software selection process, negotiation of program statement of work and ensuring the delivery of Maximo to replace legacy solution. BV team developed the requirements for the RFP document used to evaluate potential software solution and implementation partners. The BV team will be supporting the SNWA leadership team ensuring that the designated delivery partner is aligned with the requirements and industry better practices for a CMMS implementation.

Sarasota County Utilities, Sarasota, FL

CMMS Functional Lead. Accountable for developing business case for ensuring migration to "Best in Class" CMMS solution. Documented existing processes, facilitated workshops to define the preferred future state. Delivered business case and executive summary providing roadmap to achieve the desired outcome.

San Diego Gas & Electric, San Diego, CA

Supply Chain "Tiger Team" Lead Accountable for facilitating cross functional team (Engineering, Supply Chain, Operations, etc.) in identifying current state challenges in the supply chain management process. The team delivered a report and executive summary on the most effective methods of aligning people, process and technology to streamline the supply chain management processes at SDG&E.

Arizona Public Service (APS), Phoenix, Arizona

Program Manager. Accountable for delivering transformation project to replace legacy inventory, purchasing and nuclear quality solution with Maximo and advanced solutions (strategic procurement (Zycus), Inventory Optimization (SMART), Warehouse Management (High Jump), Vendor Management (Beeline). Led high performing team of



OFFICE LOCATION

Irvine, CA

EDUCATION

BA, Political Science,
Colorado State University,
1990

PROFESSIONAL ASSOCIATIONS

Arizona Opera, Board of Directors
Certified Reliability Leader
Adjunct Lecturer, Unitec (Leadership in Business)
National Speakers Association
Gardner School, Board of Trustees

YEAR CAREER STARTED

1990

YEAR STARTED WITH BV

2020

internal and external resources tasked with delivering 5 software solutions for a user community of 3,000 across the APS portfolio. Modelled operational excellence across the governance and delivery process to set a template for future programs

Ideas Evolving; United States / Australia

Client Success Catalyst. Led and participated on teams that delivered value across the strategic asset & change management spectrum. Implementation of EAM solutions (Maximo) for Work, Asset, Health Safety and Environmental management for Utilities and Oil & Gas Clients. Change management and communications leadership for Process Safety, Risk and Workplace Improvement initiatives for NZ Utility (Mercury). Served as speaker and facilitator for Operational Excellence programs with multiple clients including Air Force New Zealand.

Certus Solutions; Auckland, New Zealand

Solutions Director. Worked across multiple disciplines: Strategic Asset Management, Enterprise Document Management, Enterprise Information Management delivering client focused solutions. Served as Solutions Architect for Maximo projects at (BP Australia, Port Waratah Coal Services, Woolworths). Participated as Health, Safety and Environmental workstream lead for legacy software replacement program (Transpower).

IBM Global Services; Auckland, New Zealand

Information Technology Lead. Responsibilities included delivery of complex software implementations as leader of Global Solutions team, providing support to business development teams in expanding solution footprint in New Zealand and Australia. Led delivery team that transformed a failing implementation at KiwiRail into a delivered success. Led Sales and Delivery team for complex implementation at Refining New Zealand. Served as member of ANZ Enterprise Asset Management leadership team.

MRO Software; Bedford, Massachusetts

Senior Solutions Engineer. Responsible for business process analysis and software demonstrations. Industry vertical expertise in Utilities, Facilities Management, and Manufacturing. Facile with multiple technology solutions including Maximo and associated mobile solutions. Facilities management team subject matter expert working with partner organizations (Archibus, etc.) to create solutions for enterprise clients (Kent Region Water, BART, University of Kansas). Supported e-commerce and master data management teams in delivering solutions to a wide range of clients.

Connie Hu, EIT

Data management/Tools

Connie serves as a Business Intelligence Engineer within Black and Veatch's Infrastructure Planning & Asset Management Department. Ms. Hu's has experience in using tools like Power BI to develop dashboards and reporting tools to provide business analytics, data visualizations, data tools and infrastructure and best practices to help internal and external clients make more data-driven decisions. In addition, Ms. Hu's experience includes data catalog, data connection, data engineering, dashboards, user experience and implementation of raw data analytics, analysis, dashboard-focused deliverables and dynamic Business Intelligence Implementation.

PROJECT EXPERIENCE

[Irvine Ranch Water District \(IRWD\) | Capital Improvement Plan and Asset Management for Pump Stations, Lift Stations, Tanks and Wells, Irvine, CA](#)

Business Intelligence Engineer. IRWD awarded Black & Veatch to perform engineering services for the CIP and Asset Management for pump stations, lift stations, tanks and wells. Ms. Hu is the engineer to support implementing a dynamic Business Intelligence dashboard and reporting tool for the client that includes performing data review, data analyses, data connection to client's systems, data engineering, creating reports and results that will support the entire process of the project. She is also assisting in developing a dashboard-focused deliverable for the client.

[California Department of Water Resources | O&M Asset Management Plan, Sacramento, CA](#)

Business Intelligence Engineer. DWR awarded BV to perform engineering services to develop an asset management plan for their assets. Ms. Hu supported the project with developing the maintenance management dashboard for the Operations & Management assets. She worked with the client's SAP dataset to develop the data model and dashboard reporting pages for the client to use internally to manage maintenance activities.

[California Department of Water Resources \(DWR\) | Asset Management Plan, Sacramento, CA](#)

Business Intelligence Lead. DWR awarded BV to perform engineering services to develop an asset management plan for their assets. Ms. Hu will be leading the development and management of all Power Platform services for this project. She will be managing all the Power BI and Power Apps implementations, deployment, data management, and leading BV's business intelligence analysts supporting this 5-year contract with DWR.

[Vallecitos Water District Water, Water, Wastewater, and Recycled Water Master Plan; San Marcos, CA](#)

Project Engineer. This ongoing project involves an update of the District's water and wastewater master plans, including updates of their demand/flow projects and capital improvements program. A full range of recycled water options is also being evaluated, including continuation of the District's recycled water wholesales as well as considerations for a wide-range of non-potable and potable reuse opportunities. Ms. Hu is leading the effort on the land use and wastewater flow projections as well as the wastewater modeling, improvement need identification and project evaluations, and updating the wastewater master plan.



OFFICE LOCATION

San Marcos, CA

EDUCATION & TRAINING

Data Science and Visualization Certificate, University of California, San Diego Extension, 2019

Certified NASSCO PACP, LACP, and MACP (2016-2019)

A.A. Geographic Information System, Palomar Community College, 2013

B.S. Civil Engineering, University of California, Davis, 2010

PROFESSIONAL REGISTRATION

EIT – 2010, CA, 138155

APPLICATIONS/TOOLS

ESRI ArcGIS Suite;
Microsoft Office Suite;
Cityworks Software

YEAR CAREER STARTED

2013

YEAR STARTED WITH BV

2013

[County of San Diego \(COSD\) Public Works | As Needed Services \(CIP, Digital/System Management Integration\) \(2020\) - Present](#)

Business Intelligence Engineer. COSD awarded BV 5-year contract to perform engineering as needed services. Ms. Hu is developing the CIP and all aspects of the Digital/System Management Integration Power BI dashboards that will be used by COSD as internal tools to assist them in the system management of the diverse set of datasets that include CCTV/inspection data, CMMS (O&M) data, Flow monitoring data, risk assessment data and CIP project data. She is also using Power Apps to develop CIP project form that the client uses to review and modify CIP project and update the Power BI dashboards as a project management and engineering tool to assist in decision making and provide updates to board of directors.

[Western Municipal Water District \(WMWD\) | Pilot Inspection Program, Riverside, CA](#)

Business Intelligence Data Analyst. WMWD awarded BV to perform a pilot condition assessment program of their potable water pump station facility assets to develop the framework for the client to continue in-house ongoing inspections and potentials to expand to other facility assets. Ms. Hu developed the Power BI dashboard framework with the pilot inspection dataset that includes providing dashboard pages with insights on condition assessment trends, asset inventory summary, detailed trend breakdown of assets by LOF scores, risk assessment proof of concept and opinion of probable costs of recommendations.

[Loudoun Water \(LW\) | Asset Lifecycle Plan Development, Ashburn, VA](#)

Business Intelligence Engineer. LW awarded BV to develop an asset lifecycle plan and dashboard proof of concept for Broad Run WRF. Ms. Hu is assisted in the development of O&M, O&M Forecast and Rehab & Replacement dashboard modules. In addition, she worked on the data model, data engineering and data gap analyses of the SAP dataset for these modules.

[Milwaukee Metropolitan Sewerage District \(MMSD\) | Asset Management Program; Milwaukee, WI](#)

Business Intelligence Engineer. MMSD awarded Black & Veatch to perform a utilities system asset management program. Ms. Hu is the Business Intelligence engineer on this project which includes creating Power BI Dashboards that provide the project's data management, data collection, data analysis and insight, reporting, data visualization to provide a more advanced interactive and dynamic and insightful approach to understanding the client's existing data and to guide in decision making for the utilities future projects and projections and other valuable considerations for the client.

[Corvias Military Living | Utilities Billing Rates and Consumption Projections; Corvias Military \(2020\), RI](#)

Business Intelligence Engineer. Corvias awarded BV and InfraManagement Group to perform a water, wastewater, electric and gas utilities analyses and develop rate and volume projections and identify potential savings for 6 air force bases. Ms. Hu is the Business Intelligence engineer on this project to develop Power BI Dashboards that includes data gap review, data quality review, perform data analyses of the utilities billing data, identify trends, and rates and volumes projections, and provide details in Power BI reports of potential savings for the client.

[City of Escondido | Cityworks Asset Management Upgrade \(CMMS\); Escondido, CA](#)

Asset Management. Ms. Hu is responsible for assisting in the implementation, testing and support of Cityworks Server AMS 2012. This included on-site work as an extension of City staff for administration site changes in Designer such as: adding new users/groups, modification to the Local Government Templates, Crystal Report integration, and overall system testing and support. Other tasks Ms. Hu worked on included XML user interface customization, data input configurations, and development of new GIS data layers. Ms. Hu also assisted with coordination, workshops, training, troubleshooting with other departments City-wide including both office and field staff (Water Operations, IT, Wastewater Collections, and Call Center) to identify functional requirements and overall support during implementation. Additional implementation she developed was wastewater collections CCTV dashboard and KPIs.

Jeremy Clemmons, P.E.

Civil/Mechanical

Jeremy is a dedicated and accomplished Engineer with over 27 years of progressively responsible experience managing all technical aspects of highly complex water and wastewater infrastructure projects. Skilled in multiple aspects of water, wastewater and general civil engineering; major project management; hands-on reservoir, pump station and pipeline design and design management; proactive client management and coordination; budgetary and labor cost controls; project cost estimating; and construction engineering services. Known and respected by clients and colleagues for being a proven manager and technical engineer with excellent communication and interpersonal skills who effectively collaborates and fosters quality relationships with all levels of staff, subconsultants and clients.

PROJECT EXPERIENCE

[Vallecitos Water District | Water, Wastewater, and Recycled Water Master Plan | San Marcos; CA](#)

Technical Support. Provided technical support for the master plan team on future conveyance design projects, including concept layout guidance, design considerations, constructability conditions, and cost ranges. Assisted on sites visits with the Black & Veatch team and client to discuss improvement concepts and identify conditions that may impact the future projects, including potential pipeline alignments, storage tank siting, and pump/lift station improvements.

[City of Oceanside | Wastewater Facilities, Oceanside, CA](#)

Project Manager. Responsible for the design of a 5.7-million-gallon-per-day sewer lift station, belowground, dry-well/wet-well configuration, using three 400-horsepower vertical dry-pit non-clog solids handling pumps. Responsibilities included providing project management, client and subconsultant management, preparation of detailed design including contract documents and opinion of probable cost. Aided in the design of pumps, piping, valving, ventilation, odor control, system controls, emergency storage, emergency generator, renovation of existing lift station, and existing site civil improvements.

[Eastern Municipal Water District | Cactus II Feeder Transmission Main; Moreno Valley, CA](#)

Engineering Manager. Responsible charge for the design of a 5-mile long (48- to 30-inch CML&C steel) potable water transmission main and 1,100 lf distribution pipeline (12-inch PVC) traversing city streets. This project also includes four large pressure reducing turnout facilities. Primary duties include leading the alignment analysis to select a final corridor, overseeing all technical pipeline design aspects, management of the design team and subconsultants, coordination with the client and various approval agencies, and final approvals of the Contract Documents.

[Eastern Municipal Water District | Perris and Elder Booster Pumping Station; Moreno Valley, CA](#)

Engineering Manager. Responsible charge for the design of a 500 HP, 8 MGD pump station, using four 100-HP vertical turbine pumps. The pump station includes a new building for the pumps, separate electrical room, separate emergency generator room, and significant site improvements. Duties included developing the pump station layout, pump and mechanical piping design, managing the design team, and developing Contract Documents.



OFFICE LOCATION

San Marcos, CA

EDUCATION

MS, Civil Engineering, San Diego State University, 1999

BS, Engineering, University of Redlands, 1994

PROFESSIONAL REGISTRATION

PE – 2004, CA, #C7140

YEAR CAREER STARTED

1994

YEAR STARTED WITH BV

2013

[Otay Water District | Rolling Hills Ranch Potable Water Pump Station; Chula Vista, CA](#)

Project Engineer. Responsible for assisting with the detailed design of a 1- million-gallon-per-day (MGD) domestic water pump station serving the 1100 zone, using four pumps (two duty, one fire, one jockey). Assisted with the design of pumps, piping, valving, system controls, emergency generator, and existing site civil improvements.

[City of San Diego | Otay Clearwell Storage Reservoirs, San Diego, CA](#)

Assistant Project Manager and Project Engineer. Responsible for the design and construction of two 6.7-mg, circular, prestressed concrete, domestic water storage reservoirs (AWW D110) including all associated piping, valving, and controls systems.

[City of Prescott | Zone 24, 27 and 39 Storage Tanks; Prescott, AZ](#)

Project Manager and Lead Project Engineer. Responsible charge for the design and construction of three above grade storage tanks of the following size and type: 1.33 MG welded steel (D100), 0.5 MG glass coated bolted steel (D103), and 1.25 MG semi-buried prestressed concrete (D110).

[County of San Diego | Rancho San Diego Sewer Lift Station Rehabilitation; San Diego, CA](#)

Engineering Manager. Responsible charge for the rehabilitation design of an existing 7 MGD dry-pit/wet-well configuration sewer lift station using three 250-hp horizontal chopper pumps, with variable frequency drives for over-speed conditions.

[Eastern Municipal Water District | Murrieta Road Booster Pump Station; Perris, CA](#)

Senior Engineering Manager. Responsible for managing the design team on a 22 MGD potable water pump station, using four vertical turbine, VFD driven pumps. The pump station includes a new building with three different rooms, one each to house the pumps, electrical equipment and emergency generator. A unique characteristic of the pump station is the ability to pump in two directions depending on the supply availability, requiring careful design of automated valves and pump controls. Duties include general project management, client interface, schedule and budget control, oversight of the design team, and technical input.

[Helix Water District | Johnstown Booster Pump Station Replacement; El Cajon, CA](#)

Senior Engineering Manager. Responsible charge for the design of a 4.8-MGD potable water pump station. The project includes all ancillary design of the pump station replacement including hydraulic analysis, pump selection and optimization, civil site design, SDG&E coordination, design of the new building, and demolition of the existing station. A full replacement vs. rehabilitation cost-benefit analysis was performed to optimize the District's capital costs. Representative duties include managing the design team, regular communication and coordination with the Client, and performing responsible charge reviews of documents.

[Rancho California Water District | Los Caballos Pump Station No. 2; Temecula, CA](#)

Engineering Manager. Responsible charge for hydraulic evaluations and development of the preliminary design for two potable water booster pump stations (27 MGD and 20 MGD). Two pump station alternative concepts were developed by the team for analysis: one requiring two pump stations and the other consolidating into a single pump station that could alternate pumping between both zones. This required special attention to the pipeline size, hydraulic conditions, and valving scenarios, in particular for the consolidated pump station which resulted in differing pressures and alternating zones.

[City of San Diego | Black Mountain Ranch Sewer Pump Stations No. 87 and No. 88; San Diego, CA](#)

Project Engineer. Assisted with the design and construction of 1.1- and 0.4- MGD sewer lift stations, belowground, dry-well/wet-well configuration, using two 100-hp and four 40-hp vertical dry-pit non-clog solids handling pumps.

[Clark County Water Reclamation District | Whitney Lift Station Rehabilitation | Clark County, NV](#)

Engineering Manager. Lead design manager responsible for design of rehabilitation improvements for an 11.2 MGD lift station utilizing 4 variable speed chopper solids handling pumps (150-hp each) to replace existing vertical solids handling pumps. Other modifications of the lift station include wet well improvements, new piping, valves, electrical, controls, and ventilation equipment, addition of an elevator, and building structure improvements.

Mark Lowe, S.E.

Structural

Mark is a registered and licensed Structural Engineer in five western states with more than 38 years of experience in structural design, project engineering and management. He has worked on various and numerous projects including water and wastewater treatment facilities, seismic retro-fit/rehabilitation/improvements, industrial & process facility plants. His experience covers design of concrete, steel, masonry, and wood structures with specialized design experience in vibration attenuation, seismic bracing of equipment and blast/overpressure design.

PROJECT EXPERIENCE

[City of Burbank | Reservoir 2 Condition Assessment; Burbank, CA](#)

Structural Engineer. Perform cursory desktop condition assessment of existing 2.5 MG reservoir that was originally constructed in 1932. The buried reservoir construction consists of concrete walls and base slab with timber framed roof cover.

[Orange County Water District | Groundwater Replenishment System \(GWRS\) Project Final Expansion; Fountain Valley, CA](#)

Structural Engineer. Design upgrade to existing facilities to provide improved capacity to existing water filtration and treatment facilities. Structures required or modified included RO Building, Microfiltration Facility, Ultraviolet Facility, Lime Treatment and Saturator Equipment, RO Flush Tank Channel Improvements, 15 MG Equalization Flow Steel Storage Tanks and Pump Station. The two steel tank dimensions are 216 feet diameter by 32 feet tall and supported on reinforced concrete mat with deep concrete piles. Upgrade capacity of 30 MGD provides a total plant capacity of 100 MGD.

[City of San Diego | Structural Assessment and Seismic Vulnerability Study | Alvarado Water Treatment Plant| San Diego, CA](#)

Structural Engineer. Provide condition assessment study for existing water treatment plant to EPA and CalARP requirements to ensure structural damage from potential seismic event does not result with chlorine and ammonia release at the facility.

[Eastern Municipal Water District | Perris II Desalter Facility; Menifee, CA](#)

Structural Engineer. Provide structural design, analyses and preparation of construction documents for new water reclamation plant with 3.5 MGD capacity and expandable to 5.0 MGD. New structures included Forebay/RO Transfer Pump Station, Chlorine Contact Tank/Finish Water Pump Station, RO Process/Research/Chemical building, Decarbonator Facility, Brine Receiving Station and site security fence.

[Orange County Sanitation District \(OC SAN\) | TPAD Digester Facility at Plant No. 2, P2-128; Huntington Beach, CA](#)

Project Structural Engineer. Provide structural analyses and preparation of structural construction documents to replace and upgrade existing facilities with an estimated total construction cost of \$300M. The Black & Veatch structural scope of work for project includes new facilities as follows: digester feed facility (DFF), two Sludge blending tanks, six Class-A batch tanks, sludge heating/cooling facilities, boiler building, odor control, chemical feed and storage facilities and two-level electrical building. Project site has several seismic hazards that needed to be considered for design and required design to address and mitigate effects of lateral spreading and fault rupture.



OFFICE LOCATION

Irvine, CA

EDUCATION

BS, Civil Engineering,
Montana State University,
1983

PROFESSIONAL REGISTRATION

PE – 1988, CA, 43603
PE – 1997, OR, 19461
PE – 2003, NV, 16253
PE – 2003, NM, 16295
PE – 2004, CO, 38709
PE – 1998, MT, 8046
Structural
SE – 1992, CA, 3693
SE – 1997, WA, 35549
SE – 1997, HI, 9382
SE – 1997, AZ, 31942
SE – 2003, UT, 2203

PROFESSIONAL ASSOCIATIONS

Member SE of Structural
Engineers Association of
Southern California

Anchorage to Concrete
Committee

Seismology Committee
Masonry

Comm./Chair, Bldg Code
Committee

YEAR CAREER STARTED

1984

[Tualatin Valley Water District and City of Hillsboro | Willamette Water Supply Program Raw Water Facilities 1.0, Wilsonville, OR](#)

Project Structural Engineer. Provide structural design services for multi-aspect scope project that included seismic analyses and retrofit strengthening of existing Raw Water Pump Station, essential non-structural components and new Water Treatment Facility. Modelling and evaluation of existing reinforced concrete pump station using ASCE 41 provisions and geotechnical input to improve slope stability and mitigate liquefaction and lateral spreading due to weak sub-surface soils. Extensive ground improvements that included jet grouting and tie-back walls. New facilities consisted of pile supported structures and equipment that included Electrical Building, Generator and Fuel Tank, Surge Tanks and HVAC Facility

[San Francisco Public Utilities Commission | Southeast Water Pollution Control Plant \(SEP\) Biosolids Digester Facilities Project; San Francisco, CA](#)

Structural Engineer. The existing 250 MGD SEP provides wastewater treatment for the majority of population for City and County of San Francisco. This project intends to modernize the circa-1950 solids handling facility, produce biosolids and biogas through anaerobic digestion, treat and contain odors, provide sidestream treatment of ammonia generated by the biosolids processes, and reuse 100 percent of the biosolids and biogas. Site challenges included significant shoring with large volumes of contaminated site soils planned to be removed and replaced as part of construction. High seismic and high groundwater and deep soft bay mud soils required complex and detailed structural analyses and design. Black & Veatch is responsibility for the design of the combined heat and power energy recovery facilities and associated piping systems.

[Irvine Ranch Water District | Michelson WRP Biosolids & Energy Recovery Upgrade Project; Irvine, CA](#)

Structural Engineer. Provide structural analyses, preparation of construction documents and construction phase services for new structures to upgrade existing Michelson Water Recycling Plant to implement solids handling and energy recovery processes. The project was designed to meet goals that were measured by cost-effectiveness, environmental stewardship, sustainability, and the use of latest technologies as objectives. New structures included Solids Handling Building, Acid Phase & Methane Egg-Shaped Digesters, Digester Control Building, Sludge Control and Handling Buildings, Pump Stations, Fuel Cell Structure, Gas Storage, Odor Control, Chemical & Polymer Storage Facilities and FOG Receiving Station.

[City of Las Vegas Public Works | Structural Assessment for Water Reclamation Basin, Las Vegas, NV](#)

Structural Engineer. Provide structural condition assessment, analyses and repair recommendations for the rehabilitation of existing buried, concrete basin originally placed into service as a Chlorine Contact Basin. The basin plan dimensions are 117 feet long by 67 feet wide and covered by a removable aluminum panel system. Basin was re-purposed to serve as a Water Reclamation Basin (WRB) circa 2003. The assessment was requested by the client due to concerns regarding the potential effects caused from initial 12 years of service high chlorine concentration exposure to the concrete walls.

[El Dorado Irrigation District | Folsom Lake Intake and Pump Station Project; Placerville, CA](#)

Structural Engineer. Provides structural design, analyses and preparation of construction documents for the Folsom Lake Intake and Pump Station Project which includes a new raw water lake intake pipeline and pump station at Folsom Lake. Structural support design was coordinated with construction techniques that included drill-and-blast shaft sinking, hard rock microtunneling/rock anchors, screened intakes, pumping and electrical equipment, and miscellaneous site improvements. The project design was implemented in two phases: Phase 1 comprises all subsurface construction and pumping elements for 30 MGD treatment plant; Phase 2 installation of additional electrical and pumping equipment to increase station capacity to 52 MGD.

[Cal Water | Northwest Bakersfield WTP; Bakersfield, CA](#)

Structural Engineer. Provide structural design and construction documents using design-build approach for upgrade structures at existing WTP. The improvements are to increase production to peak flow of 10.4 MGD. Project structures included new pretreatment basin, flash mixer and PACL Feed and Storage Facility. The pretreatment basin was designed and constructed to be located within a portion of existing storm water detention basin.

[Metropolitan Water District of Southern California | Greg Avenue Pressure Control Structure, Pump Modification and New Control Building; Los Angeles, CA](#)

Structural Engineer. Responsible for the structural analyses and design for the foundational support of replacement pumps and new surge tanks at existing Pumping Station. Primary project scope included two 3000 HP (55 CFS) pumps with one unit capable of hydroelectric generation when operated in reverse. Full site improvements, yard piping, security fence and installation of a new LADWP transformer for the site electrical power is part of this project.

Pero Vrcelj, P.E.

Electrical/I&C

Pero is an electrical engineer with over twenty years of professional consulting experience in the design and construction of water and wastewater systems and facilities in the public and industrial sectors. His public-sector background includes serving as Senior Electrical and I&C Engineer for: detailed design of wastewater and water treatment plants; process upgrades to existing facilities; odor control facilities design; water and wastewater electrical condition assessments; lift and pump stations design; and construction services.

His industrial-sector background includes serving as Senior Electrical and I&C Engineer for water, storm water and wastewater management; electrical distribution and process designs for the mining industry in Arizona, Utah and Indonesia. Pero has performed short circuit, overcurrent protective device and arc flash studies utilizing Easy-Power, SKM Power-Tools and E-TAP, in both public and industrial sectors.

PROJECT EXPERIENCE

City of Burbank Water and Power | Reservoir 2 Condition Assessment, Burbank, CA

Senior Electrical and I&C Engineer. Lead Electrical and I&C Engineer responsible for the electrical and I&C equipment evaluation and assessment of the Reservoir 2 equipment.

San Jose – Santa Clara Regional Wastewater Facility | Pump Station Condition Assessment Study; San Jose, CA

Senior Electrical. Lead Electrical Engineer responsible for assessment of process electrical systems, including motor control centers, switchboards, switchgears, motors, variable frequency drives, transformers.

Metropolitan Water District | Greg Ave Pressure Control Structure Pump Station; Los Angeles, CA

Senior Electrical and I&C Engineer. Electrical and I&C Engineer responsible for the design of the pressure control structure with pump station; addition of two 3,000 HP pumps and all associated valves with surge tank controls. Responsibilities included development of construction drawings with associated schematics, specifications, control description and construction services.

Metropolitan Water District | Reach 3 Second Lower Feeder; Los Angeles, CA

Senior Electrical and I&C Engineer. Lead Electrical and I&C Engineer responsible for the assessment of the existing valve and metering vaults and design of the vault equipment replacements. Responsibilities included development of construction drawings with associated schematics, P&IDs and specifications.

City of Burbank Water and Power | Burbank Valley Pumping Plant Upgrades, Burbank, CA

Senior Electrical and I&C Engineer. Lead Electrical and I&C Engineer responsible for the electrical and I&C equipment evaluation and recommendation for the electrical and I&C pump station upgrade. Responsibilities included design of medium voltage motor control replacement and existing PLC replacement. Prepared electrical and I&C construction drawings and specifications.

City of Phoenix | Lake Pleasant WTP Assessment / Engineering Services, Phoenix, AZ

Senior Electrical and I&C Engineer. Lead Electrical and I&C Engineer responsible for the electrical power distribution and I&C equipment evaluation and assessment. Performed site visits and condition assessment, equipment scoring and prepare the report.



OFFICE LOCATION

Phoenix, AZ

EDUCATION

B.S., Electrical Engineering, University of Zagreb, 1991, Croatia

PROFESSIONAL REGISTRATION

PE-, 2014, AZ, #59230

PROFESSIONAL ASSOCIATIONS

IEEE, Institute of Electrical and Electronics Engineers – Member

YEAR CAREER STARTED

1998

YEAR STARTED WITH BV

2016

[Placer County Water Agency | Ophir Rd and American River Pump Stations Standby Generator Projects; Ophir, CA](#)

Senior Electrical Engineer. Lead Electrical Engineer responsible for developing recommended generator sizes based on the process and pumping requirements, prepared procurement package for medium voltage generators and switchgears. Prepared electrical construction drawings and specifications. Provided engineering support with bidding, submittal reviews and RFI's.

[City of Glendale | Pyramid Peak WTP Improvement and Expansion Glendale, AZ](#)

Senior Electrical Engineer. Lead Electrical Engineer responsible for the electrical design of the WTP improvements and expansion; electric service upgrade; replacement of the main switchgear, generator, MCC's, addition of two MCC's with process equipment upgrades and PLC upgrades. Responsibilities included attending project meetings, preparation of Power Point presentations, basis of design report, construction drawings and specifications; bidding, arc flash study and construction services.

[City of Glendale | Hillcrest Ranch Booster Pump Station; Glendale, AZ](#)

Senior Electrical and I&C Engineer. Lead Electrical and I&C Engineer responsible for the electrical and I&C equipment evaluation, assessment and recommendation to restart the pump station that has not been operational since 2008. Performed pump station testing.

[City of Mesa | Brown Road WTP; Mesa, AZ](#)

Senior Electrical Engineer. Electrical Engineer responsible for electrical equipment evaluation and assessment, power distribution analysis and generator evaluation. Responsibilities included development of the memorandum with recommendation to upgrade the existing utility service and generators to improve plant reliability and resiliency.

[City of Phoenix | 23rd Avenue Wastewater Treatment Plant Arc Flash 5-year review and upgrade; Phoenix, AZ](#)

Senior Electrical Engineer. Electrical Engineer performed Arc Flash Study five-year review and upgrade to the existing study, re-production of new Arc Flash labels for the plant electrical equipment.

[City of Phoenix | Cave Creek Water Reclamation Plant Electrical Assessment; Phoenix, AZ](#)

Senior Electrical Engineer. Electrical Engineer responsible for the electrical power distribution equipment evaluation for the facility that has not been in operation over 10 years.

[City of Phoenix | 91st Ave WWTP Decant Pump Station No. 2 Electrical Assessment; Phoenix, AZ](#)

Senior Electrical Engineer. Electrical Engineer responsible for the evaluation, inspection and assessment of the electrical equipment and associated instrumentation; evaluated existing ventilation system and provided Memorandum with recommendation to meet NFPA 820 requirement.

[Metro Wastewater Reclamation District | Sodium Bisulfate Static Mixers Access Improvements; Denver, CO](#)

Senior Electrical and I&C Engineer. Provided engineering and design services for power distribution, instrumentation and controls associated with Sodium Bisulfate Static Mixer Improvements; coordinated with contractor existing ductbank relocation, and upgrade to the existing PLC and SCADA. Responsible for construction drawings and specification.

[Salt River Pima Maricopa Indian Community | Talking Stick Zone 2 Arsenic Removal Treatment Plant; Scottsdale, AZ](#)

Senior Electrical and I&C Engineer. Electrical and I&C Engineer responsible for design and construction of booster and well pump station, with arsenic removal treatment facility including 4 MG underground water storage tank, PLC and SCADA design. Project included new electrical service with on-site generator, six booster pumps, well pump, chlorine building, and arsenic removal treatment plant.

Chad M. Barker

Lead Estimator

Chad over 30 years of experience in the civil, water, wastewater, and transportation construction industry, with experience on multiple sizes and types of roadwork, sitework, pipeline, WWTP, WTP, industrial process and other major transportation infrastructure and utility infrastructure projects. In addition to developing detailed project cost estimates, he has also developed detailed cost tracking systems, effectively managed projects, and personnel, as well as operated a medium sized, self-performance contracting firm during my time in the industry.

PROJECT EXPERIENCE

City of Morro Bay | Water Reclamation Facility Design-Build; Morro Bay, CA

Principal Estimator. Replacement of an aging wastewater treatment facility near the city's waterfront with a state-of-the-art water reclamation facility on a greenfield site located 1.5 miles inland. The facility was designed to produce IPR-quality water for aquifer recharge. Value: \$66M.

California Water Service | Palos Verdes Pipeline Project Progressive Design-Build; Palos Verdes, CA

Principal Estimator. Progressive design-build project to rehabilitate water infrastructure on the Palos Verdes peninsula. Project consists of approximately 7 miles of large diameter (24-inch and 30-inch) buried potable water pipeline and a booster station. The alignment is threaded through dense neighborhoods, equestrian trails, schools and community facilities, and environmentally sensitive areas. Value: \$50 million.

Parker Water and Sanitation District | Water Resources Centralization Progressive Design-Build, Phase 1B; Parker, CO

Principal Estimator. Progressive design-build of nine miles of groundwater conveyance systems, a 100,000-gallon reservoir, four miles of distribution pipeline, pump stations, and disinfection modifications to existing well houses. Value: \$40M.

Clean Harbors, Inc. | El Dorado Incinerator Expansion; El Dorado, AR

Senior Estimator. Competitive design-build of the first new hazardous waste incinerator in the US in 25 years. Project consisted of rotary kiln, secondary combustion, ash conveyance, APC systems along with accompanying structural steel supports and platforms. Chad was responsible for Civil, Structural, and Mechanical systems for hazardous waste incinerator. He also provided coordination with internal and external design teams and major equipment vendors. Value: \$88M.

NAVFAC | NAS JRB NOLA Water Distribution System; Belle Chasse, LA

Lead Estimator. Competitive design-build of new water distribution system for existing operational Naval Air Station. Project consisted of over 40K linear feet of new fire and water pipelines along with new fire pump station and refurbishing of existing storage towers and tanks. Chad was lead estimator through the pursuit development and execution of the project after award. He worked closely with the design team during proposal and final designs to provide highest project value, and negotiated and procured all project vendors and subcontractors. Value: \$19M.

California American Water | Desalination Facility; Monterey, CA

Senior Estimator. Competitive design-build of a new 9.6 MGD advanced desalination water treatment facility. Chad was responsible for civil, structural, and mechanical



OFFICE LOCATION

Orlando, FL

EDUCATION

Civil Engineering Coursework, University of South Florida

A.A., Hillsborough Community College, 1995

PROFESSIONAL REGISTRATION

Florida Licensed Underground Utility and Excavation Contractor #CUC057098

OSHA 40-Hour Training

OSHA Competent Person

Confined Space Entry

CPR and First Aid

YEAR CAREER STARTED

1991

YEAR STARTED WITH BV

2017

systems for desalination facility. He coordinated with internal and external design teams and major equipment vendors, and procured quotes for Divisions 2 – 16. Value: \$92M.

[Okaloosa County | Arbennie Pritchett Water Treatment Facility Expansion; Eglin AFB, FL](#)

Lead Estimator. Competitive design-build of 5.0 MGD expansion to existing wastewater treatment facility. Chad was lead estimator through the pursuit development and execution of the project after award. He coordinated with internal and external design teams and major equipment vendors, and procured and negotiated quotes for Divisions 2 – 16. Value: \$18M.

[USACE | JBLM WWTP Construction; Fort Lewis, WA](#)

Lead Estimator. Competitive design-build of new 12.0 MGD wastewater treatment facility. Chad was responsible for civil, structural, and mechanical systems for desalination facility. He coordinated with internal and external design teams and major equipment vendors, and procured quotes for Divisions 2 – 16. Value: \$80M.

[USACE | Ft. Irwin Advanced Water Treatment Facility; Fort Irwin, CA](#)

Estimator. Competitive design-build of new 6.0 MGD wastewater treatment facility. Chad was responsible for civil, structural, and mechanical systems for desalination facility. He coordinated with internal and external design teams and major equipment vendors, and procured quotes for Divisions 2 – 16. Value: \$90M.





El Toro Water District

September 2, 2022

Proposal to Provide Engineering
Services for the Pump Station
Asset Management Plan



WOOD RODGERS



September 2, 2022

Ms. Hannah Ford, PE | Engineering Manager
El Toro Water District
24251 Los Alisos Blvd. | Lake Forest, CA 92630

RE: Proposal for Pump Station Asset Management Plan

Dear Ms. Ford:

Wood Rodgers, Inc. (Wood Rodgers) is pleased to submit our Proposal to the El Toro Water District (District) to demonstrate our team's approach in preparing a Pump Station Asset Management Plan (AMP) for the District. We are confident that the District will find our Team of dedicated professionals and technical experts more than capable of successfully delivering all the elements of this Pump Station AMP.

The Wood Rodgers Team is comprised of professionals who specialize in preparing AMPs along with staff that have knowledge as it relates to the District's existing infrastructure and operations. A few of the benefits that the Wood Rodgers Team provides the District are as follows:

- **Extensive Knowledge of District Facilities** | Our proposed Principal-in-Charge, Kevin Gustorf, PE has 20+ years of leadership and project management experience for public works contracts. He has been actively involved in several projects with the District over his career, including the previous (2005) preparation of the District's Water & Sewer Master Plan, water and sewer hydraulic model development and updates, and GIS updates.
- **Project Manager with Practical Experience** | Proposed Project Manager, Karl Meier, PE, has 20 years of experience in water system facility planning and design, having performed numerous condition assessments and prepared capital improvement programs over his career. Karl spent six years of his career as the engineering and operations manager for a southern California water district. His in-depth knowledge of operating a public water system brings added value and real-world experience to the preparation of the District's AMP.
- **Asset Management Plan Expertise** | Our Team includes Kayuga Solution (Kayuga), a south Orange County based firm founded to focus solely on asset management. Kayuga Solution is led by Colin Chung, PhD who has been involved in asset management research and education for over 20 years. He is one of the first recipients of a doctorate degree in the field of Asset Management and will bring his experience from developing asset management plans for other water districts to this project, including development of the Irvine Ranch Water District AMP.

Wood Rodgers acknowledges the receipt of **Addendum #1** (dated August 1, 2022), **Addendum #2** (dated August 9, 2022) and **Addendum #3** (dated August 17, 2022) and have adjusted our proposal accordingly.

Wood Rodgers is fully insured under industry standards and a certificate of insurance verifying coverage will be provided at the initiation of a contract. This statement certifies that Wood Rodgers can meet the requirements for insurance limits.

Wood Rodgers agrees to the contract language as stated in Appendix D of this proposal.

We look forward to discussing this project more thoroughly in person and welcome any questions you may have in the meantime. Kevin can be reached by phone at (916) 341-7425 or can be contacted via email at kgustorf@woodrogers.com. We look forward to the opportunity to work with the District Team and successfully delivering this important project.

Sincerely,

Kevin Gustorf, PE | Vice President, Principal-in-Charge

Karl Meier, PE | Project Manager

Project Examples

Irvine Ranch Water District | Asset Management Supports | Irvine | CA | 2015 – 2020

Reference | Barkev Meserlian, PE | Asset Systems Manager at IRWD (Former), Executive Manager of Engineering + Operations at West Basin Municipal Water District (Current) | 17140 S. Avalon Blvd #210 | Carson | CA 90746 | 310.660.6223 | BarkevM@westbasin.org

Relevant Project Elements | Water Utility Assets Inventory | Creation of Asset Management Centric Asset Database | Maximo Implementation + Data Uploads | Risk Analysis | IRIS Implementation

Irvine Ranch Water District (IRWD) serves six major cities in Orange County covering 181 square miles area and 600,000 people. In the past decade IRWD has been making significant changes to its water, wastewater, and recycled water infrastructure to meet the growing demands. Investments are being made to increase water supply reliability and quality by increasing local treatment capabilities, improving efficiency and sustainability of renewable resources, and replacing aging assets. Concerned over its expanding asset portfolio and aging assets, IRWD is committed to enhancing its operation and maintenance management practices and efficiencies through asset management. IRWD selected Kayuga to help develop its asset management program.



In the early stage of asset management program development, IRWD realized the data foundation was very weak. IRWD contracted Kayuga to perform comprehensive asset inventory for all facilities (e.g., pump stations, lift stations, treatment plants, wells, PRVs). Kayuga went to every site and performed inventory and collected asset data attributes necessary to support asset management decisions.

One of the main tasks assigned to Kayuga was to select the most appropriate Computerized Maintenance Management System (CMMS) considering the asset management needs and its existing information systems (i.e., Oracle, GIS). Next Kayuga was tasked to oversee the implementation of the chosen CMMS (i.e., Maximo). Kayuga acted as the owner’s representative in scheduling, managing, and checking the quality of Maximo implementation. Kayuga not only worked closely with the IT department and implementation consultant but also led the efforts in developing the functional requirements, business processes, and asset management database. The creation of the asset management database includes the creation of data standards, asset hierarchy, criticality assessment, and maintenance schedules. A comprehensive asset database was developed and later uploaded to Maximo. Kayuga also provided change management support during Maximo implementation including asset management roadshow to each of IRWD departments, development of a staffing plan, and changes to organization structure, asset management job descriptions and hiring schedule.

Additionally, IRWD also utilizes Infrastructure Renewal Intelligence System (IRIS) to support its short- and long-term capital planning activities.

Alameda County Pump Station Condition Assessment, Rehabilitation Study, & Performance Evaluations, Alameda County Flood Control & Water Conservation District | Alameda County | CA | 2021

Reference | Rohin Saleh (formerly with Alameda County Flood Control & Water Conservation District) | AquaFlows Engineering | (510) 593-1828 | rohin45@yahoo.com

Relevant Project Elements | Asset Database Development | Pump Station Assessment | Risk Assessment | Prioritized CIP

★ 2022 Commendation Award | ACEC California

Wood Rodgers was selected to perform the “Pump Station Condition Assessment and Rehabilitation Study and Pump Performance Evaluations” project for the Alameda County Flood Control and Water Conservation District (District). The District

plans, designs, constructs, and maintains flood control projects such as natural creeks, channels, levees, pump stations, dams, and reservoirs in Alameda County. The District operates and maintains at least 24 flood control pump stations that lift surface runoff from local City & District storm water collection systems into the District’s open channel facilities and into San Francisco Bay. These pump stations ranged in age from two to sixty years old.



The project was conducted to determine priorities for maintenance, rehabilitation, and replacement of the equipment and the pump stations in a structured, systematic manner that will provide the District with confidence that they are using their resources and funding in the most efficient manner possible. Wood Rodgers provided overall project management; mechanical and structural engineering assessments; pump performance and efficiency; and maintenance and asset analysis as summarized below.

Inventory and Condition Assessment of the Pump Stations | Wood Rodgers developed detailed inventories of the pump systems and performed a condition assessment of each of the three major systems of the pump station (the site/structural, the mechanical, and the electrical systems) with detailed visual inspections and with vibration and oil testing in order to define the remaining service life of the components.

Performance Testing of the Pump Stations | Wood Rodgers conducted pressure and flow testing of the pumps. The flow testing revealed significant differences between the actual pump curve and the manufacturers (assumed) pump curves. Actual capacity was typically 80% to 85% of the manufacturer’s published pump curve capacity and in some cases, as low as 50%. Without flow testing, the model could yield inaccurate flood maps or a false sense of redundancy.

Assessment of the Operations and Maintenance | Wood Rodgers documented and assessed the current operation and maintenance schedules of the pump stations, identifying costs and potential efficiency improvements. Operations and maintenance cost accounting data was compiled for each major system and graphed over a 30-year period as cumulative costs allowing for visualization of “inflection points,” or changes in the slope of the cumulative costs. These inflection points are often indicators of significant changes in the condition of the system and therefore should be considered for replacement.

Risk Analysis | Wood Rodgers conducted a risk assessment to compare the annualized costs vs. risk of the existing pump station vs. the annualized cost and risk of the pump station with an increased capacity. This analysis was used to economically support improvement recommendations.

Recommendations | Wood Rodgers then used the inventories, condition assessments, performance testing, and risk analyses to recommend efficient combinations of re-operation, maintenance, rehabilitation, and improvements for each of 24 pump stations.

California Water Service Asset Management Supports | San Jose | CA | Ongoing

Reference | Paul Yang, PE | EAM Engineering + Applications Manager | 1720 N 1st Street | San Jose | CA 95112 | 408.367.8325 | pyang@calwater.com

Relevant Project Elements | Creation of 13 Asset Plans | Creation of Asset Management Dashboard | Risk Analysis | IRIS Implementation | CIP Funding Level Analysis

California Water Service (Cal Water) is the largest regulated American water utility west of the Mississippi River and the third largest in the country. Cal Water manages water utility infrastructures spread out within 13 operating districts across California. Cal Water contracted Kayuga to provide asset management services to support its in-house asset management team.

One of the Kayuga main tasks is to develop an asset plan for 13 major asset classes within Cal Water asset database. For each asset class, asset plan standardizes asset definition, design standards, asset types, data attributes, master of record, level of service, life cycle status, failure modes, BRE, and asset sustainment and replacement strategies were developed. The process requires a thorough review of existing Maximo and GIS databases. For each asset class, standard asset management data attributes are identified, and the standard hierarchy, classification, and numbering schema are specified.



Standard asset lifecycle statuses are applied to all asset classes and asset specific failure modes are listed. BRE analysis methodology was developed for each asset class using standard scale and rating systems to enable Cal Water to compare asset criticality across different asset classes. Finally, asset class specific management strategies for inspection, maintenance, rehabilitation, and replacement were created to complete the asset plan. The completed asset plans are used as standard reference for future improvement on Maximo and GIS, and most importantly as the standard manual for operations, maintenance, and replacement of the assets.

Based on the structure of the asset plan, Kayuga also developed an asset management dashboard template to enable Cal Water to view current asset inventory summary and data quality. The dashboard also includes high level summary of asset risk, condition and consumption. The dashboard templates were created for individual operating districts and overall district wide.

Currently Kayuga is implementing IRIS as to assist Cal Water’s CIP planning and General Rate Case submission. A custom funding level analysis is developed to generate the optimal CIP spending considering future replacement and rehabilitation needs and level of service target.

Ventura County Waterworks District No. 8 - Hydraulic Model Update and Capacity Study | Simi Valley | CA | 2021

Reference | Michael Kang, PE | Principal Engineer | Ventura County Waterworks District No. 8 | 805.583.6809 | mkang@simivalley.org

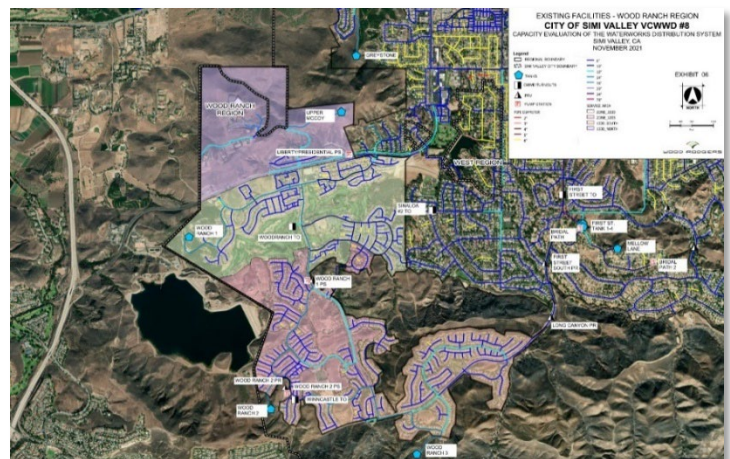
Relevant Project Elements | System Evaluation | Risk Analysis | Geodatabase | Project Development

The Ventura County Waterworks District No. 8 contracted with Wood Rodgers to perform a capacity evaluation of the water distribution system. This project included an evaluation of the current minimum design criteria, adequacy of the existing water distribution system, and identification of improvements to ensure the system can serve existing and future water demands.

Wood Rodgers’ tasks included the following:

- 1) Evaluate, Establish District Planning + Analysis Criteria
- 2) Determine Existing + Future Water Demands
- 3) Update + Calibrate the Existing Hydraulic Model
- 4) Water Distribution System Capacity Analysis
- 5) Evaluate Existing Service Area Pressure Boundaries
- 6) Analyze Supply + Capacity with Offline Supply Sources
- 7) Evaluate Facility Reliability + Redundancy
- 8) Analyze Water System for Pipeline Replacement

The results were documented in a final report.



Town-wide Storm Drainage Master Plan - CIP A-330 | Danville | CA | Ongoing**Reference** | Steven Jones | Town of Danville | 925.314.3339 | sjones@danville.ca.gov**Relevant Project Elements** | Geodatabase | Condition Assessment | Life Cycle Cost Analysis | Desktop Asset Inventory

Wood Rodgers is providing engineering services for the Storm Drainage Master Plan (town-wide) of 160 miles of storm drainage systems and 18 square miles of catchment areas throughout the Town of Danville (Town). Wood Rodgers utilizes an asset management approach to inventory storm drainage facilities, to assess maintenance and structural conditions, to calculate life cycle costs, and to optimize the maintenance, rehabilitation, and improvements of the Town's drainage systems.

The storm drainage facility inventory and condition assessment tasks involve field inspections, surveys and CCTV of storm drain pipes, drainage inlets, manholes, crossroad culverts, and outfall structures; and was supported by geodatabase and collector application development and implementation. The master plan also includes a desktop asset inventory task which as-builts are georeferenced and the information is converted to the geodatabase to supplement the facility inventory. Wood Rodgers is optimizing the Town's existing maintenance activities with the condition assessment findings and prioritizing facility rehabilitation and improvement projects and schedules with a risk-based approach which is based on probability and consequence of failure.

Livermore Asset Management Plan | City of Livermore | CA | Ongoing**Reference** | Debbie Bell | Management Analyst | 3500 Robertson Park Rd. | Livermore | CA 94550 | 925.960.8024 | dlbell@cityoflivermore.net**Relevant Project Elements** | Water + Wastewater Utility Assets Inventory | Creation of Asset Management Centric Asset Database | Risk Analysis | IRIS Implementation | Redundancy Analysis | AMP Development

Kayuga has been assisting the City of Livermore (City) on their Asset Management Program for many years. The asset management program covers streets, sidewalks, traffic signals, streetlights, parks, landscape areas, urban forestry, buildings, storm drains, water, wastewater, recycled water, and golf courses. Kayuga has been involved in the development of all asset management plans for each of these infrastructures systems.

Specifically for the water and wastewater systems, the City had existing data within a GIS database covering all horizontal assets (pipes, valves, manholes, etc.). However, for the treatment plant, pump stations, and reservoirs, a field inventory was performed to collect asset data, assess asset condition, and document immediate and future needs.

As part of risk assessment, the consequence of failure was determined based on spatial analysis utilizing available GIS layers. For treatment plant assets, an additional analysis was conducted to provide a more accurate assessment of the impact of asset failure given available redundancy. Redundancy helps to reduce the overall risk exposure for each asset, and it is very difficult to calculate how much redundancy is available at the asset level for a treatment plant. In order to properly account for the level of redundancy, Kayuga utilized IViewOps (Intelligent View of Operations) to model the treatment process and calculate the availability of redundancy at the asset level. Use of IViewOps greatly increased the confidence of risk assessment at the treatment plant.

Life cycle cost analysis was performed utilizing Kayuga's asset management system, IRIS, for each asset of each management system. Projected future budgetary needs to meet the levels of service were calculated. Where the needs exceeded the budget, assets were prioritized by risk to ensure maximum benefit. Policy recommendations were developed for the City Council's approval. These policies aim to manage risk for the City and provide a sustainable solution to the City's growing infrastructure problem.

Currently, the City's asset management program focuses on continued improvement. Every year, Kayuga helps to review the asset management processes and practices and helps to set targets for continual advancement.

Project Team

Wood Rodgers, Inc. (Wood Rodgers) | Built and sustained on the firm belief in providing quality services, Wood Rodgers was founded in 1997 by two engineers who set out to create an innovative engineering firm focused on the needs of their clients. We are a California corporation and have a staff of over 340 who share the same belief and pride in providing quality work products. Our staff includes professionally registered civil, traffic, structural, and geotechnical engineers; project management professionals; transportation and land planners; professional land surveyors; certified floodplain managers; landscape architects, and LEED® Accredited Professional staff. Wood Rodgers has a well-established track record in our management and technical skills to deliver projects on time and within budget.



Kayuga Solution (Kayuga) | Kayuga was founded to focus on one thing: asset management. They are a corporation established in 2015 and headquartered in Laguna Niguel, California. As a non-engineering or construction company, they provide an unbiased assessment and development of asset management programs. As a small company, they provide the flexibility and mobility to help customize asset management solutions to their clients. Kayuga has worked with numerous domestic and international clients to provide

diverse and comprehensive asset management solutions, including asset management improvement roadmaps, asset inventory, condition assessment, asset valuation, risk assessment, life cycle modeling, asset management plans, business case evaluations, asset management decision support system and implementation, and more.

The expansive asset management programs they develop for their clients will be used to understand and communicate the financial and resource requirements to sustain the delivery of services, highlight any condition and risk issues, proactively manage system assets, ensure that limited financial and staff resources are used in the most cost-effective manner, utilize the cost-effective system operation and maintenance options to meet customer expectations over time, and manage risk effectively.

Kayuga is the creator of the Infrastructure Renewal Intelligence System (IRIS), a cloud-based asset management system. This web-based application utilizes the asset database through a set of rules, to perform lifecycle cost calculations and risk analysis asset by asset. Capitalizing on their extensive experience on asset management practice, they have incorporated many asset management features such as year-by-year asset replacement and rehabilitation (R&R) projection, risk matrix, custom deterioration curves, map interface, project bundling and scheduling, funding analysis, and many others.

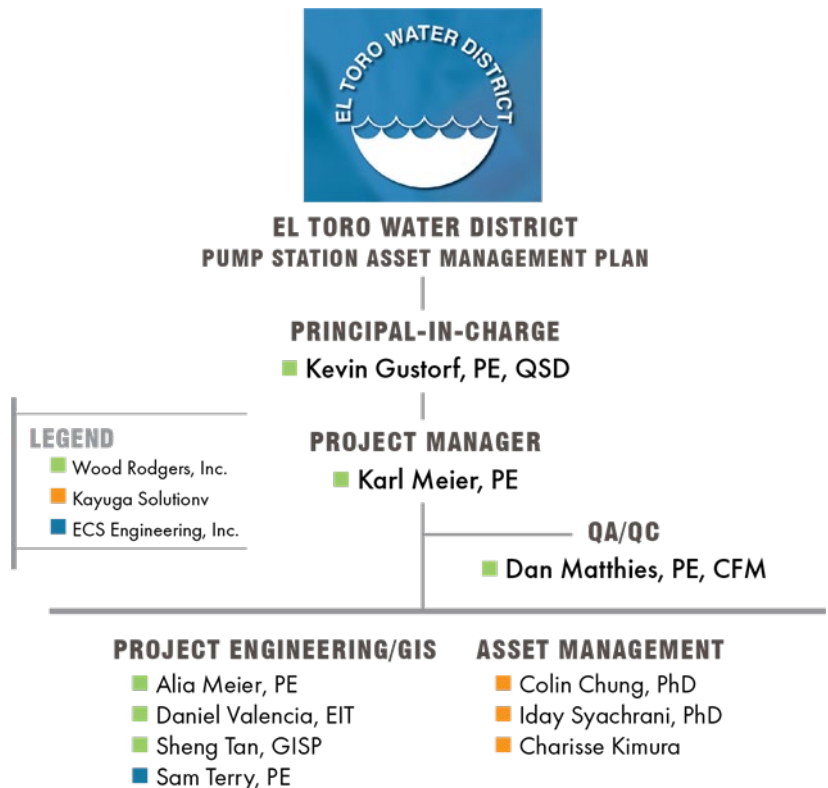
ECS Engineering, Inc.

Electrical & Control Systems Engineering
For Pump Stations & Treatment Facilities

ECS Engineering, Inc. | ECS Engineering, Incorporated specializes in the Electrical and Control Systems Engineering of industrial facilities, water/wastewater treatment plants and pump stations. They apply "Total Systems Engineering" and problem-solving solutions for power distribution, communications, networking, SCADA systems, control systems, programmable logic controllers, remote telemetry units, motor controls, variable frequency drives and instrumentation.

Organizational Chart

We have assembled a team that combines two critical elements needed for the success of this Project, knowledge of the District’s infrastructure and asset management expertise. Both Karl and Kevin were the original authors and hydraulic modelers for the District’s 2005 Water and Sewer Master Plan bringing with them a working knowledge of the District’s systems. The sole focus of Kayuga is Asset Management Planning, bringing this specialty skill set to the project. Finally, we have ECS Electrical whom we work with on pump station design projects to provide any electrical support throughout the project. Each member of our team is identified in the organizational chart, with resumes provided in the Appendix. Each team member will be made available for the duration of the project and will not be reassigned without prior written approval from the District.



Key Personnel + Role	Responsibilities	Key Qualifications
■ Kevin Gustorf, PE, QSD <i>Principal-in-Charge</i>	<ul style="list-style-type: none"> Contract Management Overall Project Oversight Provide Technical Guidance for Project 	<ul style="list-style-type: none"> 20+ Years of Leadership + Management Experience Current PIC + PM for El Toro Water District Project Managed 15+ Master Planning Projects with Capital Improvement Programs
■ Karl Meier, PE <i>Project Manager</i>	<ul style="list-style-type: none"> Primary Contact for the District Day-to-Day Management of Project + Staffing + Resources Provide Technical Guidance for Project 	<ul style="list-style-type: none"> Former District Engineer for Public Water Agency Involved in the Planning & Design of 20+ Pumping Facilities Significant Master Planning Experience & Capital Improvement Program Development
■ Dan Matthies, PE, CFM <i>QA/QC</i>	<ul style="list-style-type: none"> Implement QA/QC Plan Ensure Quality Deliverables 	<ul style="list-style-type: none"> 30+ Years of Water Resources Evaluation + Design Experience Extensive Pump Station Evaluation + Design Experience
■ Alia Meier, PE <i>Project Engineer</i>	<ul style="list-style-type: none"> Condition Assessment Consequence of Failure Risk Analysis Remaining Useful Life Replacement Costs CIP 	<ul style="list-style-type: none"> Diverse Planning + Design Experience Pump Station Planning + Design Experience Cost Estimating Experience
■ Daniel Valencia, EIT <i>Project Engineer</i>	<ul style="list-style-type: none"> Data Review Replacement Costs CIP 	<ul style="list-style-type: none"> Water System Evaluation Experience Pumping Facility Design Experience
■ Sheng Tan, GISP <i>GIS Support</i>	<ul style="list-style-type: none"> Consequence of Failure GIS Support 	<ul style="list-style-type: none"> 20+ Years of GIS Experience Programming + GIS Customization Experience Significant Data + Information Management Experience
■ Colin Chung, PhD <i>Asset Management</i>	<ul style="list-style-type: none"> Condition Assessment Consequence of Failure Risk Analysis Remaining Useful Life 	<ul style="list-style-type: none"> One of 1st Recipients of Doctorate Degree in Asset Management Research 20+ Years of Dedicated Asset Management Research + Development

	<ul style="list-style-type: none"> Replacement Costs CMMS Evaluation Asset Management Plan 	<ul style="list-style-type: none"> Involved in Development of 30+ Asset Management Plans
<ul style="list-style-type: none"> Iday Syachrani, PhD <i>Asset Management</i> 	<ul style="list-style-type: none"> Condition Assessment Consequence of Failure Risk Analysis Remaining Useful Life Replacement Costs CMMS Evaluation Asset Management Plan 	<ul style="list-style-type: none"> 10+ Years of Dedicated Asset Management Research + Development Experience Developing Deterioration Models Specialized Experience in Asset Life Determination, Risk Assessment, and Project Prioritization
<ul style="list-style-type: none"> Charisse Kimura <i>Asset Management</i> 	<ul style="list-style-type: none"> Condition Assessment Consequence of Failure Risk Analysis Remaining Useful Life Replacement Costs CMMS Evaluation Asset Management Plan 	<ul style="list-style-type: none"> Experienced Technical Writer Data Preparation for Risk Assessments, Life Cycle Costs and FTE analyses Experience in Asset Register Development
<ul style="list-style-type: none"> Sam Terry, PE <i>Project Electrical / I&C Support</i> 	<ul style="list-style-type: none"> Condition Assessment Remaining Useful Life Replacement Costs CIP 	<ul style="list-style-type: none"> 40+ Years of Electrical & I/C Design Experience Registered Electrical & Control System Engineer in CA Significant Sewer Lift Station + Pump Station Experience

Key Personnel Workload

The project team members identified in the organizational chart have been selected based on their relevant experience as well as their estimated availability. It is noted that many of the individuals proposed are also partially committed to other projects. The balancing of the work, adjustment of technical support staff, and scheduling of work tasks all are critical to ensure the most experienced and capable individuals are assigned to the work. The Wood Rodgers team is, and will always be, committed to making the individuals noted herein available to the capacity required for this District project. Once assigned, adjustments to the work staff will not be made without prior consultation and approval of the District.

Key Personnel	Current + Future Workload	Availability (%)
<ul style="list-style-type: none"> Kevin Gustorf, PE, QSD 	<ul style="list-style-type: none"> Napa State Hospital Recycled Water Conversion Study City of Simi Valley /VCWWD #8 Demand Factor Study Shadow Pines Sewer Lift Station Improvements Powell Street Sewer Pipeline Repair / Upgrades DSRSD Reservoir 20B 	15%
<ul style="list-style-type: none"> Karl Meier, PE 	<ul style="list-style-type: none"> Rancho California Water District Carancho Pump Station City of Simi Valley/VCWWD #8 Walnut Ave. Pump Station Otay Water District 870-2 Reservoir and 870-1 Pump Station Otay Water District 1655-1 Reservoir + RJHPS Pump Station Montecito Water District Asset Management Plan 	35%
<ul style="list-style-type: none"> Dan Matthies, PE, CFM 	<ul style="list-style-type: none"> Bradford Pump Station, Redwood City Miscellaneous Pump Station Rehab projects, Alameda County Stormwater Mngmnt and Tidal Flooding Study, Port of Oakland Millbrae Burlingame Tidal Flooding Design, OneShoreLine Lower Penitencia Creek Imp Project, Valley Water Drainage Master Plan, City of Oakland 	15%
<ul style="list-style-type: none"> Alia Meier, PE 	<ul style="list-style-type: none"> Rancho California Water District Carancho Pump Station Otay Water District 870-2 Reservoir and 870-1 Pump Station Long Beach Water Department Wells 24/25 Montecito Water District Asset Management Plan 	25%
<ul style="list-style-type: none"> Daniel Valencia, EIT 	<ul style="list-style-type: none"> Rancho California Water District Carancho Pump Station City of Simi Valley/VCWWD #8 Walnut Ave. Pump Station Otay Water District 1655-1 Reservoir + RJHPS Pump Station Montecito Water District Asset Management 	25%
<ul style="list-style-type: none"> Sheng Tan, GISP 	<ul style="list-style-type: none"> City of Las Vegas On-Call GIS Consulting Merced Irrigation District On-Call GIS Support City of Lemon Grove Sidewalk Inventory 	20%
<ul style="list-style-type: none"> Colin Chung, PhD 	<ul style="list-style-type: none"> City of Lake Forest Asset Management Program Irvine Ranch Water District Asset Management Planning Valley Water Asset Management Plans Montecito Water District Asset Management Plan 	25%



<ul style="list-style-type: none"> ■ Iday Syachrani, PhD 	<ul style="list-style-type: none"> • City of San Diego Watershed Asset Management Plan • Valley Water Asset Management Plans • City of Thousand Oaks Asset Management Program Implementation • Montecito Water District Asset Management Plan 	35%
<ul style="list-style-type: none"> ■ Charisse Kimura 	<ul style="list-style-type: none"> • Valley Water Asset Management Plans • Irvine Ranch Water District Asset Management Planning • City of Livermore Asset Management Plans 	40%
<ul style="list-style-type: none"> ■ Sam Terry, PE 	<ul style="list-style-type: none"> • Long Beach Water Department Wells 24/25 • Long Beach Water Department Wells 10/14 • City of Simi Valley/VCWWD #8 Walnut Ave. Pump Station 	10%

Project Understanding

The El Toro Water District (ETWD or District), formed in 1960, provides domestic water, recycled water and sanitary sewer collection, treatment and disposal services to a population of approximately 50,000 persons in the City of Laguna Woods and portions of the cities of Aliso Viejo, Lake Forest, Laguna Hills and Mission Viejo.

The District itself is over 60-years old, however many of its assets are older than that as the District merged together previously constructed irrigation and distribution systems. As the infrastructure ages, ETWD has identified the need to develop a comprehensive and defensible Asset Management Plan (AMP) that prioritizes the replacement and rehabilitation of its facilities. The District’s service area is primarily built out, so a majority of the capital projects now focus of the replacement, rehabilitation and renewal of the existing assets. The purpose of developing an AMP is to be able to more accurately identify and prioritize the projects that should be included in the near-term Capital Improvement Program (CIP).

The District owns, operates and maintains three (3) separate systems, which include several thousand assets. Rather than attempt to complete a large District-wide AMP, the District has determined that the development of the AMP will be phased. This phase of the AMP focuses on the facilities that the “Pump Station Crew” manages, including domestic water distribution system facilities, namely the pump stations, reservoirs and pressure reducing stations, and the sanitary sewer lift stations. The project will focus on identifying the age and condition of the following assets:

- 8 domestic water pump stations
- 11 sewer lift stations
- 6 domestic water reservoirs
- 27 pressure reducing stations (PRS)

Specifically, the assets will be assessed for electrical, mechanical, structural and site civil components of the above-listed facilities. The District will address the Water Reclamation Plant (WRP), wastewater collection system, Operations and Fleet assets in a future project(s).

The District is currently undertaking three separate efforts that have overlap with the AMP project, 1) updating of the Water and Sewer Master Plan, 2) development of an asset inventory, and 3) an Information Technology (IT) Master Plan. These efforts shall be coordinated with the AMP to ensure consistency and continuity. In addition, in 2017 the District implemented a Computerized Maintenance Management System (CMMS) for issuing work orders, storing facility data and tracking maintenance progress (Geoviewer by Nobel).

As mentioned above, the District is developing an asset inventory. The asset inventory will include a list of all assets in the system and their corresponding attributes. The asset inventory for the facilities included in this project will be completed in September 2022. The District will also provide photos and record information (dive reports, record drawings, maintenance logs, etc.) for all the facilities included in the project, therefore site visits are not required.

The scope of the first AMP will include assets managed by the Pump Station Department (i.e., pump stations, lift stations, reservoirs, and pressure reducing valves) and associated electrical and instrumentation equipment. When successful, the AMP framework will be applied to other asset types owned and managed by the District. In addition, ETWD wishes to make the AMP process repeatable, defensible, and efficient. This will be done through careful re-evaluation of the District’s current CMMS (i.e., GeoViewer) and develop an improvement strategy to reinforce, reconfigure, or replace the CMMS to better support the needs of the District’s asset management business processes. The revived asset management information management system

will allow the District to create a dynamic AMP where the results of the AMP will automatically be updated based on the updated condition score and asset replacements.

The District’s primary goals for this project include:

- Implementing a risk-based assessment of the District’s assets to identify high priority needs
- Developing a user-friendly, interactive GIS-based dashboard for viewing assets and recommended projects
- Integrating the CMMS system activities into the AMP to allow for automatic updates
- Ensuring security of the District’s network and systems
- Substantially completing the project within year 2022 to capitalize on the institutional knowledge of key operators that are planning to retire soon
- Preparing a defensible, prioritized short-term CIP (10-year)
- Identifying long-term asset planning needs (50-year)

The District recognizes that developing an AMP will allow the District to provide a framework for understanding the assets the District owns, services it provides, risks it assumes, and financial investments it requires over a long-range planning horizon. While the District is extremely active in replacing, repairing and rehabilitating its assets, the implementation of an Asset Management Plan will help the District move from reactive to proactive management of its physical and financial resources.

Wood Rodgers understands the District’s goals and objectives of this project. To best meet the District’s needs, we are proposing a team that has over 20-years of asset management expertise. Kayuga has been working with key clients (e.g., Irvine Ranch Water District, City of San Diego, Cal Water, Santa Clara Valley Water) to help them achieve similar goals and objectives.

Kayuga’s asset management experience, combined with Wood Rodgers extensive knowledge of ETWD’s infrastructure, creates a perfect partnership ETWD can benefit from.

Project Approach + Scope

Project Approach

Our proposed project approach is illustrated below. The approach is designed to address the District’s project goals and objectives one step at a time. The project approach highlights the five key steps of the project. Each step is designed to build on the other to fulfill the goals and objectives established by the District. The five key steps are as follows:

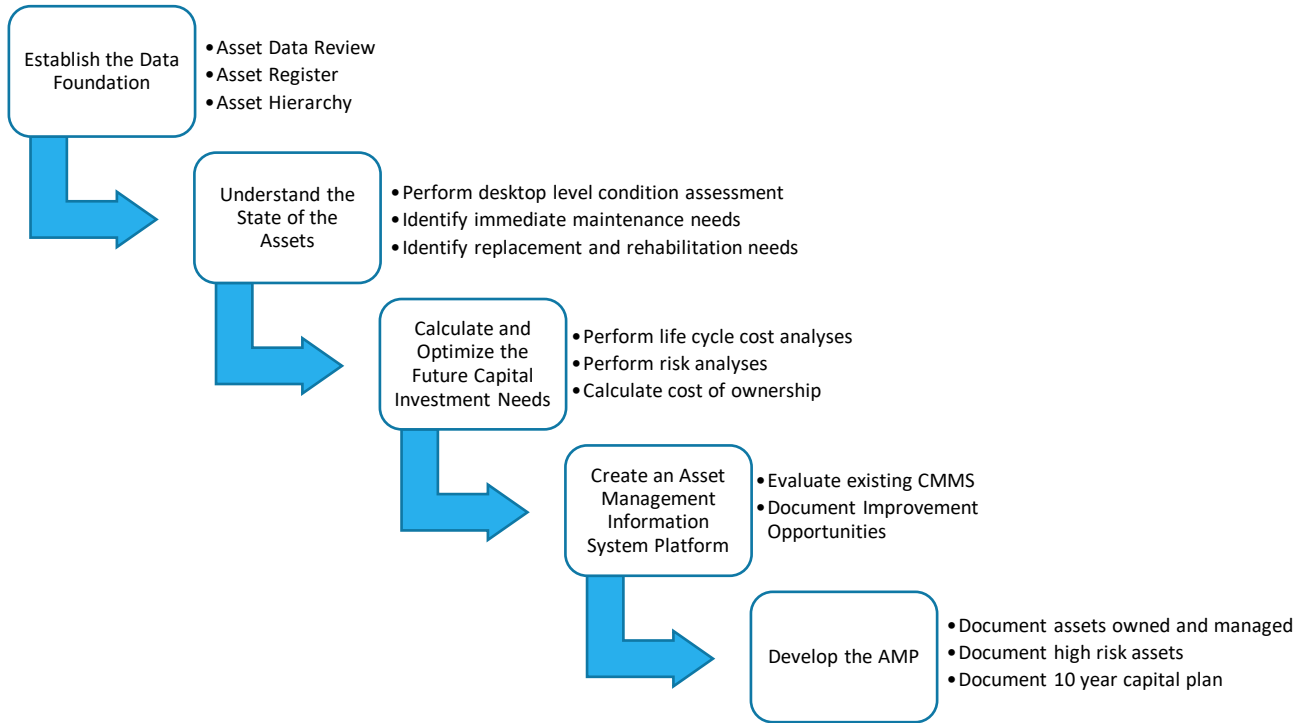
- 1) Establish the Asset Database Foundation
- 2) Understand the State of the Assets
- 3) Calculate and Optimize the Future Capital Investment Needs
- 4) Create an Asset Management Information System Platform
- 5) Develop the Asset Management Plan

The first three steps (Establish the Asset Database Foundation, Understand the State of the Assets, Calculate and Optimize the Future Capital Investment Needs) are required to develop the 10-year, or beyond, capital plan. The fourth step (Create an Asset Management Information System Platform) focuses on re-evaluating, strategizing, and developing the asset management information system platform (i.e., CMMS, asset management decision-support system). The last step (Develop the AMP) documents the results of the above steps in the form of an asset management plan.

Our approach is centered around guidelines and best practices for AMP development as prescribed by:

- AWWA Asset Management Definitions Guidebook
- US EPA Asset Management Best Practice Guide
- US EPA Reference Guide for Asset Management Tools

Details of each step are provided below.



Establish the Asset Database Foundation and Understand the State of the Assets are critical steps not only for developing a defensible asset management decision-making platform, but also for the creation of the asset database foundation for the District’s asset management information system.

During the asset inventory process, the following questions will be answered for each asset:

- ✓ What is it?
- ✓ Where is it?
- ✓ How much is it?
- ✓ What is the general condition?
- ✓ What immediate work is required?
- ✓ When should it be rehabilitated or replaced? How much will it cost?
- ✓ How critical is this asset?

Once the assets are inventoried and the work required (i.e., condition) is understood, the *Calculate and Optimize the Future Capital Investment Needs* phase incorporates various asset management analyses (e.g., asset valuation, risk assessment, life cycle costing) that will help to forecast and optimize the short and long-term capital plan and the budget required to continually fulfill the District levels of service. Various risk-based financial scenarios will be performed to help the District understand the financial investment required to sustain the delivery of services.

With the asset data foundation established and the future capital needs service understood, the focus will be on developing an asset management information system platform to efficiently maintain/manage the assets. In *Create an Asset Management Information System Platform*, our focus will be to help the District create an appropriate asset management information system that best support the District’s asset management business processes. Our Team will carefully examine the existing systems and strategize on how to achieve the best asset management information system architecture in the most efficient manner.

Lastly, *Develop the Asset Management Plan*, documents results of each step and provides a defensible platform for the 10 year capital plan. The Team will help the District optimize the 10-year capital plan through various risk, budget, and level of service based simulations.

Asset Management Planning can be done in many ways, but the key to a successful AMP is through harnessing technology to efficiently analyze the various parameters needed to make meaningful and justifiable decisions. Our team understands that, and to demonstrate this approach, we have developed a short digital presentation highlighting the tools and processes we plan to implement for this AMP. Please click [here](#) to access our virtual demonstration. *(Please be sure your video quality settings in YouTube are set to 1080p HD to get the full experience!)*

Specifically, our approach will be centered on the following primary tasks as described below.

| Asset Register Development

The asset register is the basis for all asset management and cost of ownership analyses. To develop the asset register, we will carefully review available pertinent data. Our goal is to supplement the data, not reinvent it. Where asset data does not exist, we will develop a data request log to allow the District to fill in data gaps as needed to allow for the creation of a central database of assets owned and managed by the District. The asset register is a key component of the asset management program as it establishes the data foundation to support all asset management decisions and consolidates all data pertaining to the assets in the system. The development process will be comprised of the following steps:

- **Gather Existing Data** | Consolidate all existing data sources (i.e., GIS database, applicable District records) and inventoried asset data into a centralized database.
- **Define an Asset** | We will help the District identify an asset versus a component of an asset. The definition of an asset will be the at the level where the asset will be managed or maintained.
- **Establish Asset Hierarchy** | An asset hierarchy organizes the thousands of assets in the asset register. We will work with the District to develop an asset hierarchy that is in alignment with asset management best practices.
- **Develop Asset Classes** | In order to assist in the management of assets, assets will be grouped into asset classes. An asset class is developed by grouping assets with similar characteristics, such as type, function, useful life, material, and size. An asset class helps to characterize the asset’s deterioration (e.g., expected useful life, decay curve) and lifecycle cost (e.g., maintenance, rehabilitation, replacement).
- **Develop an Asset Register** | This involves incorporating the elements above (i.e., asset inventory, asset definition, asset hierarchy, asset classes).

| Condition Assessment + Remaining Useful Service Life

A high-level desktop condition assessment will be performed for the pump stations, lift stations, reservoirs, pressure reducing stations and the associated electrical and instrumentation equipment using information supplied by the District. Since no field work or site visits will be conducted, we will use an age-based assessment utilizing the asset’s remaining useful life as a proxy.

To ensure we provide the best approach for this desktop condition assessment, we have selected engineers for our project team that have significant experience in the design and rehabilitation of pump stations, lift stations, reservoirs and PRVs as well as a registered

Condition Score	Remaining Useful Life (RUL)	Confirmed Defects
1 – New/Excellent	RUL ≥ 85%	Like new condition
2 - Good	65 ≤ RUL < 85%	Minor wear, but otherwise good condition
3 - Fair	40 ≤ RUL < 65%	Visible wear and tear but structurally sound
4 - Poor	20 ≤ RUL < 40%	Significant structural defect. Start planning for repair or replacement.
5 - Failed	RUL < 20%	Serious structural defect or safety issues. Need immediate action.

The image shows an example of a condition rating system.

electrical and control systems engineer to evaluate condition, useful remaining service life and the Probability of Failure (PoF) also referred to as Likelihood of Failure (LoF) of these facilities.

The condition assessment rating score should be consistent among all assets. However, the definition of confirmed defects can be customized for each asset or asset classes and should reflect the agreed levels of service. We will work with the District to develop a condition assessment rating system that is meaningful but simple enough to be utilized by the District’s Operation and Maintenance and Engineering staff.

| Risk Assessment (Probability of Failure + Consequence of Failure)

Although assets may look the same in the asset register, not all assets are of equal importance. A two-tiered approach will be proposed. The first tier will rank all facilities based on criticality (e.g., 4920 Lift Station vs. Oso Lift Station). The second tier will assess the criticality of assets. Assets that can shut down a facility will receive highest criticality score compared to an asset failure that presents an inconvenience. Merging the two-tiered system through weights will differentiate a pump in the 4920 Lift Station from a pump in the Oso Lift Station. Under limited budget, Oso Lift Station pumps will be replaced before 4920 Lift Station pumps. This process will make the prioritization results defensible.

Risk will be based on the probability of failure, also referred to as likelihood of failure, (i.e., timing to failure) and consequence of failure (i.e., criticality, impact of failure). The probability of failure will be based on the condition score or age of the asset. We will work with the District to determine the appropriate consequence of failure assessment methodology. Every asset in the asset register will receive a risk score. Each risk score will be plotted on a risk matrix to understand which assets are of the highest importance and how much budget it will require to mitigate the highest risk for the District.

After the risk assessment, we will provide the District with documentation of the risk methodology and tools (e.g., risk scoring criteria) used to produce the risk results. Assets presenting the highest risk will be highlighted and discussed with the District.

| Replacement Costs

To proportionally show the risk exposure, each asset needs to have an estimated replacement cost. As the District plans for replacement of an asset, an estimated replacement cost can provide the District with an initial cost estimation required to properly budget for the replacement. It should be noted that the estimated replacement cost does not represent a CIP project cost. Engineering, project management, permit, contingencies, and other direct and indirect costs are not typically factored in. For each asset, we will estimate the replacement cost. The estimated replacement cost will be based on our historical work on similar projects, manufacturer pricing, and/or review of the District’s financial and maintenance records.

We will work with the District to ensure that the replacement costs are reasonable and representative.

| CMMS (IRIS Setup + Configuration)

For the development of the District’s AMP, we propose using the Infrastructure Renewal Intelligence System (IRIS). IRIS is a cloud-based intelligent infrastructure asset renewal prediction system designed and developed by Kayuga Solution to support



Example of a risk matrix window showing the distribution of assets into different risk levels. Each cell in this matrix shows the number of assets with the same risk level and their associated total replacement cost.

the asset management decision-making process. IRIS utilizes the asset condition data to predict the timing to the asset’s next capital investment activity (e.g., refurbishment, replacement). Using historical condition as the basis, IRIS generates a list of assets expected to be in poor or failed condition. A capital planning process addresses the replacement of failing assets prioritized by risk. Annual capital plan budget will be created based on the number of assets requiring capital investment activities. IRIS can integrate with the District’s existing or future information systems (e.g., GIS, CMMS, financial system, SCADA). Utilizing API, IRIS can communicate with other systems and bring the newest asset replacement and condition data into IRIS for real-time dynamic, AMP.

Kayuga will create a dedicated IRIS Enterprise database configured to suit the specific requirements for the District’s asset management program. These tasks include the following:

- Setup private secure IRIS database in MS Azure cloud for the District
- Configure District IRIS by uploading ETWD logo and home screen picture
- Set up users and their security levels and test user access
- Develop API to connect with existing or new CMMS and test
- Setup IRIS asset hierarchy
- Bring asset data into IRIS from CMMS, GIS, and Financial (i.e., meters)
- Review asset data for missing attributes and populate them as required
- Develop management strategies in IRIS to create logic for life cycle cost analysis
- Develop cost database in IRIS to record asset replacement costs
- Run IRIS and test all functionalities
- Provide IRIS user guide and user training workshops
- Integrate iPad application for condition assessment recording if requested (optional)

| Needs Analysis using Life Cycle Cost Model

A key aspect of asset management is to plan and understand the cost required to sustain services. To address this aspect, we will perform a life cycle cost assessment for each asset in the asset register. The life cycle cost assessment estimates the cost required to perform maintenance, refurbishment, and/or replacement for each asset. Life cycle cost assessment can be performed for any designated planning horizon (e.g., 5 years, 10 years, 20 years, 30 years, or 100 years) as requested by the District.



Example of the IRIS life cycle cost analysis window.

An important element of the life cycle cost process is the concept of management strategy. A management strategy is the logic or set of rules used to help characterize the life cycle behavior and needs of each asset. For example, a pump may have an estimated useful life of 20 years. During the 20-year period, the District will need to spend \$5,000 every five years to rebuild the pump. After the 20th year, the District will replace the asset at a cost of \$35,000. After the replacement, the life cycle calculation

continues until it reaches the set planning horizon. The life cycle cost calculation will be performed for the thousands of assets in the asset register to determine the cost of ownership for the District.

We will develop management strategies to characterize the life cycle behavior of all assets. These management strategies will include useful life as well as the timing and cost of maintenance and refurbishment activities. These management strategies will be influenced by the District's established levels of service. We will provide the District with a management strategy table and a renewal profile showing projected annual repair/replacement funding over the planning horizon. We will highlight the estimated budget required to maintain the assets.

Life cycle cost calculations can be very tedious and time consuming. It is especially difficult when the calculations need to be performed for thousands of assets, year-by-year, asset-by-asset. For this reason, Kayuga developed an asset management tool, IRIS (Infrastructure Reinvestment Intelligence System), that incorporates the developed asset register and performs the life cycle cost and risk assessment work. The District will not need to purchase IRIS; a one-year license is provided as part of this proposal. IRIS will not replace the District's existing system of records (i.e., GIS). In fact, IRIS is designed to supplement these systems by performing asset management calculations that other systems cannot perform (i.e., future long-range capital funding need forecasts, cost of ownership).

IRIS will use the District's asset register and management strategies to calculate a life cycle cost of ownership for each asset. IRIS will model financial requirements and average investment requirements for any planning horizon chosen by the District, and it will identify the following for each year:

- Assets requiring action
- Type of action required (maintenance, rehabilitation, or replacement)
- Estimated cost for each asset action
- Estimated total budget required for each year

The long-range financial needs will be viewable at any level in the asset hierarchy (e.g., by facility, by asset, etc.). Where limited budget is a concern, IRIS will help the District prioritize the actions based on risk and provide a minimum life cycle cost. This ensures all investments are prioritized and provides a transparent and consistent way to communicate how effectively asset investments are being made.

| Develop Asset Management Plan

With the completion of the risk, life-cycle cost, and cost of ownership analyses, we will document the project in an asset management plan. The asset management plan will be a long-range planning document that will provide a framework for understanding the assets the District owns, services it provides, risks it assumes, and financial investments it requires. The asset management plan will help the District move from reactive to proactive management of its physical and financial resources. This transition will require answers to the following questions:

- What is an asset? What is not an asset?
- Which assets need to be managed?
- What are the conditions of the assets?
- What maintenance and capital work are required? When and how much?
- How long until the assets need to be renewed?
- Which assets are critical?
- What levels of service must be provided?
- Are the current maintenance practices sufficient to sustain the service level?
- What is the total cost of ownership?

The overall outcome of analyses outlined above, and the resulting draft of Asset Management Plan will be submitted and presented to the District. We will provide the District with ample time to review the report and overall modelling results. As part of our deliverables, the District will receive a login information to the IRIS database. The preconfigured dashboard, graphs,



tables, and map interface will enable in-depth review of the asset inventory and modelling results. Any comments and feedback will be compiled and adjustment to the model assumptions will be incorporated. Once all comments and feedback on the draft report is received and addressed, we will finalize the Asset Management Plan.

Scope of Work

Wood Rodgers has thoroughly reviewed the “Scope of Work” as described in Section IV. of the Request for Proposal (RFP). Our project approach, fee, hours, and schedule are based upon delivering the scope of work as described by the District in the RFP. Included below are scope clarifications, additional scope items and subtasks intended to supplement the scope of work provided in the RFP.

Task 1 | Project Management + Meetings

Task 1a Project Management

This task is dedicated to project management and runs concurrent to all other tasks. This task accounts for all project management duties, including regular communication, providing informal project updates, internal project coordination, scheduling, and subconsultant management.

Task 1b Meetings

The project kick-off meeting will include a brainstorming session with the District to refine and finalize the proposed project approach. The kick-off meeting will help to set the vision and expectations of the comprehensive asset management program, proposed project approach, communication protocol, and data requirements.

Wood Rodgers will lead a project kick-off meeting that will include the following:

- Project overview
- Identify project goals and objectives
- Outline work tasks and processes
- Review the proposed project schedule
- Review the information request log

Task 2 | Data Request and Review

Task 2a Consolidate and Review Existing Asset Data (GIS)

This task will commence with engaging the District’s Pump Station Crew Lead Operator that will be retiring at the end of the year to ensure any institutional knowledge that is not documented is obtained and incorporated into this Asset Management Plan (AMP). This is a crucial step as the primary goal of this AMP is to develop and support the justification of Capital Improvement Projects (CIPs) and the associated funding for those projects. While the District has gone to great lengths to document their assets and condition of those assets, including recent efforts conducted by a District intern, collecting, and incorporating knowledge from the District’s Operations staff will ensure this AMP is as complete as possible. Wood Rodgers will consolidate all existing data sources (i.e., GIS database, applicable District records) and inventoried asset data into a centralized database.

Task 2b Review and Confirm Proposed Definition of an Asset

The goal of this task is to establish the data foundation (i.e., asset register). The asset register is the basis for all asset management and cost of ownership analyses. To develop the asset register, we will carefully review available pertinent data. Our goal is to supplement the data, not reinvent it. Where asset data does not exist, we will develop a data request log to allow the District to fill in data gaps as needed to allow for the creation of a central database of assets owned and managed by the District. The asset register is a key component of the asset management program as it establishes the data foundation to support all asset management decisions and consolidates all data pertaining to the assets in the system.

The development process will be comprised of the following steps:

- **Define an Asset |** We will help the District identify an asset versus a component of an asset. The definition of an asset will be the at the level where the asset will be managed or maintained.

- **Establish Asset Hierarchy** | An asset hierarchy organizes the thousands of assets in the asset register. We will work with the District to develop an asset hierarchy that is in alignment with asset management best practices.
- **Develop Asset Classes** | In order to assist in the management of assets, assets will be grouped into asset classes. An asset class is developed by grouping assets with similar characteristics, such as type, function, useful life, material, and size. An asset class helps to characterize the asset's deterioration (e.g., expected useful life, decay curve) and lifecycle cost (e.g., maintenance, rehabilitation, replacement).
- **Develop an Asset Register** | This involves incorporating the elements above (i.e., asset inventory, asset definition, asset hierarchy, asset classes).

Task 2c Perform Data Validation (Data Gap Analysis)

The goal of this task is to establish the data foundation. Our Team will consolidate all available asset data and examine them for missing inventory and data attributes. All assets owned and managed by the District will be documented and populated in the asset database (i.e., asset register). Our Team will perform asset management data gap analysis and present our findings to the District.

Task 3 | Risk Analysis

Risk will be based on the likelihood of failure (i.e., timing to failure) and consequence of failure (i.e., criticality, impact of failure). The likelihood of failure will be based on the condition score or, where the condition assessment cannot be performed, age of the asset. We will work with the District to determine the appropriate consequence of failure assessment methodology. A two-tiered approach is proposed. The first tier will rank all facilities based on criticality. The second tier will assess the criticality of assets. Assets that can shut down a facility will receive highest criticality score compared to an asset failure that presents an inconvenience.

Every asset in the asset register will receive a risk score. Each risk score will be plotted on a risk matrix to understand which assets are of the highest importance and how much budget it will require to mitigate the highest risk for the District. After the risk assessment, we will provide the District with documentation of the risk methodology and tools (e.g., risk scoring criteria) used to produce the risk results. Assets presenting the highest risk will be highlighted and discussed with the District.

Task 3a Condition Assessment

A high-level desktop condition assessment will be performed for the pump stations, lift stations, reservoirs, pressure reducing stations and the associated electrical and instrumentation equipment using information supplied by the District. Since no field work or site visits will be conducted, we will use an age-based assessment utilizing the asset's remaining useful life as a proxy.

To ensure we provide the best approach for this desktop condition assessment, we have selected engineers for our project team that have significant experience in the design and rehabilitation of pump stations, lift stations, reservoirs and PRVs as well as a registered electrical and control systems engineer to evaluate condition, useful remaining service life and the Likelihood of Failure (LoF) of assets in these facilities.

The condition assessment rating score should be consistent among all assets. However, the definition of confirmed defects can be customized for each asset or asset classes and should reflect the agreed levels of service. We will work with the District to develop a condition assessment rating system that is meaningful but simple enough to be utilized by the District's Operation and Maintenance and Engineering staff.

Task 3b Consequence of Failure

No additional scope discussion required.

Task 3c Risk Analysis

No additional scope discussion required.



Task 4 | Remaining Useful Life + Replacement Costs

To proportionally show the risk exposure, each asset needs to have an estimated replacement cost and time of replacement identified.

Task 4a Remaining Useful Life

Wood Rodgers will estimate the remaining useful life of each asset based upon industry standards, publications, manufacturer guidelines, our recent experience, and District experience.

Task 4b Replacement Costs

It should be noted that the estimated replacement cost does not represent a CIP project cost. Engineering, project management, permit, contingencies, escalation, and other direct and indirect costs are not typically factored in but will be accounted for in the CIP. For each asset, we will estimate the replacement cost. The estimated replacement cost will be based on our historical work on similar projects, recent construction projects, vendor quotes, manufacturer pricing, and/or review of the District's financial and maintenance records. We will work with the District to ensure that the replacement costs are reasonable and representative.

Task 5 | CMMS Recommendations

Task 5a Staff Interviews

The Wood Rodgers team will conduct virtual interviews with the relevant District departments to understand the needs and preferences of the CMMS system. Wood Rodgers will summarize the discussions and results of the meetings in consolidated meeting notes that identifies similar needs and any major discrepancies.

Task 5b Technical Memorandum

A Technical Memorandum (TM) will be prepared and submitted to the District review that summarizes the District's goals and preferences for a CMMS system, a summary of the available CMMS systems that are available, including benefits, integration capabilities and cost of each system. The TM will include a recommendation for a CMMS system for the District to consider.

Task 6 | Prioritized CIP and AMP TM

Task 6a 10-year CIP List

No additional scope discussion required.

Task 6b 11- to 50-year CIP Projection

The 11 to 50-year CIP projection will be summarized in an Excel table and graph and incorporated into IRIS. It is assumed that individual project-level cost estimates are not required.

Task 6c Asset Management Plan Technical Memorandum

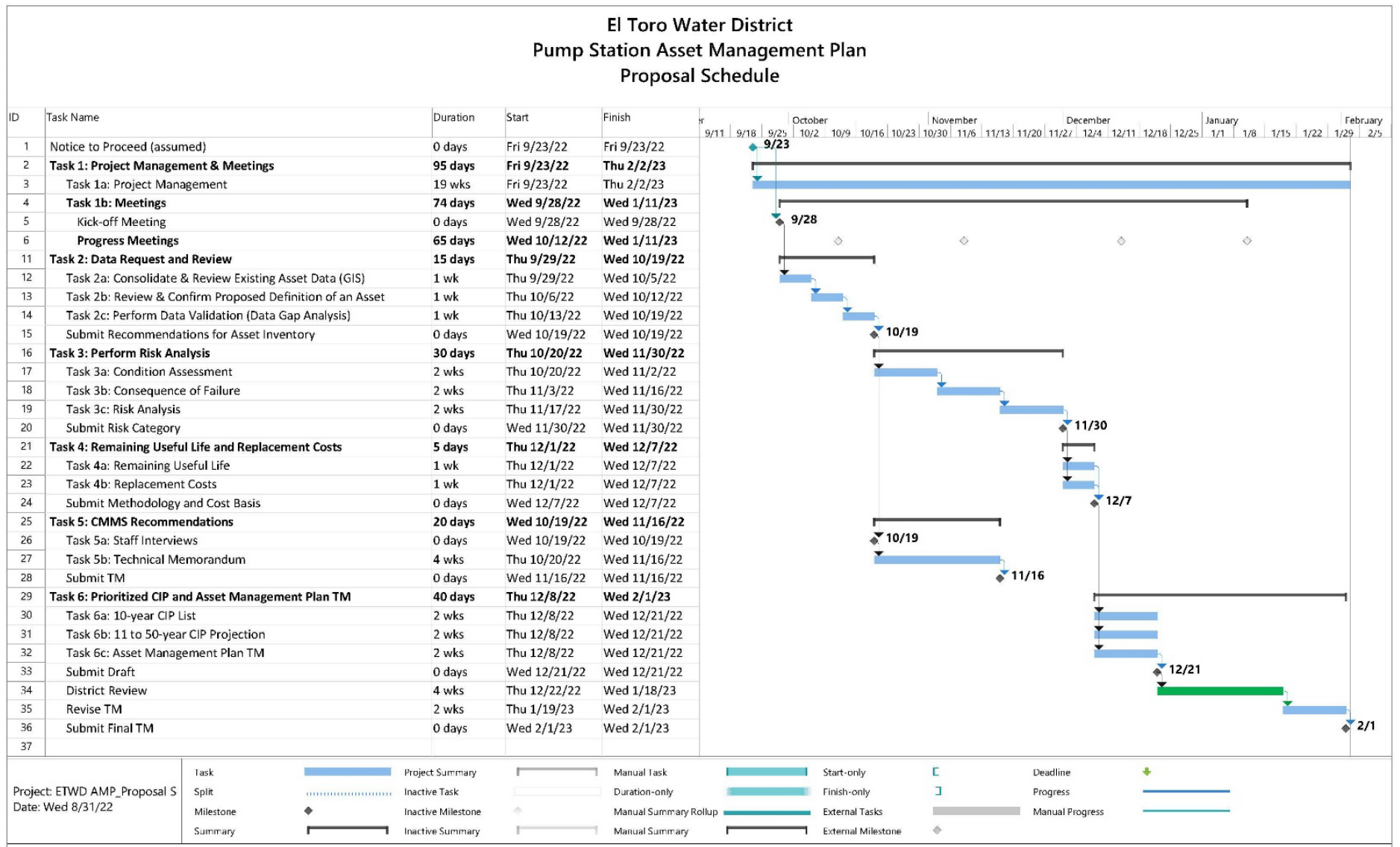
No additional scope discussion required.



Estimated Hours

Task Description	Wood Rodgers						Kayuga Solution			ECS Engineering	TOTAL HOURS BY TASK
	Principal Engineer II / Principal in Charge (K. Gustorf)	Principal Engineer I / Project Manager (K. Meier)	Principal Engineer II / QA/QC Manager (D. Matthies)	Project Engineer I (A. Meier)	Engineer II (D. Valencia)	Principal GIS I (S. Tan)	Principal Asset Management Consultant (C. Chung)	Principal Asset Management Consultant (I. Syachrani)	Sr. Asset Management Consultant (C. Kimura)	Electrical Engineer (S. Terry)	
Task 1: Project Management & Meetings	6	30	0	0	0	0	12	6	0	0	54
Task 1a: Project Management	4	24					6				34
Task 1b: Meetings	2	6					6	6			20
Task 2: Data Request and Review	0	6	0	16	4	12	0	20	28	0	86
Task 2a: Consolidate & Review Existing Asset Data (GIS)		2		4		8		4	24		42
Task 2b: Review & Confirm Proposed Definition of an Asset		2		4				12			18
Task 2c: Perform Data Validation (Data Gap Analysis)		2		8	4	4		4	4		26
Task 3: Perform Risk Analysis	2	8	0	60	28	0	8	36	8	0	150
Task 3a: Condition Assessment		4		48			2	8			62
Task 3b: Consequence of Failure		2		4	20		4	24			54
Task 3c: Risk Analysis	2	2		8	8		2	4	8		34
Task 4: Remaining Useful Life and Replacement Costs	0	4	0	32	16	0	4	20	4	16	96
Task 4a: Remaining Useful Life		2		12			2	8	4	8	36
Task 4b: Replacement Costs		2		20	16		2	12		8	60
Task 5: CMMS Recommendations	0	10	0	0	0	0	10	44	34	0	98
Task 5a: Staff Interviews		8					8	32	16		64
Task 5b: Technical Memorandum		2					2	12	18		34
Task 6: Prioritized CIP and Asset Management Plan TM	8	24	12	48	64	8	16	12	44	4	240
Task 6a: 10-year CIP List	2	8	4	16	32	4	4	6	6	2	84
Task 6b: 11 to 50-year CIP Projection	2	8	4	16	32	4	4	6	6		82
Task 6c: Asset Management Plan TM	4	8	4	16			8		32	2	74
TOTAL HOURS BY STAFF	16	82	12	156	112	20	50	138	118	20	724

Project Schedule



Signed Addendum



END OF ADDENDUM NO. 1

The contract documents require that this Addendum No. 1 be executed and submitted with the bid.

Date: 08/01/2022



Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 1 and accept all conditions contained herein.

Dated: 09.02.2022

BIDDER: Wood Rodgers, Inc.

BY: Kevin Gustorf, PE



END OF ADDENDUM NO. 2

The contract documents require that this Addendum No. 2 be executed and submitted with the bid.

Date: 8/9/2022

Dennis Cafferty

Digitally signed by Dennis
Cafferty
Date: 2022.08.09 13:24:05
-07'00'

Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 2 and accept all conditions contained herein.

Dated: 09.02.2022

BIDDER: Wood Rodgers, Inc.

BY: Kevin Gustorf, PE



END OF ADDENDUM NO. 3

The contract documents require that this Addendum No. 3 be executed and submitted with the bid.

Date: August 17, 2022

Dennis P. Cafferty, P.E.
General Manager / District Engineer

BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 3 and accept all conditions contained herein.

Dated: 09.02.2022

BIDDER: Wood Rodgers, Inc.

BY: Kevin Gustorf, PE



Appendix - Resumes



KEVIN GUSTORF, PE

PROJECT ROLE

Principal In Charge

TITLE

Principal II

EDUCATION

BS, Civil Engineering,
Loyola Marymount
University, 1999

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Engineer, California No.
64755

Registered Professional
Engineer, Nevada No.
018880

Qualified SWPPP
Developer (QSD)

PROFESSIONAL AFFILIATIONS

American Council of
Engineering Companies
(ACEC), Sierra Chapter
President

American Society of Civil
Engineers (ASCE),
Member, 337465

American Water Works
Association (AWWA),
Member, 00511135

Association of Water
Agencies Ventura
County, Member

Orange County Water
Association (OCWA),
Member, 861

Water Environment
Federation (WEF),
Member, 17557223

Certified Trainer for
Accredited Project
Management Training
Program

Mr. Gustorf is a registered professional engineer with over 22 years of leadership and expertise in the water resources field. His experience in water resource engineering includes the planning, design, construction and management of a wide variety of projects for local municipal public works agencies, special districts and private sector clients throughout the state of California. His diverse project experience includes water and wastewater master planning, hydraulic modeling, hydraulic analysis and studies. He is an expert on several different modeling platforms and has conducted presentations on modeling throughout the Western U.S. Mr. Gustorf's design experience includes the design of water and wastewater pipelines, pump stations, lift stations, flow/pressure control facilities, wells, tanks and reservoirs. His projects have included both new designs, as well as the repair and rehabilitation of existing facilities.

Mr. Gustorf has managed projects ranging from small task orders, to large multi-discipline, complex projects with multi-million-dollar design fees. As project manager, he has maintained the goal to deliver quality projects for clients, meeting the financial expectations of the firm. He has managed hundreds of projects, all of which have met or come below budgets. In addition, clients have executed follow-up on-call agreements due to the high-level of service and quality.

His Leadership style is built on integrity, trust and commitment. He collaborates and communicates well and is dynamic and adaptable while maintaining quality and timely delivery of project services.

EXPERIENCE

Groveland Integrated Water and Wastewater Master Plan – Groveland, CA. Mr. Gustorf is the Principal-in-Charge of this Integrated Water and Wastewater Master Plan to provide a 20-year roadmap for the water and wastewater services provided by the GCSD. The Master Plan will help determine the projects needed to repair, replace, and/or upgrade the GCSD's aging infrastructure to increase system operating efficiencies and reliability, while improving cost predictability and maintaining a high level of customer satisfaction into the future. The Master Plan will outline a strategy to improve maintenance and asset management, prioritize new facilities and interweave the necessary upgrade or decommission of existing facilities. The project included a condition assessment of the District's WWTP, three (3) Water Treatment Plants, five pump stations, five tanks, and sixteen (16) lift stations.

Water System Condition Assessment and Master Plan – Scotts Valley Water District, CA. Project Manager responsible for performing a water system condition assessment to evaluate the condition of the District's major potable water and recycled water system facilities and developed an Asset Master Plan. The work was performed in three phases: information gathering, data analysis, and Asset Master Plan preparation. Information gathering included ArcGIS geodatabase, record drawings, and operations and maintenance (O&M) logs. Data analysis consisted of identification of opportunities for improved operational efficiency. This included a risk/failure analysis of the system piping to identify risk pipelines and needs. Asset Master Plan preparation included development of an implementation model that identifies specific projects, estimated capital cost, and prioritization of improvements. The implementation model also includes the planned replacement of all major elements of the water supply and distribution facilities based on age, condition, and expected remaining useful life. Specific project tasks included asset data compilation, verification, and review; condition assessment workshop; determination of system operating characteristics; asset condition assessment; replacement cost estimates; pipeline risk-failures analysis; and asset replacement/improvement recommendations. The assessment included 62 miles of distribution pipelines, six wells, four treatment plants, 11 pumping stations, and nine reservoirs. Performed site visits to identify and evaluate the conditions of piping configurations and mechanical equipment, external coatings and corrosion, SCADA/telemetry equipment, structural features, and electrical equipment. Safety conditions were also evaluated.

City of San Buenaventura Master Plan – City of Ventura, CA. Served as Project Manager for the development of a comprehensive system-wide water master plan and facility condition assessment. The project included a detailed condition assessment of each of the city's wells, pump stations, reservoirs and treatment facilities.

El Toro Water District Water and Sewer Master Plans – Orange County, CA. Project Manager. Responsible for project management. Provided updates to the district's water and sewer master plans. The project included thorough evaluation of the water distribution and sewer collection systems, including a comprehensive review of all existing data and analysis of the two systems via computer models to identify items for improvement.

Water System Master Plan and GIS – Thousand Oaks, California. Project Engineer responsible for development of the hydraulic model, the water system analysis, preparation of the master plan report, and preparation of the capital improvement program. Provided engineering services to the City of Thousand Oaks for development of a comprehensive water system master plan and GIS. Also provided a capital improvement program; condition assessment of each water facility; corrosion study; structural analysis; water quality evaluation; computer maintenance management system (CMMS); and vulnerability assessment.

Domestic Water Master Plan –Laguna Beach County Water District, CA. Project Manager for development of a domestic water master plan. Services included evaluation of the District's existing computer system network and recommendations for upgrading the existing system and preparation of a list of recommended capital improvements projects, including preliminary cost estimates for facilities to be constructed; and preparation of a financial plan for identified improvement facilities that will include developer fees, potential financial sources, and possible water rate impacts.

Monte Vista Water District Water Master Plan Update – Montclair, CA. Project Manager for the preparation of the Water Master Plan Update for the Monte Vista Water District (MVWD). Performed a detailed evaluation of MVWD's wholesale distribution system and the retail distribution system, and identified specific capital improvement projects and O&M programs to be implemented over the next 30 years to improve the District's system. The project included a condition assessment of the District's major supply, storage and distribution facilities; a useful life analysis; an energy analysis; the development of a 90-year pipeline replacement program; the preparation of a 10-year and 30-year capital improvement program; and the preparation of the Master Plan Update.

Sewer and Water Master Plan Updates – City of Del Mar, CA. Prepared a Sewer and Water Master Plan Update for the City of Del Mar to help the City identify improvement projects that will help each system operate more efficiently. The City is primarily built out and significant increases in demand are not expected. Performed a condition assessment of the tanks and reservoirs within the system, and analyzed the hydraulic model to determine if the existing storage and pump station operation was the most efficient and reliable for the City. For the wastewater collection system, provided evaluation of the capacity of the system to be able to convey a majority of the wastewater flow to a new outlet discharge, on the opposite side of the City. This required a comprehensive hydraulic model and pump station capacity analysis. The project included the following tasks: Documenting and Analyzing Historical and Existing Water Demands and Wastewater Flows; Updating and Calibrating a Water Hydraulic Model using InfoWater; Developing and Calibrating Sewer Hydraulic Model using InfoSewer; Performing a Condition Assessment of the Water Facilities; Analyzing the Capacity and Operational Efficiency of the Water Distribution System; Analyzing the Capacity of the Sewer Collection System Documenting the Results, Findings and Recommendations and Preparing a combined Master Plan Report; Preparing a 10-Year Capital Improvement Program.

Port of Long Beach Sewer Master Plan and Capital Improvement Program – Long Beach, CA. Responsible for project management in providing engineering services to the Port of Long Beach for its sewer master plan and capital improvement program within the Harbor District. Services included developing and analyzing a hydraulic model of the sewer system, updating the geographic information systems (GIS), performing closed circuit television (CCTV) inspection of 24 miles of pipeline, performing a condition assessment of 449 manholes and 40 lift stations, performing a flow monitoring and inflow and infiltration (I&I) study, and preparing a sewer master plan and capital improvement program.

KARL F. MEIER, PE

PROJECT ROLE

Project Manager

TITLE

Principal Engineer I

EDUCATION

BS, Civil Engineering,
New Mexico State
University, 2003

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Civil Engineer, California
No. 71713

Registered Professional
Civil Engineer,
Washington, No. 52372

United States Army Corps
of Engineers,
Construction Quality
Management (CQM) for
Contractors Certification,
SPK-USACE-02-18-00060

Occupational Safety and
Health Administration,
OSHA 30-Hour
Construction
Certification, No.
4163274

Mr. Meier has over 19 years of experience as both a consultant and as a District Engineer for a public water agency. Mr. Meier's past public sector experience required active involvement and management of the engineering, operations and maintenance activities for a public water system. As a consultant, he has extensive experience in the planning and design of water, recycled water and wastewater infrastructure including pipelines, force mains, pump stations, wells, pressure reducing stations and reservoirs. Mr. Meier also has significant master planning and hydraulic modeling experience for public agencies and special districts. Mr. Meier's planning and design expertise is complimented by his past construction management and inspection experience, where he was directly responsible for construction management and inspection services for public works projects ranging from water infrastructure to municipal park and ADA improvement projects. He is extremely proficient with a variety of software applications including the Microsoft Office Suite (Excel, Word, PowerPoint, Project), AutoCAD and is an expert in various modeling software platforms including Innovyze InfoWater, InfoSewer, H2O Map Water and H2O Map Sewer.

EXPERIENCE

Cowan Heights System Hydraulic Model Update and Zone Realignment Study – Golden State Water Company, CA. Served as a Lead Project Engineer responsible for overseeing the validation and calibration of a hydraulic model of the entire Cowan Heights water distribution system to conduct an evaluation of Golden State Water Company's system operations. Wood Rodgers provided recommendations to modify pressure zone alignment(s) and boundaries, address hydraulic constraints, and develop a capital improvement plan.

Integrated Water and Wastewater Master Plan - Groveland Community Services District, CA. Serving as the Lead Project Engineer responsible for the development of an integrated water and wastewater Master Plan. Work includes the evaluation and condition assessment of the District's water and wastewater system infrastructure, demand projections, development of calibrated hydraulic models for the water and wastewater systems and development of a comprehensive CIP.

Sewer Master Plan and Hydraulic Model Update - City of Imperial Beach, CA. Served as the Project Manager responsible for overseeing and directing the update of the City's InfoSewer hydraulic model and sewer master plan and capital improvement plan. The City's sewer collection system consists of eleven lift stations and over 50 miles of sewer collection mains. Specific tasks included in this project included focused evaluations of the lift station operations to optimize system performance and minimize possible sanitary sewer overflows for this system which is adjacent to the Pacific Ocean. Other tasks included developing multiple hydraulic model scenarios to identify system upgrades required in the immediate, near term and long term planning forecast examining both planned development and possible changes to land use/zoning.

Water System Condition Assessment – Scotts Valley Water District, CA. Served as the Project Engineer for this condition assessment and master plan which evaluated the physical condition of the Scotts Valley Water District potable and recycled water facilities and used information collected during site inspections, review of District records and interviews with staff to identify and prioritize capital improvement projects based on the current age, condition and expected remaining useful service life of these facilities.

City of San Buenaventura Master Plan – City of Ventura, CA. Served as Project Engineer responsible for developing the hydraulic model of the City's domestic water system to support the development of a comprehensive Master Plan to aid the City in analyzing existing capital improvement projects and identifying deficiencies throughout the system to develop future capital improvement projects.

El Toro Water District Water and Sewer Master Plans – Orange County, CA. Project Engineer. Provided updates to the district's water and sewer master plans. The project included thorough evaluation of the water distribution and sewer collection systems, including a

comprehensive review of all existing data and analysis of the two systems via computer models to identify items for improvement.

Hillcrest and Silverado Highlands Pump Station Replacement Project – City of Napa, CA. Served as the Project Manager responsible for supervising and coordinating all design elements for this project, which consisted of the simultaneous design of two potable water pumping stations for the City of Napa. In the fall of 2017 the Atlas Fire started north of the City and burned over 51,000 acres including two of the City's potable water pump stations, the Hillcrest Pump Station and the Silverado Highlands Pump Station. Wood Rodgers provided design services for the replacement of these pump stations. The pump stations are both located on space constrained sites that currently contain temporary pumping units, necessitating an efficient layout of the pumping facilities and sites to provide adequate access for future operations and maintenance activities. Both pump stations included a new CMU block building and have a diesel powered emergency generator. The pump stations are both capable of pumping up to 1,000 gpm to meet fire flow requirements.

Walnut Avenue Pump Station – City of Simi Valley/VCWWD #8, CA. Serving as Project Manager. Wood Rodgers is currently designing a new pumping station for the City of Simi Valley/Ventura County Waterworks District #8. The pump station consists of three vertical turbine pumps with a firm capacity of 2,700 gallons per minute. The facility includes a new CMU building, emergency generator and site improvements.

Rio Del Oro Sewer Lift Station - Sacramento Area Sewer District, CA. Served as Project Engineer. The Rio Del Oro sewer pump station is an existing Sacramento Area Sewer District facility built in 1982 operating with two pump in a lead/lag manner with a firm capacity of 0.80 million gallons per day (mgd). Wood Rodgers prepared studies and improvement plans to upgrade the facility with modern features and three pumps to increasing its firm capacity to 2.2 mgd. Improvements included replacement and upsizing of all cast iron piping to ductile iron, vaults, valves, electrical control panels, and supervisory control and data acquisition system. The site grounds were reconstructed and enlarged to accommodate the expanded facilities including new concrete and asphalt, fencing and gates. A vault for new flow meters and pressure transmitted was added and connected to the existing dual force mains. The force main discharge was reconstructed with an enlarged manhole to safely accommodate the additional flows.

Bonita Direct Transfer Facility Pump Station – City of San Diego, CA. Served as the Project Manager responsible for supervising all design elements for this 2,100-gpm potable water pump station. This pump station, equipped with three vertical turbine pumps, will convey treated water from the Sweetwater Authority's transmission main to the City of San Diego's 36-inch diameter Otay 2nd Pipeline.

North Bank Lift Station Upgrades – City of San Buenaventura, CA. Served as the Project Manager responsible for developing a Preliminary Design Report (PDR) and eventually final contract documents. The PDR analyzed existing operation and maintenance issues and identify upgrades required to allow this 3,200 gpm existing dry-pit/wet pit sewage lift station and 4,300-ft long 14-inch diameter force main to accommodate peak flows generated by future planned development. Detailed analyses and evaluations of the existing lift station wet well, suction piping, discharge piping, force main, pumps and electrical system were conducted with deficiencies and capacity limitations identified. Upgrade alternatives were identified to alleviate the identified deficiencies and capacity limitations with cost estimates prepared for each alternative configuration proposed. Following selection of the preferred upgrade alternative, final design for the upgrades consisting of the installation of four (4) vertical shaft driven screw centrifugal pumps, piping and valve upgrades along with all new electrical equipment including new VFDs was provided.

Ramsgate 1601 Pump Station – Elsinore Valley Municipal Water District, CA. Served as Design Engineer for this 12,000 gpm pump station that included four 3,000 gpm pumps, surge tank, emergency generator set, cathodic protection, and an on-site chlorine generation system with ammonia to produce chloramines.

DANIEL MATTHIES, PE, CFM

PROJECT ROLE

QA/QC

TITLE

Principal Engineer II

EDUCATION

BS, Civil Engineering,
California State University,
Sacramento, 1990

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Engineer, California No.
49957

Certified Floodplain
Manager No. US-08-03670

PROFESSIONAL AFFILIATIONS

Floodplain Management
Association (FMA)

Mr. Matthies is a Principal with Wood Rodgers with 31 years of civil engineering and water resources evaluation and design experience. He has experience coordinating large civil engineering projects with several subconsultants for both private and public clients. He has extensive experience in performing hydrologic and hydraulic analyses of open channel and pipe systems; preparing storm drainage master plans; preparing construction drawings of stormwater and flood control infrastructure including pipes, levees, floodwalls, open channels, and pump stations; and the determination of floodplain limits using one- and two-dimensional software. Mr. Matthies has served on the Board of Directors of Wood Rodgers, Inc.

EXPERIENCE

San Jose Storm Sewer Master Plan – City of San Jose, CA. Principal-in-Charge. Project includes developing a comprehensive asset based hydrologic and hydraulic GIS geodatabase, developing GIS tools, performing facility inspections, inventorying stormwater and green infrastructure facilities, and developing detailed hydrologic and hydraulic Infoworks ICM models for 400 miles of pipes, 82 miles of open channels of the SCVWD facilities, 30 pump stations, and 6 reservoirs. The project also includes refining a design storm based on historical gage data, surface and groundwater calibration based on 70 pipe and stream gages, alternative improvement analysis and a capital improvement plan.

Pump Station Condition Assessment, Rehabilitation Study, & Performance Evaluations, Alameda County Flood Control & Water Conservation District – Alameda County, CA. Principal-in-Charge. Wood Rodgers performed the “Pump Station Condition Assessment and Rehabilitation Study and Pump Performance Evaluations” project for the Alameda County Flood Control and Water Conservation District (District). Wood Rodgers developed detailed, calibrated hydrologic/hydraulic models of the pump station drainage systems in order to define the existing flood risks for each system. This analysis was used in a Risk Assessment in order to prioritize pump capacity improvements. Wood Rodgers developed detailed inventories of the pumps systems and performed a condition assessment of each of the three major systems of the pump station (the site/structural, the mechanical, and the electrical systems to define the remaining service life of the components, and to quickly repair existing problems. Wood Rodgers documented and assessed the current operation and maintenance schedules of the pump stations, identifying costs and potential efficiency improvements. Wood Rodgers conducted a risk assessment to compare the annualized costs vs. risk of the existing pump station vs. the annualized cost and risk of an the pump station with an increased capacity. This analysis was used to economically support improvement recommendations. Wood Rodgers then used the inventories, condition assessments, performance testing, and risk analyses to recommend efficient combinations of re-operation, maintenance, rehabilitation, and improvements for each of 24 pump stations. Wood Rodgers developed plans, specifications, cost estimates for improvements to the pump stations based on the recommendations.

Simmons Slough DWR Grant Migration Project, Marin County, CA. Principal-in-Charge. Wood Rodgers was contracted by the Marin County Flood Control and Water Conservation District (District) to prepare documentation for a migration of an Integrated Regional Water Management Grant (which is tied to the North Deer Island Project) to the Simmons Slough Water Management Project (Simmons Slough Project). The study recommended gravity pipe (culvert) improvements at several locations (including six 48” RCPs at various locations in the Simmons Slough area surrounding Hwy 37), the clearing of sediment in the Hwy 37 crossing, and a 40-cfs (18,000-gpm) remote pump facility to replace the non-functioning “Big Bertha” pump. The grant migration was accepted by the Department of Water Resources. Wood Rodgers then developed a Basis of Design document to refine the improvements. Based on an Alternatives Analysis, the selected alternative is the construction of a new pump station at the Big Bertha site.

City of Redwood City, Eastern Low-Lying Area Drainage Master Plan – Redwood City, CA. Principal in Charge. Wood Rodgers developed a drainage master plan for the heavily urbanized downtown areas in the Redwood Creek watershed near the San Francisco Bay and Highway 101. The project included the development of a complex GIS database, a calibrated InfoWorks ICM model, remote inspection of several miles of pipe, and inspection of six City pump stations.

Natomas Regional Stormwater Pump Stations, City of Sacramento Department of Utilities – Sacramento, CA. Project Manager and Engineer responsible for the design and PS&E of Stormwater Pump Stations and Detention Ponds, Sumps 11, 12, and 17. Hydrologic and hydraulic analyses were conducted for each pumping facility and associated storm water detention facilities. Detention ponds included water quality facilities. The capacity of these sumps ranged from 60 cfs to 195 cfs, lifting runoff from urbanized watersheds ranging from 350 to more than 1,800 acres. The project was approved and constructed.

Laguna Stonelake Regional Pumping Station, County of Sacramento Department of Water Resources – Sacramento, CA. Mr. Matthies was the Project Engineer responsible for the design and PS&E of the D-51 detention pond and pump station. Hydrologic and hydraulic analyses were conducted for the pumping facility and associated storm water detention facilities. The project was approved and constructed.

Parlin Ranch Stormwater Pump Station/Detention Facility – City of West Sacramento, CA. Mr. Matthies was the Project Manager responsible for preliminary studies, design and PS&E of detention pond and pump station for a 100-acre development.

North Natomas Planning Area Drainage Master Plans – Sacramento, CA. Mr. Matthies was the Project Manager directing the preparation of storm drainage Master Plans for Community Plan Area Basins 1, 2, 3, and 7. These watersheds vary in size from 350 to more than 1,800 acres. He was responsible for analysis and preliminary design of stormwater detention and pumping stations located within each basin to lift runoff into the regional drainage canal system operated by Reclamation District (RD) 1000. Master plans required refined analyses of proposed systems using SWMM. His responsibilities included extensive studies for phasing of developments and storm-drainage pipe systems, open channels, detention ponds, and pumping stations. Approved and constructed.

Princeton Sacramento River Irrigation Pump Station, Princeton-Codora-Glenn Irrigation District – Princeton, CA. Mr. Matthies was the Design Engineer responsible for structural design of a 600 cfs capacity reinforced concrete pump station structure, including inlet structure, intermediate gate structure, and sump structure.

Maxwell Sacramento River Irrigation Pump Station, Maxwell Irrigation District – Maxwell, CA. Mr. Matthies was the Design Engineer responsible for structural design of 200 cfs capacity steel pump station structure. Structure consisted of elevated steel platform and cylindrical wedge fish-screen intake.

ALIA MEIER, PE

PROJECT ROLE

Project Engineer

TITLE

Engineer

EDUCATION

BS, Civil Engineering,
University of Nevada,
Reno, 2014

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Civil Engineer, California
No. 88805

PROFESSIONAL AFFILIATIONS

American Society of Civil
Engineers (ASCE)
Outstanding Senior
Scholar Award

Ms. Meier is a licensed Civil Engineer with over eight years of diverse design experience ranging from site/civil to water resources. Her background includes preparation of construction documents; obtaining regulatory approval for residential, commercial, municipal, and state-owned entities; and providing engineering support during construction. She is adept at effective written and oral communication skills with extensive experience coordinating work elements on complex multi-disciplinary projects involving internal and external design teams.

EXPERIENCE

1655-1 Reservoir and Rancho Jamul Hydropneumatic Pump Station Modification Project – Otay Water District, CA. Project Engineer. Providing pump station condition assessment, pipeline design and grading for the project as it relates to the new 0.5-million-gallon reservoir, 12-inch welded steel pipeline and 1,000 ft long access road. Unique elements to this project include the alternatives analysis of the access roadway and steel pipeline, which has significant slopes and environmental constraint that must be addressed through the roadway grading, alignment, and design.

Walnut Avenue Pump Station – City of Simi Valley/VCWWD #8, CA. Serving as Project Engineer. Wood Rodgers is currently designing a new pumping station for the City of Simi Valley/Ventura County Waterworks District #8. The pump station consists of three vertical turbine pumps with a firm capacity of 2,700 gallons per minute. The facility includes a new CMU building, emergency generator and site improvements.

Metropolitan Biosolids Center Stormwater Diversion Structure – City of San Diego, CA. Design Engineer. Ms. Meier was the civil lead on this project which involved the design of a stormwater pump station for a biosolids facility owned by the City of San Diego. The stormwater draining on the 30-acre site was to be captured and pumped to the centrate pump station within the biosolids facility to conform to the facility's Industrial General Permit and Consent Decree.

Jomax Booster Pump Station Upgrade – City of Peoria, AZ. Design Engineer. Upgrades to existing infrastructure at various facilities were provided to increase the City of Peoria's infrastructure capacity from 18 MGD to 24 MGD, and the delivery method was Construction Manager at Risk in order to expedite design and construction. Ms. Meier was responsible for the yard piping design at one of the pump stations and the site civil design. She designed the 16" DIP line connecting to a new redundant PRV configuration, a new 24" DIP suction connection, and 24" DIP discharge line.

Eucalyptus Booster Pump Station – Eastern Municipal Water District, CA. Project Engineer. The project involved design of a potable water pump station. Responsible for the pump station civil design (both grading and yard piping) including 4" sewer, 2" potable water connection, 30" CMLC suction line, 24" CMLC discharge line, and 12" stormwater piping. Ms. Meier served as the administrator during construction and provided RFI responses, submittal and shop drawing reviews, and other necessary site civil support during construction.

Eastern Service Area Pump Station – Padre Dam Municipal Water District, CA. Design Engineer. Provided site civil engineering and design services for the \$12 million Eastern Service Area Secondary Connection Project. Designed site grading for the 12 MGD pump station, 9 MGD flow control facility, and standby generator. Design also included a bioretention basin for adherence to storm water quality standards.

UVDC Regional Pump Station – Rancho California Water District, CA. Design Engineer. The Upper Valle de Los Caballos (UVDC) Regional Pump Station will consolidate existing groundwater wells to convey the production of these wells to a new chlorine contact tank (CCT) that will serve as a forebay for the new UVDC Regional Pump Station that will then deliver up to 19,000 gpm of treated water to the District's 1305 and 1380 pressure zones. Primary responsibilities included preliminary siting studies that evaluated earthwork, vehicular access for large chemical delivery and maintenance vehicles using AutoTurn, and alignment studies for the 24" and 36" on-site steel conveyance pipelines. Ms. Meier also provided opinion of probable cost for earthwork and access road elements.

DANIEL VALENCIA, EIT

PROJECT ROLE

Project Engineer

TITLE

Assistant Engineer

REGISTRATIONS/ CERTIFICATIONS

BS, San Diego State
University, 2018

REGISTRATIONS/ CERTIFICATIONS

Registered Professional
Engineer-in-Training

Mr. Valencia is an assistant engineer with over four years of experience in the Engineering industry. He has experience with water, storm water, and site development. Mr. Valencia prepares water studies, sewer studies, water supply assessments, technical memos, as well as plans, specifications and estimates for water infrastructure. His range of experience includes pipeline design, grading, and 3D modeling. He is proficient in Civil 3D, AutoCAD, Microsoft Office suite (Excel, Word, etc.), and Flowmaster.

EXPERIENCE

Walnut Avenue Pump Station – City of Simi Valley/VCWWD #8, CA. Serving as Project Engineer. Responsibilities include performing hydraulic modeling/analysis and mechanical design for the pump station. Wood Rodgers is currently designing a new pumping station for the City of Simi Valley/Ventura County Waterworks District #8. The pump station consists of three vertical turbine pumps with a firm capacity of 2,700 gallons per minute. The facility includes a new CMU building, emergency generator and site improvements.

Ortega Ridge Pump Station and Hydropneumatic Tank - Montecito Water District, CA. Served as Project Engineer. Wood Rodgers provided design for services for the District's Ortega Ridge Hydropneumatic Pump Station to allow the District to replace an antiquated horizontal split case diesel engine driven pump with a new electrically VFD driven 1,000 gpm horizontal split case pump. Wood Rodgers, also conducted a transient (surge) analysis and analyzed the existing 1,800-gallon hydropneumatic tank to optimize operations at the pump station, which previously had pump cycling issues. Wood Rodgers designed a new 6,000-gallon hydropneumatic tank and all structural supports to mitigate pump cycling and protect the system from surge conditions.

Ventura County Water Works District No. 8 Capacity Study, California. Project Engineer. Wood Rodgers converted the District's H2O Map water model to InfoWater and then leveraged the District's GIS data to update the model elements including piping and other similar assets. A demand analysis was performed and new demands representing current demand conditions were allocated to the model. Facilities including pump stations, reservoirs, pressure reducing stations and control valves were validated to ensure they were mimicking field conditions and were adjusted within the model to match recent historical fire flow test results to achieve a calibrated model. A capacity study evaluating all pump stations, reservoirs, pipelines, and supply sources was developed with results identifying areas of deficiency.

1655-1 Reservoir and Rancho Jamul Hydropneumatic Pump Station Modification Project – Otay Water District, CA. Project Engineer. Providing pump station condition assessment, pipeline design and grading for the project as it relates to the new 0.5-million-gallon reservoir, 12-inch welded steel pipeline and 1,000 ft long access road. Unique elements to this project include the alternatives analysis of the access roadway and steel pipeline, which has significant slopes and environmental constraint that must be addressed through the roadway grading, alignment, and design.

Wells North Long Beach 13 and 14 – Long Beach Water Department (LBWD), Long Beach, CA. Project Engineer. The Project includes the drilling, development and equipping of two new 2,500-gpm wells. The design elements include well destruction, demolition, tree removal, enclosures, site improvements, supervisory controls (SCADA), VFDs, and pipelines. NLB 13 will be located south of Jackson Street between Orange Avenue and Walnut Avenue inside Jackson Park West. NLB 14 is located on the southeast corner of Walnut Avenue and Jackson Street inside Jackson Park East. Work will also include the design of new conveyance lines connecting the two new wells to LBWD's well main collection lines. Scope of work includes reviewing existing plans; evaluating existing facility modifications; making recommendations on layouts, materials and equipment; submitting construction packages including drawings, cost estimates, and specifications for both sites; acquiring permits; providing pre-bid and bid evaluation services; providing construction management, resident engineering and inspection services.

SHENG TAN, GISP

PROJECT ROLE

GIS Support

TITLE

Associate GIS III

EDUCATION

MS, Information Systems,
Northwestern University,
Evanston, IL, 2020

BA, Geography,
Middlebury College,
Middlebury, VT, 1996

BA, Environmental
Studies, Middlebury
College, Middlebury, VT,
1996

REGISTRATIONS/ CERTIFICATIONS

Certified GIS Professional,
#60619

Mr. Tan has 23 years of experience in GIS. He has honed his GIS skills in the engineering and environmental consulting industries. His GIS knowledge is well-rounded, encompassing various aspects of GIS analysis and technologies including desktop, server, web and mobile. He has played a wide gamut of roles at different levels, from technical to project management, to deliver successful GIS projects within schedule and budget. Mr. Tan is also a member of the GIS Advisory Council for the American River College GIS Program, a local community college in the Sacramento area.

EXPERIENCE

Well and Pump Efficiency Test Program, South Tahoe Public Utility District, CA. Wood Rodgers was retained by the District to develop a standard operating procedure (SOP) for their well and pump efficiency testing plan. The SOP also included tasks to design the data collection form and develop an information management system to support the organization and reporting of the collected data. Mr. Tan was responsible for designing the data collection form to record information collected during the well and pump efficiency tests. He was also responsible for developing the information management system with Microsoft SQL Server and SQL Server Reporting Services to meet the requirements of the District. The database schema was designed to handle both well and pump efficiency data points and supports multiple test events scenarios. SQL views were created to allow for the dynamic calculations of results from pre-defined formulas used in the report generation. The report also includes charts to visualize the data collected during the current test events and historically over time for each well location.

Santa Barbara Citywide Sewer and Water Atlas Conversion and Automated Mapping GIS Development Project, City of Santa Barbara – Santa Barbara, CA. Mr. Tan was the lead analyst provided Geographic Information Systems (GIS) services for a large-scale GIS conversion and implementation project. The project involved the conversion of over 300 sheets of sewer and water utilities, including the GPS location and mapping of 15,600 facility locations, covering over 26 square miles. Mr. Tan led the quality control of the overall conversion project. He also helped design an application using Visual Basic and MapObjects that allows City officials to monitor the progress of their project using only a standard web browser through the Internet.

Merced Irrigation District ArcGIS Enterprise Implementation – Merced, CA. Project Manager responsible for assisting Merced Irrigation District (District) in implementing ArcGIS Enterprise within its organization. ArcGIS Enterprise is a full-featured mapping and analytics software platform which was used to help manage the District's assets. ArcGIS Enterprise was used for collaboration and flexibility at the center of the District's Geographic Information System (GIS) allowing work to be organized and shared on any device, anywhere, at any time.

West Sacramento Geospatial 3D Mapping – West Sacramento, California. Wood Rodgers provided a comprehensive storm drainage and stormwater master plan update (SDSWMP) for the City of West Sacramento. In support of this update, Mr. Tan performed the geospatial 3D (GIS) utility asset infrastructure mapping of the storm water system infrastructure. Close to 2,000 storm drain features were collected using real-time kinematic (RTK) corrected Global Positioning System (GPS) data collection methods or using traditional survey methods where applicable. The field crews also completed the Utility Asset Infrastructure Invert Data Template to diagram (relative to north) and document the surveyed features. The crew also utilized the Survey123 for ArcGIS mobile app to acquire attribute data directly into a GIS compatible format including taking photographs of each surveyed feature for visual documentation. The use of Survey123 also allowed for the near real-time observations of the crew's status. Prior to mapping, the survey data was processed and differential correction was applied to correct the positions of the acquired features where necessary. A permanent unique Identification Number (WSID) was assigned to each feature. Utility mapping was conducted using AutoCAD Civil 3D in three dimensions. Every map feature object was linked to a record in the relevant feature class in the GIS geodatabase.



Colin Chung, Ph.D.

Principal Asset Management Consultant

Colin is the Founder and President at Kayuga Solution, a highly-specialized asset management firm. Colin has been involved in asset management research, education, and application for more than 20 years. He is one of the first recipients of a doctorate degree in the field of Asset Management. While in his graduate program, Colin made significant research advancements in developing and implementing new asset management concepts and methodologies. Today, Colin continues to actively engage in asset management advancement. He is an asset management planning lead for numerous professional organizations and serves as an external advisor for graduate students at domestic and international universities.

For the past 20 years, Colin has worked with numerous municipalities and utilities across North America and Asia. He has assisted them in education and implementation of asset management principles and practices. Colin particularly specializes in risk assessment and life cycle cost analyses, as well as balancing forecasted long-range capital funding requirements with current budgets. Using data, Colin helps to communicate and establish balance between levels of service and cost of service. He has helped clients develop asset data, understand risk profile, generate future capital requirements, and establish a sustainable financial plan.

Colin has made significant contributions to the research and development of asset management principles. Colin also helps to lead the effort to promote, educate, research, and implement asset management concepts across the globe.

Notable Positions

- International Council Chair / Board of Directors - American Water Works Association (AWWA)
- Leading Edge Strategic Asset Management Scientific and Program Committee Member – International Water Association (IWA)
- Asset Management Committee Chair – California – Nevada American Water Works Association (Cal-Nv AWWA)
- Asset Management Track Chair – American Society of Civil Engineers (ASCE) Pipelines
- External Faculty Member - Oklahoma State University
- External Faculty Member – University of Arkansas at Little Rock

Education

- 2001 Ph.D., Civil Engineering, Purdue University
- 1996 M.S., Civil Engineering, Yonsei University, South Korea
- 1993 B.S., Civil Engineering, Cornell University

Experience

Asset Management Plans

Colin developed an asset management plan for each client that provided a complete picture of an organization's asset portfolio and demonstrated its capacity and capability to implement and manage its assets. The plans documented the assets owned and managed, levels of service committed, replacement costs, risk assessment, and long-range rehabilitation and replacement funding requirements. The plans were then used to communicate the future needs with decision makers and stakeholders. Asset management plans were developed for numerous asset types (e.g., treatment plants, collection and distribution systems, storm water systems, storage systems, pump facilities). The specific tasks included asset inventory, asset register, asset hierarchy, asset replacement cost, condition assessment, risk analysis, and long-range capital funding analyses. For some projects, the identified future work was compared and contrasted to current workforce to assess resource limitations (FTE Analyses). Asset management plans were developed for the following clients:

- City of Lake Forest, CA (In Progress)
- California Water Service, CA
- City of Westlake Village, CA
- City of Cupertino, CA
- Santa Clara Valley Water District, CA
- City of Amarillo, TX
- Port of San Diego, CA
- Manitowoc Public Utilities, WI
- City of Thousand Oaks, CA
- Town of Addison, TX
- City of San Diego, CA
- City of Livermore, CA
- City of Chula Vista, CA
- City of Corvallis, OR
- Livermore Area Park and Recreation District, CA
- City of Carlsbad, CA
- Orange County Sanitation District, CA
- City of Chino Hills, CA
- City of Santa Monica, CA
- City of Portland, OR
- Highline Water District, WA
- Johnson County Wastewater, KS
- Albuquerque Bernalillo County Water Utility Authority, NM
- Washington Suburban Sanitary Commission, MD
- City of Seoul, South Korea

Sustainable Financial Plans / Long-Range Capital Need Studies

One of the key elements required for development of a sustainable financial plan is to establish balance between current funding and future capital investment needs. Colin helped generate long-range asset Rehabilitation and Replacement (R&R) funding requirements for multiple clients throughout the United States. For each project, an asset register was developed, asset classes and management strategies were created, remaining useful lives were calculated, replacement costs were determined, and long-range R&R needs were forecasted. Using the projected R&R requirements, sustainable financial policies and plans were developed. R&R funding studies were performed for the following clients:

- Irvine Ranch Water District, CA
- Oro Loma Sanitary District, CA
- Port of Rotterdam, The Netherlands
- Eastern Municipal Water District, CA
- East Bay Dischargers Authority, CA
- Santa Margarita Water District, CA
- Moulton Niguel Water District, CA
- Mesa Consolidated Water District, CA
- Orange County Sanitation District, CA
- City of Chino Hills, CA
- City of San Diego, CA
- City of Chula Vista, CA
- Albuquerque Bernalillo County Water Utility Authority, NM
- City of Carlsbad, CA
- City of Santa Monica, CA
- Manitowoc Public Utilities, WI
- City of Thousand Oaks, CA
- Montecito Water District, CA
- City of Livermore, CA
- Santa Clara Valley Water District, CA
- City of Corvallis, OR
- City of Portland, OR
- Highline Water District, WA

Condition Assessment

Condition assessment helps not only to understand the immediate maintenance or rehabilitation/replacement needs, but also to characterize the decaying pattern of assets. In order to strengthen the probability of failure analysis, Colin performed condition assessments for the following clients. The methodology utilized a risk-based, multi-step approach. At the basic level, assets in poor condition were highlighted by extracting the knowledge of the operations and maintenance staff (knowledge capture). At the intermediate level, highlighted assets from the basic level were subjected to field investigation for verification. At the final level, detailed condition assessment was performed using sophisticated analysis to ensure risk is managed for critical assets. With historical condition assessment data, Colin helped to model the decaying nature of the assets. Through the deterioration modeling process, Colin helped to predict failure timing so that risk management strategies could be implemented before failure. Condition assessment work was performed for the following clients:

- City of Cupertino, CA
- Westlake Village, CA
- Town of Addison, TX
- City of South Lake Tahoe, CA
- City of Amarillo, TX
- City of San Diego, CA
- City of Livermore, CA
- City of Chula Vista, CA
- Manitowoc Public Utilities, WI
- Port of San Diego, CA
- City of Carlsbad, CA
- City of Coronado, CA
- Orange County Sanitation District, CA
- City of Chino Hills, CA
- City of Thousand Oaks, CA
- Santa Clara Valley Water District, CA
- Union Sanitary District, CA
- City of Corvallis, OR
- Johnson County Wastewater, KS
- Albuquerque Bernalillo County Water Utility Authority, NM
- City of Seoul, South Korea
- City of Gwangju, South Korea

Risk Assessment

Colin performed risk assessment at the asset level to identify and prioritize critical assets for several projects. The risk methodology not only evaluates the timing of failure (probability of failure), but also the impact of a failure (consequence of failure) from triple bottom line (economic, social, environmental) perspectives. Risk mitigation strategies were also developed to optimize the utilization of limited budget and resources. In many cases, the risk assessment was performed at multiple levels (e.g., asset, system, process, project). Using the concept of risk, limited resources and budget were prioritized to ensure maximum risk reduction at minimum cost. Risk assessment work was performed for the following clients:

- Port of Rotterdam, The Netherlands
- Westlake Village, CA
- City of Amarillo, TX
- Manitowoc Public Utilities, WI
- Town of Addison, TX
- City of San Diego, CA
- City of Livermore, CA
- Santa Clara Valley Water District, CA
- City of Thousand Oaks, CA
- City of Corvallis, OR
- City of Chula Vista, CA
- Port of San Diego, CA
- City of Carlsbad, CA
- Orange County Sanitation District, CA
- City of Chino Hills, CA
- City of Santa Monica, CA
- City of Portland, OR
- Highline Water District, WA
- Johnson County Wastewater, KS
- Albuquerque Bernalillo County Water Utility Authority, NM
- Washington Suburban Sanitary Commission, MD
- City of Seoul, South Korea

IRIS Implementation

Kayuga Solution developed IRIS (Infrastructure Renewal Intelligent Solution) to facilitate asset management decisions. IRIS is a cloud-based software that connects with existing information systems (e.g., CMMS, GIS, ERP) to not only record past asset replacement and condition assessment records but also utilize that historical information to characterize deterioration of assets and predict future asset replacement and rehabilitation (R&R) planning. IRIS helps to plan inspection schedule and CIP planning efforts. It also provides the necessary data to develop and communicate sustainable long-range financial plan. Aligning with the asset management best practices, IRIS helps to answer the fundamental questions of asset management: What is the current state of my assets? What is my required level of service? What are my business risks? What are my best O&M and CIP investment strategies? What is my best long-term funding strategy? IRIS implementation was performed for the following water utility clients:

- City of San Diego, CA
- Irvine Ranch Water District, CA
- Santa Clara Valley Water (Valley Water), CA
- Eastern Municipal Water District, CA
- City of Westlake Village, CA
- City of Thousand Oaks, CA
- City of Corvallis, OR
- City of Livermore, CA
- Town of Addison, TX
- Manitowoc Public Utilities, WI
- Port of Rotterdam, The Netherlands
- Port of San Diego, CA
- City of Amarillo, TX
- City of Chula Vista, CA



Iday Syachrani, Ph.D.

Principal Management Consultant

Iday has over 11 years of experience. He started his asset management experience as a researcher at Oklahoma State University. During his time there, he led the efforts in developing deterioration models that scientifically quantify the decay characteristics of infrastructure assets. Iday specializes in analyzing condition data to improve the accuracy of the estimation of remaining effective life and risk. As a project manager, Iday frequently leads large and leading-edge asset management projects. Incorporating his sound fundamental understanding of asset management framework, research skillset, and project management experience, Iday was successful in delivering these key projects. His area of asset management specialization includes assisting clients in performing remaining asset life calculation, risk assessment, life cycle cost projection, and project validation and prioritization. Iday also successfully helped to develop asset management tools that effectively and efficiently facilitate asset management decision. Lately, Iday has been helping clients initiate their Enterprise Asset Management Programs. From field inventory and development of an asset register to EAM selection, procurement, and implementation, he has helped clients to make the right decisions towards achieving their asset management goals. Iday has numerous published papers in periodicals that further document and support his asset management experiences.

Education

Ph.D., Oklahoma State University, Civil Engineering

M.S., Institute Teknologi Bandung, Indonesia, Industrial Engineering

B.S., Institute Teknologi Bandung, Indonesia, Civil Engineering

Experience

Asset Inventory and Condition Assessment

A complete and accurate asset register is the foundation of asset management. Condition assessment helps not only to understand the immediate maintenance or rehabilitation/replacement needs, but also to characterize the decay pattern of assets to strengthen the probability of failure analysis. To optimize resources, asset inventory and condition assessment are often performed at the same time. The methodology utilized a risk-based, multi-step approach. At the basic level, assets in poor condition were highlighted by extracting the knowledge of the operations and maintenance staff (knowledge capture). At the intermediate level, highlighted assets from the basic level were subjected to field investigation for verification. At the final level, detailed condition assessment was performed using sophisticated analysis to ensure risk is managed for critical assets. Asset inventory is recorded in the format consistent with client's system of records (e.g., GIS, CMMS). Asset inventory and condition assessment work was performed for the following water utility clients:

- Irvine Ranch Water District, California
- City of Livermore, California
- Valley Water, California
- City of Corvallis, Oregon
- City of Thousand Oaks, California
- Town of Addison, Texas
- Manitowoc Public Utilities, Wisconsin

Risk Assessment

Risk Assessment consists of Probability of Failure (PoF) and Consequence of Failure (CoF). PoF provides an understanding of the timing to failure, while CoF helps to quantify the impact of the asset failure, and R is used to reduce or offset PoF. At the very minimum PoF can be estimated using an age-based approach. Where historical failure records are available, the PoF analysis can be refined with additional statistical analysis such as Survival Analysis, Clustering Analysis, and various other multivariate models. For spatially distributed assets, a custom GIS-based model is developed to model the CoF. For a more complex system such as water and wastewater treatment plant, computer modeling (i.e., IViewOps) is used to calculate the true availability of redundancy due to continuously varying incoming flows and water quality parameters. A customized Risk Assessment model has been developed for the following water utility clients:

- California Water Services, CA (GIS Model, Survival Analysis)
- Manitowoc Public Utilities, WI (GIS Model, IViewOps)
- City of Corvallis, OR (GIS Model, IViewOps)
- City of Livermore, CA (GIS Model, IViewOps)
- Town of Addison, TX (GIS Model)
- Santa Clara Valley Water District, CA
- City of Chula Vista, CA (GIS Model)
- City of Carlsbad, CA (GIS Model)
- City of Thousand Oaks, CA (GIS Model)
- Albuquerque Bernalillo County Water Utility Authority (ABCWUA), NM (GIS Model)

IRIS Implementation

Kayuga created IRIS (Infrastructure Renewal Intelligent Solution), a software application developed for the sole purpose of asset management program development and reporting. For each IRIS implementation, the Kayuga team verifies asset inventory, standardizes asset classification, documents asset replacement costs, develops management strategies, performs risk analysis, and calculates replacement and rehabilitation cost projection. Since the first release in 2015, IRIS has evolved into IRIS Enterprise, a cloud-based asset management system, which incorporates many sought-after asset management features such as R&R projection, risk matrix, custom deterioration curves, map interface, budget scenario, and funding analysis. The overall results are used for development of asset management plan. IRIS implementation was performed for the following water utility clients:

- Irvine Ranch Water District, California
- City of Livermore, California
- Valley Water, California
- City of Corvallis, Oregon
- City of Thousand Oaks, California
- Town of Addison, Texas
- Manitowoc Public Utilities, Wisconsin

Asset Management Plan

Asset management plan summarizes the current asset profile (e.g., installation, consumption, valuation, condition, management strategies), levels of service, risk assessment and the recommended short and long terms prediction of capital investment profile. The development of asset management plan involves the use of life-cycle costing and optimal decision-making methodologies. Asset management plans were developed for the following water utility clients:

- City of Carlsbad, California
- City of Thousand Oaks, California
- City of Livermore, California
- Santa Clara Valley Water District, California
- Highline Water District (HWD), Seattle, Washington
- City of Addison, Texas
- Albuquerque Bernalillo County Water Utility Authority (ABCWUA), New Mexico
- City of Henderson, Nevada
- Manitowoc Public Utilities, Wisconsin



Charisse Kimura

Senior Management Consultant

Charisse supports the asset management program development team in multiple ways. The key function of an asset management system is to establish a solid data foundation. Charisse has been working with multiple clients to help create the necessary data foundation required to support asset management decisions. Charisse has led the efforts in data quality review, asset inventory template creation, asset inventory, asset register development, and more. Once the data foundation is established, Charisse utilizes her meticulous analytical skills to assist in risk assessment, life cycle cost analyses, and funding and work resource (FTE) requirement analyses. Charisse has supported risk assessment methodology development for several projects. The risk methodology not only evaluates the timing of failure (probability of failure), but also the impact of a failure (consequence of failure). In many cases, the risk assessment was performed at multiple levels (e.g., asset, facility, system, process), and was developed using various methodologies, particularly using geospatial analysis. After the asset management analyses have been performed, Charisse leads the asset management plan development efforts. All asset management analyses are documented and explained to help the client tell their asset management story.

Education

Bachelor of Arts, English (summa cum laude), University of Oregon
Robert D. Clark Honors College

Experience

Asset Inventory and Condition Assessment

Charisse has supported the development of an asset register, the foundation for all asset management decisions, for multiple clients. A complete and accurate asset register is the foundation of asset management. Condition assessment helps not only to understand the immediate maintenance or rehabilitation/replacement needs, but also to characterize the decay pattern of assets to strengthen the probability of failure analysis. To optimize resources, asset inventory and condition assessment are often performed at the same time. The methodology utilized a risk-based, multi-step approach. At the basic level, assets in poor condition were highlighted by extracting the knowledge of the operations and maintenance staff (knowledge capture). At the intermediate level, highlighted assets from the basic level were subjected to field investigation for verification. At the final level, detailed condition assessment was performed using sophisticated analysis to ensure risk is managed for critical assets. Asset inventory is recorded in the format consistent with client's system of records (e.g., GIS, CMMS). Asset inventory and condition assessment work was performed for the following water utility clients:

- City of Thousand Oaks, CA
- Valley Water, CA
- City of Corvallis, OR
- City of Livermore, CA
- Irvine Ranch Water District, CA
- Town of Addison, TX
- Manitowoc Public Utilities, WI

Risk Assessment

Charisse has supported risk assessment methodology development for several projects. The risk methodology evaluates the timing of failure (probability of failure) as well as the impact of a failure (consequence of failure). Probability of Failure analyses included consolidation and assessment of asset age and condition from various data sources (e.g., visual assessment, GIS, CCTV results, other studies). Charisse has conducted geospatial analysis to incorporate triple bottom line factors (environmental, social, economic) into the consequence of failure analysis for various clients. For several clients, Charisse supported the development of consequence of failure calculation tools that would automate the process of updating consequence of failure scores when GIS data is updated in the future. For most clients, the risk assessment was performed at multiple levels (e.g., asset, facility, system, process). Using the concept of risk, limited resources and budget were prioritized to ensure maximum risk reduction at minimum cost. Charisse provided risk assessment assistance for the following water utility clients:

- City of Thousand Oaks, CA
- Valley Water, CA
- City of Corvallis, OR
- City of Livermore, CA
- Irvine Ranch Water District, CA
- Town of Addison, TX
- Manitowoc Public Utilities, WI

IRIS Implementation

Kayuga created IRIS (Infrastructure Renewal Intelligent Solution), a software application developed for the sole purpose of asset management program development and reporting. For each IRIS implementation, the Kayuga team verifies asset inventory, standardizes asset classification, documents asset replacement costs, develops management strategies, performs risk analysis, and calculates replacement and rehabilitation cost projection. Since the first release in 2015, IRIS has evolved into IRIS Enterprise, a cloud-based asset management system, which incorporates many sought-after asset management features such as R&R projection, risk matrix, custom deterioration curves, map interface, budget scenario, and funding analysis. The overall results are used for development of asset management plan. IRIS implementation was performed for the following water utility clients:

- City of Thousand Oaks, CA
- Valley Water, CA
- City of Corvallis, OR
- City of Livermore, CA
- Irvine Ranch Water District, CA
- Town of Addison, TX
- Manitowoc Public Utilities, WI

Asset Management Plan

Charisse helped to develop asset management analyses and plans for multiple asset types (e.g., water, wastewater, storm water, roadways, parks, facilities, fleet, urban forestry). After the asset management analyses have been performed, Charisse leads the asset management plan development efforts. All asset management analyses are documented and explained to help the client tell their asset management story. The contents of the asset management plan include assets owned and managed, valuation profile, condition profile, risk assessment, funding analyses, and future management strategies. Charisse supported asset management analyses and/or asset management plan development for the following water utility clients:

- City of Thousand Oaks, CA
- Valley Water, CA
- City of Corvallis, OR
- City of Livermore, CA
- Irvine Ranch Water District, CA
- Town of Addison, TX
- Manitowoc Public Utilities, WI

ECS Engineering, Inc.

Electrical & Control Systems Engineering
For Pump Stations & Treatment Facilities

SAMUEL W. TERRY, P. E., Principal Engineer and President, has over forty years of experience designing, planning, value engineering, modeling, documenting, operating, testing and trouble-shooting electrical, mechanical, instrumentation and control systems. Sam has spent the last thirty years managing resources and people to meet clients' project goals. Sam is a registered Electrical Engineer in six states (including California) and a Registered Control system Engineer in California.

WATER SUPPLY SYSTEMS

Project: **Suisun-Solano Water Authority, Cement Hill WTP Clarifier Tanks Rehabilitation Project**

Location: Fairfield, California

Significance: Electrical and controls design work associated with the rehabilitation of two clarifier tanks.

Project: **City of Tracy, Tracy Hills Phase 1A/1B Water Tank and Booster Pump Station Project**

Location: Tracy, California

Significance: Electrical and instrumentation design of a 475 HP total booster pump station and tank. Large HP Booster Pumps with VFD motor controllers, 500 KW standby diesel engine generator and RTU/PLC with interface to an existing SCADA system. The facility includes a large building with separate chemical facilities.

Project: **Del Paso Manor Water District, Well No. 6B Project**

Location: Sacramento, California

Significance: Electrical and instrumentation design of a 125 HP water well. Large HP Well Pump with VFD and RVSS motor controllers, 250 KW standby engine-generator and RTU/PLC with interface to an existing SCADA system.

Project: **Fair Oaks Water District, Well No. 9 Project**

Location: Fair Oaks, California

Significance: Electrical and instrumentation design of a 125 HP water well. Large HP Well Pump with RVSS motor controller, generator receptacle and PLC with radio communication to an existing SCADA system.

Project: **City of Tracy, Tracy Hills Tank and Booster Pump Station Projects (in construction)**

Location: Tracy, California

Significance: Electrical and instrumentation design of a water booster pump station and tank with RTU/PLC interfacing with an existing SCADA system. The system included 475 HP of VFD controlled pumping capacity and a 500 KW standby diesel engine driven generator.

Project: **City of Hughson, Wells No 8 Project**

Location: Hughson, California

Significance: Electrical and instrumentation design of a well pump station with on-site treatment and provisions for future expansion. The well utilized a 150 HP pump with VFDs with bypass starters, 50 HP of process pumps, standby diesel generator, PLC/RTU with radio communications to a SCADA system.

- Project:** City of Manteca, Wells 10, 12, 14, 22, 24, 25 26 and 27.
Location: Manteca, California
Significance: Electrical and instrumentation design of eight well pump stations. Typical well utilized a 200 HP well pump with VFDs with bypass starters, on site standby diesel generators, Modicon Micro PLC/RTU with radio communications to an existing SCADA system.
- Project:** City of Lathrop, Wells No 21 Project
Location: Lathrop, California
Significance: Electrical and instrumentation design of a well pump station with on-site treatment and provisions for future arsenic removal. The well utilized a 200 HP pump with VFDs with bypass starters, standby diesel generator, PLC/RTU with radio communications to a new SCADA system.
- Project:** Olivehurst Public Utility District, Water Treatment Plant Project
Location: Yuba County, California
Significance: Electrical and instrumentation design of a water treatment facility with two well pumps. Approximately 400 HP total motor load with VFDs, RVSSs and across the line motor controllers. Two on-site standby diesel generators. Allen-Bradley SLC-500 PLC.
- Project:** City of Tracy, Lewis Manor Well Project
Location: Tracy, California
Significance: Electrical and instrumentation design of a large well pump station. 350 HP well motor with RVSS starter. 400 KW on site standby diesel generators. Tesco L2000 PLC/RTU with radio communications to an existing system.
- Project:** Beale Air Force Base, Water Treatment Plant Project
Location: Yuba County, California
Significance: Electrical and instrumentation design of a water treatment facility. Approximately 900 HP total motor load with VFDs, RVSSs and across the line motor controllers. 300 KW on-site standby diesel generator. Medium voltage utility design included. Allen-Bradley SLC-500 PLC for local control and a Siemens Apogee RTU for SCADA communications to an existing system.
- Project:** Truckee Donner Public Utility District, Featherstone Resort Booster Pump Station
Location: Truckee, California
Significance: Large water booster pump station with hydropneumatic tank. Three 75 HP booster pumps with provisions for two future pumps. Reduced voltage solid state motor controllers with integral Idec Micro 3C PLC. Provisions for District provided SCADA equipment. Diesel engine generator standby power. Developer funded.
- Project:** Sac. Co. Water Agency, East Elk Grove Ground Water Treatment Plant Project
Location: Sacramento, California
Significance: Electrical and instrumentation design of a new booster pump station with onsite water treatment facility and a 150 H.P. well pump. Creation of agency standard documents for treatment facilities, booster pump stations, well pump stations and turnout vaults. Bid documents include detail process and instrumentation diagrams with match wiring schematics. Approximately 1000 HP total motor load with VFDs, RVSSs and across the line motor controllers. 600 KW on site standby diesel generator. Sophisticated multilevel SCADA system using Allen-Bradley SLC-500 at remote sites with spread spectrum radio communication with treatment facility and PLC5/60 at the treatment facility with fixed frequency radio communication with an existing central computer.



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STAFF REPORT

To: Board of Directors **Meeting Date:** September 22, 2022
From: Hannah Ford, Engineering Manager
Subject: WRP Optimization Study

HISTORY OF WRP WASTE ACTIVATED CELL (WAC)

In 1963, Rossmoor Sanitation Company constructed the WRP with a singular aeration unit that surrounded a circular secondary clarifier with sludge drying beds. In 1980, the Phase II WRP Modification converted the sludge drying beds into an Aeration Pond and the aeration/clarification system into the Waste Activated Clarifier (WAC) surrounding a secondary clarifier (i.e., Secondary Clarifier No. 1). Phase II also added three additional secondary clarifiers for a total of four. The 1981 Phase III WRP Modification installed Dissolved Air Floatation Thickener (DAF) No. 1 along with a Sludge Storage Tank. In 1985, Laguna Hills Sanitation, Inc., converted the existing thickener to DAF No. 2.

In 2015, Secondary Clarifier No. 2 was removed from service after a structural failure. Several other minor improvement projects took place between the aforementioned projects, such as:

- In 2010, ETWD added a new Nikuni recirculation pump for DAF No. 2.
- In 2012, ETWD constructed a dedicated blower for the WAC and an additional dedicated blower for the aerated grit chamber.
- In 2015, ETWD added weir washers to Secondary Clarifiers No. 3 and 4 (not No. 1).

More recently, the District evaluated options to achieve solids reduction at the WRP to reduce costs associated with solids disposal. This desktop study recommended the District operate the WRP at elevated solids retention times (SRT) (e.g., ~12 days) to reduce solids generation at the WRP in a cost-efficient manner. While the District is making all the necessary upgrades in the aeration system to operate the WRP at recommended SRTs, this operation also requires ETWD to always maintain robust secondary clarification.

PURPOSE OF THE STUDY

At approximately 60 years of age, Secondary Clarifier No. 1, shown in Figure 1, has significantly deteriorated and some of its components have reached the end of their useful life. The primary objective of this Study is to evaluate whether the District could eliminate the WAC and retrofit Secondary Clarifier No. 1 to achieve a higher surface overflow rate.



Figure 1 – Secondary Clarifier No. 1 surrounded by the WAC

PROPOSAL EVALUTION

WRP and Engineering staff met with the proposed Project Manager from Arcadis to conduct a site visit and explain the current issues the WRP faces with respect to the WAC and Secondary Clarifier No. 1. Engineering staff subsequently shared extensive background documents to develop a scope and fee that would both fit into the capital budget and allow additional, available funds to implement recommendations. Arcadis submitted the scope of work and fee for the WRP Optimization Study (Study) included as Attachment A. Table 1 summarizes the high-level tasks along with associated hours and cost.

Table 1- WRP Optimization Study Proposed Fee

Task Description	Hours	Cost
Project Management and Meetings	110	\$26,322
Data & Information Request and Document Review	32	\$6,496
Secondary Clarifier and Waste Activated Clarifier Rehabilitation	332	\$69,968
Quality Assurance and Quality Control	48	\$14,292
Total	522	\$117,078

The proposed staff for this effort possesses unique knowledge with respect to the District's WRP through previously conducting the solids reduction study and designing the Tertiary Treatment Plant.

Although optional tasks were proposed for this effort to further evaluate and improve the WRP, District staff does not recommend including them at this time. Tasks related to additional process modeling and further energy efficiency improvements at the WRP are less time sensitive than the need to rehabilitate Secondary Clarifier No. 1. District staff will decide whether to amend the contract with Arcadis or include process modeling and further optimization as part of the development of the WRP asset management plan.

COST AND FUNDING

Fiscal year 2022/23 includes \$200,000 to conduct a WRP Optimization Study. The budgeted amount assumed jar testing to confirm type and dosage of polymer for WAC elimination would be required as part of this effort; the scope of work does not include jar testing but will recommend if necessary. Remaining available funds will be allocated for refining the design and implementing Study recommendations.

The 5-year Capital Improvement Plan (CIP) includes \$1,473,000 for the Secondary Clarifier No. 1 and WAC Rehabilitation next fiscal year with additional budget in future years for rehabilitating Secondary Clarifier No. 3 and No. 4. Table 2 summarizes the budgeted costs for the Study as well as the remaining available for implementation. If additional funds are required for implementation, the District will evaluate the 5-year CIP and re-prioritize accordingly.

Table 2- WRP Optimization Study and Implementation Budget

Project	Cost
Study Budget	
Headworks Rehabilitation Study	\$117,078
Budgeted	\$200,000
Remainder Available for Design and Implementation	\$82,922
Implementation Budget	
Remainder Available for Design and Implementation	\$82,922
Secondary Clarifier No. 1 and WAC Rehabilitation	\$1,473,000
Total Available for Implementation	\$1,555,922

RECOMMENDATION

Recommended Action:

Staff recommends that the Board of Directors authorize the General Manager to enter into a contract with Arcadis U.S., Inc. in the amount of \$117,078 for a WRP Optimization Study. Staff further recommends that the Board authorize the General Manager to fund the project costs from the District's Capital Reserves in accordance with the District's adopted Capital Reserve Policy.

Hannah Ford, P.E.
El Toro Water District
24251 Los Alisos Blvd.
Lake Forest, CA 92630

Arcadis U.S., Inc.
320 Commerce, Suite 200
Irvine
California 92602
Tel 714 730 9052
Fax 714 730 9345
www.arcadis.com

Date: September 9, 2022

Subject: Proposal for Water Recycling Plant Optimization Study

Dear Ms. Ford,

Arcadis U.S., Inc. (Arcadis) is pleased to present El Toro Water District (ETWD) with the following proposal to provide engineering services for ETWD's water recycling plant optimization study. We developed the following scope of work, schedule, and level of effort based on discussions on September 2, 2022.

Background

ETWD provides domestic water, recycled water, and sanitary sewer collection, treatment and disposal services to a population of nearly 50,000 in a service area that includes portions of the Cities of Aliso Viejo, Lake Forest, Laguna Hills, Mission Viejo, and all of the City of Laguna Woods. ETWD owns and operates a 13.8 million gallons per day (mgd) capacity Water Recycling Plant (WRP) that currently treats an average influent flow of 3.6 mgd. The WRP was originally constructed by Rossmoor Sanitation Company then later upgraded by Laguna Hills Sanitation, Inc., prior to ETWD ownership, as described below.

In 1963, Rossmoor Sanitation Company constructed the WRP with aeration, secondary clarification, solids thickening, and sludge drying beds. The effluent pump station lifted secondary effluent to the effluent holding pond (also known as Rossmoor Dam No. 1), which held secondary effluent for either processing through the chlorine contact tank for restricted golf course irrigation or spraying vacant land.

The WRP did not include any preliminary treatment (i.e., screening and grit removal) until the Phase I modification in 1979, when Laguna Hills Sanitation, Inc., installed several fine screens. The 1980 Phase II modification converted the sludge drying beds into an aeration pond and the aeration/clarification system into the waste activated clarifier (WAC) surrounding a secondary clarifier (i.e., secondary clarifier No. 1). Phase II also added three additional secondary clarifiers for a total of four. The 1981 Phase III modification installed dissolved air floatation (DAF) No. 1 along with a sludge storage tank. Phase III also added a coarse screen and aerated grit chamber upstream of the fine screens. In 1985, Laguna Hills Sanitation, Inc., converted the existing thickener to DAF No. 2. In parallel with these modifications, Aliso Water Management Agency constructed the Ocean Outfall Pump Station and Effluent Transmission Main, which conveys secondary effluent to the ocean outfall for disposal.

In 1995, ETWD reconstructed the WRP by converting the aeration pond to an equalization basin downstream of the headworks and constructed three aeration basins. Additional projects included reconstruction of the fine screen facility and secondary clarifier No. 2 to support these modifications.

In 2015, the Tertiary Treatment Plant (TTP) upgrades added cloth disc filters, an intermediate pump station, an integrated recycled water storage and chlorine contact tank, and a recycled water pump station to produce

disinfected tertiary recycled water for unrestricted non potable reuse for golf course and land scape irrigation by the surrounding community. Several other minor improvement projects took place between the projects, including:

- In 2010, ETWD added a new Nikuni recirculation pump for DAF No. 2.
- In 2012, ETWD constructed a dedicated blower for the WAC and an additional dedicated blower for the aerated grit chamber.
- In 2015, ETWD added weir washers to secondary clarifiers Nos. 3 and 4

More recently, ETWD evaluated options to achieve solids reduction at the WRP to reduce costs associated with solids disposal. This desktop study recommended ETWD operate the WRP at elevated solids retention times (SRT) (e.g., ~12 days) to reduce solids generation at the WRP in a cost-efficient manner. ETWD is making all the necessary upgrades primarily in their aeration system to operate the WRP at recommended SRTs. This operation also requires ETWD to always maintain robust secondary clarification.

The main secondary clarifier No. 1 component has significantly deteriorated and reached the end of its useful life. ETWD is looking for a study to evaluate whether the WAC can be eliminated, and the secondary clarifier No. 1 retrofitted within its footprint to achieve a higher surface overflow rate. In addition, ETWD is exploring other alternatives for replacing secondary clarifier No. 1 and the WAC that are cost effective and do not have any negative impact on the performance of the existing DAF thickening system. ETWD is also interested in potentially further evaluating recommended energy efficiency measures identified by Alternative Energy Systems Consulting, Inc. (AESC). ETWD will include this optional task if the budget allows. The main objective of the study is to recommend improvements to ETWD's WRP that reduce energy consumption, maintenance requirements, operational burden, and overall life cycle cost without impacting WRP's performance

Scope of Services

Task 1. Project Management and Meetings

Project Management

Arcadis will communicate and coordinate as needed with ETWD staff to provide updates, follow up on action items, and manage the project on budget and on schedule. Arcadis will prepare and submit a concise monthly status report with the monthly invoice statement that includes the following:

- ETWD's standard form that includes a summary of expenditures by task showing total budget, billing to date, current billing, remaining amount.
- A summary of work progress/items complete for all work tasks
- An estimate of actual percent complete based on progress compared to percent complete based on budget expended
- An updated progress schedule using a Gantt-type format.

Meetings

Arcadis will administer an interactive, in-person project kick-off workshop and site visit that serves to gather initial ETWD input on initial recommendation. In addition, Arcadis will conduct monthly virtual progress meetings throughout the duration of the project, including one final recommendations workshop in-person.

For all workshops and meetings, Arcadis will prepare and submit a meeting agenda to ETWD staff at least one business day in advance of the meeting and will document and submit meeting minutes, highlighting action items and decisions, to ETWD staff within three days of the meeting. At each meeting, Arcadis will present and discuss an updated project schedule, project milestones, and planned activities. Arcadis will provide an electronic copy of the presentation for ETWD’s records.

Task 2. Data and Information Request and Document Review

Arcadis will develop a data request and submit to ETWD. The data request may include, but is not limited to, current flows and loads, the current plant operation and performance of the unit treatment processes including secondary clarifiers and DAFT, electricity unit cost and other pertinent information. Arcadis will research, obtain, and review all available documents, reports, field records, maintenance records, record drawings, and maps.

Task 3. Secondary Clarifier and Waste Activated Clarifier Rehabilitation

Alternatives Development

Arcadis will evaluate the feasibility of rehabilitating, modifying, or replacing the existing integrated WAC cell and secondary clarifier No. 1 under the following alternatives presented in Table 1.

Table 1. Secondary Clarifier and Waste Activated Clarifier Rehabilitation Alternatives

Alternative	Secondary Clarifier No. 1	WAC
1	Within existing footprint, replace drive mechanism and install weir washer system.	No change.
2	Within existing footprint, replace drive mechanism and install weir washer system.	Abandon WAC in place. Determine how to achieve desired level of thickening without WAC. Re-pipe and pump as necessary to route WAS to DAF Units.
3	Increase footprint by using abandoned WAC. Retrofit with larger drive mechanism, adjust piping, and install new weirs and weir washer systems.	Eliminate WAC. Determine how to achieve desired level of thickening without WAC. Re-pipe and pump as necessary to route WAS to DAF Units.
4	Construct a new 60-foot diameter secondary clarifier on the location of the demolished 60-ft secondary clarifier. Convey WAS to the WAC	No change.
5	Construct a new 60-foot diameter secondary clarifier on the location of the demolished 60-foot secondary clarifier.	Abandon WAC in place or repurpose it. Determine how to achieve desired level of thickening without WAC. Re-pipe and pump as necessary to route WAS to DAF Units.

Condition Assessment of the Secondary Clarifier No. 1 and WAC Structure

Arcadis will conduct a site visit along with structural and mechanical engineers to visually inspect both structural and mechanical conditions of the secondary clarifier No. 1 and WAC to determine overall condition and rehabilitation requirements on concrete, metal structures, piping and mechanical components.

Modification and Upgrade Requirements and Cost Development

Arcadis will determine structural, mechanical, civil, electrical, and control modifications and upgrades needed for the evaluated alternatives that include, but are not limited to, piping, pumping and re-routing of the sludge streams. Arcadis will develop a Class 3 cost estimate that will be appropriate for capital budgeting purposes, and inclusive of total project cost as well as life cycle and operational and maintenance costs that include electrical, chemical, consumables and maintenance.

To confirm feasibility of Alternative 3, Arcadis will evaluate structural modifications necessary to the WAC structure to accommodate secondary clarification.

For Alternatives 2, 3, 5, Arcadis will develop an approach and cost for (1) thickening WAS to desired level, (2) routing RAS directly to the DAF (including pumping as necessary), and (3) re-routing waste piping that currently discharges into the WAC.

Arcadis will present the results of this analysis during the monthly project meetings. The PowerPoint slides developed will serve to document results.

Task 4. Quality Assurance and Quality Control

Arcadis will administer a quality assurance and quality control (QA/QC) program for producing quality work. Specific procedures will cover, but are not limited to, planning, checking, reviewing and scheduling the work. All documents prepared will be subject Arcadis' in-house QA/QC procedures prior to submittal to ETWD for review. QA/QC reviews will be performed on all design calculations, drawings, specifications, engineer's opinion of probable cost estimates. Checking will be performed by qualified individuals who are not directly involved in the design or supervision of the work. Arcadis will identify senior staff responsible for QA/QC reviews, including individual expertise and time commitment.

OPTIONAL Task 5. Other Recommendations for Scope Enhancement

Task 5a. Perform a Whole Plant Simulation

Arcadis will develop a Biowin model for a whole plant simulation and calibrate it using the most recent WRP data. The calibrated model will be used to validate secondary clarification capacity, aeration capacity, energy use, etc. and identify any bottlenecks to operate the WRP at the proposed elevated SRT mode. An additional model will be developed to simulate the impact of step feed mode operation in plant performance and energy efficiency. The model results will be summarized and presented to ETWD in a forthcoming monthly meeting.

Task 5b. Perform Non-Monetary Criteria Analysis

In some instances, cost alone may not be sufficient to select the most suitable alternative. For example, Alternative 3 takes a longer time to retrofit requiring adjustment in plant operation (e.g., reduction of SRT) for a prolonged period, whereas implementing Alternatives 4 or 5 have little interference with plant operation. Non-monetary analysis coupled with the cost usually provides a better value for the selection. To analyze alternatives, our team will utilize the "Simple Multi-Attribute Rating Technique" (SMART), which rates alternatives by establishing a decision tree consisting of measurable or assessable (qualitatively or quantitatively) evaluation criteria such as proven performance, ease of operation and maintenance, ease of construction of the approach and weighting factors developed with input from ETWD. Once the criteria and weighting factors are determined, the analysis results point to the most viable alternative when combined with the cost (life cycle cost) of each

alternative. We will work closely with ETWD to collaboratively develop the criteria and weighting factors for each alternative.

Task 5c. Identify Process and Operational Improvements for Resiliency and Energy Saving Opportunities

In 2021, Alternative Energy Systems Consulting, Inc. (AESC) drafted a list of preliminary measures and estimated energy savings based on previous experience and data gathered at the WRP. ETWD staff reviewed the shortlist of preliminary measures for potential inclusion in the 5-Year Capital Improvement Program (CIP). Arcadis will verify feasibility and cost of the recommended energy efficiency solutions, as summarized in Table 2.

Table 2. Potential Measures for Energy Saving

Energy Efficiency Measure	Savings (kWh/yr)	Estimated Savings (\$/yr)	Budgetary Cost	Payback (years)	Next Steps
ABAC based Aeration Control	334,000	\$50,720	\$84,291 ⁽¹⁾	1.7	ETWD has purchased an ammonia analyzer for installation in 2022. No further support is required from Arcadis on this concept.
Odor Control System Optimization	29,000	\$6,260	\$31,000	4.5	ETWD staff has heard of issues with online H2S detectors for VFD control. Arcadis will provide input on whether this solution is recommended and true cost of implementation.
Aerated Grit Chamber Optimization	54,000	\$11,650	\$65,000	5.6	ETWD has initiated a Headworks Rehabilitation Study to address this solution. No further support is required from Arcadis on this concept.
RAS Pumping Optimization	113,000	\$24,390	\$156,000	6.4	Flow meters are already in place. Arcadis will confirm feasibility of adding TSS sensors and true cost of implementation.
Aeration Distribution Optimization	94,000	\$20,290	\$254,434 ⁽²⁾	12.5	Existing aeration air valves are aging (last installed 1997) and could benefit from replacement. Arcadis will confirm whether this solution is recommended and true cost of implementation.
Large Bubble Mixing in Equalization Basin	235,000	\$50,720	\$879,750 ⁽³⁾	17.3	Arcadis will confirm whether it is recommended and true cost of implementation.

(1) AESC estimated \$65,000 for this effort. Value shown represents ETWD-refined cost estimate based on Hach quote and electrical cost estimate.

(2) AESC estimated \$203,000 for this effort. Value shown represents ETWD-refined cost estimate based on actuator quote from Pratt of \$158,000 plus assumed installation, electrical, and instrumentation costs.

(3) AESC estimated \$258,000 for this effort. Value shown represents ETWD-refined cost estimate based on actuator quote from Biomix of \$340,000 plus assumed installation, electrical, instrumentation, and design support costs.

Arcadis will develop additional energy efficient approaches and determine implementation cost and payback period for each approach. Preliminarily identified approaches include:

- Evaluate feasibility of operating aeration basins at step feed mode. The WRP was constructed with step feed capabilities, but it has not been operated at that mode.
- Evaluate feasibility of creating more anoxic zones in the aeration basins and optimize RAS rates
- Evaluate feasibility of retrofitting existing DAF thickener to suspended air floatation thickener

Project Team

Arcadis will provide a qualified team to support this project. Dr. Ufuk Erdal will manage project activities. He will be supported by Mike Broyles, project engineer, and Peter Tymkiw and Matt Militello as the QA/QC leads.

Schedule

The tentative project schedule is presented in Table 3. Arcadis will set up a kickoff meeting within five days following the Notice to Proceed. This assumes the project will be completed in approximately four months following the Notice to Proceed. We anticipate that the entire project will be completed by January 16, 2023.

Table 3. Tentative Project Schedule

	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	28-Nov	5-Dec	12-Dec	19-Dec	26-Dec	2-Jan	9-Jan	16-Jan
Notice to Proceed (09/26/2022)	◆																
1 Project Management and Meetings		[Green bar spanning from 26-Sep to 16-Jan]															
2 Data & Information Request and Document Review		[Green bar spanning from 3-Oct to 10-Oct]															
3 Secondary Clarifier and Waste Activated Clarifier Rehabilitation			[Green bar spanning from 17-Oct to 2-Jan]														
4 Quality Assurance and Quality Control		[Green bar spanning from 26-Sep to 16-Jan]															
5 <i>Optional Tasks - Other Recommendations for Scope Enhancement</i>																	
5.a. Whole Plant Simulation Using Most Recent Plant Data			[Green bar spanning from 10-Oct to 17-Oct]														
5.b. Non-Monetary Criteria Analysis					[Green bar spanning from 24-Oct to 7-Nov]												
5.c. Process and Operational Improvements for Resiliency and Energy Saving Opportunities						[Green bar spanning from 31-Oct to 2-Jan]											
Kickoff Meeting - Workshop I (09/30)	◆																
Monthly Progress Meetings						◆					◆					◆	
Final Recommendations Workshop - Workshop II (01/13)																	◆

Ms. Hannah Ford
El Toro Water District
September 9, 2022

Fee Proposal

Arcadis proposes to provide the above scope of services for a not-to-exceed fee of \$117,078. Our detailed fee table with optional task 5 is shown in Attachment 1 and provides a task-level summary of our labor costs.

Thank you for the opportunity to submit this proposal. We are ready to begin the work immediately upon receiving your written authorization. If you have any questions, please contact me at 714.508.2642.

Sincerely,
Arcadis U.S., Inc.



Ufuk G. Erdal, PhD, PE
Senior Vice President

Enclosures:

Attachment 1. Fee Proposal

Ms. Hannah Ford
 El Toro Water District
 September 9, 2022

Attachment 1. Fee Proposal

Task	Task Name and Activities	Hours and Rates										Total Hours	Total Labors	Expenses	Total Cost
		PIC	Project Manager	QA/QC Reviewer	Process Design Lead	Discipline Lead/ Senior Engineer	Senior CAD Designer	Cost Estimator	Engineer II	Engineer I	Admin/ Clerical				
1	Project Management and Meetings	4	32	2	24	20			8	8	12	110	\$24,322	\$2,000	\$26,322
2	Data & Information Request and Document Review		4		16	4			8			32	\$6,496		\$6,496
3	Secondary Clarifier and Waste Activated Clarifier Rehabilitation		16	4	120	80	40	40	12	12	8	332	\$66,968	\$3,000	\$69,968
4	Quality Assurance and Quality Control	4	4	32		8						48	\$14,292		\$14,292
	Total Project Tasks	8	56	38	160	112	40	40	28	20	20	522	\$112,078	\$5,000	\$117,078
5	Optional Tasks														
5.a	Whole Plant Simulation Using Most Recent Plant Data		4	4	16					40		64	\$10,932		\$10,932
5.b	Non-Monetary Criteria Analysis	2	24	2	8	8				24		66	\$14,880		\$14,880
5.c	Process and Operational Improvements for Resiliency	2	16	16	40	24		40	16	8		160	\$34,350		\$34,350
	Total - Optional Tasks	4	44	22	64	32		40	16	72		290	\$60,162		\$60,162
	SUM	12	100	60	224	144	40	80	44	92	20	812	\$172,240	\$5,000	\$177,240

GENERAL MANAGER'S REPORT

September 2022

I. OFFICE OF THE GENERAL MANAGER

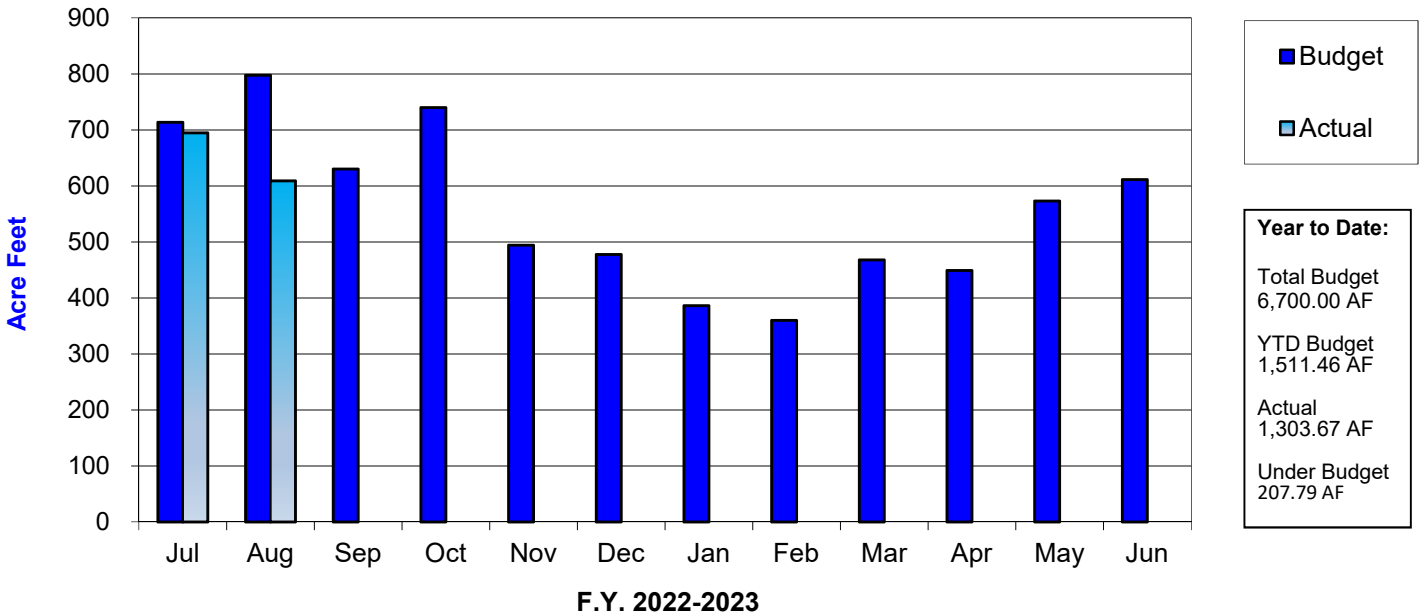
- MWDOC Planning & Operations Committee Meeting
- MWDOC/MET Directors Workshop
- MWDOC Administration & Finance Committee Meeting
- MWDOC Board Meeting
- MWDOC Facilitated Discussions Workshop
- MWDOC Reserves Policy Workgroup
- OC LAFCO Municipal Services Survey Review
- WRP Tour with Siobhan Foster – VMS CEO
- ETWD Agenda Review Meeting
- ETWD RRC Meeting
- ETWD Community Advisory Group Meeting
- ETWD Master Plan Progress Meeting
- ETWD 401k Plan Meeting with Empower
- ETWD President/VP/GM Meetings
- ETWD Water Audit Review Meeting with E Source
- ETWD Water Audit Validation Meeting with MWDOC
- ETWD Regular Engineering & Finance Committee Meetings
- ETWD Regular Board Meeting
- SOCWA Board of Directors Meeting
- SOCWA All Hands Meeting
- SOCWA Finance Committee

II. DOMESTIC AND RECYCLED WATER SALES

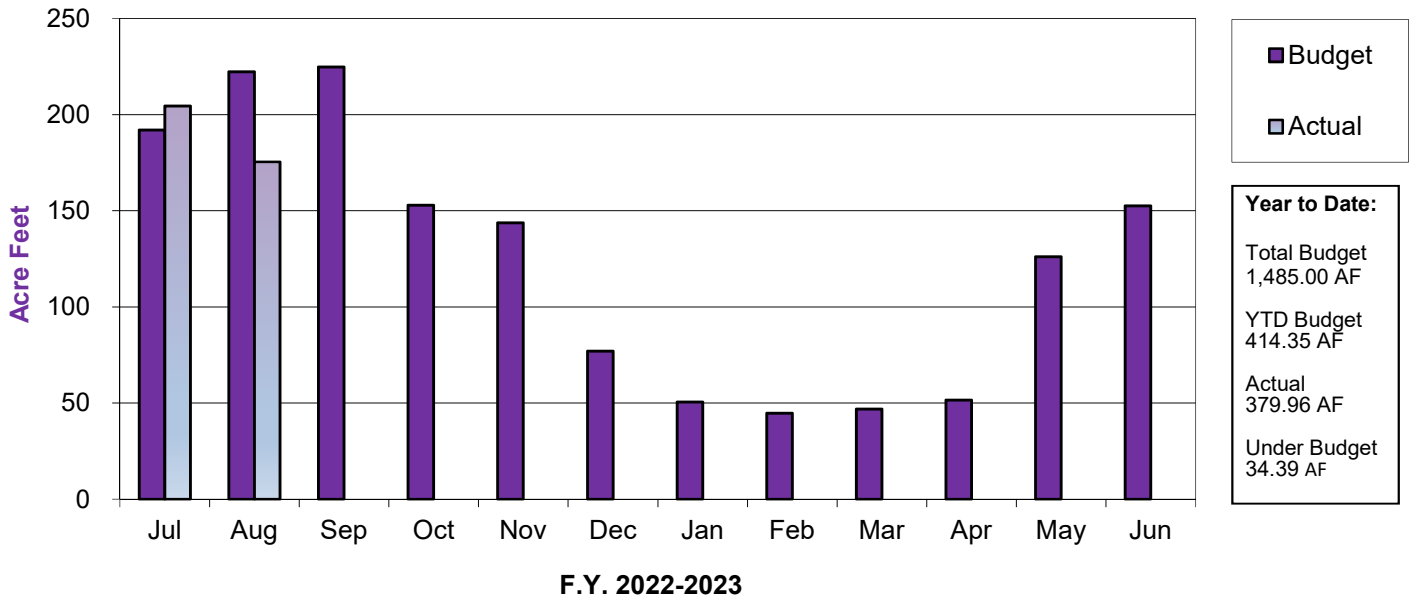
Actual domestic sales for the year-to-date as of August 31, 2022 are 1,303.67 acre-feet. This compares to year-to-date budgeted domestic sales of 1,511.46 acre-feet. The year-to-date variation in actual to budgeted sales reflects a decrease of 207.79 acre-feet. Actual sales are 43.69 acre-feet lower than last year-to-date actual sales for the same period.

Actual recycled sales for the year-to-date as of August 31, 2022 are 379.96 acre-feet. This compares to year-to-date budgeted recycled sales of 414.35 acre-feet. The year-to-date variation in actual to budgeted sales reflects a decrease of 34.39 acre-feet. Actual sales are 49.02 acre-feet lower than last year-to-date actual sales for the same period.

POTABLE WATER SALES



RECYCLED WATER SALES



Customer Service Activity Report

Regular Service Calls	AUG 2022	AUG 2021	Telephone Calls	AUG 2022	AUG 2021
Serviceman Dispatched to Read, Connect/Disconnect Service	93	90	Change of Service: Connections and Disconnections	103	80
Field Investigations:			Billing / Payments & Graph Inquires	242	138
Check for leaks - calls to CS Office:(irrigation,meter,street leaks)			Assistance with online payments and ETWD's portal (cc, e-checks, other.)	13	13
Customer Responsible	26	31	Variance / Adjustment Inquiries	17	16
District Responsible	10	10	Variance / Adjustment Requests Processed	8	16
None found/other	12	15	Ordinance Infraction / Water Waste Complaints	4	1
High Reads Checked - High Consumption (Billing Dept.)			Outside Utility Districts	76	58
Cust Leaks: _10_ No Leaks: _18_	28	24	Phone calls Transfer to other Departments within ETWD	58	54
Check Stopped Slowed Meters-Low Consumption (Billing)	13	6	Phone calls for the Board of Directors	0	0
Re-Check Read	10	5	Recycled Water	0	0
Ordinance Infraction	5	2	Water Quality Taste - Odor - Color	4	3
Recycled Water	0	0	Leaks / Breaks	17	15
Water Quality: Taste / Odor / Color	6	8	Flooding Meter calls (Hydrant)	1	2
Phone response: _4_ Field response: _2_			Sewer Problems (odor / spills)	4	3
Flooding (Hydrant) Meters issued	2	3	Backflow / Cross Connection (questions or yearly testing forms)	3	3
Sewer - Odor/Stoppage/ Manhole Covers	3	7	ETWD facilities inquiries:		
Meter Box: Lids / Covers Replaced	17	21	Boxes/Covers/Lids/Hydrants/Pump Stations/Graffiti/ "Gen. Maint"	2	7
Meter Box Clean, Digout	6	9	Tyco (ADT) Calls (Alarms to ETWD facilities)	0	0
Raised Meter Box	4	1	ATT Calls (access to tower sites)	1	0
Trim Bushes / Meter Obstruction	15	32	SCE Calls (access to tower sites)	1	0
General Maintenance Response	5	0	Pager Calls specifically for Pump Stations - SCADA	1	0
Fire Hydrants: Hit / Leaks / Caps	0	0	Payment Extensions	27	0
Pressure(psi) Checks / Reads	6	2	Delinquent Payment Calls to Customer's prior to shut off per billing calendar (automatic courtesy dialer)	65	194
CSSOV (Angle Meter/Ball Valve/Gate Valve/Globe Valve) chk,repair,replaced	9	12	Return Calls from customers left on our voice mail system. Ext 500	17	5
AMS angle-meter-stop replace/repair	0	0	Email Correspondence:	37	83
Bees Removed	3	1	Maintenance Service Order Requests (bees, psi, fogged-dirty registers)	6	10
Backflow / Cross Connection	5	0	Misc. (other: employment, deliveries, sales calls)	26	17
Fogged Registers	14	42	Payment Processing Fee Complaints	0	0
OMCOP: Old Meter Change - Out Program	6	1			
Other: (uncommon non-maintenance calls)	11	7			
On-Call After Hrs. CS Response	28	26			
# Posting Notice & 24 Hr. Door Hangers Hung	134	0			
# Locked Off For Non-Pay (Disconnect)	19	0			
Removed Meter	1	0			
New Meter	3	4			
Unread Meters	4	3			
Total Field Investigations	498	362	Total Telephone Calls	733	718

Uncollectible Accounts:

			Credit Card Payments	AUG 2022	AUG 2021
Budget YTD	\$ 3,333.00	\$ 3,333.00	REGULAR	1,175	\$251,844.60
Actual YTD	\$ 4,566.00	\$ 1,199.00		1,043	\$202,962.82

(WRP) Tertiary Treatment Plant

August-22

Total Recycled Water Production

Flow, Units	G.C. Irrigation	Main Distribution	WRP Irrigation/Utility	Total, Production
Avg. Daily Q, MGD	0.489	1.420	0.062	1.971
Total Q, MG	15.165	44.031	1.923	61.119
Total Acre Feet	46.540	135.126	5.901	187.567

* Note: Only a total of 558,490 gallons of potable make-up water was used to supplement the demand for recycled water in the month of August.

MICROBIOLOGICAL MONITORING

August 2022

PRESSURE ZONE LEGEND

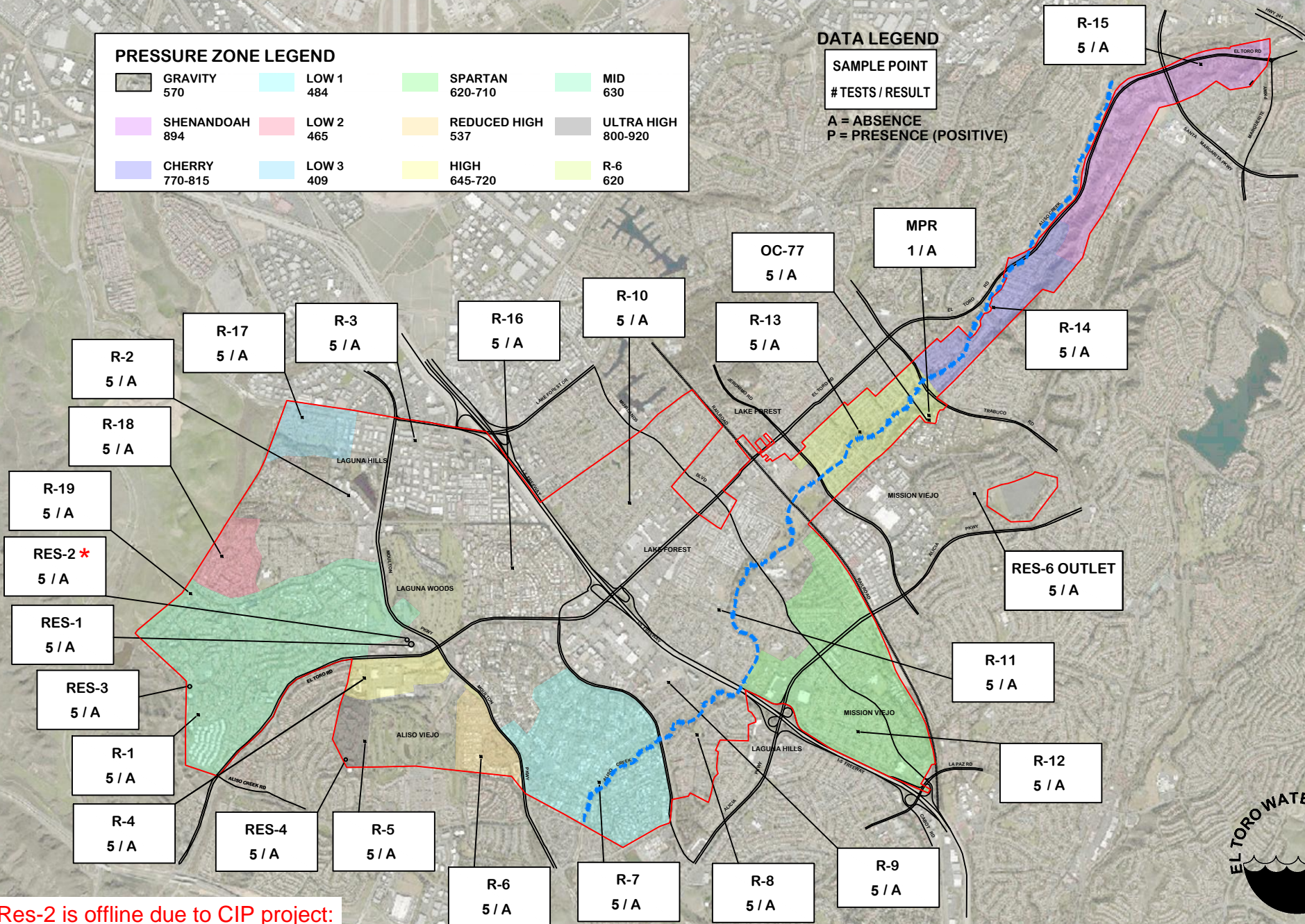
DATA LEGEND

SAMPLE POINT

TESTS / RESULT

A = ABSENCE

P = PRESENCE (POSITIVE)



* Res-2 is offline due to CIP project:
"R-2 Reservoir Interior Recoating"



CHLORINE RESIDUAL MONITORING

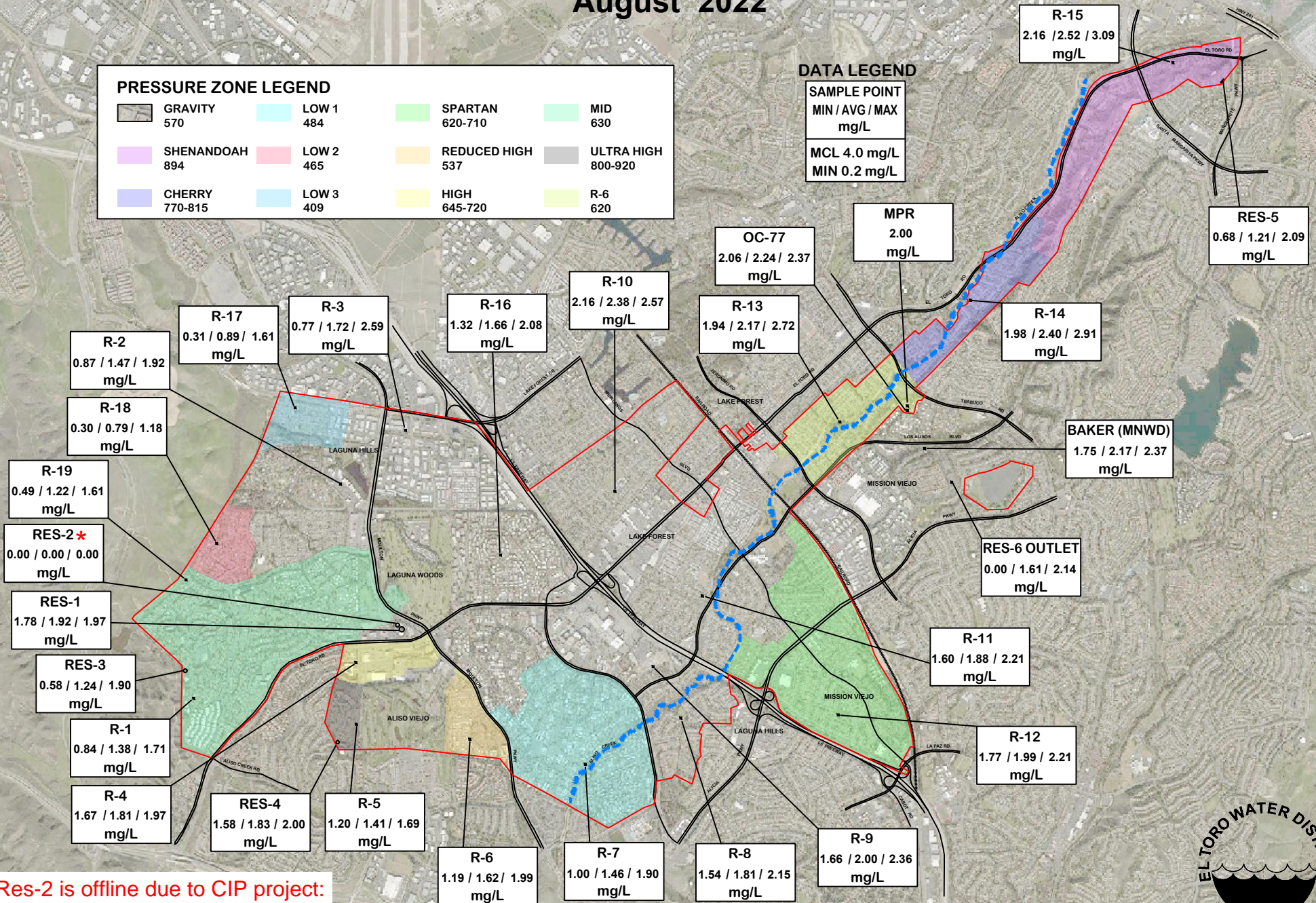
August 2022

PRESSURE ZONE LEGEND

	GRAVITY 570		LOW 1 484		SPARTAN 620-710		MID 630
	SHENANDOAH 894		LOW 2 465		REDUCED HIGH 537		ULTRA HIGH 800-920
	CHERRY 770-815		LOW 3 409		HIGH 645-720		R-6 620

DATA LEGEND

SAMPLE POINT
MIN / AVG / MAX
mg/L
MCL 4.0 mg/L
MIN 0.2 mg/L















* Res-2 is offline due to CIP project:
"R-2 Reservoir Interior Recoating"



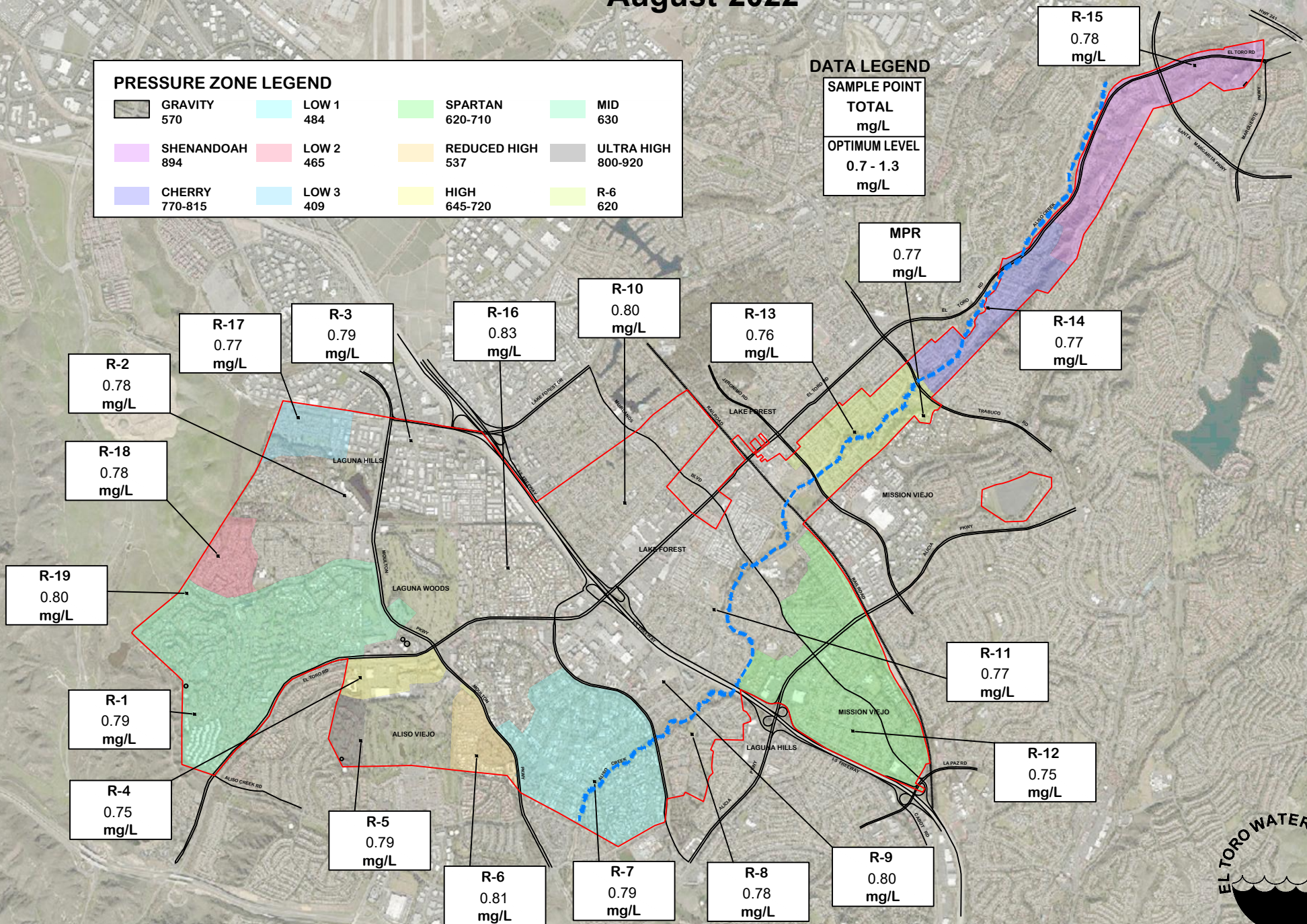
FLUORIDE MONITORING

August 2022

PRESSURE ZONE LEGEND			
 GRAVITY 570	 LOW 1 484	 SPARTAN 620-710	 MID 630
 SHENANDOAH 894	 LOW 2 465	 REDUCED HIGH 537	 ULTRA HIGH 800-920
 CHERRY 770-815	 LOW 3 409	 HIGH 645-720	 R-6 620

DATA LEGEND

SAMPLE POINT
TOTAL mg/L
OPTIMUM LEVEL 0.7 - 1.3 mg/L



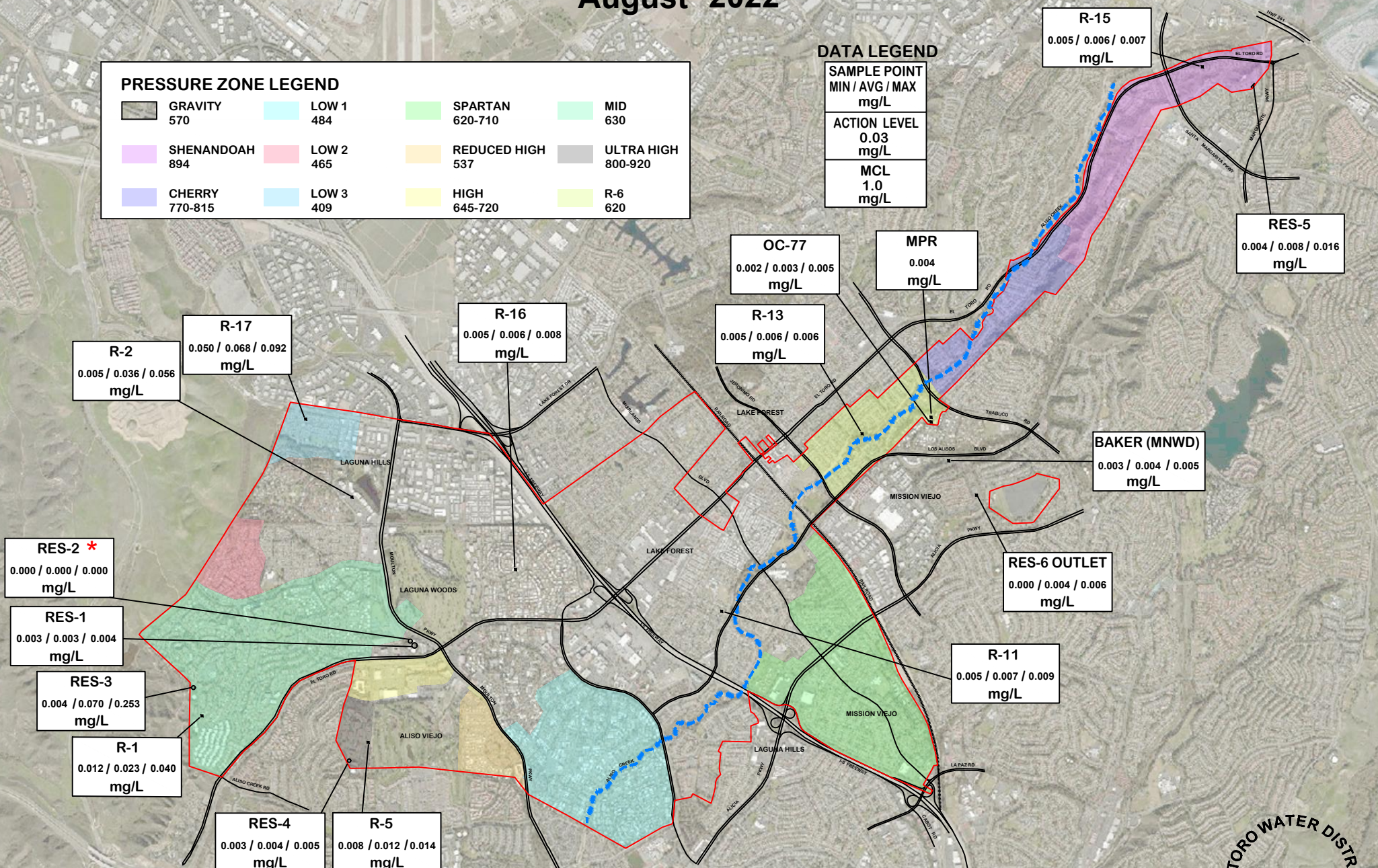
NITRITE MONITORING

August 2022

PRESSURE ZONE LEGEND			

DATA LEGEND

SAMPLE POINT	MIN / AVG / MAX	mg/L
ACTION LEVEL	0.03	mg/L
MCL	1.0	mg/L



* Res-2 is offline due to CIP project: "R-2 Reservoir Interior Recoating"

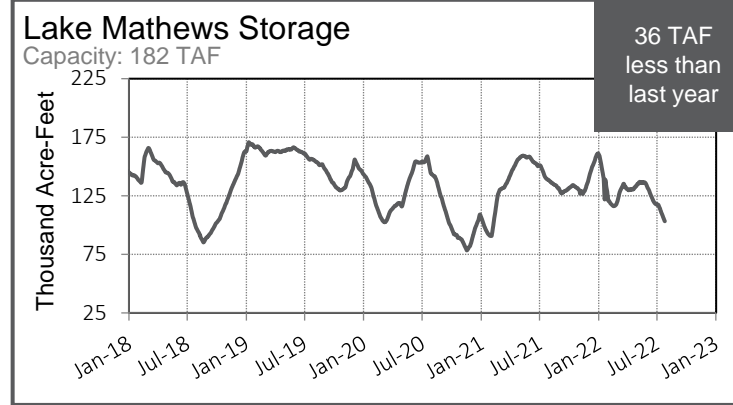
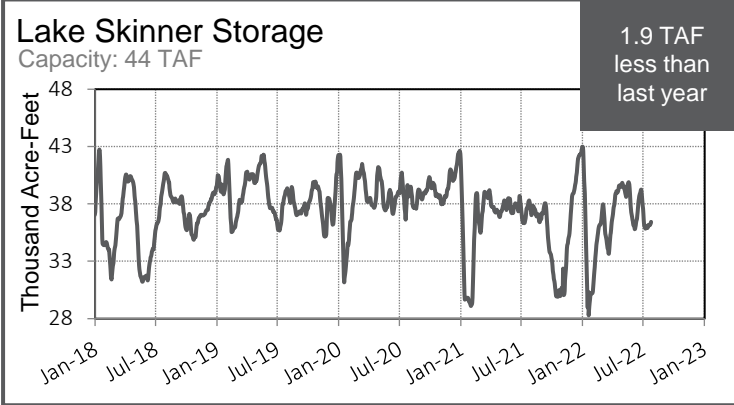
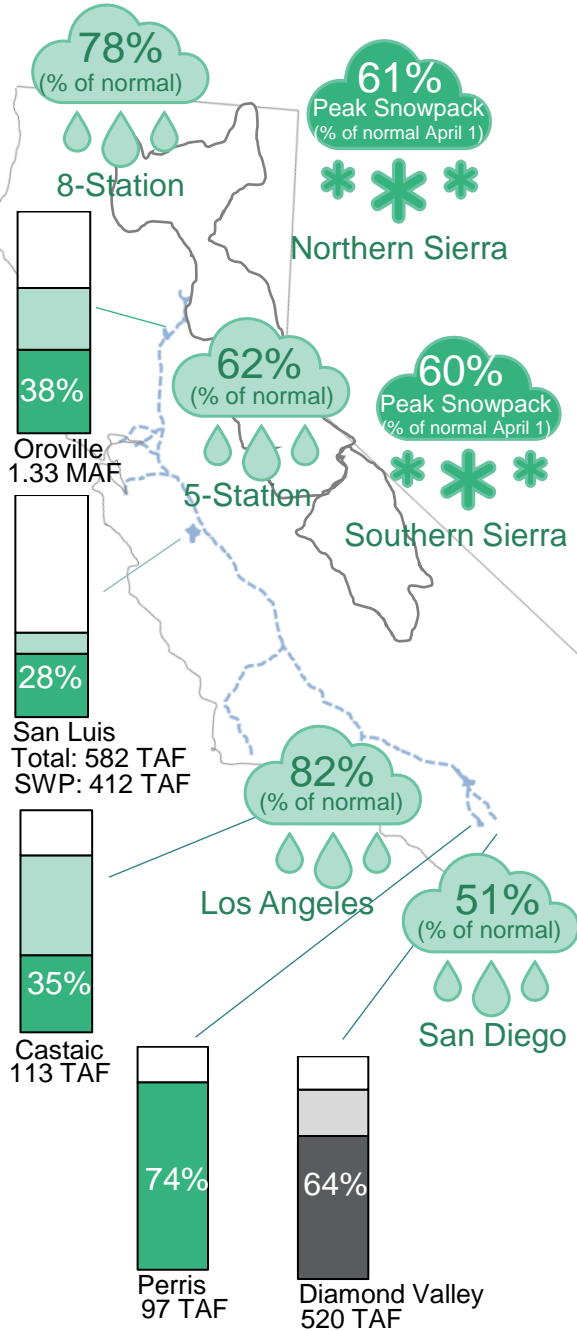




SWP Table A – 5% - 95,575 AF

Projected CRA Diversions – 1,117,000 AF

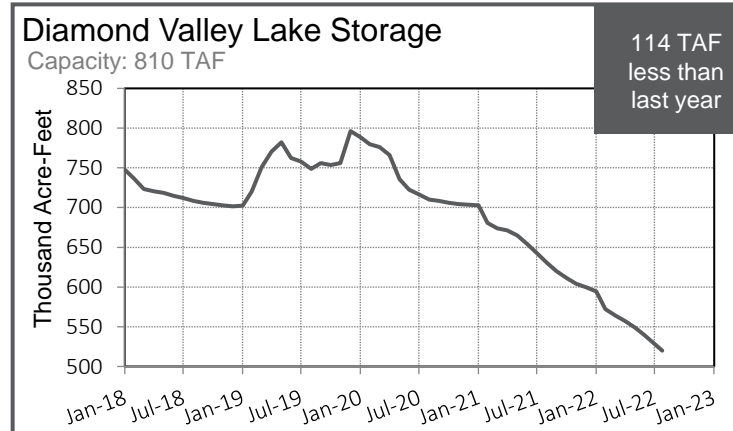
Metropolitan Resources



MWD WSDM Storage

Calendar Year 2022

	Take Capacity
Colorado River Aqueduct Delivery System	255 TAF
State Water Project System	188 TAF
In-Region Supplies and WSDM Actions	426 TAF
Other Programs	11 TAF
Total WSDM Storage Take Capacity	880 TAF



Highlights

- For more information on the current drought, including the Emergency Conservation Program tracking:
 - <https://www.mwdh2o.com/how-we-plan/drought/>
- For more information on the upcoming emergency repair to the Upper Feeder pipeline:
 - <https://www.mwdh2o.com/projects-in-your-community/>



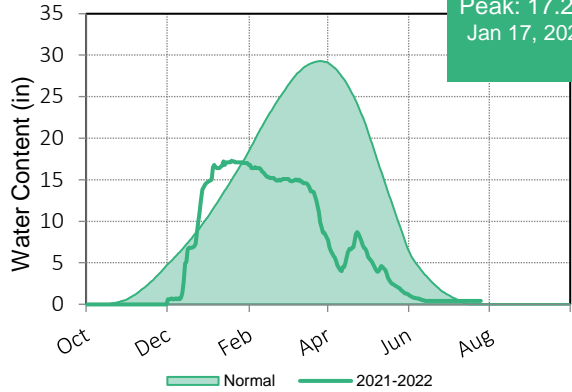
This report is produced by the Water Resource Management Group and contains information from various federal, state, and local agencies. The Metropolitan Water District of Southern California cannot guarantee the accuracy or completeness of this information. Readers should refer to the relevant state, federal, and local agencies for additional or for the most up to date water supply information. Reservoirs, lakes, aqueducts, maps, watersheds, and all other visual representations on this report are not drawn to scale. Questions? Email mferreira@mwdh2o.com

State Water Project Resources

As of: 08/24/2022

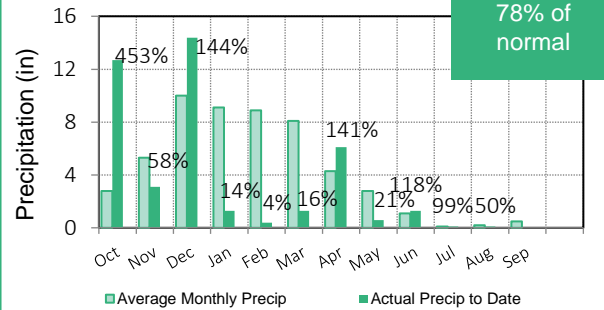
Northern Sierra Snowpack

Peak: 17.2 in
Jan 17, 2022



8 Station Index Precipitation

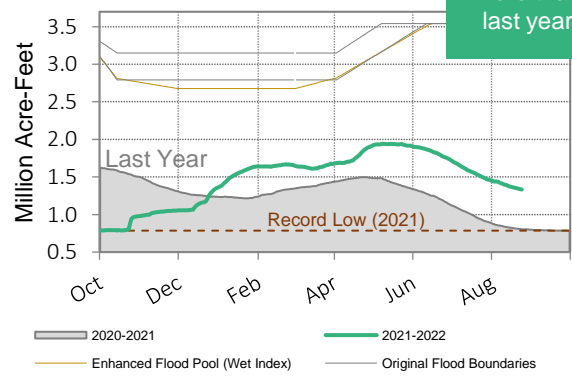
41.4 in
78% of normal



Oroville Reservoir Storage

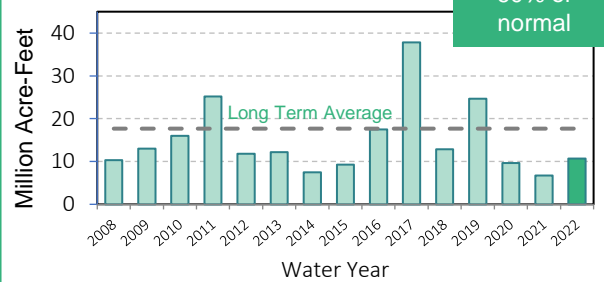
Capacity: 3.54 MAF

529 TAF
more than last year



Sacramento River Runoff

Forecast:
60% of normal



Other SWP Supplies

Calendar Year 2022

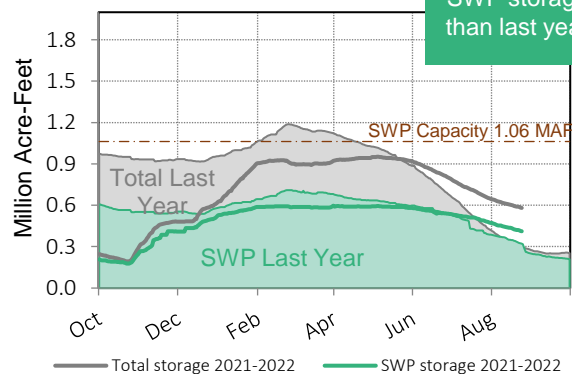
Carryover 38,000 AF (Est.)

Human Health and Safety 133,000 AF

San Luis Reservoir Storage

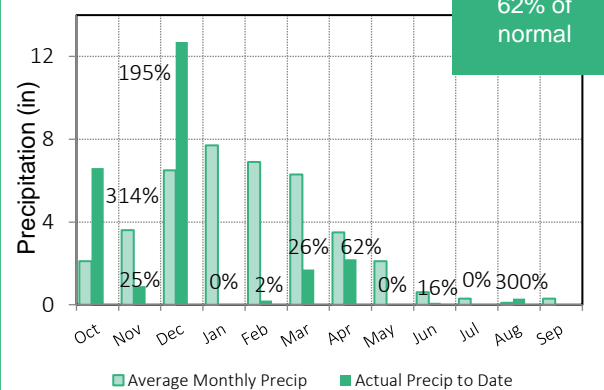
Capacity: 2.04 MAF

90 TAF more
SWP storage
than last year



5 Station Index Precipitation

24.7 in
62% of normal

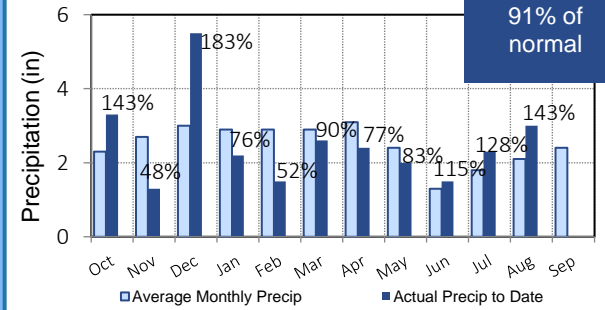


Colorado River Resources

As of: 08/24/2022

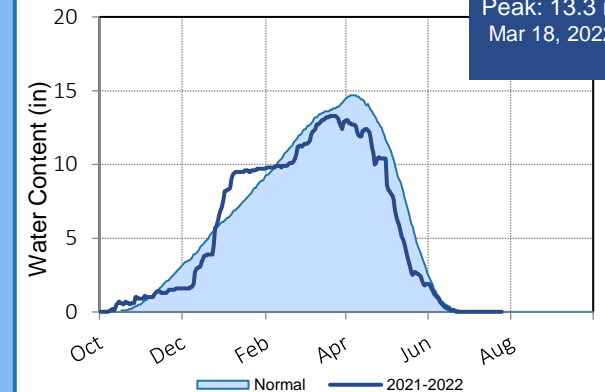
Upper Colorado Precipitation

27.6 in
91% of normal



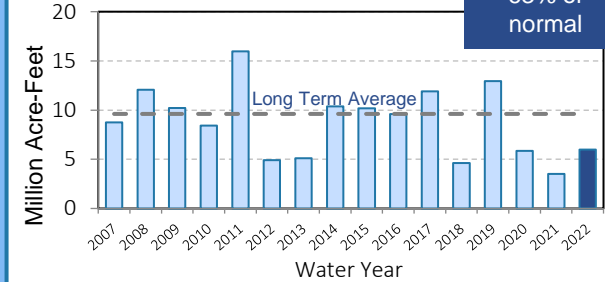
Upper Colorado Snowpack

Peak: 13.3 in
Mar 18, 2022



Powell Unregulated Inflow

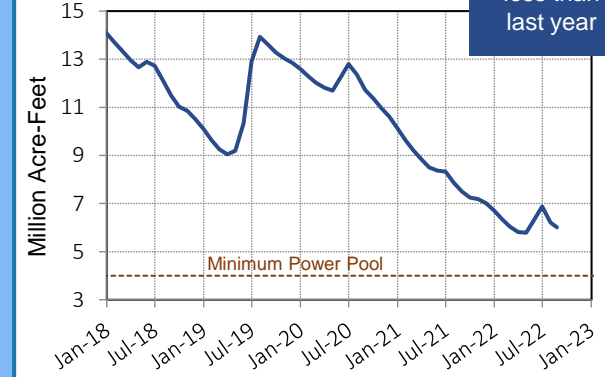
Forecast:
63% of normal



Lake Powell Storage

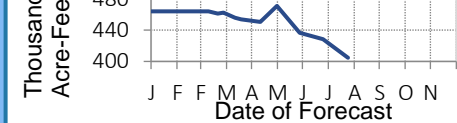
Capacity: 24.3 MAF

1.61 MAF
less than last year



PVID/Yuma Agricultural Use

Annual Forecasted for 2022



Current
Annual
Forecast:
405 TAF

Projected Lake Mead ICS

Calendar Year 2022

Put (+) / Take (-)
-197,000 AF

Lake Mead Surplus/Shortage Outlook

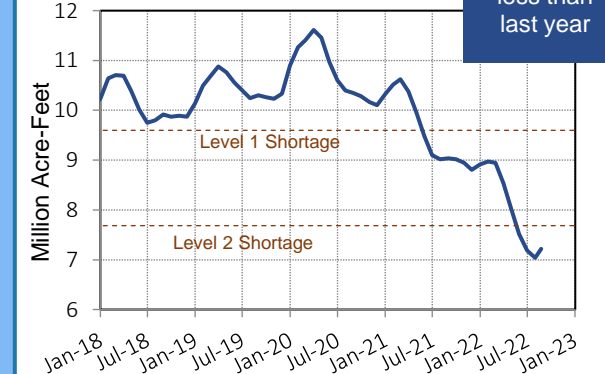
New projection will be available on August 31, 2022

<https://www.usbr.gov/lc/region/g4000/riverops/crss-5year-projections.html>

Lake Mead Storage

Capacity: 26.1 MAF

1.83 MAF
less than last year



Weekly Water Quality System Status

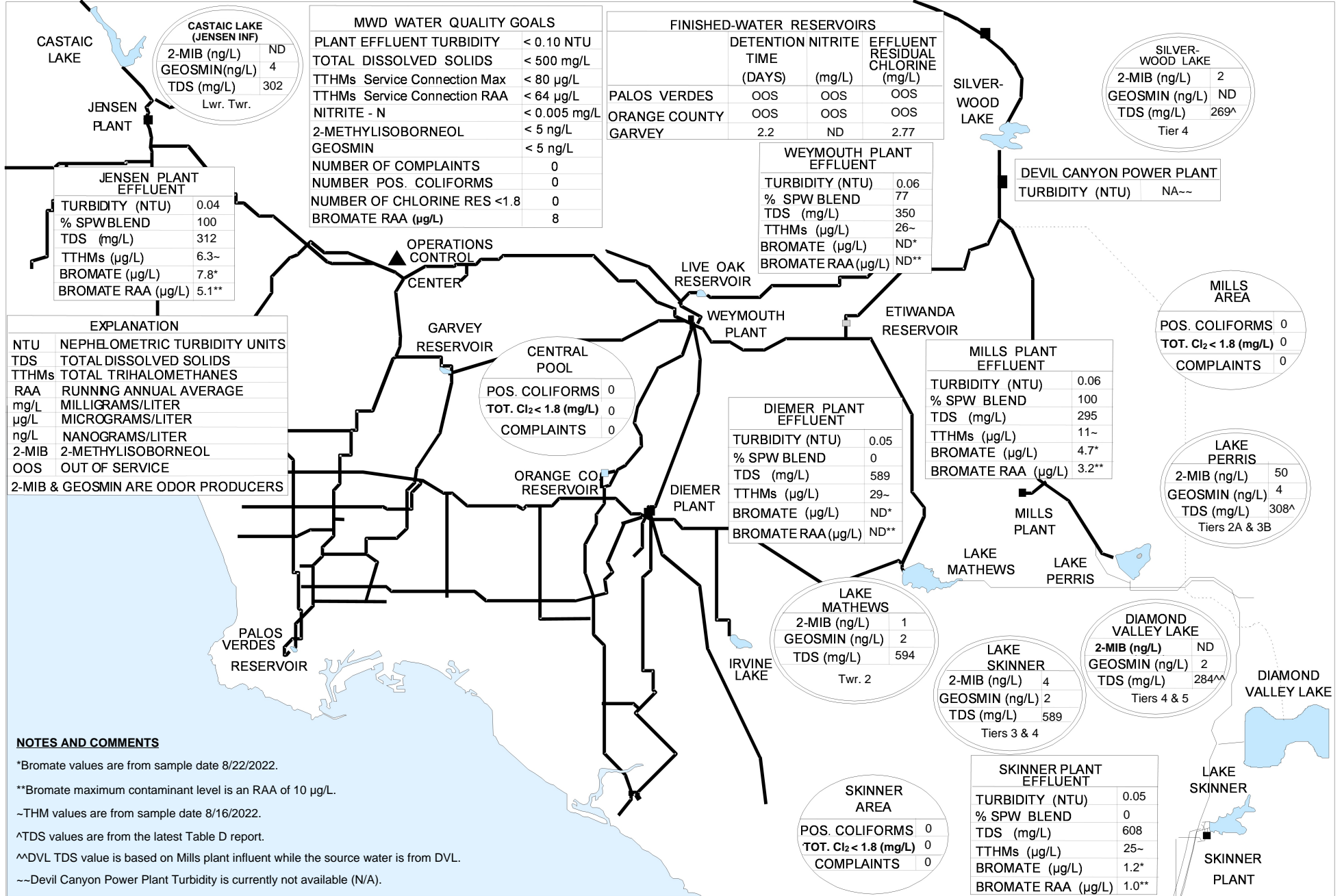
Wednesday, September 14, 2022

Generated On:9/14/2022 3:03:00 PM



THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

No violations of State or Federal regulations were recorded during the current period.



MWD water quality goals meet or exceed all State and Federal regulations.

WATER QUALITY INFORMATION LINE: (800) 354-4420
VISIT MWD ON THE WEB AT <http://www.mwdh2o.com>

**EL TORO WATER DISTRICT
MONTHLY POTABLE WATER QUALITY REPORT**

The quality and safety of drinking water in the U.S. is regulated by the federal government through the U.S. Environmental Protection Agency (USEPA). In California, those standards are enforced by the California Department of Public Health (CDPH). Water Quality parameters must meet both primary and secondary water quality standards as established by the CDPH.

PRIMARY STANDARDS - are intended to protect public health against substances in the water that may be harmful to humans if consumed for long periods of time.

SECONDARY STANDARDS - are to ensure esthetic qualities of water such as taste, odor or clarity. Rather than its healthfulness, these standards govern substances that may influence consumer acceptance of water.

Given that 100% of ETWD's potable water resource is fully treated and delivered by Metropolitan Water District of Southern California (MWDSC) through an enclosed and protected conveyance system, the majority of the State and federal primary and secondary source water quality monitoring requirements are performed by MWDSC. The District's physical responsibility for water quality monitoring is associated with the distribution system. To monitor the distribution system water quality the District utilizes both in house and outside lab services. Routine distribution analysis conforming to CDPH requirements is conducted for the following constituents:

- 1) **Microbiological** - The number of microbiological samples and the frequency of analysis during the month is based on the population and/or service connections served. Utilizing a population of 50,000, the CDPH requires that 20 "representative" samples be collected and analyzed for coliform bacteria. The objective is to maintain water quality that is absent of coliform bacteria which is a general indicator for the existence of fecal coliform.
- 2) **Chlorine Residual** - The chlorine residual monitoring is performed in conjunction with the microbiological monitoring. The CDPH requirement for treated surface water mandates that the distribution system maintain a "detectable" residual. The number of and frequency of sampling is determined utilizing the same formula applied to microbiological requirements. At a minimum, we are obligated to collect and analyze for chlorine residual each time we collect the representative microbiological samples. Per EPA Disinfectants & Disinfection Byproduct Rule (D/DBP), which was effective January 2002, requires quarterly reporting for all sampling.
- 3) **TTHM & HAA5 Stage 2 DBPR Compliance** The U.S. Environmental Protection Agency (EPA) published the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) on January 4, 2006. The Stage 2 DBPR builds on existing regulations by requiring water systems to meet disinfection byproduct (DBP)* maximum contaminant levels (MCLs) at each monitoring site in the distribution system to better protect public health. The Stage 2 DBP rule is intended to reduce potential cancer and reproductive and developmental health risks from disinfection byproducts (DBPs) in drinking water, which form when disinfectants are used to control microbial pathogens. This final rule strengthens public health protection for customers of systems that deliver disinfected water by requiring such systems to meet maximum contaminant levels as an average at each compliance monitoring location (instead of as a system-wide average as in previous rules) for two groups of DBPs, trihalomethanes (TTHM) and five haloacetic acids (HAA5). The rule targets systems with the greatest risk and builds incrementally on existing rules. This regulation will reduce DBP exposure and related potential health risks and provide more equitable public health protection. The Stage 2 DBPR is being released simultaneously with the Long Term 2 Enhanced Surface Water Treatment Rule to address concerns about risk tradeoffs between pathogens and DBPs.

The mandatory requirement under the Stage 2 DBP rule, known as an Initial Distribution System Evaluation (IDSE) was completed by ETWD in 2008 and a Stage 2 monitoring plan has been approved by CDPH. Full Stage 2 compliance begins in 2012. The IDSE identified the locations with high disinfection byproduct concentrations. These locations will then be used by the District as the 8 sampling sites for Stage 2 DBP rule compliance monitoring. Compliance with the maximum contaminant levels for two groups of disinfection byproducts (TTHM and HAA5) will be calculated for each monitoring location in the distribution system. This approach, referred to as the locational running annual average (LRAA), differs from current requirements, which determine compliance by calculating the running annual average of samples from all monitoring locations across the system. The Stage 2 DBP rule also requires each system to determine if they have exceeded an operational evaluation level, which is identified using their compliance monitoring results. The operational evaluation level provides an early warning of possible future MCL violations, which allows the system to take proactive steps to remain in compliance. A system that exceeds an operational evaluation level is required to review their operational practices and submit a report to the state that identifies actions that may be taken to mitigate future high DBP levels, particularly those that may jeopardize their compliance with the DBP MCLs.

- 4) **Physical Quality** - Physical Quality analysis is associated with the esthetic qualities of the finished water. Primarily, we are performing analysis for taste, odor and Turbidity (Clarity). In accordance with CDPH requirements, the District collects a minimum of 15 samples per month.
- 5) **Nitrites** - Although the chloramine disinfection process has been effective in controlling TTHM levels, it requires increased monitoring and adjustment as a result of its susceptibility to the Nitrification process. Nitrification is a biological process caused by naturally occurring ammonia oxidizing bacteria. Nitrification in chloraminated drinking water can have various adverse impacts on water quality, the most serious of which is the loss of total chlorine residual which is required by the CDPH and the subsequent potential to increase bacteria-logical activity within the finished or treated water system. MWD has developed an effective nitrification monitoring and prevention program which ETWD staff have adopted and incorporated into the District's daily water quality monitoring and action plan. The number and frequency of this type of monitoring is not currently regulated by CDPH. Staff monitor the level of nitrites in source water, reservoirs and the distribution system daily and weekly in conjunction with the microbiological and chlorine sampling program. A nitrite level of between 0.015 and 0.030 would signal an alert. > 0.030 would require action such as the addition of chlorine to produce a chloramine residual.

EL TORO WATER DISTRICT					
MONTHLY POTABLE WATER QUALITY ANALYSIS					
MONTH:		August		YEAR : 2022	
CONSTITUENT ANALYSIS	MCL	INSIDE LAB		OUTSIDE LAB	
		NO.	RESULTS	NO.	RESULTS
1 Microbiological	Pres/Absence	168	Absence		Average
2 Chlorine (ppm)	Detectable Resid	182	Average = 1.72 ppm		
3 TTHM (ppb) (Stage 2)	80 ppb				ppm
3 HAA5 (ppb) (Stage 2)	60 ppb				ppm
4 Physical Quality:			RANGE		
Turbidity (ppm)	5 NTU	20	0.01 to 0.07 Res.		
Odor	3 Units	20	ND<1		
Color	15 Units	20	ND<5		
Temperature	No standard	20	72.0°F to 86.0°F		
5 Nitrite (Alert/Action level)ppm	0.015 to 0.030 ppm	180	0.001 to 0.253 Res.		

To ensure water quality compliance, the District annually performs approximately 8,750 water quality analytical evaluations of the samples collected from the distribution system.

Abbreviations:

RES	Indicates that the nitrification was isolated to a reservoir and treated
ND	None detected
Pres/Absence	Presence (P) or Absence (A) related to a positive or negative bacteriological result
MCL	Maximum Contaminant Level
NTU	Nephelometric Turbidity Units, a measure of the suspended material in the water
ppm	Parts per million
ppb	Parts per billion
Total Coliform	No more than 5% of the monthly samples may be total coliform-positive
N/A	Not available

**EL TORO WATER DISTRICT
COLLECTION SYSTEM ACTIVITY REPORT**



MONTH ENDING: AUGUST 2022

ODOR COMPLAINTS	MONTHLY	ANNUAL	LOCATION, ORIGIN, ACTION:		
Outside Laguna Woods Village	2	15	21861 RAINTREE LN LAKE FOREST, 22122 BROKEN BOW DR LAKE FOREST		
Laguna Woods Village	0	2			
New World	0	0			
Private System	0	0			
Other: WRP	0	0			
TOTAL	2	17			
ROOT FOAMING	FOOTAGE	CHEMICAL USED	COMMENTS		
Outside Laguna Woods Village	0	0			
Laguna Woods Village	0	0			
New World	0	0			
Other	0	0			
TOTAL	0	0			
ROOT CUTTING	FOOTAGE	COMMENTS:			
Outside Laguna Woods Village	0				
Laguna Woods Village	0				
New World	0				
TOTAL	0				
HYDRO-CLEANING ¹	MONTHLY FOOTAGE	TOTAL CYCLE FOOTAGE	TOTAL CYCLE COMPLETE	PERCENT OF CYCLE COMPLETE	PERCENT OF WEEKS INTO THE 2 YEAR CYCLE
Outside Laguna Woods Village	64,654	344,431	86,674	25%	9%
Laguna Woods Village	0	263,336	0	0%	9%
New World	0	7,728	0	0%	9%
Private System	0		0		
TOTAL	64,654	615,495	86,674	14%	9%
Hot Spots	19,206		19,206		
COMBINED TOTALS:	83,860		105,880		
TV INSPECTIONS ²	MONTHLY FOOTAGE	TOTAL CYCLE	TOTAL CYCLE COMPLETE	PERCENT CYCLE COMPLETE	PERCENT OF WEEKS INTO THE 5 YEAR CYCLE
Outside Laguna Woods Village	14,691	344,431	178,044	52%	30%
Laguna Woods Village	0	263,336	3,321	1%	30%
New World	0	7,728	17,270	223%	30%
Private System	0		0		
Other	0		0		
TOTAL	14,691	615,495	198,635	32%	30%
Wet Well Cleaning	3	MATHIS, LA PAZ, DELTA			
Flow Meter/Sampling	0				
Water Tank Fills	82	82,000			
<p align="center">1. The Hydrocleaning Objective is a 2 Year Cycle to Clean the Entire System. The current cycle began on 07/01/2022</p>					
<p align="center">2 The TV Inspection Objective is a 5 Year Cycle to Inspect the Entire System. The current cycle began on 01/25/2021</p>					



Memorandum

DATE: September 14, 2022
TO: Member Agencies – MWD OC Division Five
FROM: Sat Tamaribuchi, Director – Division Five
SUBJECT: Monthly Water Usage Data, Tier 2 Projection & Water Supply Information

The attached figures show the recent trend of water consumption in Orange County (OC), an estimate of Imported Water Sales for MWD OC, and selected water supply information.

- OC Water Usage, Monthly by Supply **OCWD Groundwater was the main supply in July.**
- Estimated OC Water Usage, Monthly, Comparison to Previous Years Water usage in July **2022 was slightly below average compared to the last 5 years.** We are projecting a decrease in overall water usage compared to FY 2021-22. On July 8th 2021, state officials have ask California residents to voluntary reduce their water usage by 15% compared to 2020 levels.
- Historical OC Water Consumption Orange County M & I water consumption is **projected to be 538,000 AF in FY 2022-23** (this includes ~11 TAF of agricultural usage and non-retail water agency usage). This is about **8,000 AF less than FY 2021-22** and is about **22,000 AF less than FY 2020-21**. Water usage per person is projected to be slightly lower in **FY 2021-22 for Orange County at 152 gallons per day** (This includes recycled water usage). Although OC population has increased 20% over the past two decades, water usage has not increased, on average. A long-term decrease in per-capita water usage is attributed mostly to Water Use Efficiency (water conservation) efforts. **O.C. Water Usage has declined significantly since the FY 2013-14. Since FY 2013-14 average O.C. Annual Water usage is 535,000 AF, a decline of 86,500 AF since FY 2013-14.**

Water Supply Information Includes data on Rainfall in OC; the OCWD Basin overdraft; Northern California and Colorado River Basin hydrologic data; the State Water Project (SWP) Allocation, and regional storage volumes. The data have implications for the magnitude of supplies from the three watersheds that are the principal sources of water for OC. Note that a hydrologic year is Oct. 1st through Sept. 30th.

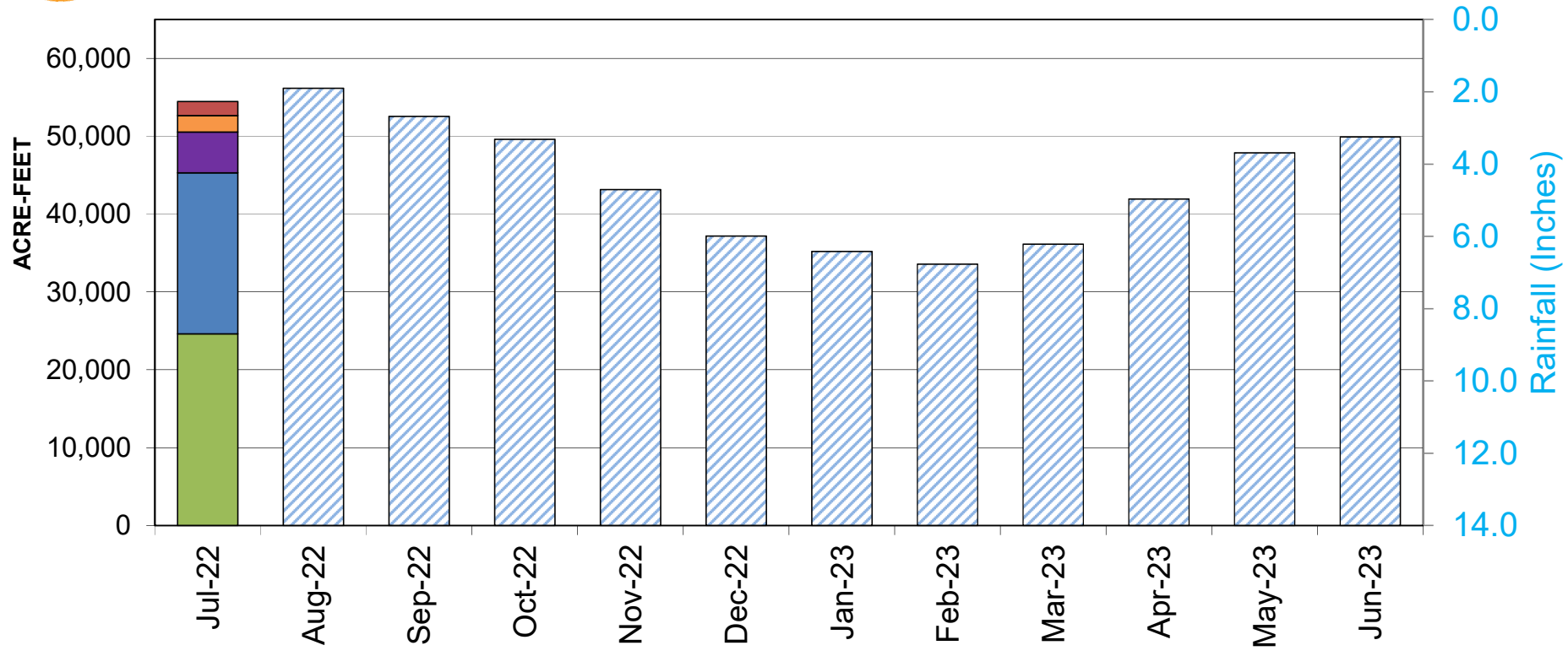
- Orange County's accumulated precipitation through **early September was below average** for this period. Water year to date rainfall in Orange County is **7.43 inches**, which is **57% of normal**.

- Northern California accumulated precipitation through **early September was 83% of normal for this period**. Water Year 2021 was 48% of normal while water year 2020 was 63% of normal. The **Northern California snowpack was 27% as April 1st, 2022. As of early September, 99.76%** of California is experiencing **moderate to severe drought conditions. 40.18%** of California is experiencing **extreme to exceptional drought conditions**. The State Water Project Contractors Table A Allocation was decreased in March to 5% for WY 2022.
- Colorado River Basin accumulated precipitation through **early September was 100% of normal** for this period. The **Upper Colorado Basin snowpack was 86% of normal** as of April 15th 2022. **Lake Mead and Lake Powell** combined have about **37.0% of their average storage volume** for this time of year and are at **26.2% of their total capacity**. For the first time on the Colorado River, Lake Mead's **levels have fallen below the "trigger" limit of 1,075 ft. at the end of a calendar year**. The US Bureau of Reclamation (USBR) has declared a shortage at Lake Mead, impacting Colorado River water deliveries to the Lower Basin states. Lake Mead as of early September was **31.00' BELOW the "trigger" limit**. The USBR has declared a **shortage on the Colorado River starting January 1st 2022. There is a 100% chance of shortage continuing in 2023, 93% in 2024, 100% in 2025 and 93% in 2026**. Lake Mead as of early September was **1.00' BELOW the State of California "trigger" limit. There is a 3% chance of shortage for California in 2023 (-180 TAF), 70% in 2024 (-272 TAF), 66% in 2025 (-290 TAF) and 56% in 2026 (-299 TAF)**.



Fig. 1 OC Water Usage, Monthly by Supply with projection to end of fiscal year

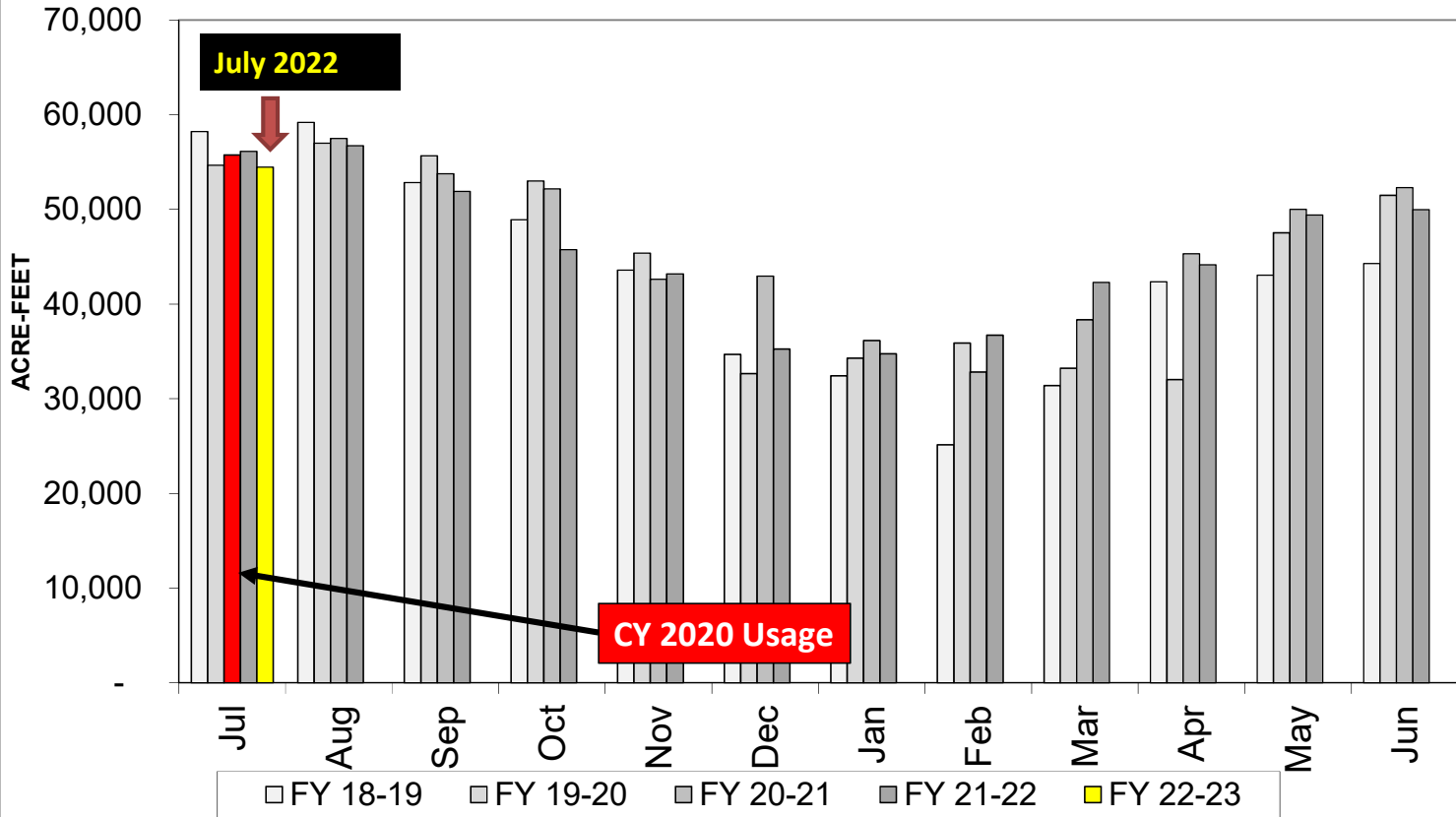
- Surface Water
- Recycled (Non Potable)
- Non-OCWD Groundwater
- Import [1]
- projected [3]
- OCWD Basin [2]
- Rainfall



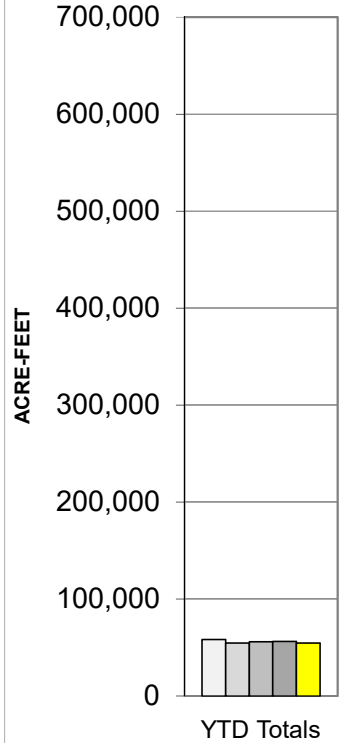
- [1] Imported water for consumptive use. Includes "In-Lieu" deliveries and CUP water extraction. Excludes "Direct Replenishment" deliveries of spreading water and deliveries into Irvine Lake.
- [2] GW for consumptive use only. Excludes In-Lieu water deliveries and CUP water extraction that are counted with Import. BPP in FY '22-23 is 77%.
- [3] MWDOC's estimate of monthly demand is based on the projected 5 Year historical retail water demand and historical monthly demand patterns.
- [4] Total water usage includes IRWD groundwater agricultural use and usage by non-retail water agencies.



Fig. 2 OC Monthly Water Usage [1]: Comparison to Last 4 Fiscal Years

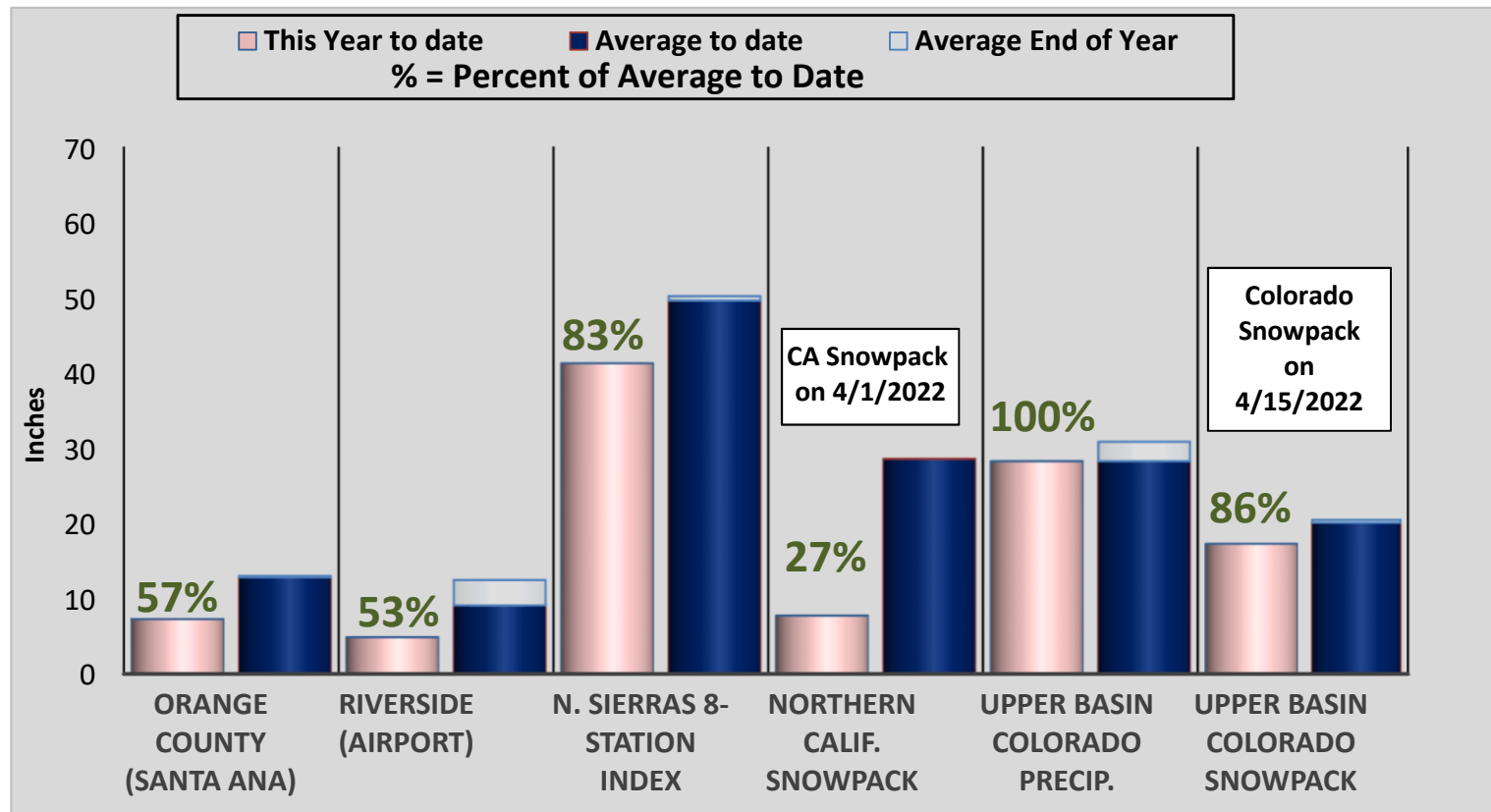


Partial Year Subtotals



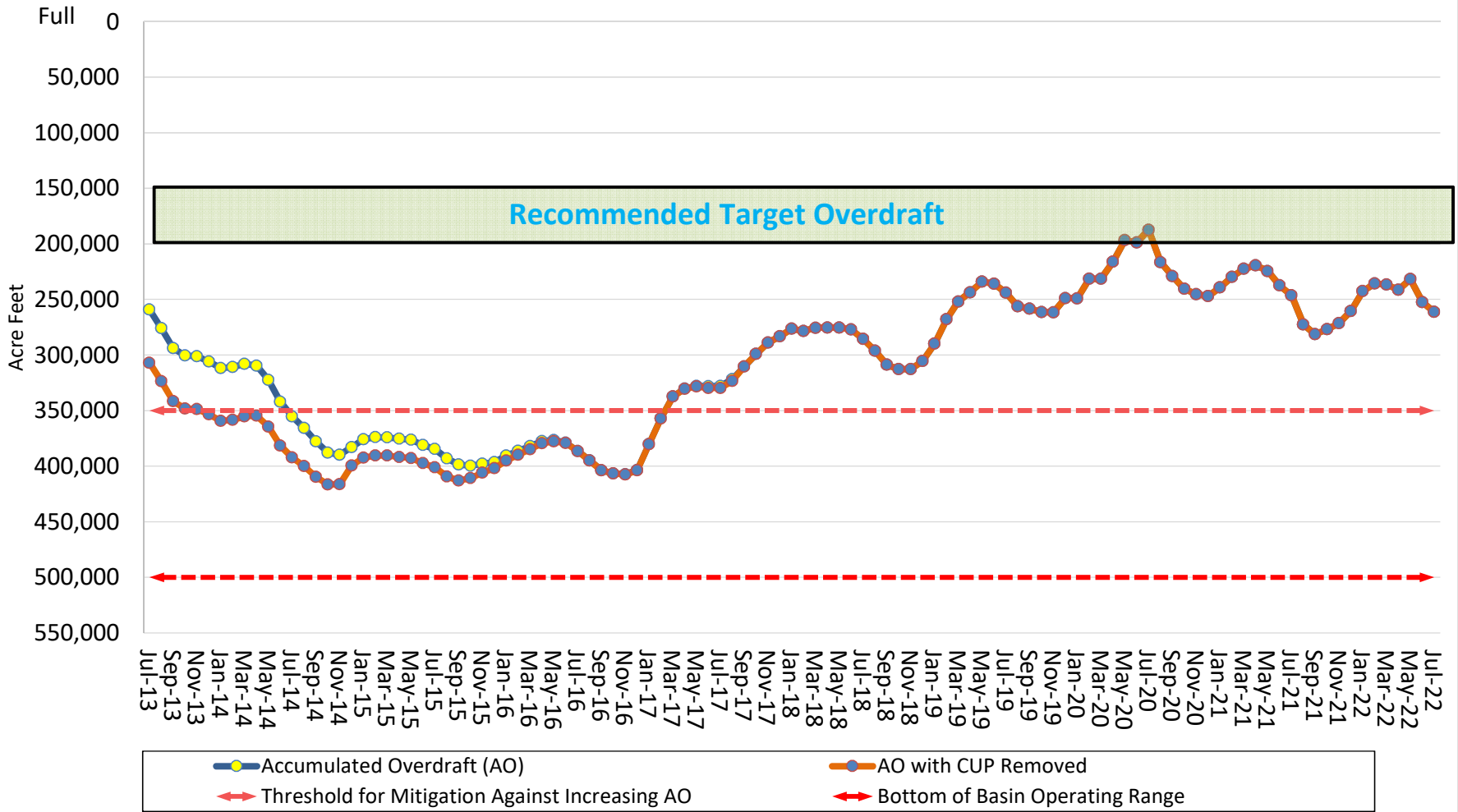
[1] Sum of Imported water for consumptive use (includes "In-Lieu" deliveries; excludes "Direct Replenishment" and "Barrier Replenishment") and Local water for consumptive use (includes recycled and non-potable water and excludes GWRS production) Recent months numbers include some estimation.

Accumulated Precipitation for the Oct.-Sep. water year, early September 2022



* The date of maximum snowpack accumulation (April 1st in Northern Calif. , April 15th in the Upper Colorado Basin) is used for year to year comparison.

Accumulated Overdraft of the OCWD Groundwater Basin as of July 2022

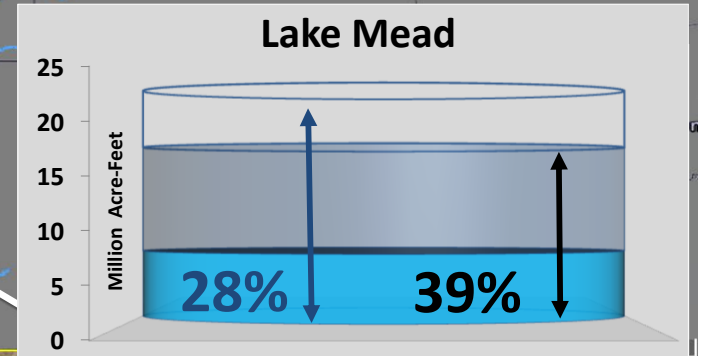
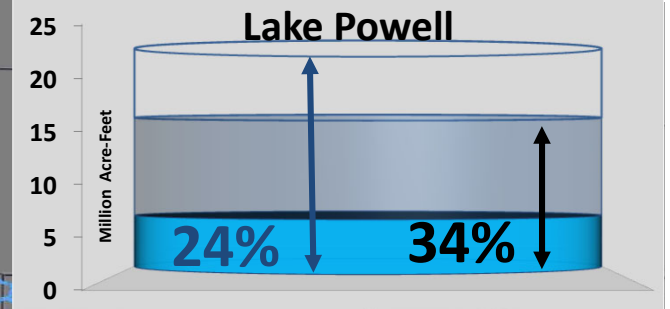
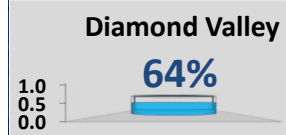
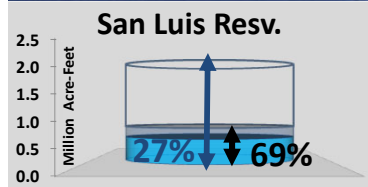
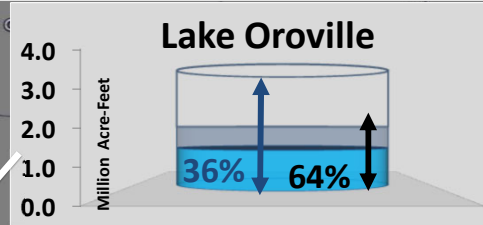
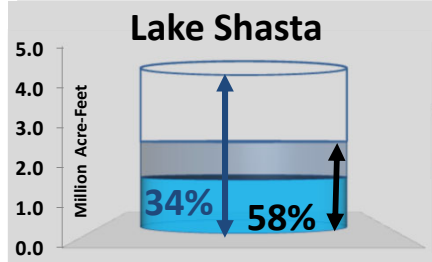


	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
AO (AF)	246,350	272,443	281,354	276,909	271,455	260,387	242,511	235,744	236,708	241,450	231,699	252,348
AO w/CUP removed (AF)	246,350	272,442	281,354	276,909	271,455	260,387	242,510	235,744	236,708	241,450	231,699	252,348
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
AO (AF)	261,145											
AO w/CUP removed (AF)	261,145											

* Source ~ OCWD Monthly Board of Directors Packet, Water Resources Summary



State Water Project, Colorado River, and MWD Reservoir Storage
as of September 7, 2022



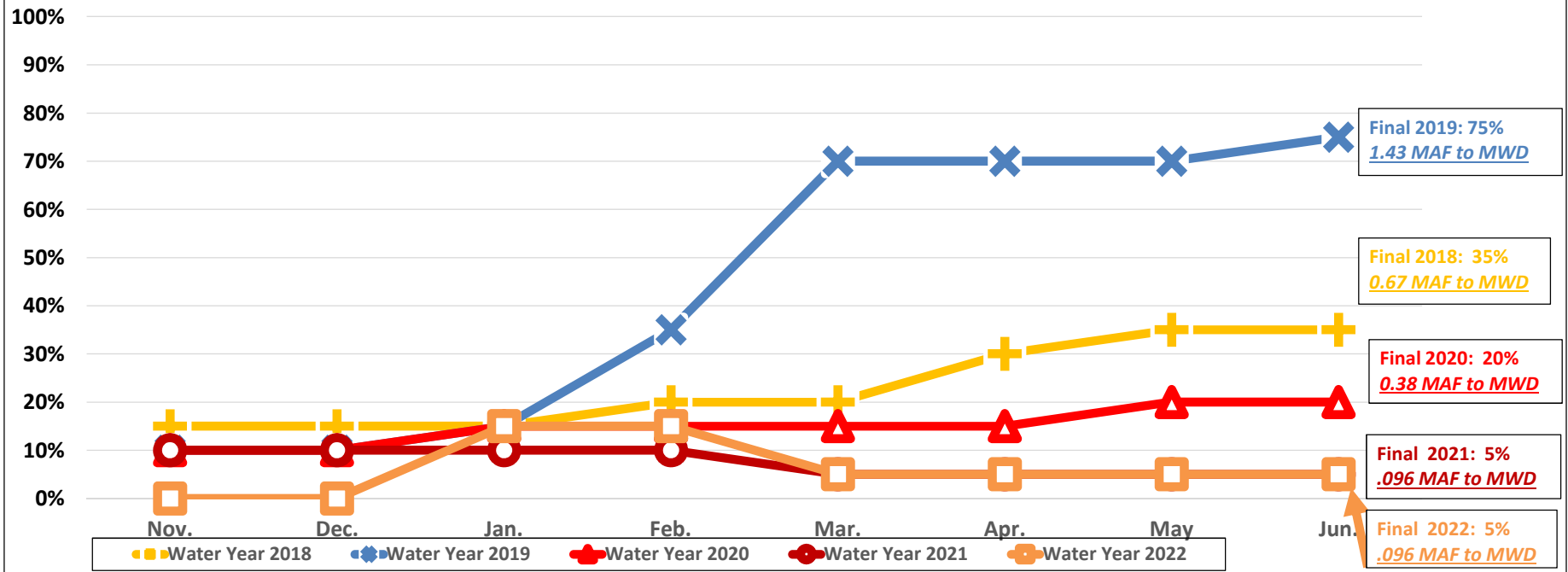
Reservoir Storage (Blue bar)
Historical Reservoir Storage (Grey bar)

SWP Take Capacity = 0.188 MAF
CRA Take Capacity = 0.255 MAF
In Region Take Capacity = 0.437 MAF

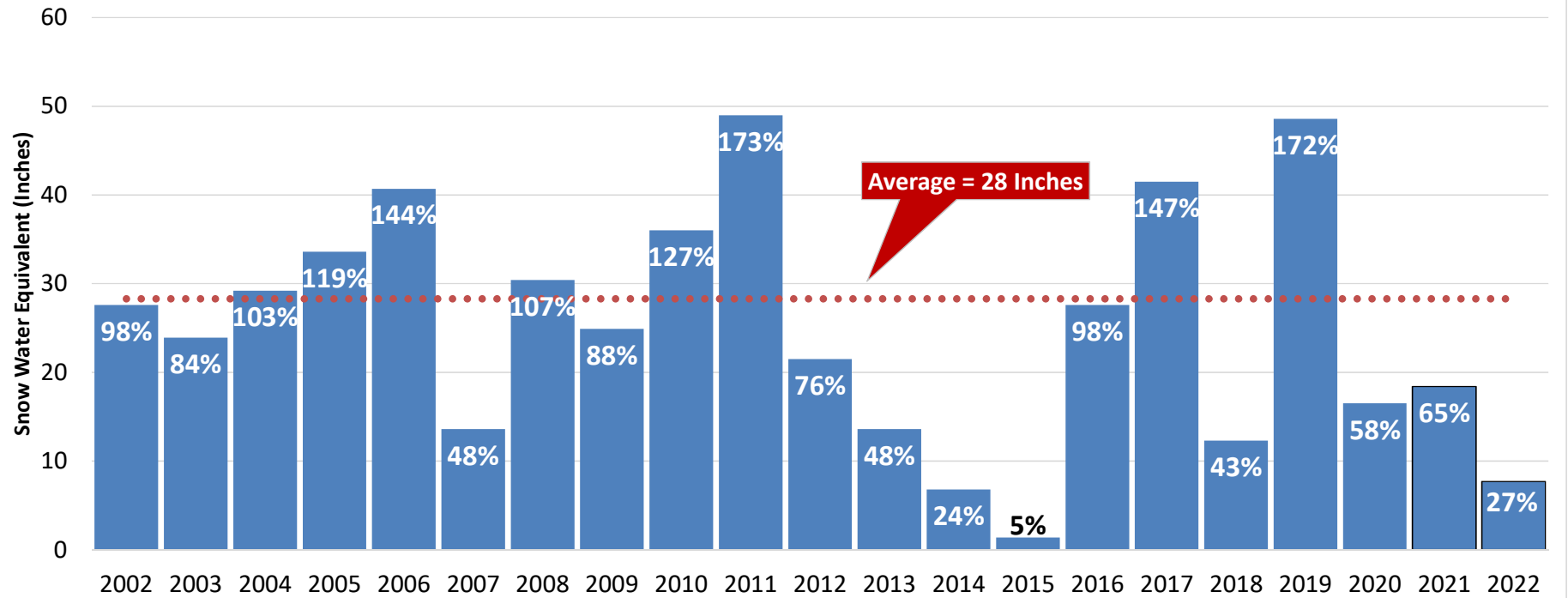


SWP TABLE A ALLOCATION PERCENTAGE

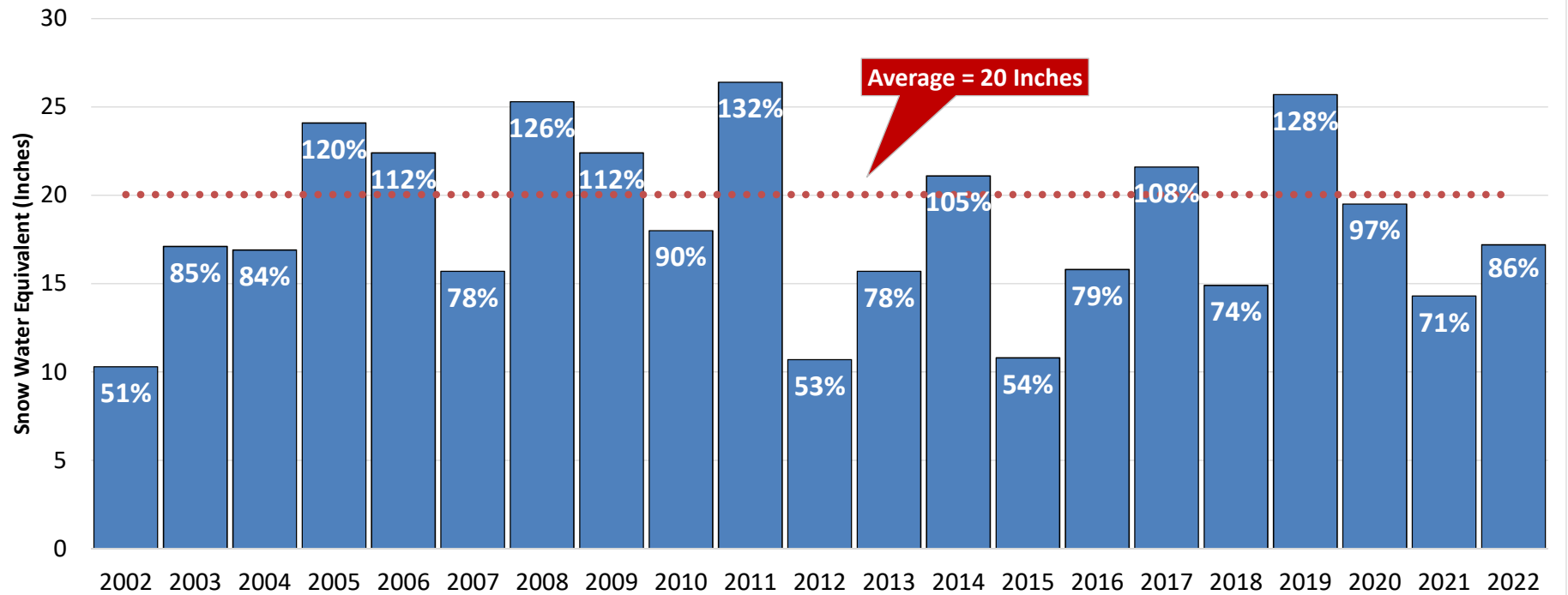
FOR STATE WATER PROJECT CONTRACTORS



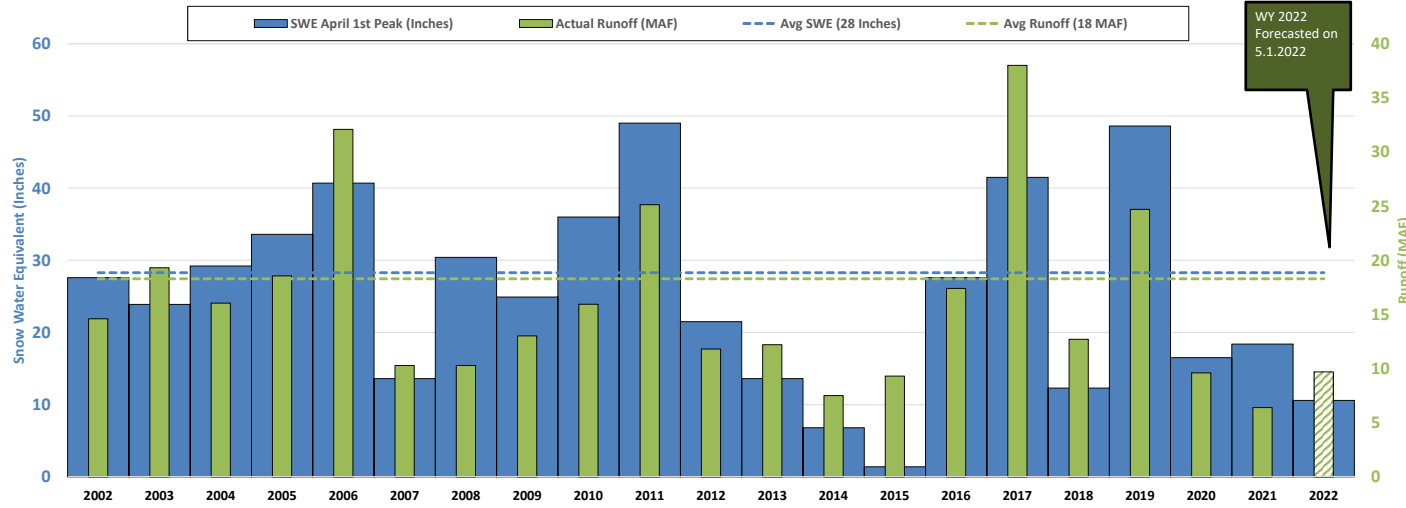
Historical Northern California April 1st Peak Snow Water Equivalent



Historical Colorado Basin April 15th Peak Snow Water Equivalent



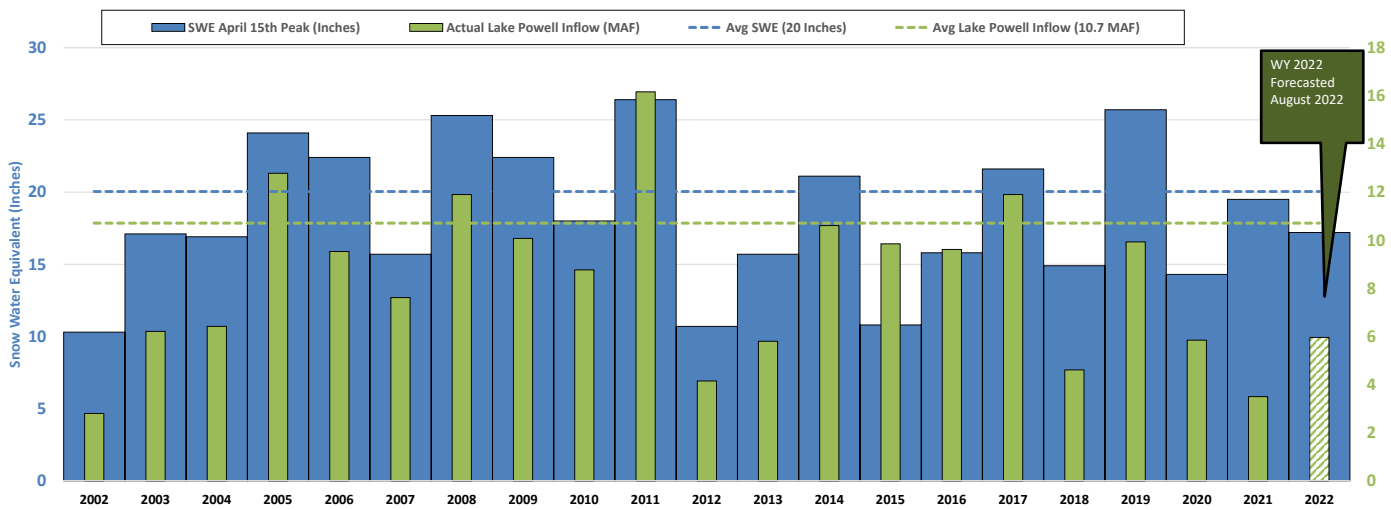
Northern California Historical Snow Water Equivalent (Inches) Vs Runoff (Million AF)



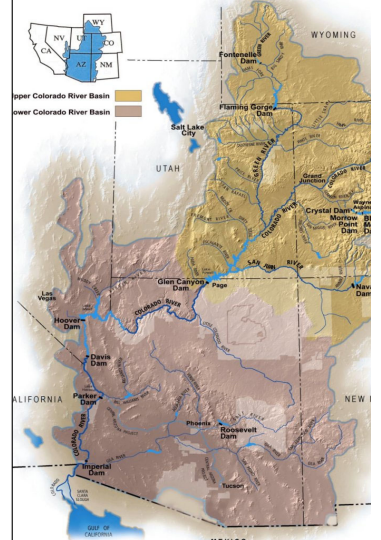
Sacramento River Basin



Upper Colorado Historical Snow Water Equivalent (Inches) Vs Runoff (Million AF)



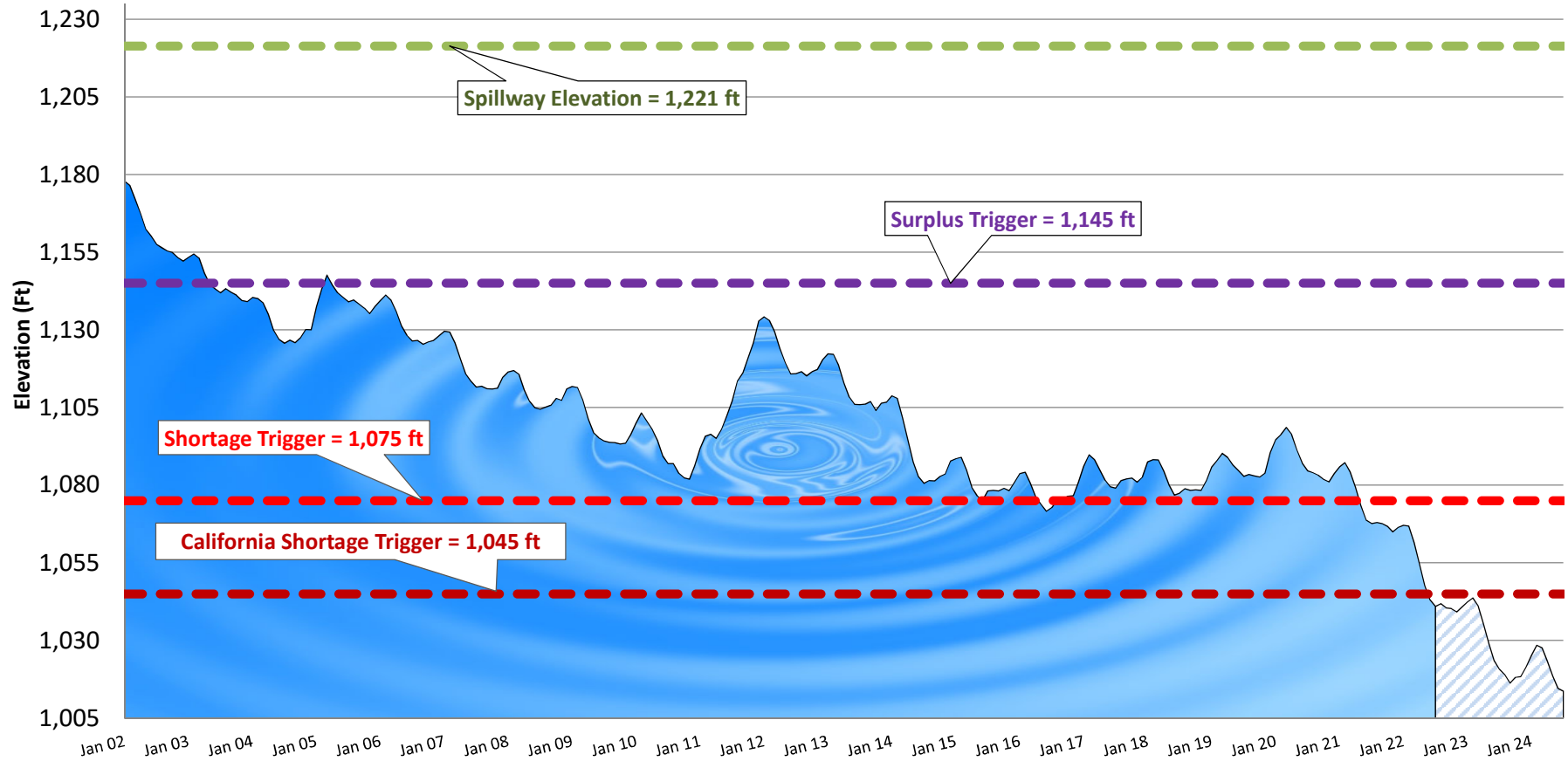
Colorado River Basin



Lake Mead Levels: Historical and Projected projection per USBR 24-Month Study

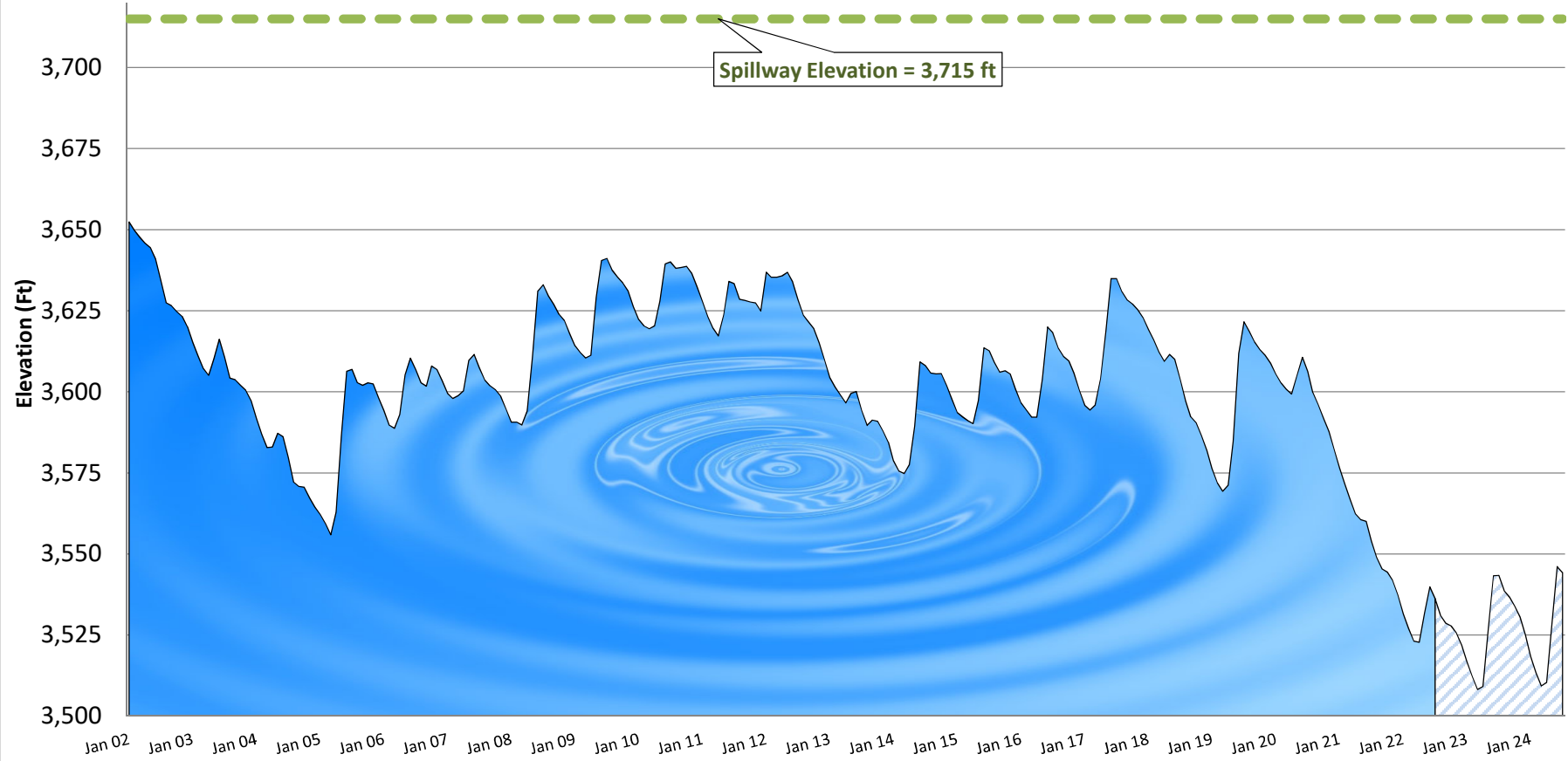


Projected
Historical

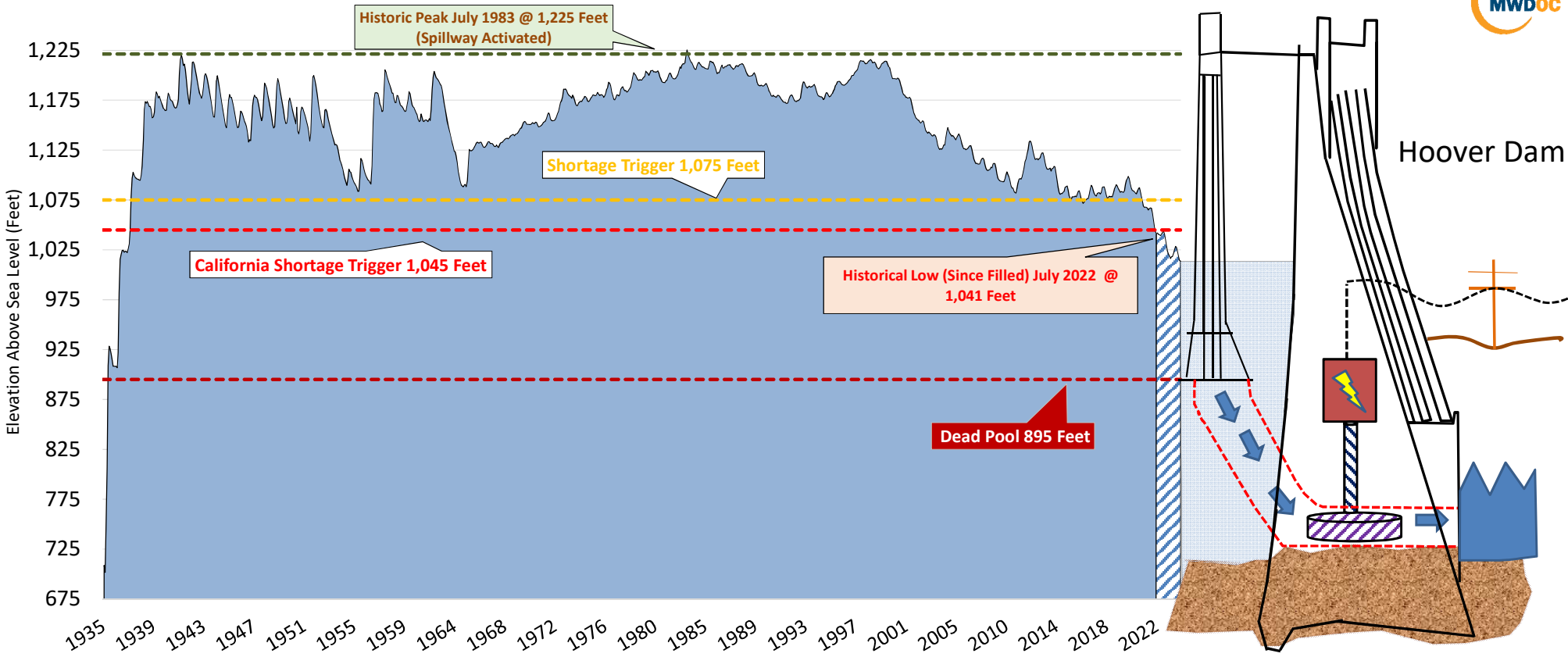


Lake Powell Levels: Historical and Projected projection per USBR 24-Month Study

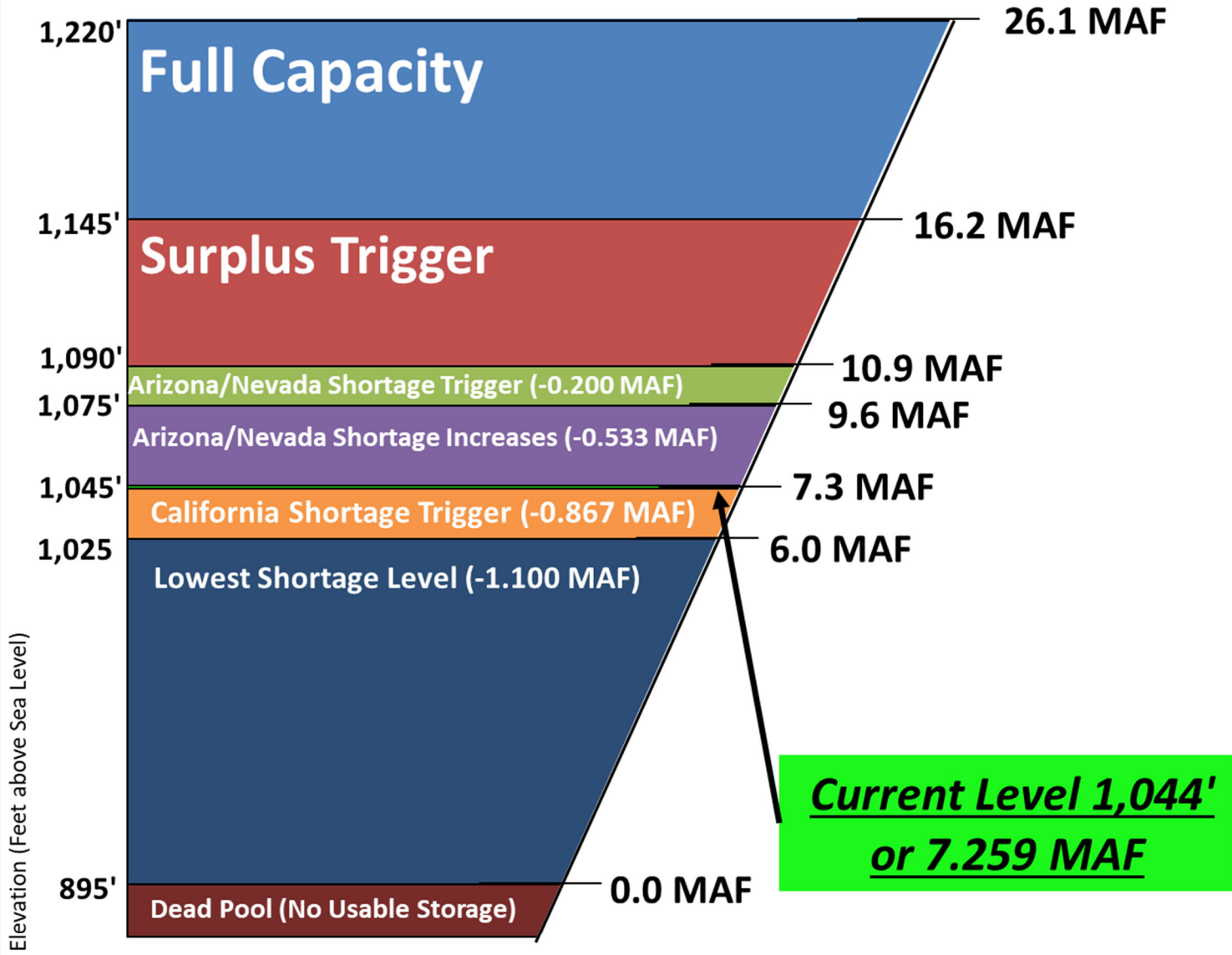
■ Historical □ Projected



Lake Mead Historical Water Elevation Level



Lake Mead Storage Level



WILL SERVE SUMMARY REPORT AUGUST 2022

PROJECT NAME	PROJECT DESCRIPTION	PHASE	CFF
Arbors Access Ramp	Adding a 1-1/2" water service connection with backflow protection and connecting to the existing private sewer service	Construction	\$ 28,785
Burger Town Sewer Connection	Addition of a 4" sewer lateral	Construction	\$ -
Twin Peaks Plaza Improvements	Conversion of existing fuddruckers into 3 tenants. Project will convert existing services to use (3) 1" meters and add a fire service.	Construction	\$ 3,582
Heritage Medical Offices Oakbrook Village Suite H	Upgrade the existing service to a 2-inch and add backflow.	Close-Out	\$ 24,289
Kiddie Academy	Conversion of existing 1" meter into a 1-1/2" meter with backflow protection	Close-Out	\$ 5,126
Laguna Woods City Hall-Library Project	Addition of a 2,100 sq ft single story library with relocated fire service and relocating a fire hydrant	Construction	\$ 4,391
Mountain View Housing	Development of affordable housing to include a fire hydrant, multiple water meters, a fire service with backflow protection, and a 2" irrigation meter	Close-Out	\$ 79,582
Target	Addition of an irrigation service, fire services, and potable water services	Construction	\$ 28,960
The Village at Laguna Hills (Demo Phase)	Demolition of the various sized water services, irrigation services, fire services, and sewer services at the former mall site.	Plan Check	Not Yet Calculated
Womens Health Pavilion	New construction of a health pavilion with water services, irrigation services, sewer services, and fire water services.	Construction	\$ 21,856

WILL SERVE SUMMARY REPORT AUGUST 2022

PROJECT NAME	PROJECT DESCRIPTION	PHASE	CFF
Laguna Hills Inn Fire Sprinkler Upgrade	Fire System upgrades including conversion of a fire hydrant to private and addition of a 6-inch DCDA	Construction	\$ -
Mercado El Rey Expansion	Expansion of the market	Plan Check	Not Yet Calculated



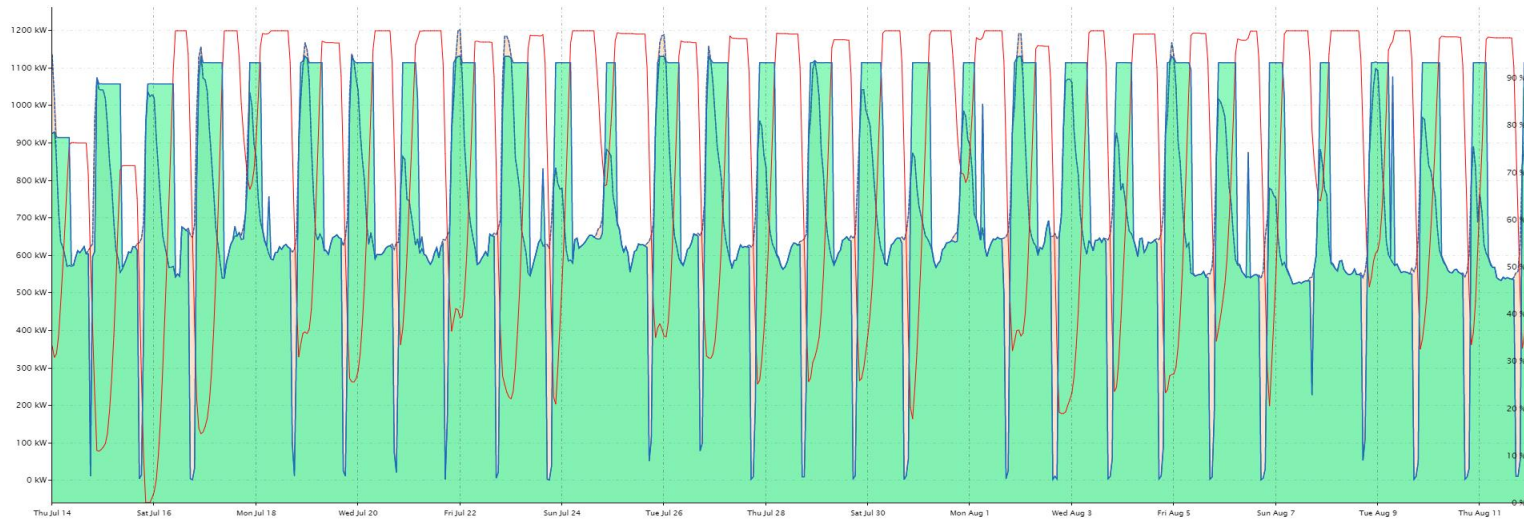
WRP BATTERY STORAGE SYSTEM

MONTHLY REPORT

August, 2022

Year 3

BILLING PERIOD	BILL SAVINGS	NET SAVINGS
08/12/21 - 09/13/21	\$ 3,251.24	\$ 1,661.24
09/13/21 - 10/13/21	\$ 4,754.89	\$ 3,164.89
10/13/21 - 11/12/21	\$ 2,940.99	\$ 1,350.99
11/12/21 - 12/14/21	\$ 1,998.24	\$ 408.24
12/14/21 - 01/14/22	\$ (650.06)	\$ (2,240.06)
01/14/21 - 02/11/22	\$ 79.50	\$ (1,510.50)
02/11/22 - 03/14/22	\$ 647.34	\$ (942.66)
03/15/22 - 04/13/22	\$ 2,556.61	\$ 966.61
04/13/22 - 05/13/22	\$ 115.14	\$ (1,474.86)
05/13/22 - 06/14/22	\$ 8,377.93	\$ 6,787.93
06/14/22 - 07/14/22	\$ 20,486.96	\$ 18,896.96
07/14/22 - 08/12/22	\$ 6,915.19	\$ 5,325.19
TOTAL	\$ 51,473.97	\$ 32,393.97



Sewerage Treatment Plant



23542 Moulton Pkwy, Laguna Woods, CA 92637

Savings Report - 2022-08

Jul 14, 2022 - Aug 12, 2022
SCE TOU 8 Option D (< 2kV)

Demand Charges	Before Storage		After Storage		Savings	
Maximum Demand Charges	1,209kW	\$23,617.81	1,140kW	\$22,275.60	69kW	\$1,342.21
Summer On-Peak	1,092kW	\$46,437.83	998kW	\$42,471.94	93kW	\$3,965.89
Sub-total		\$70,055.63		\$64,747.54		\$5,308.09
Energy Charges	Before Storage		After Storage		Savings	
Summer Mid-Peak	26,604kWh	\$3,400.00	10,820kWh	\$1,382.75	15,784kWh	\$2,017.24
Summer Off-Peak	387,421kWh	\$37,293.17	458,765kWh	\$44,160.76	(71,344)kWh	\$(6,867.58)
Summer On-Peak	71,160kWh	\$9,785.24	24,200kWh	\$3,327.80	46,960kWh	\$6,457.44
Sub-total		\$50,478.41		\$48,871.31		\$1,607.10
Other Monthly Charges	Before Storage		After Storage		Savings	
Customer and Other		\$747.76		\$747.76		\$ -
Sub-total		\$747.76		\$747.76		\$ -
Total	Before Storage		After Storage		Savings	
		\$121,281.80		\$114,366.61		\$6,915.19

Note: The above data is calculated by Genability using utility meter data. If there were any gaps in the utility data, they were filled with Stem meter data. Your actual utility bill may look different from the data displayed above due to either issues in the utility data we were provided or in the Stem meter data collected. Some discrepancies are normal and to be expected. For this reason, Stem completes a thorough review of all data and reconciles discrepancies by comparing the Genability calculations of the energy storage system cost savings and total bill values with your utility bills. If you have an outstanding performance guarantee term, any discrepancies identified are adjusted for differences and reflected in your true up term statement.



To: Board of Directors, *Municipal Water District of Orange County*

From: Natural Resource Results

RE: Monthly Board Report – September 2022

Inflation Reduction Act

On July 27th, Senator Schumer (D-NY) and Senator Manchin (D-WV) announced that they had come to an agreement on a reconciliation bill – a special type of legislation that allows for a simple majority vote in the Senate – dubbed the Inflation Reduction Act of 2022. The agreement caught the nation by surprise, as most observers had thought that Senator Manchin’s refusal to support a previous, much more expensive version of a reconciliation bill would leave Democrats empty handed but he continued to negotiate behind the scenes with Senator Schumer.

The bill passed both chambers and was signed by President Biden in mid-August. The Bureau of Reclamation (BOR) received funding for the following:

- \$550 million for a program to provide drinking water for disadvantaged communities
- \$25 million to put solar panels over canals
- \$4 billion for voluntary conservation projects, compensation for voluntary reductions in diversions or consumptive use and ecosystem restoration (these funds are prioritized for the Colorado River Basin)

Colorado River

On August 14th, the Bureau of Reclamation released the August 24 month study which projects water levels in the main reservoirs of the Basin over the next two years. This study determines how much water will be released from Lake Mead and Lake Powell, signifying the extent of water cuts in the lower basin and Mexico.

The lower basin must cut a combined 721,000 acre-feet of water in 2023 which is an addition to the 2-4 million acre-feet of water that Commissioner Touton called on the basin states to come up with back in June. Arizona will shoulder most of the burden of the 721,000 acre-feet of cuts and will see its allocation reduced by 21 percent.

If the additional conservation is not achieved, Lake Mead is projected to drop another twenty feet by summer of 2023 due to reduced releases from Powell.

Water Recycling Projects Selected

Last week, BOR announced \$310 million in infrastructure bill funding for water recycling projects in the western states, mainly in California. The selected projects will advance drought resilience and are expected to increase annual capacity by about 213,000 acre-feet of water, enough water to support more than 850,000 people a year.

Recipient	State	Title	Reclamation Funding
Big Bear Area Regional Wastewater Agency	CA	Replenish Big Bear Project	\$8,267,112
Carpinteria Valley Water District	CA	Carpinteria Advanced Purification Project	\$9,659,990
Coachella Valley Water District	CA	Water Reclamation Plant 10 (WRP-10) Non-Potable Water System	\$12,276,517
Eastern Municipal Water District	CA	Purified Water Replenishment Project	\$10,000,000
Irvine Ranch Water District	CA	Syphon Reservoir Improvement Project	\$12,245,625
Jurupa Community Services District	CA	Joint IEUA-JCSD Recycled Water Intertie Project	\$12,275,000
Las-Virgenes-Triunfo Joint Powers Authority	CA	Pure Water Project Las Virgenes-Triunfo	\$10,199,637
Monterey One Water	CA	Expand Pure Water Monterey Groundwater Replenishment Project	\$10,316,822
City of Morro Bay	CA	Water Reclamation Facility Project	\$9,310,095
City of Oceanside	CA	Pure Water Oceanside Program	\$9,941,533
Olivenhain Municipal Water District	CA	North San Diego Water Reuse Coalition Regional Recycled Water Program: 2020 Project	\$17,826,952
Padre Dam Municipal Water District	CA	East County Advanced Water Purification Program Phase 2	\$28,300,000
City of Palo Alto	CA	City of Palo Alto Advanced Water Purification System	\$12,867,875
City of Pismo Beach	CA	Central Coast Blue	\$14,124,000
Sacramento Regional County Sanitation District	CA	Harvest Water Program	\$24,115,808
City of San Buenaventura	CA	Ventura Water Pure Program	\$14,026,650
Santa Margarita Water District	CA	San Juan Watershed Project	\$7,928,615
Sonoma County Water Agency	CA	North Bay Reuse Program: Phase 2 Program	\$6,934,655

Soquel Creek Water District	CA	Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project	\$20,925,000
Water Replenishment District of Southern California	CA	Groundwater Reliability Improvement Program Recycled Water Project	\$15,478,307
County of Maui	HI	Lahaina Water Recycling Project #3: West Maui Recycled Water Expansion	\$1,080,244
City of Nampa	ID	City of Nampa Recycled Water Program	\$3,000,000
El Paso Water Utilities Public Service Board	TX	Advanced Water Purification Facility	\$20,000,000
Weber Basin Water Conservancy District	UT	Tertiary Treatment Facility in Central Weber	\$14,300,000
City of Cheney	WA	Cheney Purple Pipe Project	\$5,445,750



To: Municipal Water District of Orange County
From: Syrus Devers, Best Best & Krieger
Date: September 7th, 2022
Re: Monthly Report

Legislative Report

The Legislature is 9 hours away from banging the gavel down on the 2021-22 biennial session as this report is being prepared. The midnight deadline on August 31st in even-numbered years is in the Constitution and is, therefore, not fungible.

Good news in the budget. The Legislature appropriated several categories of funds to promote recycling, including \$80 million earmarked for MWD. \$100 million was appropriated for recycling from the General Fund in support of the \$300 million over three years earmarked in last year's budget. Finally, \$210 million went to the SWRCB for competitive grants for portable reuse projects.

Legislation. Two bills of interest were in play in the last week of session.

SB 222 (Dodd) on state-funded Low Income Rate Assistance (LIRA) Programs was actively lobbied by ACWA, but final consensus was not reached and ACWA remained opposed. The sticking point was over how customers are enrolled in a LIRA Program. Dodd took ACWA's suggested language on the other substantive issues.

The other major bill was SB 1157 (Hertzberg) on indoor water use efficiency standards. Most of the lobbyists working against the bill had moved on to other battles after getting knocked down hard in the policy committee. Had the bill been brought up when it was first eligible (on 8/15), there is little doubt that it would have passed the Assembly and been safely back in the Senate by the final week. Instead, the sponsors got nervous and asked about further amendments. That had the same effect as putting blood in the water with sharks nearby. ACWA quickly pulled a large group of lobbyists together and every Assembly office was contacted over the next few days to ask for a "no" vote on the bill unless amendments were taken, with a particular focus on amendments related to recycling. Then word got around that Newsom was demanding that the most important item the opposition got in committee, a meaningful study of the fiscal impacts of lowering the standards, be pulled out due to the estimated costs. Opponents were quietly hoping Hertzberg would cave in and take the study out of the bill because



it would have put other large associations back to opposition, but he wisely refrained and left the study language alone.

As this report was being prepared, the bill is stalled in the Assembly with 34 votes; 41 needed to pass. Even at this late hour, Assm. Friedman could probably get the bill passed. BB&K staff knows of two AYE votes ready to go up, and there is no information on the position of six other Democrat members. Friedman and Hertzberg could likely get 5 of those members to vote AYE if they tried. BB&K will report on the final outcome at the workshop in the unlikely event that word did not get around before then.

Legal and Regulatory

September 7, 2022

1. **Megaflood Coming:** A recent UCLA study is predicting a major flood event in the next 50 to 75 years. They claim it would be on the scope of the Great Flood of 1862 which devastated the Southern California area. Using the drought conditions and global warming metrics, along with weather modeling and other climate models, they estimate some areas receiving more than 100 inches of rain in a short period of time. Also, snow fall would be cut in half bringing more rain events and less measured snow melt. They are calling this the Other Big One and estimate damages in the trillions of dollars.
2. **Saltwater Intrusion:** Saltwater intrusion is already having an impact on the Delta and surrounding areas. Vineyards near the Delta which traditionally use river water to irrigate are using groundwater instead due to the increased salinity. The City of Antioch is using less river water for the same reason. They are investing in desal and will develop the first inland desal plant in the state for treating brackish water. Fortunately, the Coastal Commission has no jurisdiction, and the treatment will be less costly than ocean desal since the salinity is lower. Dry winters means less fresh water through the Delta and more chance for ocean water to intrude. Sea level rise is also a factor. Last year, the state built a temporary barrier (112,000 tons of rock piled 30 feet high) near the pumps to slow down the salt water. They are considering building two more such barriers. Farmers are experiencing different impacts based on their crop selection, salt is bad for grapes but does not impact alfalfa as much. Efforts to construct small reservoirs to capture fresh water are also being proposed.
3. **Rainwater Unsafe:** Stockholm University has been measuring PFAS content in the atmosphere for a decade. As we reported before, PFAS in the stream, rivers and lakes eventually ends up the atmosphere through evaporation. The next step is returning the water to earth via rain with the PFAS included. Under current standards, their study concluded that practically all rainfall in the world would be considered unsafe to drink. Most of the industrialized world does not rely on rainwater for drinking. However, many parts of the world do use it for drinking, thus the caution.
4. **\$8,500 Per Acre Foot:** Indian Wells Valley Groundwater Authority (eastern Kern County) may pay \$8,582 per acre foot for water under a possible agreement. The Authority is severely over drafted in its groundwater basin and is being forced to take some action. The contract which would be ongoing is for 750-acre feet of water per year. The seller is Utica JLL, LLC which purchased the Jackson Ranch. The water is coming from Dudley Ridge which sold last time in 2009 for \$5,500 per acre foot. The deal is contingent on building a 50-mile pipeline and state approval. The Authority is also seeking a court adjudication for the basin which could totally change all stakeholders position and claims.

5. **Toxic Smell in Clear Lake:** Blue-green algae (cyanobacteria) has been appearing in Clear Lake which is the second largest freshwater lake in the State. In low concentration, this is a minor concern. But when the concentration increases, it becomes a major health concern. Plus, it smells really bad. Lake County has already warned 500 folks on the Lake that use its water for drinking to stop and seek alternative supplies. Boiling the water or adding chemicals does not fix the problem. These algae can be harmful to human, animal, and plant life in the area. Locals are aware of the situation, but the area draws many tourists who will not be. While it might not kill us, it does produce rashes, diarrhea, vomiting, coughing, and wheezing. It does also push out plant life in and around the Lake.
6. **Lake Tahoe Update:** Tahoe has had the reputation of the world's clearest large lake. That has come into question the last few years due to many factors. The most recent report has shown a drop in Mysis shrimp, a form of zooplankton, which will make the Lake clearer. The shrimp eats a crustacean called Daphnia which is responsible for eating the algae. The level of that algae determines the clarity of the Lake. The more Daphnia, the more food for the Kokanee salmon. Experts expect this condition to be temporary. The shrimp seem to cycle in and cycle out over time. The algae level also seem to coincide with the number of visitors to the Lake.
7. **Water Interaction:** Scientists, particularly chemists, have been studying the interaction of groups of water molecules for years. Emory University researchers think they have solved the puzzle. Hydrogen atom is the lightest of all. Its mechanical traits make it act like a particle and a wave. This makes groups of water molecules act differently when they encounter other biological systems. They have developed a software, q-AQUA, to help study water and its interaction with other components. This will become useful in studying water conditions in nature and water treatment.
8. **Mountain Water Unpredictable:** A study was recently completed of the Rocky Mountains. Timing and amount of rain and snow is going to be more unpredictable in the future. The projections all show less overall moisture and even where the amount will be the same, it will be more rain and less snow. Also, earlier snow melt is predicted. The estimate, using their models, is that total amount of water coming from the Rockies could drop of 80% by the end of the century. The report also emphasized the possible erratic nature of rain and snowfall in the future. They extend their prediction of this condition to the Canadian Arctic, eastern North American and Eastern Europe.
9. **Ancient Water:** Curtin University (Australia) has been studying water transfers in the earth going back 3.5 billion years. Geological evidence has shown that water was moved deep into Earth during its formative years. This water was locked into rock formations. No one seems to know how it originally got there. However, it was released at very high temperatures and usually through volcanic activity. This process produced the continents as we now know them. The heat was so great that it melted rocks and produced really hot water. Also, some of the oldest parts of the Earth contained the most gold deposits. Gold requires large amounts of water in its formative stages. That was another reason they believe there was a lot of water down there a long time ago.

10. **More PFAS Progress:** Everyone is trying to find a better mouse trap to battle PFAS. This one comes from Rice University. Actually, it is not a new process but variations of existing ones. Combining boron nitride and titanium dioxide produced a better trap as a catalyst. Then a variation of ultraviolet light in both time exposed and wavelength. The result was about 15 times better than existing methods of photocatalysts. Industrial folks are using this now in trial runs.
11. **Drought v Cows:** An average cow eats 20 pounds of food and 30 gallons of water each day. In California and the entire West, the drought is taking a toll on the cow population. Cow ranchers in California, New Mexico, and Colorado are selling off their herds at a high rate, higher than in the last decade. While this will mean cheaper meat prices in the short run, the future will only see increased prices due to low supply. It should be noted that the last time such a sell off occurred was during the drought of 2011.
12. **Low Cost Filter:** University of Texas experts are developing a better, cheaper and more effective water filter. Using seeds from the moringa tree and cotton balls, this method replaces the use of chemicals and is effective against viruses and bacteria. The seeds and cotton are not processed and can be used in their natural form. The cost is low, and the filtration rate is high. The secret is in the charges. Moringa seeds have positively charged proteins, cotton is negatively charged. This combination knocks out the virus and bacteria. Follow the science.

MWDOC Workshop

Bill Matrix - September 7th, 2022

A. Priority Support/Oppose

Measure	Author	Topic	Status	Location	Brief Summary	Position	Priority	Notes 1
AB 1195	Garcia, Cristina D	Limited Eligibility and Appointment Program: lists.	8/30/2022-Joint Rule 62(a), file notice suspended.	8/25/2022-A. P.E. & R.	Current law specifically grants the Department of Human Resources the powers, duties, and authority necessary to operate the state civil service system in accordance with Article VII of the California Constitution, the Government Code, the merit principle, and applicable rules duly adopted by the State Personnel Board. Existing law creates the Limited Examination and Appointment Program (LEAP), which the Department of Human Resources administers, to provide an alternative to the traditional civil service examination and appointment process to facilitate the hiring of persons with disabilities. Current law requires the Department of Human Resources, when an appointing power seeks to fill a vacant position by using an employment list, to provide the appointing power with a certified list of the names and addresses of all eligible candidates, as specified. Existing law requires the department to provide a single certified list of eligible candidates if more than one employment list or LEAP referral list exists, and the department is required to combine the names and addresses of all eligible candidates. This bill, as an alternative to receiving a combined list of eligible candidates, would require the department, upon request of an appointing power, to provide a list of eligibles that includes only the names and addresses of candidates, if any, on a LEAP referral list and the names and addresses of candidates, if any, on any applicable reemployment or State Restriction of Appointment list. The bill would authorize the appointing power to notify individuals listed of the opportunity to apply for a vacant position, to screen applications for candidates' eligibility, and to hire from among those eligible applicants whose names appear on the list.	Not relevant	A. Priority Support/Oppose	This bill no longer relates to its original subject.
AB 1845	Calderon D	Metropolitan Water District of Southern California: alternative	8/24/2022-Assembly Rule 77(a) suspended. Senate amendmen	8/24/2022-A. ENROLLMENT	Would authorize the Metropolitan Water District of Southern California to use the design-build procurement process for certain regional recycled water projects or other water infrastructure projects. The bill would define "design-build" to mean	Support	A. Priority Support/Oppose	Support adopted on March 2nd

		project delivery methods.	ts concurred in. To Engrossing and Enrolling. (Ayes 76. Noes 0.).		a project delivery process in which both the design and construction of a project are procured from a single entity. The bill would require the district to use a specified design-build procedure to assign contracts for the design and construction of a project, as defined.			
AB 1944	Lee D	Local government : open and public meetings.	7/5/2022-Failed Deadline pursuant to Rule 61(b)(14). (Last location was S. GOV. & F. on 6/8/2022)	7/5/2022-S. DEAD	The Ralph M. Brown Act requires, with specified exceptions, that all meetings of a legislative body of a local agency, as those terms are defined, be open and public and that all persons be permitted to attend and participate. The act contains specified provisions regarding the timelines for posting an agenda and providing for the ability of the public to observe and provide comment. The act allows for meetings to occur via teleconferencing subject to certain requirements, particularly that the legislative body notice each teleconference location of each member that will be participating in the public meeting, that each teleconference location be accessible to the public, that members of the public be allowed to address the legislative body at each teleconference location, that the legislative body post an agenda at each teleconference location, and that at least a quorum of the legislative body participate from locations within the boundaries of the local agency's jurisdiction. The act provides an exemption to the jurisdictional requirement for health authorities, as defined. This bill would require the agenda to identify any member of the legislative body that will participate in the meeting remotely.	None	A. Priority Support/ Oppose	Amended on 4/18/2022
AB 2142	Gabriel D	Income taxes: exclusion: turf replacement water conservation program.	8/30/2022-Enrolled and presented to the Governor at 4 p.m.	8/30/2022-A. ENROLLED	The Personal Income Tax Law and the Corporation Tax Law, in conformity with federal income tax law, generally defines "gross income" as income from whatever source derived, except as specifically excluded, and provides various exclusions from gross income. Current law provides an exclusion from gross income for any amount received as a rebate or voucher from a local water or energy agency or supplier for the purchase or installation of a water conservation water closet, energy efficient clothes washers, and plumbing devices, as specified. This bill would, for taxable years beginning on or after January 1, 2022, and before January 1, 2027, under both of these laws, provide an exclusion from gross income for any amount received as a rebate, voucher, or other financial incentive issued by a public water system, as defined, local government, or state agency for participation in a turf replacement water	Support	A. Priority Support/ Oppose	Support adopted on March 2nd

					conservation program.			
AB 2278	Kalra D	Natural resources: biodiversity and conservation report.	8/25/2022-Assembly Rule 77(a) suspended. Senate amendments concurred in. To Engrossing and Enrolling. (Ayes 73. Noes 0.).	8/25/2022-A. ENROLLMENT	By Executive Order No. N-82-20, Governor Gavin Newsom directed the Natural Resources Agency to combat the biodiversity and climate crises by, among other things, establishing the California Biodiversity Collaborative and conserving at least 30% of the state's lands and coastal waters by 2030. This bill would require the Natural Resources Agency, in implementing actions to achieve the goal to conserve at least 30% of the state's lands and coastal waters by 2030 established by the executive order, to prioritize specified actions. The bill would require the Secretary of the Natural Resources Agency to prepare and submit, beginning on or before March 31, 2024, an annual report to the Legislature on the progress made during the prior calendar year toward achieving that goal, as provided.	Watch	A. Priority Support/ Oppose	Possible return of AB 3030
AB 2387	Garcia, Eduardo D	Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022.	5/19/2022-In committee: Held under submission.	5/11/2022-A. APPR. SUSPENSE FILE	Would enact the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022, which, if approved by the voters, would authorize the issuance of bonds in the amount of \$7,430,000,000 pursuant to the State General Obligation Bond Law to finance projects for safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, and workforce development programs.	Watch	A. Priority Support/ Oppose	Not moving
AB 2449	Rubio, Blanca D	Open meetings: local agencies: teleconferences.	8/25/2022-Assembly Rule 77(a) suspended. Senate amendments concurred in. To Engrossing and Enrolling. (Ayes 67. Noes 2.).	8/25/2022-A. ENROLLMENT	Current law, the Ralph M. Brown Act, requires, with specified exceptions, that all meetings of a legislative body of a local agency, as those terms are defined, be open and public and that all persons be permitted to attend and participate. The act generally requires posting an agenda at least 72 hours before a regular meeting that contains a brief general description of each item of business to be transacted or discussed at the meeting, and prohibits any action or discussion from being undertaken on any item not appearing on the posted agenda. This bill would revise and recast those teleconferencing provisions and, until January 1, 2026, would authorize a local agency to use teleconferencing without complying with the teleconferencing requirements that each teleconference location be identified in the notice and agenda and that each teleconference location be accessible to the public if at least a quorum of the members of the legislative body	Support	A. Priority Support/ Oppose	Support adopted on April 6th.

					participates in person from a singular physical location clearly identified on the agenda that is open to the public and situated within the local agency's jurisdiction.			
AB 2451	Wood D	State Water Resources Control Board: drought planning.	8/12/2022- Failed Deadline pursuant to Rule 61(b)(15). (Last location was APPR. SUSPENSE FILE on 8/8/2022)	8/12/2022-S . DEAD	(1)Current law establishes within the Natural Resources Agency the State Water Resources Control Board and the California regional water quality control boards. Current law requires the work of the state board to be divided into at least 2 divisions, known as the Division of Water Rights and the Division of Water Quality. Current law requires the state board to formulate and adopt state policy for water quality control.This bill would create a Drought Section within the state board, as specified. The bill would require the state board, in consultation with the Department of Fish and Wildlife, to adopt principles and guidelines for diversion and use of water in coastal watersheds, as specified, during times of water shortage for drought preparedness and climate resiliency. The bill would require that the principles and guidelines provide for the development of watershed-level contingency plans to support public trust uses, public health and safety, and the human right to water in times of water shortage, among other things. The bill also would require the state board, prior to adopting those principles and guidelines, to allow for public comment and hearing, as provided. The bill would require the state board to adopt those principles and guidelines no later than March 31, 2024.	Watch	A. Priority Support/ Oppose	
AB 2639	Quirk D	San Francisco Bay/Sacramento-San Joaquin Delta Estuary: water quality control plan: water right permits.	5/27/2022- Failed Deadline pursuant to Rule 61(b)(11). (Last location was A. THIRD READING on 5/19/2022)	5/27/2022-A. DEAD	Would require the State Water Resources Control Board, on or before December 31, 2023, to adopt a final update of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, as specified, and to implement the amendments to the plan adopted by the state board pursuant to Resolution No. 2018-0059 on December 12, 2018. The bill would prohibit the state board, on or after January 1, 2024, from approving a new water right permit that would result in new or increased diversions to surface water storage from the Sacramento River/San Joaquin River watershed until and unless the state board has taken those actions.	Oppose unless amended	A. Priority Support/ Oppose	Position adopted May 2nd.
SB 45	Portantino D	Short-lived climate pollutants: organic waste reduction goals: local jurisdiction	8/30/2022- Assembly amendments concurred in. (Ayes 40. Noes 0.)	8/30/2022-S . ENROLLMENT	Current law requires the Department of Resources Recycling and Recovery, in consultation with the State Air Resources Board, to adopt regulations to achieve the organic waste reduction goals established by the state board for 2020 and 2025, as provided. Current law requires the department, no later than July 1, 2020,	Watch	A. Priority Support/ Oppose	

		assistance.	Ordered to engrossing and enrolling.		and in consultation with the state board, to analyze the progress that the waste sector, state government, and local governments have made in achieving these organic waste reduction goals. Current law authorizes the department, if it determines that significant progress has not been made toward achieving the organic waste reduction goals established by the state board, to include incentives or additional requirements in its regulations to facilitate progress towards achieving the goals. This bill would require the department, in consultation with the state board, to assist local jurisdictions in complying with these provisions, including any regulations adopted by the department.			
SB 222	Dodd D	Water Rate Assistance Program.	8/30/2022-Assembly amendments concurred in. (Ayes 31. Noes 8.) Ordered to engrossing and enrolling.	8/30/2022-S . ENROLLMENT	Would require the state board, to the extent feasible, cost effective, and permitted under the California Constitution, to identify and contract with one or more third-party providers. The bill would impose requirements on the state board in connection with the program, including, among others, within 270 days of the effective date, as defined, adopting guidelines in consultation with relevant agencies and an advisory group for implementation of the program and preparing a report to be posted on state board's internet website identifying how the fund has performed. The bill would require the guidelines to include minimum requirements for eligible systems, including the ability to confirm eligibility for enrollment through a request for self-certification of eligibility under penalty of perjury. By expanding the crime of perjury, the bill would impose a state-mandated local program.	Watch	A. Priority Support/ Oppose	Position adopted 2/3/2021
SB 230	Portantino D	State Water Resources Control Board: Constituents of Emerging Concern in Drinking Water Program.	8/30/2022-Assembly amendments concurred in. (Ayes 40. Noes 0.) Ordered to engrossing and enrolling.	8/30/2022-S . ENROLLMENT	Would require the State Water Resources Control Board to build upon its existing work dealing with, and work to improve its knowledge of, constituents of emerging concern (CEC) in waters of the state and drinking water. The bill would require, as part of this work, the deputy director appointed by the state board, to work to improve the knowledge of CECs in drinking water by assessing the state of information, as specified. The bill would authorize the state board to establish, maintain, and direct a dedicated program called the Constituents of Emerging Concern in Drinking Water Program. The bill would authorize the deputy director to convene a Science Advisory Panel for CECs in drinking water with members that are experts in specified fields and would prescribe the duties of the panel. The bill would require the deputy director to post a report to the state board's internet website 3 years after the panel is	Support	A. Priority Support/ Oppose	Support position adopted April 7th.

					convened on the work conducted by the panel.			
SB 991	Newman D	Public contracts: progressive design-build: local agencies.	8/23/2022-Enrolled and presented to the Governor at 12:30 p.m.	8/23/2022-S . ENROLL ED	Would, until January 1, 2029, authorize local agencies, defined as any city, county, city and county, or special district authorized by law to provide for the production, storage, supply, treatment, or distribution of any water from any source, to use the progressive design-build process for up to 15 public works projects in excess of \$5,000,000 for each project, similar to the progressive design-build process authorized for use by the Director of General Services. The bill would require a local agency that uses the progressive design-build process to submit, no later than January 1, 2028, to the appropriate policy and fiscal committees of the Legislature a report on the use of the progressive design-build process containing specified information, including a description of the projects awarded using the progressive design-build process. The bill would require the design-build entity and its general partners or joint venture members to verify specified information under penalty of perjury. By expanding the crime of perjury, the bill would impose a state-mandated local program.	Support	A. Priority Support/ Oppose	Support adopted on April 6th.
SB 1157	Hertzberg D	Urban water use objectives.	8/29/2022-Read third time. Refused passage. Motion to reconsider made by Assembly Member Friedman.	8/15/2022-A. THIRD READING	Current law requires the Department of Water Resources, in coordination with the State Water Resources Control Board, and including collaboration with and input from stakeholders, to conduct necessary studies and investigations and authorizes the department and the board to jointly recommend to the Legislature a standard for indoor residential water use. Current law, until January 1, 2025, establishes 55 gallons per capita daily as the standard for indoor residential water use. Current law establishes, beginning January 1, 2025, the greater of 52.5 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use, and beginning January 1, 2030, establishes the greater of 50 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use. Current law requires the board, in coordination with the department, to adopt by regulation variances recommended by the department and guidelines and methodologies pertaining to the calculation of an urban retail water supplier's urban water use objective recommended by the department. This bill would eliminate the option of using the greater of 52.5 gallons per capita daily and the greater of 50 gallons per capita	Oppose unless amended	A. Priority Support/ Oppose	Oppose unless amended adopted on March 2nd

daily, as applicable, or a standard recommended by the department and the board as the standard for indoor residential water use. The bill would instead require that from January 1, 2025, to January 1, 2030, the standard for indoor residential water use be 47 gallons per capita daily and beginning January 1, 2030, the standard be 42 gallons per capita daily.

B. Watch

Measure	Author	Topic	Status	Location	Brief Summary	Position	Priority	Notes 1
AB 1001	Garcia, Cristina D	Environment: mitigation measures for air quality impacts: environmental justice.	7/5/2022-Failed Deadline pursuant to Rule 61(b)(14). (Last location was S. E.Q. on 5/4/2022)	7/5/2022-S. DEAD	The California Environmental Quality Act (CEQA) requires a lead agency to prepare a mitigated negative declaration for a project that may have a significant effect on the environment if revisions in the project would avoid or mitigate that effect and there is no substantial evidence that the project, as revised, would have a significant effect on the environment. This bill would require mitigation measures, identified in an environmental impact report or mitigated negative declaration to mitigate the adverse effects of a project on air quality of a disadvantaged community, to include measures for avoiding, minimizing, or otherwise mitigating for the adverse effects on that community. The bill would require mitigation measures to include measures conducted at the project site that avoid or minimize to less than significant the adverse effects on the air quality of a disadvantaged community or measures conducted in the affected disadvantaged community that directly mitigate those effects.	Watch	B. Watch	
AB 1774	Seyarto R	California Environmental Quality Act: water conveyance or storage projects: judicial review.	4/29/2022-Failed Deadline pursuant to Rule 61(b)(5). (Last location was NAT. RES. on 2/10/2022)	4/29/2022-A. DEAD	The California Environmental Quality Act (CEQA) requires a lead agency, as defined, to prepare, or cause to be prepared, and certify the completion of an environmental impact report (EIR) on a project that the lead agency proposes to carry out or approve that may have a significant effect on the environment or to adopt a negative declaration if it finds that the project will not have that effect. CEQA also requires a lead agency to prepare a mitigated negative declaration for a project that may have a significant effect on the environment if revisions in the project would avoid or mitigate that effect and there is no substantial evidence that the project, as revised, would have a significant effect on the environment. CEQA establishes a procedure by which a person may seek judicial review of the decision of the lead agency made pursuant to CEQA. This bill would require the Judicial Council to adopt rules	Watch	B. Watch	

					of court applicable to actions or proceedings brought to attack, review, set aside, void, or annul the certification or adoption of an environmental impact report for water conveyance or storage projects, as defined, or the granting of project approvals, including any appeals to the court of appeal or the Supreme Court, to be resolved, to the extent feasible, within 270 days of the filing of the certified record of proceedings with the court to an action or proceeding seeking judicial review of the lead agency's action related to those projects.			
AB 1817	Ting D	Product safety: textile articles: perfluoroalkyl and polyfluoroalkyl substances (PFAS).	8/30/2022-Senate amendments concurred in. To Engrossing and Enrolling.	8/30/2022-A. ENROLLMENT	Would prohibit, beginning January 1, 2025, any person from manufacturing, distributing, selling, or offering for sale in the state any new, not previously owned, textile articles that contain regulated PFAS, except as specified, and requires a manufacturer to use the least toxic alternative when removing regulated PFAS in textile articles to comply with these provisions. The bill would require a manufacturer of a textile article to provide persons that offer the product for sale or distribution in the state with a certificate of compliance stating that the textile article is in compliance with these provisions and does not contain any regulated PFAS.		B. Watch	
AB 2108	Rivas, Robert D	Water policy: environmental justice: disadvantaged and tribal communities.	8/30/2022-In Assembly. Concurrence in Senate amendments pending. Senate amendments concurred in. To Engrossing and Enrolling.	8/30/2022-A. ENROLLMENT	Would, among other things, specify that the State Water Resources Control Board and each regional board need to begin outreach to identify issues of environmental justice as early as possible in planning, policy, and permitting processes. The bill would require the state board and each regional board to engage in equitable, culturally relevant community outreach to promote meaningful civic engagement from potentially impacted communities of proposed discharges of waste that may have disproportionate impacts on water quality in disadvantaged communities or tribal communities and ensure that outreach and engagement shall continue throughout the waste discharge planning, policy, and permitting processes. The bill would require the state board and each regional board, contingent upon an appropriation, to hire environmental justice and tribal community coordinator positions for specified purposes. The bill would require the state board, contingent upon a specific appropriation, to establish a community capacity-building stipend program to promote meaningful civic engagement by disadvantaged communities and tribal communities in the state board and regional board decision making processes, among other activities. The bill would require the state	Watch	B. Watch	

					board and each regional board to make a finding, as specified, on potential environmental justice, tribal impact, and racial equity considerations when adopting water quality control plans or state policies for water quality control, and when issuing or reissuing waste discharge requirements or waivers of waste discharge requirements.			
AB 2247	Bloom D	Perfluoroalkyl and polyfluoroalkyl substances (PFAS) and PFAS products and product components : publicly accessible data collection interface.	8/30/2022- In Assembly. Concurrence in Senate amendments pending. Senate amendments concurred in. To Engrossing and Enrolling.	8/30/2022- A. ENROLLMENT	Would require, as part of the hazardous waste control laws, the Department of Toxic Substances Control to contract with an existing multistate chemical data collection entity that is used by other states and jurisdictions to implement, by January 1, 2026, a publicly accessible data collection interface to collect information about perfluoroalkyl and polyfluoroalkyl substances (PFAS) and products or product components containing intentionally added PFAS. The bill would require, on or before July 1, 2026, and annually thereafter, a manufacturer, as defined, of PFAS or a product or a product component containing intentionally added PFAS that, during the prior calendar year, is sold, offered for sale, distributed, or offered for promotional purposes in, or imported into, the state to register the PFAS or the product or product component containing intentionally added PFAS, and specified other information, on the publicly accessible data collection interface. The bill would specify that the above requirements do not apply to certain products regulated by the United States Food and Drug Administration or products intended for certain animal uses that are regulated under certain federal laws.	Watch	B. Watch	
AB 2313	Bloom D	Water: judges and adjudications.	8/12/2022- Failed Deadline pursuant to Rule 61(b)(15). (Last location was APPR. SUSPENSE FILE on 8/2/2022)	8/12/2022- S. DEAD	Existing law authorizes the Judicial Council to conduct institutes and seminars for the purpose of orienting judges to new judicial assignments, keeping them informed concerning new developments in the law, and promoting uniformity in judicial procedure, as specified. This bill would authorize the Judicial Council, on or before January 1, 2025, to establish a program that provides training and education to judges in specified actions relating to water, as defined. The bill would provide that the program may be funded by an appropriation from the General Fund in the annual Budget Act or another statute, or by using existing funds for judicial training. The bill would require a court to prioritize assigning a judge with training or education under the program for actions relating to water, if certain conditions are met. This bill contains other related provisions and other existing laws.	Watch	B. Watch	

AB 2477	Rodriguez D	Emergency alert and warning service providers: minimum operating standards.	8/12/2022- Failed Deadline pursuant to Rule 61(b)(15). (Last location was APPR. SUSPENS E FILE on 8/2/2022)	8/12/2022-S . DEAD	Current law, on or before July 1, 2022, requires the Office of Emergency Services (OES), in consultation with specified entities, to develop voluntary guidelines for alerting and warning the public of an emergency, and requires the OES to provide each city, county, and city and county with a copy of the guidelines. Current law authorizes the OES to impose conditions upon application for voluntary grant funding that it administers requiring operation of alert and warning activities consistent with the guidelines. Current law also requires the OES, within 6 months of making the statewide guidelines available and at least annually thereafter and through its California Specialized Training Institute, to develop an alert and warning training, as specified. This bill, on or before July 1, 2024, would require the OES, by regulation, to adopt minimum operating standards for private sector companies that provide alert and warning services to local entities.	Watch	B. Watch	
AB 2605	Villapuda a D	Water quality: state certification .	4/29/2022- Failed Deadline pursuant to Rule 61(b)(5). (Last location was E.S. & T.M. on 3/10/2022)	4/29/2022- A. DEAD	The State Water Resources Control Board and the California regional water quality control boards prescribe waste discharge requirements in accordance with the Federal Water Pollution Control Act and the Porter-Cologne Water Quality Control Act. Under federal law, any applicant seeking a federal license or permit for an activity that may result in any discharge into the navigable waters of the United States is required to first seek a state water quality certification, as specified. The Porter-Cologne Water Quality Control Act authorizes the state board to certify or provide a statement to a federal agency, as required pursuant to federal law, that there is reasonable assurance that an activity of any person subject to the jurisdiction of the state board will not reduce water quality below applicable standards. The federal act provides that if a state fails or refuses to act on a request for this certification within a reasonable period of time, which shall not exceed one year after receipt of the request, then the state certification requirements are waived with respect to the federal application. This bill would authorize the state board to delegate its authority regarding the above-described issuance of a certificate or statement to the regional boards. The bill would require a project proponent, as defined, to request a pre-filing meeting with the state board, as specified.	Watch	B. Watch	
AB 2740	Dahle, Megan R	Water resources: desalination .	5/6/2022-F ailed Deadline pursuant to	5/6/2022-A. DEAD	Current law requires the Department of Water Resources, not later than July 1, 2004, to report to the Legislature, on potential opportunities and impediments	Watch	B. Watch	

			Rule 61(b)(6). (Last location was A. W.,P. & W. on 3/17/2022)		for using seawater and brackish water desalination, and to examine what role, if any, the state should play in furthering the use of desalination technology. Current law requires the department to convene a Water Desalination Task Force, comprised of representatives from listed agencies and interest groups, to advise the department in carrying out these duties and in making recommendations to the Legislature. This bill would repeal these provisions.			
AB 2742	Friedman D	Water meters: urban water suppliers.	5/6/2022-Failed Deadline pursuant to Rule 61(b)(6). (Last location was A. PRINT on 2/18/2022)	5/6/2022-A. DEAD	The Water Measurement Law generally requires the installation of a water meter as a condition of new water service on and after January 1, 1992. The law, with certain exceptions, requires an urban water supplier to install water meters on all municipal and industrial service connections that are located in its service area on or before January 1, 2025. This bill would delay that requirement for an urban water supplier to install the water meters to on or before January 1, 2030.	Watch	B. Watch	
AB 2811	Bennett D	California Building Standards Commission: recycled water: nonpotable water systems.	4/29/2022-Failed Deadline pursuant to Rule 61(b)(5). (Last location was E.S. & T.M. on 3/17/2022)	4/29/2022-A. DEAD	Would require, commencing January 1, 2024, all newly constructed nonresidential buildings be constructed with dual plumbing to allow the use of recycled water for all applicable nonpotable water demands, as defined, if that building is located within an existing or planned recycled water service area, as specified.	Watch	B. Watch	
AB 2857	Bauer-Kahan D	Sustainable Groundwater Management Act: groundwater sustainability plans: domestic well impacts.	4/29/2022-Failed Deadline pursuant to Rule 61(b)(5). (Last location was W.,P. & W. on 3/24/2022)	4/29/2022-A. DEAD	The Sustainable Groundwater Management Act requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources that are designated as basins subject to critical conditions of overdraft to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020, and requires all other groundwater basins designated as high- or medium-priority basins to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2022, except as specified. The act prescribes that a groundwater sustainability plan contain certain information, including, where appropriate and in collaboration with the appropriate local agencies, control of saline water intrusion, wellhead protection areas and recharge areas, a well abandonment and well destruction program, well construction policies, and impacts on groundwater dependent ecosystems. This bill would additionally require that a groundwater sustainability plan include	Watch	B. Watch	

					measures to mitigate adverse impacts on domestic wells, as defined, including, but not limited to, compensating an owner of a domestic well or a user of water from a domestic well for increased energy costs associated with deeper groundwater pumping and increased costs to households associated with the delivery of water from an existing water supply system or alternative water supply. The bill would prohibit a mitigation measure from subjecting an owner of a domestic well or a user of water from a domestic well to an unreasonable financial burden or expense.			
AB 2876	Bigelow R	Sustainable Groundwater Management Act.	5/6/2022-Failed Deadline pursuant to Rule 61(b)(6). (Last location was A. PRINT on 2/18/2022)	5/6/2022-A. DEAD	The Sustainable Groundwater Management Act requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources that are designated as basins subject to critical conditions of overdraft to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020, and requires all other groundwater basins designated as high- or medium-priority basins to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2022, except as specified. The act requires all relevant state agencies to consider the policies of the act, and any adopted groundwater sustainability plans, when revising or adopting policies, regulations, or criteria, or when issuing orders or determinations, where pertinent. This bill would make nonsubstantive changes to the latter provision.	Watch	B. Watch	
AB 2877	Garcia, Eduardo D	Safe and Affordable Drinking Water Fund: tribes.	8/30/2022-Read third time. Passed. Ordered to the Assembly. (Ayes 40. Noes 0.). In Assembly. Concurrence in Senate amendments pending.	8/30/2022-A. CONCURRENCE	Current law continuously appropriates to the State Water Resources Control Board moneys deposited in the fund for the development, implementation, and sustainability of long-term drinking water solutions, among other things. Current law requires the state board to expend moneys in the fund for grants, loans, contracts, or services to assist eligible recipients. Current law includes within the list of “eligible recipients,” public utilities, mutual water companies, federally recognized California Native American tribes, specified nonfederally recognized Native American tribes, administrators, groundwater sustainability agencies, community water systems, and technical assistance providers. This bill would specify that any waiver of tribal sovereignty that is required by the state board for a tribe that is an eligible recipient to access funding from the fund shall be narrowly drafted to serve both	Watch	B. Watch	

					the individual needs of the tribe and make the funding agreement enforceable. The bill would require the state board to include its designated tribal liaison, as defined, in all discussions with eligible recipients, except as specified. The bill would require the state board to consider the extent that funds for safe drinking water projects from the programs administered by the state board are distributed to eligible recipients to provide assistance to federally recognized California Native American tribes or specified nonfederally recognized Native American tribes and make diligent efforts to ensure the distribution of funds to those tribes.			
AB 2895	Arambula D	Water: permits and licenses: temporary changes: water or water rights transfers.	8/30/2022- In Assembly. Concurrence in Senate amendments pending. Senate amendments concurred in. To Engrossing and Enrolling.	8/30/2022- A. ENROLLMENT	Current law authorizes a permittee or licensee to temporarily change the point of diversion, place of use, or purpose of use due to a transfer or exchange of water or water rights if the transfer would only involve the amount of water that would have been consumptively used or stored by the permittee or licensee in the absence of the proposed temporary change, would not injure any legal user of the water, and would not unreasonably affect fish, wildlife, or other instream beneficial uses. Current law authorizes a person entitled to the use of water to petition the board for a change to a water right for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation and authorizes the board to approve the petition only if certain requirements are met. Current law authorizes that petition to be submitted in accordance with specified requirements, including those regulating temporary changes due to a transfer or exchange of water rights. This bill would revise and recast the provisions regulating temporary changes due to a transfer or exchange of water rights, including, among other revisions, specifying that those provisions apply to a person who proposes a temporary change for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation.	Watch	B. Watch	
AB 2919	Fong R	Dams: release of water: fish populations.	4/29/2022- Failed Deadline pursuant to Rule 61(b)(5). (Last location was W.,P. & W. on 3/24/2022)	4/29/2022- A. DEAD	Current law requires the owner of a dam to allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam. This bill would provide that, notwithstanding any other law, the release of water from a dam shall only be regulated based on actual fish populations and not based on approximate fish populations.	Watch	B. Watch	

SB 480	Stern D	Metropolitan Water District of Southern California: rules: inappropriate conduct.	8/24/2022-Ordered to inactive file on request of Assembly Member Reyes.	8/24/2022-A. INACTIVE FILE	The Metropolitan Water District Act provides for the creation of metropolitan water districts and specifies the powers and purposes of a district. The act requires the Metropolitan Water District of Southern California to establish and operate an Office of Ethics and adopt rules relating to internal disclosure, lobbying, conflicts of interest, contracts, campaign contributions, and ethics for application to its board members, officers, and employees. This bill would require the Metropolitan Water District of Southern California to adopt rules relating to inappropriate conduct, as defined, by board members, officers, and employees.	Watch	B. Watch	
SB 832	Dodd D	Water rights: measurement of diversion.	5/20/2022-Failed Deadline pursuant to Rule 61(b)(8). (Last location was S. APPR. SUSPENSE FILE on 4/25/2022)	5/20/2022-S. DEAD	Current law defines various terms applicable to the Water Code. This bill would define "water year," unless otherwise specified, to mean the 12-month period beginning October 1 and ending September 30.	Watch	B. Watch	
SB 890	Nielsen R	Department of Water Resources: Water Storage and Conveyance Fund: water storage and conveyance .	3/8/2022-March 8 set for first hearing. Failed passage in committee. (Ayes 3. Noes 6.)	2/9/2022-S. N.R. & W.	Would establish the Water Storage and Conveyance Fund in the State Treasury to be administered by the Department of Water Resources. The bill would require all moneys deposited in the fund to be expended, upon appropriation by the Legislature, in support of subsidence repair and reservoir storage costs, including environmental planning, permitting, design, and construction and all necessary road and bridge upgrades required to accommodate capacity improvements. The bill would require the department to expend from the fund, upon appropriation by the Legislature, specified monetary amounts to complete funding for the construction of the Sites Reservoir, and to restore the capacity of 4 specified water conveyance systems, as prescribed, with 2 of those 4 expenditures being in the form of a grant to the Friant Water Authority and to the San Luis and Delta-Mendota Water Authority. This bill would make these provisions inoperative on July 1, 2030, and would repeal it as of January 1, 2031.	Watch	B. Watch	
SB 892	Hurtado D	Cybersecurity preparedness: food and agriculture sector and water and	8/29/2022-Assembly amendments concurred in. (Ayes 40. Noes	8/29/2022-S. ENROLLMENT	Current law requires Cal-CSIC to provide warnings of cyberattacks to government agencies and nongovernmental partners, coordinate information sharing among these entities, assess risks to critical infrastructure information networks, enable cross-sector coordination and	Watch	B. Watch	

		wastewater systems sector.	0.) Ordered to engrossing and enrolling.		sharing of best practices and security measures, and support certain cybersecurity assessments, audits, and accountability programs. Current law also requires Cal-CSIC to develop a statewide cybersecurity strategy to improve how cyber threats are identified, understood, and shared in order to reduce threats to California government, businesses, and consumers, and to strengthen cyber emergency preparedness and response and expand cybersecurity awareness and public education. This bill would require Cal OES to direct Cal-CSIC to prepare, and Cal OES to submit to the Legislature on or before January 1, 2024, a strategic, multiyear outreach plan to assist the food and agriculture sector and the water and wastewater sector in their efforts to improve cybersecurity and an evaluation of options for providing grants or alternative forms of funding to, and potential voluntary actions that do not require funding and that assist, those sectors in their efforts to improve cybersecurity preparedness. The bill would make related findings and declarations.			
SB 1059	Becker D	Privacy: data brokers.	5/20/2022- Failed Deadline pursuant to Rule 61(b)(8). (Last location was S. APPR. SUSPENS E FILE on 5/16/2022)	5/20/2022-S . DEAD	Current law requires data brokers to register with, and provide certain information to, the Attorney General. Current law defines a data broker as a business that knowingly collects and sells to third parties the personal information of a consumer with whom the business does not have a direct relationship, subject to specified exceptions. Current law subjects data brokers that fail to register to injunction and liability for civil penalties, fees, and costs in an action brought by the Attorney General, with any recovery to be deposited in the Consumer Privacy Fund, as specified. Current law imposes a \$100 civil penalty for each day a data broker fails to register. This bill would include in the definition of data broker a business that knowingly collects and shares, as defined, certain personal information to third parties. The bill would transfer all authority and responsibilities under the provisions relating to data broker registration from the Attorney General to the CCPA, including by requiring data brokers to annually register with the CPPA on or before January 31. However, the bill would authorize the Attorney General to also bring an action against a data broker that fails to register.	Watch	B. Watch	
SB 1078	Allen D	Sea Level Rise Revolving Loan Pilot Program.	8/23/2022- Read third time and amended. Ordered to	8/15/2022- A. THIRD READING	Current law establishes in state government the Ocean Protection Council. Current law requires the council to, among other things, establish policies to coordinate the collection, evaluation,	Watch	B. Watch	

			third reading.		and sharing of scientific data related to coastal and ocean resources among agencies. Current law establishes the State Coastal Conservancy with prescribed powers and responsibilities for implementing and administering various programs intended to preserve, protect, and restore the state's coastal areas. This bill would require the council, in consultation with the conservancy, to develop the Sea Level Rise Revolving Loan Pilot Program, within 12 months of receiving specified requests from local jurisdictions to do so, for purposes of providing low-interest loans to local jurisdictions, as defined, for the purchase of coastal properties in their jurisdictions identified as vulnerable coastal property, as defined, located in specified communities, including low-income communities, as provided. The bill would require the council in consultation with other state planning and coastal management agencies, as provided, to adopt guidelines and eligibility criteria for the program. The bill would authorize specified local jurisdictions to apply for, and be awarded, a low-interest loan under the program from the conservancy, in consultation with the council, if the local jurisdiction develops and submits to the conservancy a vulnerable coastal property plan and completes all other requirements imposed by the council.			
SB 1197	Caballero D	Water Innovation and Drought Resiliency Act of 2022.	5/20/2022-Failed Deadline pursuant to Rule 61(b)(8). (Last location was S. APPR. SUSPENS E FILE on 5/2/2022)	5/20/2022-S . DEAD	Current law declares that the protection of the public interest in the development of the water resources of the state is of vital concern to the people of the state and that the state shall determine in what way the water of the state, both surface and underground, should be developed for the greatest public benefit. Current law creates the Office of Planning and Research to serve the Governor as staff for long-range planning and research and as a comprehensive state planning agency. This bill, the Water Innovation and Drought Resiliency Act of 2022, would create the Initiative to Advance Water Innovation and Drought Resiliency at the office for the furtherance of new technologies and other innovative approaches in the water sector. The bill would require the office, as part of the initiative, to take specified measures on or before December 31, 2024, to advance innovation in the water sector and ensure a drought-resilient economy.	Watch	B. Watch	
SB 1219	Hurtado D	21st century water laws and agencies: committee.	7/5/2022-Failed Deadline pursuant to Rule 61(b)(14).	7/5/2022-A. DEAD	Would require the Secretary of the Natural Resources Agency and the Secretary for Environmental Protection to convene a committee to develop and submit, on or before December 31, 2024, to the Governor and to the Legislature a	Watch	B. Watch	Possible priority bill, but unlikely to move.

			(Last location was A. W.,P. & W. on 6/2/2022)		strategic vision, proposed statutes, and recommendations for a modern 21st century set of water laws and regulations and state and local water agencies for the state, as provided. The committee would consist of 5 specified heads of state agencies, 2 members appointed by the Senate Committee on Rules, and 2 members appointed by the Speaker of the Assembly. The bill would require the Governor or the committee to appoint a “blue ribbon” citizen commission or taskforce, a stakeholder advisory committee, and any other group that the Governor or the committee deems necessary or desirable to assist in carrying out these provisions. The bill would require all relevant state agencies, at the request of the committee, to make available staff and resources to assist in the preparation of the strategic vision and proposed statutes.			
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SB 1476	Bradford D	Water replenishment districts: contracts.	8/23/2022-Enrolled and presented to the Governor at 12:30 p.m.	8/23/2022-S . ENROLL ED	The Water Replenishment District Act provides for the formation of water replenishment districts with prescribed powers for the purposes of replenishing the groundwater supplies within the district. The act requires a district to advertise for bids before making any contract totaling \$25,000 or more within any 12-month period and, when work is to be done, to give notice calling for bids by publication, as prescribed. The act requires contracts and other documents executed by a district that require or authorize the district to expend \$10,000 or more to be authorized by the board of directors and signed by the president and the secretary, except as specified. This bill would revise and recast the provisions establishing the competitive bidding and related public notice procedures for water replenishment districts, including, among other revisions, only until January 1, 2028, deleting the requirement that a district advertise for bids before making any contract totaling \$25,000 or more within any 12-month period, and instead requiring a district expenditure for the erection, construction, alteration, repair, or improvement of a public structure or building of \$25,000 or more be let by contract by formal bidding procedure.	Watch	B. Watch	
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Total Measures: 39

Total Tracking Forms: 39

**Metropolitan Water District of Southern California
State Legislative Matrix
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Item No. 2e

Topic	Bill Number Author	Status	Title – Summary	MWD Position	Effects on Metropolitan
Metropolitan-sponsored bills	SB 230 Portantino (D) Sponsors: Metropolitan and the California Municipal Utilities Association (CMUA)	Amended 6/22/2022 Assembly Appropriations Committee – Suspense File Hearing: August 11, 2022	State Water Resources Control Board: Constituents of Emerging Concern Program Seeks to expand statewide knowledge of Constituents of Emerging Concern (CECs) in drinking water sources and recommend CECs for further regulatory action.	CO-SPONSOR Based on October 2019 Board Action	Metropolitan and water agencies will benefit from State Water Board efforts to ensure CECs are addressed in a methodical and science-based manner, which will ultimately better protect public health. The bill would require the State Water Board to build its knowledge CECs in drinking water and authorizes the Board to convene a Science Advisory Panel to review and provide information on CECs for further regulatory action. The State Water Board would be required to present a final report to the Legislature on the work of the Science Advisory Panel.
Metropolitan-sponsored bills	AB 1845 Calderon (D) Sponsor: Metropolitan	Amended 6/16/2022 Senate Third Reading	Metropolitan Water District of Southern California: alternative project delivery methods Allows the Metropolitan Water District of Southern California to use alternative project delivery methods for the design and construction of a Regional Recycling Water Program and a	SPONSOR	Metropolitan is limited to the traditional Design-Bid-Build method for delivery of public works construction contracts which can be inefficient and inflexible for large, time-sensitive, and complex projects like Pure Water Southern California and emergency drought mitigation projects. Alternative delivery methods such as Design-Build, Progressive Design-Build, and Construction

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			limited set of drought-related projects.		Manager/General Contractor have the potential to expedite construction of critical new water infrastructure projects and reduce their overall costs. for subcontractors and designers.
Delta/State Water Project	SB 832 Dodd (D) Sponsor: Author	Amended 4/6/2022 Senate Appropriations Committee – Suspense File Held in Committee	Water rights: measurement of diversion Clarifies existing law that a person diverting 10 acre-feet or more of water per year under a registration is subject to existing water diversion measurement, recording, and reporting requirements. Also, authorize the State Water Board to modify water diversion measurement requirements to allow open satellite data methods to estimate evapotranspiration if the board makes certain findings regarding use of water for irrigation.	SUPPORT Based upon Board-adopted 2022 Legislative Priorities and Principles	Metropolitan supports metering and reporting of diversions to prevent unlawful diversion of State Water Project supplies in the Delta and other locations that may lead to additional regulatory burdens. Metropolitan is installing meters on its Delta Islands to comply with existing statutory requirements. While OpenET would be a useful tool for water management and could be used as an indicator of unlawful diversions in the Delta, it is a new methodology for California. The bill requires the State Water Board to conduct a five-year study to determine the adequacy of evapotranspiration methods as a substitute for conventional metering methods to comply with State Water Board reporting requirements.
Design-Build	SB 991 Newman (D)	Amended 6/20/2022	Public contracts: progressive design-build: local agencies	SUPPORT	SB 991 would benefit water agencies, including Metropolitan, by providing the option to use the Progressive Design-Build delivery method, which

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	<p>Sponsors:</p> <p>Water Collaborative Delivery Association (formerly Design Build Council)</p>	<p>Assembly Floor Consent Calendar</p>	<p>Authorize local water and wastewater agencies to each use the progressive design-build (PDB) project delivery method for up to 15 public works projects each in excess of \$5 million.</p>	<p>Based on April 2022 Board Action</p>	<p>allows for greater collaboration between the project owner and the contractor through the design and construction phase thereby reducing project costs, risk, and schedules.</p>
<p>Governance</p>	<p>AB 2449 B. Rubio (D)</p> <p>Sponsor:</p> <p>Three Valleys Municipal Water District</p>	<p>Amended 6/30/2022</p> <p>Senate Third Reading</p>	<p>Open meetings: local agencies: teleconferences</p> <p>Amends the Ralph M. Brown Act to allow local agencies until January 1, 2026 to use teleconferencing during non-emergencies without noticing their teleconference locations and making them publicly accessible under certain conditions.</p>	<p>SUPPORT</p> <p>Based on April 2021 Board Action</p>	<p>Metropolitan currently hosts teleconferencing public meetings in accordance with Executive Order, N-29-20. AB 2449 allows the option to hold teleconferenced meetings into the future after the COVID-19 public health emergency is over and the Executive Order is lifted as long as a quorum of the Board’s directors participate in person; give notice and post agendas as prescribed; ensure that directors attending meeting participate through both audio and visual technology; and allow the public to address the Board in person or by teleconference. If there is a disruption to the call-in or streaming options, then no action can be taken by the board.</p>

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State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

Regulatory Reform	<p>AB 2313 Bloom (D)</p> <p>Sponsor:</p> <p>Author</p>	<p>Amended 6/30/2022</p> <p>Senate Appropriations Committee – Suspense File</p> <p>Hearing: August 11, 2022</p>	<p>Water: judges and adjudications</p> <p>Would require the Judicial Council on or before January 1, 2025 to establish a program that provides training and education to judges in specified actions relating to water quality, groundwater, water transfers and water rights. Allows parties to file a notice for a water case to be assigned to a judge who has been through the training. Also requires the Judicial Council to identify independent and nonpartisan experts in water issues who will be available to any judge adjudicating a water dispute and authorizes judges to appoint special masters in water cases to investigate technical and legal issues among other duties.</p>	<p>SUPPORT</p> <p>Based upon Board-adopted 2022 Legislative Priorities and Principles</p>	<p>Metropolitan’s interests in enforcement of water quality law and water rights would be better served by judges, court staff, and special masters who have received training in the legal, scientific, and technical issues involving water quality, water rights and water transfers.</p>
Regulatory Reform	<p>SB 1065 Eggman (D)</p> <p>Sponsor:</p>	<p>Amended 6/22/2022</p> <p>Assembly Appropriations</p>	<p>California Abandoned and Derelict Commercial Vessel Program</p> <p>Establishes the California Abandoned and Derelict</p>	<p>SUPPORT</p>	<p>SB 1065 will benefit water quality in the Bay Delta as abandoned and derelict vessels may cause sewage contamination and leakage of fuels and lubricants. Studies have shown that abandoned and derelict vessels are</p>

**Metropolitan Water District of Southern California
State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

	Author	Committee – Suspense File Hearing: August 11, 2022	Commercial Vessel Program within the Natural Resources Agency to bring federal, state, and local agencies together to identify, prioritize and, upon appropriation, fund the removal of abandoned and derelict commercial vessels from waters of the state.		one of the stressors to the Delta and its species. SB 1065 would also provide protection to Metropolitan properties in the Delta in the event any vessel happens to be abandoned in any of the waters surrounding Metropolitan’s Delta Islands.
Water Bond Infrastructure Funding	SB 559 Hurtado (D) Sponsors: Friant Water Authority, San Luis & Delta Mendota Water Authority, and State Water Contractors	Amended 8/30/2021 Assembly Inactive Two-year bill	Department of Water Resources: water conveyance systems: Canal Conveyance Capacity Restoration Fund Establishes the Canal Conveyance Capacity Restoration Fund that would upon appropriation provide up to \$785 million for the Department of Water Resources (DWR) to help pay for subsidence repairs to the State Water Project and Central Valley Project water conveyance systems and for necessary road and bridge upgrades.	WATCH Based upon Board adopted 2021 State Legislative Priorities and Principles	Portions of the California Aqueduct, the Friant Kern Canal and the Delta Mendota Canal have lost capacity due to subsidence. The Fund would upon appropriation provide funding to DWR to support a 10-year program to restore the capacity of the canals and ensure a more secure water supply. Funds could be used to cover one-third of the cost to restore the capacity of the canals. A federal companion bill is envisioned that would provide one-third the cost and local partners would contribute the remaining one-third of the cost. The creation of the Fund is contingent upon all the following: an appropriation of funds; an agreement is executed to provide for local cost share; and the provision of adequate cost share as determined by the DWR Director. The August 8 Assembly

**Metropolitan Water District of Southern California
State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

					Amendments are problematic causing the State Water Contractors and Metropolitan to withdraw support for the bill.
Water Conservation	<p>AB 2142 Gabriel (D)</p> <p>Sponsor: Association of California Water Agencies California Water Efficiency Partnership WaterNow Alliance</p>	<p>Amended 4/6/2022</p> <p>Senate Appropriations Committee – Suspense File</p> <p>Hearing: August 11, 2022</p>	<p>Income taxes: exclusion: turf replacement water conservation program.</p> <p>Would provide an exclusion from gross income for any amount received as a rebate, voucher or other financial incentive issued by a local water agency or supplier for participation in a turf replacement water conservation program during the taxable years of January 1, 2022 through January 1, 2027.</p>	<p>SUPPORT</p> <p>Based upon Board adopted 2022 Legislative Priorities and Principles</p>	<p>Metropolitan supported the Making Conservation a Way of Life legislation and is working hard to promote indoor and outdoor conservation. Conservation rebates are key to success. California law previously exempted turf rebates from taxable income, but those provisions were allowed to sunset in December 2019. This bill would reinstate an important tax exemption for turf replacement rebates from gross income in California, aligning it with certain other permanently exempt efficiency rebates.</p>
Water Quality	<p>AB 1817 Ting (D)</p> <p>Sponsors: Breast Cancer Prevention Partners,</p>	<p>Amended 6/30/2022</p> <p>Senate Third Reading</p>	<p>Product safety: textile articles: perfluoroalkyl and polyfluoroalkyl (PFAS).</p> <p>Prohibits as of January 1, 2025, any person from manufacturing, distributing, selling, or offering for sale in California any textile articles that contain “regulated</p>	<p>SUPPORT</p> <p>Based upon Board adopted 2022 Legislative Priorities and Principles</p>	<p>Metropolitan supports the removal or reduction of PFAS in manufactured products in order to protect source water quality. The May 9 amendments excludes from the PFAS prohibition certain textiles, e.g. personal protective equipment, and requires a manufacturer of textiles that contains PFAS to provide a person</p>

**Metropolitan Water District of Southern California
State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

	Natural Resources Defense Council, and Clean Water Action		PFAS” as defined, and requires the manufacturer to use the least toxic alternative to regulated PFAS.		selling the product a certificate of compliance stating the textile product complies with the PFAS prohibition. The Senate Environmental Quality Committee amended the bill to exempt certain textiles or grant longer compliance periods to address concerns regarding the lack of an adequate PFAS substitute for some textiles.
Water Quality	AB 2108 R. Rivas (D) Sponsor: California Coastkeeper Alliance	Amended 6/16/2022	Water policy: environmental justice: disadvantaged and tribal communities. Requires that one of the five (5) Governor appointees to the State Water Resources Control Board (State Board) be qualified in the field of water supply and water quality relating to environmental justice or tribal communities and at least one of the seven (7) appointees to each Regional Board have specialized experience to represent environmental justice or tribal communities. Requires the State Board and each Regional Board to begin addressing issues of	SUPPORT IF AMENDED	Some provisions in the bill are ambiguous in ways that could be interpreted to authorize and require the State Board to reallocate water rights, including in the Bay-Delta watershed, to address injustices or inequities, jeopardizing the current and future Bay-Delta Water Quality Control Plan update processes and potentially diminishing State Water Project supplies. Metropolitan is seeking amendments to clarify the bill’s focus on process and water quality under the State and Regional Boards’ existing authority over water quality.

**Metropolitan Water District of Southern California
State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

			environmental justice and social equity as early as possible in project planning processes and when issuing waste discharge permits or updating state or regional water quality control plans or policies.		
Water Quality	<p>AB 2247 Bloom (D)</p> <p>Sponsors:</p> <p>Environmental Working Group, Clean Water Action, and California Association of Sanitation Agencies</p>	<p>Amended 5/19/2022</p> <p>Senate Appropriations Committee – Suspense File</p> <p>Hearing: August 11, 2022</p>	<p>Perfluoroalkyl and polyfluoroalkyl substances (PFAS) and PFAS products and product components: publicly accessible reporting platform.</p> <p>Requires the Department of Toxic Substances Control to develop a publicly accessible reporting platform to collect information about PFAS and products containing intentionally added PFAS by January 1, 2025. By July 1, 2025, manufactures will be required to register the PFAS or product containing intentionally added PFAS on the reporting platform.</p>	<p>SUPPORT</p> <p>Based upon Board adopted 2022 Legislative Priorities and Principles</p>	Metropolitan supports the removal or reduction of PFAS in manufactured products to protect source water quality.
Water quality	<p>AB 2771 Friedman (D)</p> <p>Sponsors:</p>	<p>Amended 6/13/2022</p>	<p>Cosmetic products: safety</p> <p>Prohibits as of January 1, 2025 any person or entity from</p>	<p>SUPPORT</p> <p>Based upon Board adopted</p>	Metropolitan supports the removal or reduction of PFAS in manufactured products to protect source water quality.

**Metropolitan Water District of Southern California
State Legislative Matrix
August 15, 2022 – Second Year of Legislative Session**

	Environmental Working Group, Breast Cancer Prevention Partners, The California Public Research Group (CALPIRG)	Senate Third Reading	manufacturing, selling, delivering, holding, or offering for sale in commerce any cosmetic product that contains PFAS.	2022 Legislative Priorities and Principles	
Water Quality	SB 1124 Archuleta (D) Sponsor: Author	Amended 6/23/2022 Assembly Appropriations Committee – Suspense File Hearing: August 11, 2022	Public health goal: primary drinking water standard: manganese Requires, on or before July 1, 2023, the Office of Environmental Health Hazard Assessment (OEHHA) to prepare a public health goal for manganese. Requires the state board, after OEHHA publishes a public health goal for manganese, to adopt a primary drinking water standard.	OPPOSE UNLESS AMENDED Based upon Board adopted 2022 Legislative Priorities and Principles	Metropolitan supports efforts to ensure all communities have a safe and reliable water supply by setting drinking water standards through the normal regulatory process. The bill circumvents that process and could compromise a rigorous scientific process backed by data and stakeholder engagement. Metropolitan is working with CMUA and ACWA to seek amendments to ensure that the State Water Board follows a science-based approach and does not presuppose and outcome.



STAFF REPORT

To: Board of Directors **Meeting Date:** September 22, 2022
From: Sherri Seitz, Public Affairs Manager
Subject: Public Education and Outreach Report

Bill Message:

Customer September/October bill message:

Save water outdoors! Fall is the perfect time to plant California Friendly and drought tolerant plants. Visit Calscape.org to see plants native to your location.

Newsletter

The Fall ETWD newsletter will be published and distributed in September/October.

Project Community Outreach

Sherri Seitz and Hannah Ford met with the Laguna Parent Preschool next to the El Toro Reservoir exit route onto Alicia Parkway. We are working to avoid high construction traffic during the schools drop off and pick up times.

County of Orange Adopt-a-Channel

Staff has begun the process by submitting an encroachment permit to adopt the F23 Channel through the Adopt-A-Channel Program. Staff will provide updates when signs are completed and the program begins.

Community Advisory Group Meeting

ETWD held a CAG meeting on August 31, 2022. Dennis Cafferty provided an update on the current water supply and Hannah Ford provided updates on ETWD's Water and Wastewater Improvement Projects. There were 27 attendees in addition to staff and Directors.

Orange County Registrar of Voters

ETWD has partnered with the Orange County Registrar of Voters to hold an early vote center in the ETWD Multipurpose Room from November 4 through November 9, 2022. The public will be able to vote from November 5th through November 8th.

Low Income Household Water Assistance Program (LIHWAP)

ETWD will be distributing information on the LIHWAP program to customers that are in arrears and will link the information to the ETWD website. The program provides a financial help to eligible Orange County residents for their residential water utility bill. The program gives a one-time benefit of up to \$2,000 for an eligible, low-income customer's water or wastewater bill. It is a direct payment agreement and payments are sent directly to the customer's water agency. For more information on the program, please visit: [Water | Community Action Partnership of Orange County \(capoc.org\)](https://www.capoc.org)

Community Events

City of Mission Viejo Disaster Preparedness Expo

ETWD will staff a booth and provide drinking water to the expo attendees on Saturday, October 12, 2022 from 8:00 a.m. to 12 noon. The expo is located at the Norman P. Murray Community Center in Mission Viejo and the Annual Walk Against Drugs ends at the expo location.



STAFF REPORT

To: Board of Directors

Meeting Date: September 22, 2022

From: Vu Chu, Water Use Efficiency Analyst

Subject: Water Use Efficiency Report

Rebate Programs:

The SoCal WaterSmart regional rebate program is available to ETWD customers provided by the Metropolitan Water District of Southern California, the Municipal Water District of Orange County and ETWD.

The following tables reflect the ETWD customer device rebates available to customers from July 2022 through June 30, 2024.

Select device purchases are eligible for rebates while meeting eligibility requirements and subject to funding availability. Rebate information can be found at www.etwd.com/conservation/rebates.

Residential Rebate Programs:

Device	MET Rebate	MWDOC Grant	ETWD Rebate	Total Rebate (up to)
High Efficiency Clothes Washer	\$85		\$115	\$200
Premium High Efficiency Toilet	\$40		\$60	\$100
Rotating Sprinkler Nozzles (min 30 per home)	\$2 ea			\$2
Smart Irrigation Timer	\$80	\$100	\$70	\$250
Turf Removal Program (up to 5,000 sq ft)*	\$2 sq. ft.	\$1 sq. ft.	\$1 sq. ft.	\$4 sq. ft.
Soil Moisture Sensor System <1 Acre >1 Acre	\$80 \$35/station	\$100	\$70	\$250 \$35/station

Hose Bib Irrigation Controller	\$35			\$35
Rain Barrels Cisterns (200 -500 gallon) (501-999 gallon) (1,000 gallon or more)	\$35 \$250 \$300 \$350			\$35 \$250 \$300 \$350
Spray to Drip Irrigation (up to 5,000 sf of converted area per fiscal year)		\$0.50 sq. ft.	\$0.25 sq. ft.	\$0.75 sq. ft.

*Designated recycled water sites are not eligible for turf removal rebates. MWDOC Grant funding based on availability. ETWD has discontinued funding of synthetic turf rebates.

Commercial Rebate Programs:

Device	MET Rebate	MWDOC Grant	ETWD Rebate	Total Rebate (up to)
Premium High Efficiency Toilet	\$40			\$40
Multi-family Premium High Efficiency Toilet	\$40			\$40
Zero Water/Ultra Low Water Urinal	\$200			\$200
Plumbing Flow Control Valve (min. 10)	\$5			\$5
Smart Irrigation Timer/Central Computer Irrigation Controller/Soil Moisture Sensor System/Hose Bib Irrigation Controller	\$35/station			\$35/station
Rotating Sprinkler Nozzles (minimum quantity of 15)	\$2			\$2
Rotating Nozzles – Large Rotary	\$13			\$13
Turf Removal Program (up to 50,000 sq ft MET-MWDOC/up to 10,000 sq. ft. ETWD funding)*	\$2 sq. ft*			\$2 sq. ft.*
Spray to Drip Irrigation (up to 45,000 sq. ft)		\$0.50 sq. ft.		\$0.50 sq. ft.

*Designated recycled water sites are not eligible for turf removal rebates. Synthetic turf is not eligible for the turf removal rebate. Additional commercial rebates available online at ocwatersmart.com. MWDOC Grant funding based on availability.

Actual Customer Rebate and Budget Analysis:

The following ETWD supplemental rebates are in addition to the Metropolitan Water District device rebates and the Municipal Water District of Orange County turf removal program that have been paid during the current fiscal year 2022/2023.

Device	Total # Rebates Paid	ETWD Supplemental Amount	Budget 22/23	ETWD Supplemental Rebate Total
High Efficiency Clothes Washer	0	\$115	\$9,200	\$0
Premium High Efficiency Toilet	0	\$60	\$3,000	\$0
Smart Irrigation Timer/Soil Moisture Sensor System	0	\$75 (amount varies)	\$2,100	\$0
Rain Barrels Cisterns	0	\$15	\$225	\$0
Total			\$14,525	\$0

Turf Removal Program	Total sq.ft. Paid	ETWD Supplemental Amount	Budget 22/23	ETWD Supplemental Rebate Total
Turf Removal Residential	0	\$1 sq. ft.	\$10,000	\$0

Water Use Efficiency Plan Update:

The District Water Budget-Based Tiered Conservation Rate Structure (WBBTCRS) pricing structure is the primary plan that gives customers the incentive needed to be efficient. The Plan efforts initially will concentrate on those customers continually in the Inefficient and Excessive Tiers (Tiers 3 and 4). [As of August 2022, year-to-date sales, residential accounted for 55% of the overall Tier 3 usage and dedicated irrigation accounted for 49% of Tier 4 usage.](#)

Total Consumption Comparison to Evapotranspiration (ET) Factor::

Included in this month's Water Use Efficiency Report is a chart comparing the current fiscal year consumption and ET factor to the fiscal 2021/22 consumption and ET factor. [The ET factor increased 8.8% from August 2021 when compared to August 2022. There was a 7.2% reduction in total consumption reflected in August 2022 versus August 2021.](#)

MWDOC Water Use Efficiency Program Savings and Implementation Report/ETWD Water Use Efficiency Program Savings Report:

ETWD's Water Use Efficiency Program Savings report shows current District customer participation in MWDOC's water use efficiency programs along with savings provided in acre/feet per year, million gallons per year and avoided water costs based on those calculations.

ETWD Tier Consumption Information and Usage Information Compared to Previous Years:

The following graphs highlight ETWD year-to-date consumption and consumption by tier for the current fiscal year compared to 2021-2022 fiscal year. ETWD water usage compared to 2013 and 2020 are also included.

El Toro Water District Water Use Efficiency Program Savings

Program	Program Start Year	Program/Total Years	Avoided Water Use Acre Feet/Annual	Avoided Water Use Million Gallons/Annual	Avoided Water Costs Based on MWDOC Rate (\$2.16 CCF) Annual
High Efficiency Toilet (HET)	2005	16	54.68	17.82	\$51,459
High Efficiency Clothes Washers--Residential	2001	20	26.31	8.57	\$24,760
*SoCal Water Smart Commercial Plumbing Fixtures Rebate Program (ULFT's, HET's, Urinals, HECW, Cooling Tower Conductivity Controllers)	2002	19	58.32	19.01	\$54,885
SmarTimer Program--Irrigation Timers	2004	17	190.46	62.07	\$179,242
Rotating Nozzles Rebate Program	2007	14	147.36	48.02	\$138,681
Turf Removal Program	2010	11	95.27	31.05	\$89,659
Rain Barrels	2013	8	0.17	0.06	\$160
Spray to Drip	2013	8	5.38	1.75	\$5,063
**Water Smart Landscape Program - Ended 2016	1997	20	242.90	79.16	\$228,594
Synthetic Turf Rebate Program--Ended 2011	2007	8	0.90	0.29	\$847
***Ultra Low Flush Toilets (ULFT)--Ended 2009	1992	16	193.20	58.00	\$167,487
Computer Controlled Irrigation System--Gate 11--Ended 2006	2001	6	8.88	2.89	\$8,357
Totals			1023.8	333.7	\$963,528

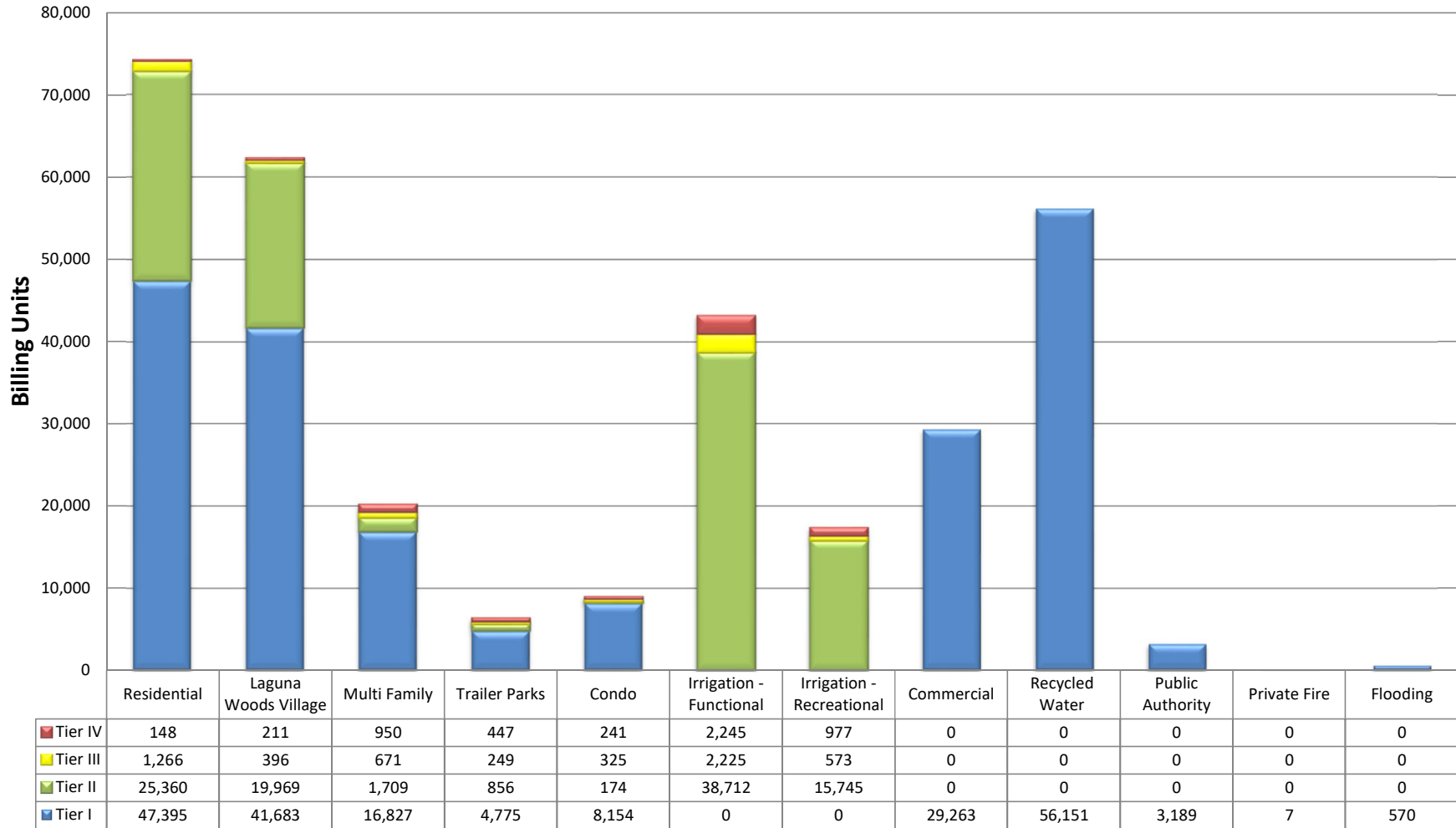
* Formerly the Save Water Save a Buck - Commercial Rebate Program

** Formerly the Landscape Performance Certification Program

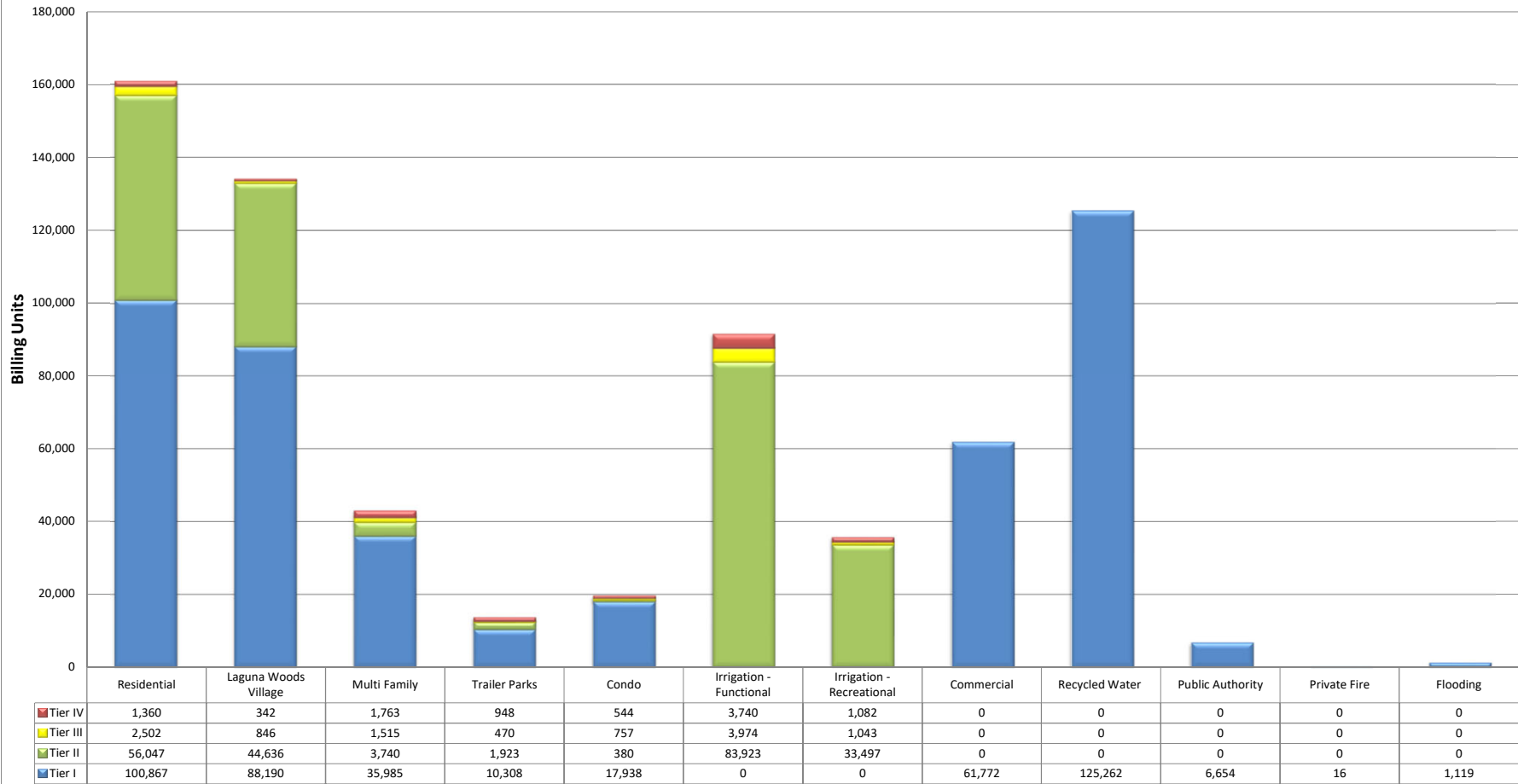
*** Correction on date and total

Because of our participation in Water Use Efficiency Programs, the District will not be using an estimated 333.7 million gallons of water per year.

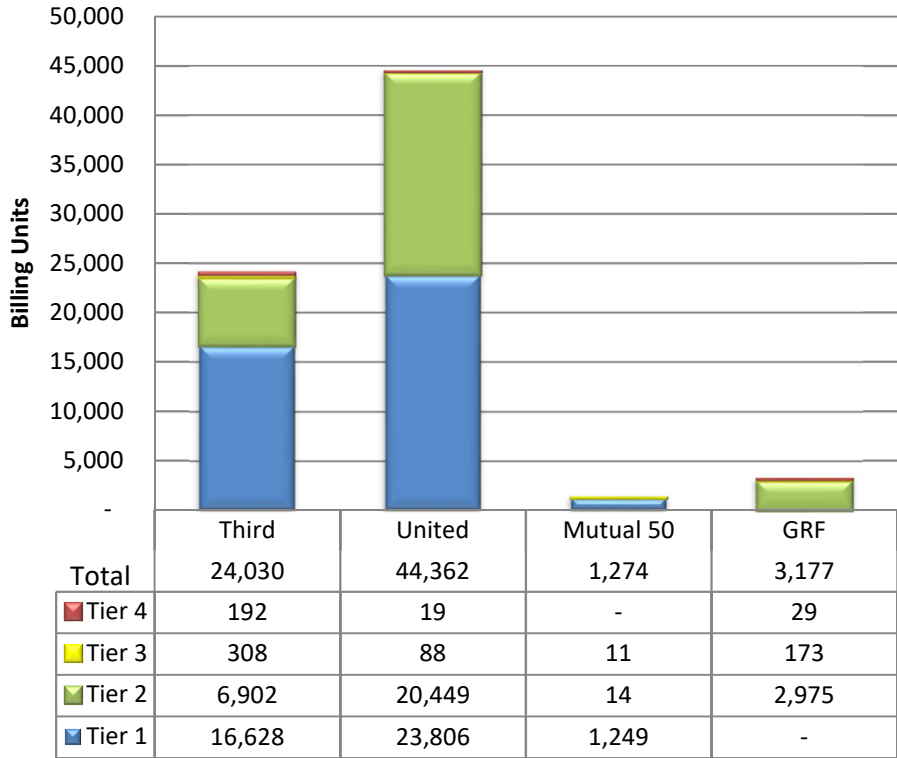
August 2022 Water Sales



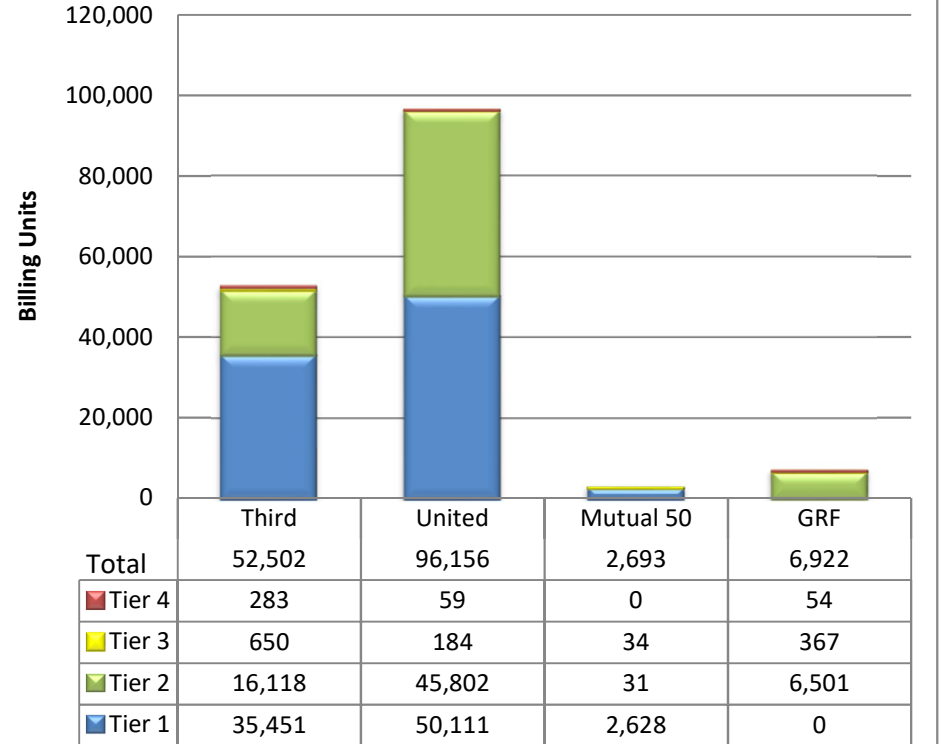
Year-to-Date Water Sales as of August 2022



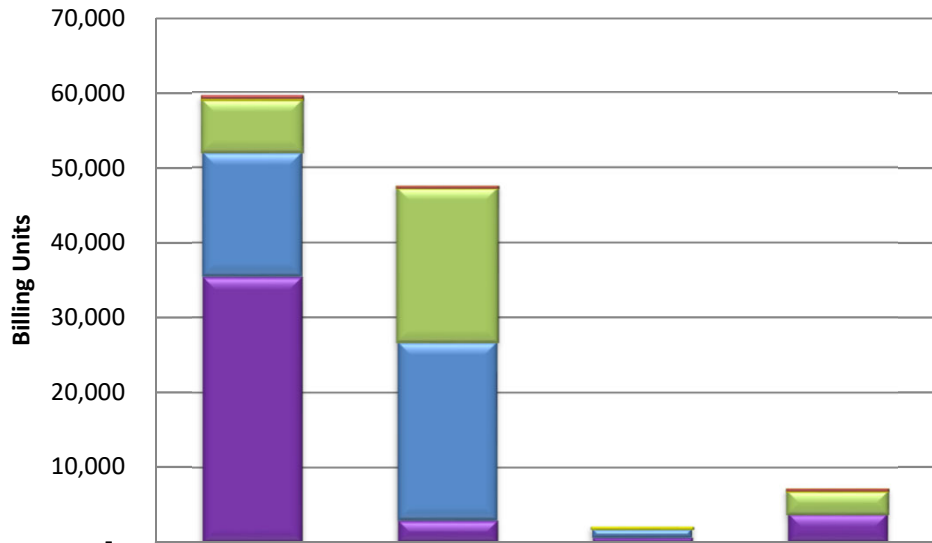
Laguna Woods Village August 2022 Water Sales



Laguna Woods Village Year-to-Date Water Sales August 2022

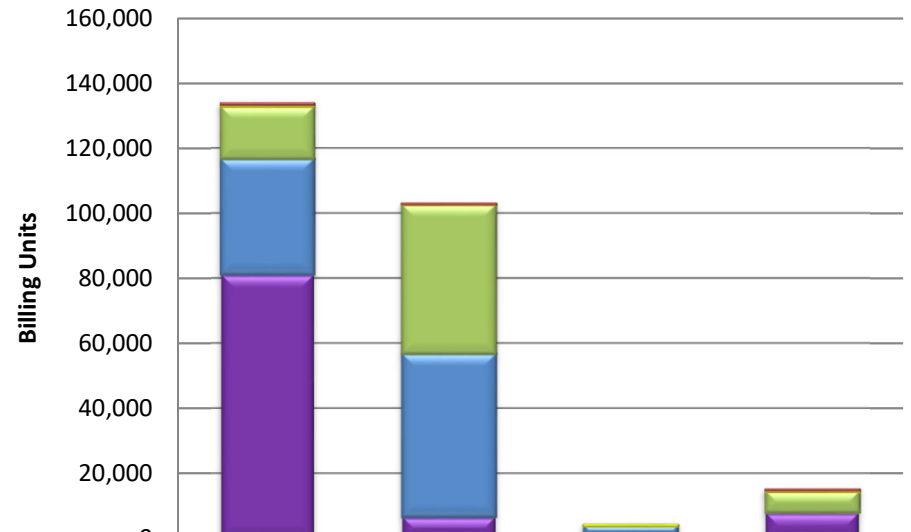


Laguna Woods Village August 2022 Water & RW Sales



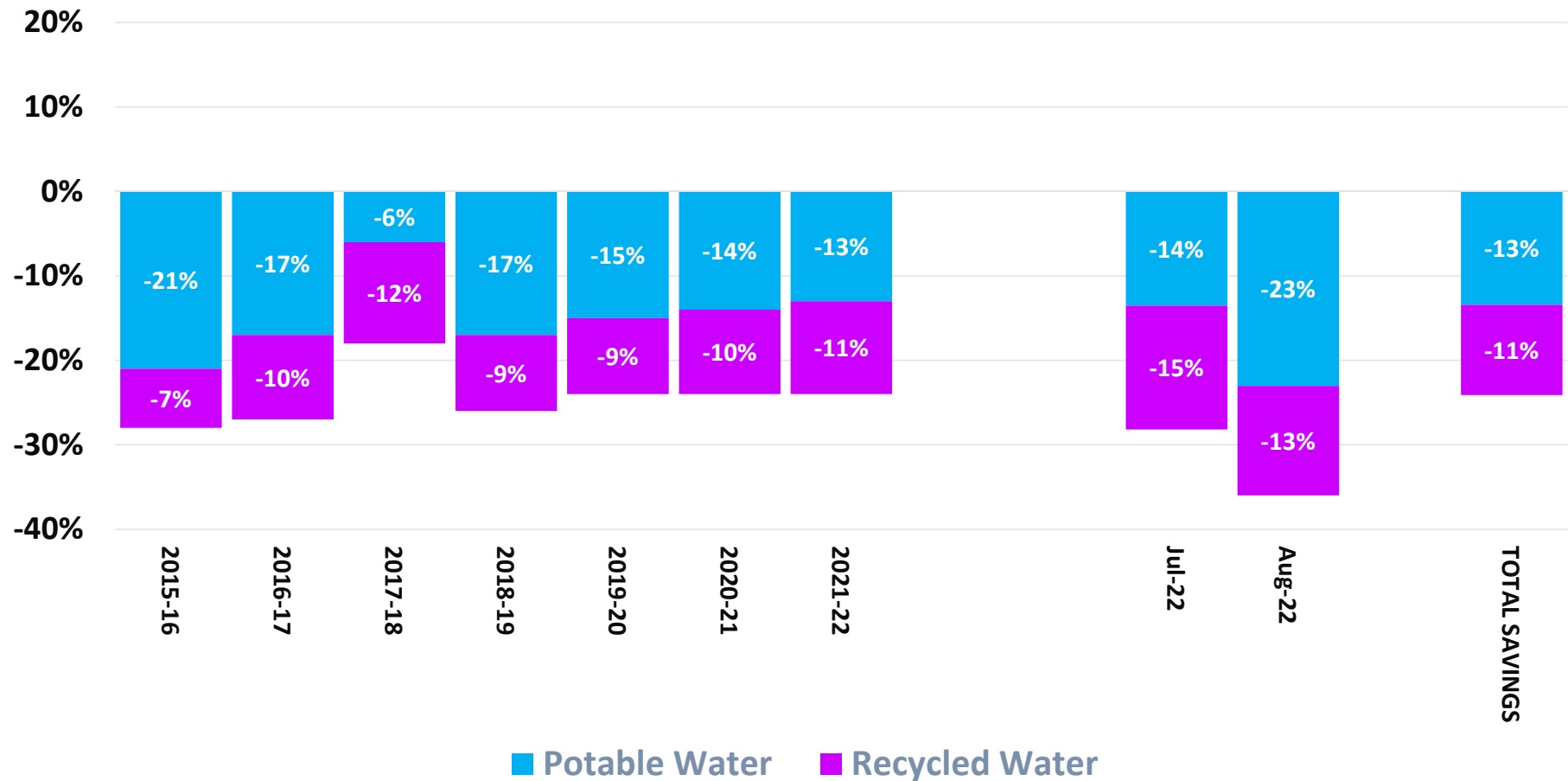
Total	Third	United	Mutual 50	GRF
	59,427	47,313	1,921	7,034
Tier 4	192	19	-	29
Tier 3	308	88	11	173
Tier 2	6,902	20,449	14	2,975
Tier 1	16,628	23,806	1,249	-
RW	35,397	2,951	647	3,857

Laguna Woods Village Year-to-Date Water & RW Sales August 2022

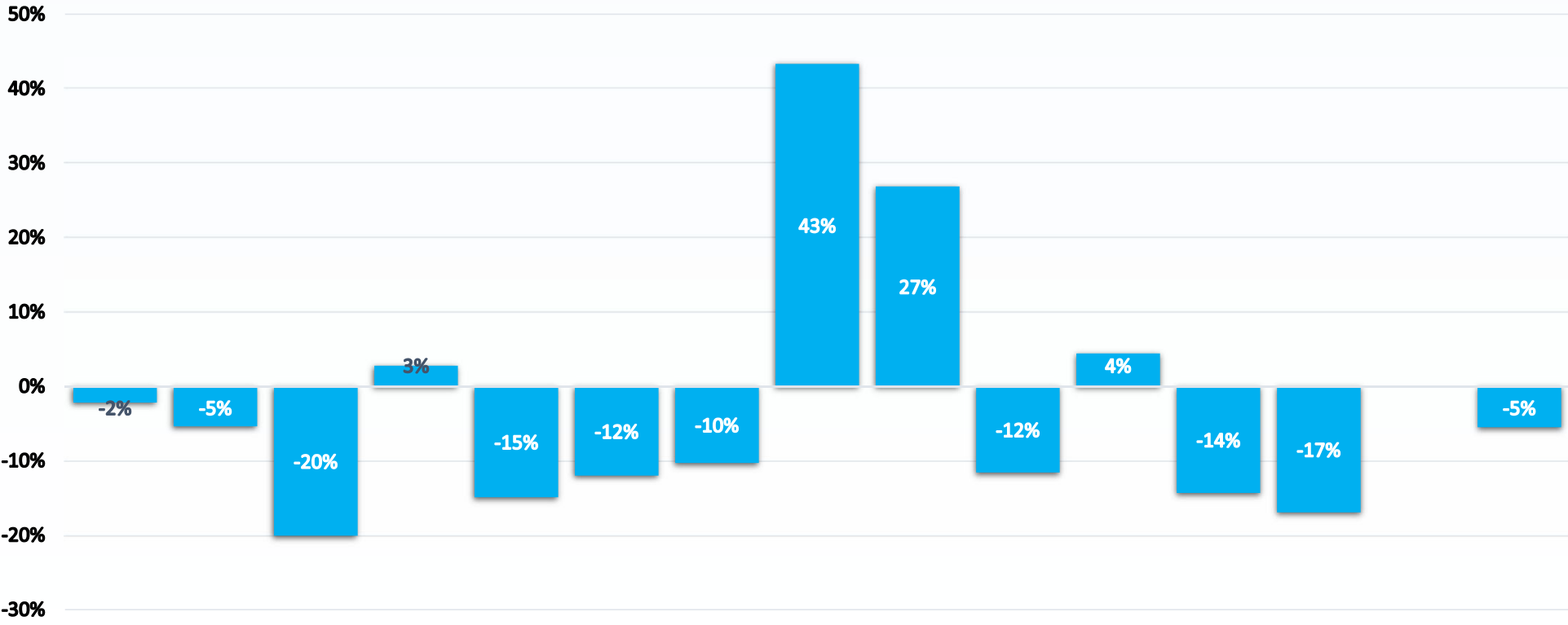


Total	Third	United	Mutual 50	GRF
	133,576	102,765	4,000	14,886
Tier 4	283	59	0	54
Tier 3	650	184	34	367
Tier 2	16,118	45,802	31	6,501
Tier 1	35,451	50,111	2,628	0
RW	81,074	6,609	1,307	7,964

ETWD WATER USAGE COMPARED TO 2013



ETWD WATER USAGE COMPARED TO 2020



	Aug-21	Sept-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	TOTAL
% Change	-2%	-5%	-20%	3%	-15%	-12%	-10%	43%	27%	-12%	4%	-14%	-17%	-5%

**NOTICE OF SPECIAL MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY**

BOARD OF DIRECTORS

ALL-HANDS JPA WORKSHOP

**August 31, 2022
3:00 P.M.**

PHYSICAL MEETING LOCATION:
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

IN ACCORDANCE WITH AB361, MEMBERS OF THE PUBLIC ARE INVITED TO PARTICIPATE AND MAY JOIN THE MEETING VIA ONLINE AND BY TELECONFERENCE PHONE NUMBER. THIS IS A PHONE CALL MEETING AND NOT A WEB-CAST MEETING SO PLEASE REFER TO AGENDA MATERIALS AS POSTED ON THE WEBSITE AT WWW.SOCWA.COM. ON YOUR REQUEST, EVERY EFFORT WILL BE MADE TO ACCOMMODATE PARTICIPATION.

PUBLIC COMMENTS WILL BE TAKEN DURING THE MEETING FOR ORAL COMMENTS. COMMENTS MAY ALSO BE SUBMITTED PRIOR TO THE MEETING VIA EMAIL TO ASSISTANT SECRETARY DANITA HIRSH AT DHIRSH@SOCWA.COM.

IF YOU REQUIRE ANY SPECIAL DISABILITY RELATED ACCOMMODATIONS, PLEASE CONTACT THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY SECRETARY'S OFFICE AT (949) 234-5452 AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE SCHEDULED MEETING TO REQUEST DISABILITY RELATED ACCOMMODATIONS. THIS AGENDA CAN BE OBTAINED IN ALTERNATE FORMAT UPON REQUEST TO THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY'S SECRETARY AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE SCHEDULED MEETING.

AGENDA ATTACHMENTS AND OTHER WRITINGS THAT ARE DISCLOSABLE PUBLIC RECORDS DISTRIBUTED TO ALL, OR A MAJORITY OF, THE MEMBERS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY BOARD OF DIRECTORS IN CONNECTION WITH A MATTER SUBJECT TO DISCUSSION OR CONSIDERATION AT AN OPEN MEETING OF THE BOARD OF DIRECTORS ALL-HANDS JPA WORKSHOP ARE AVAILABLE BY PHONE REQUEST MADE TO THE AUTHORITY ADMINISTRATIVE OFFICE AT 949-234-5452. THE AUTHORITY ADMINISTRATIVE OFFICES ARE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY OFFICE"), BUT ARE NOT OPEN TO THE PUBLIC DURING THE PERIOD OF STAY AT HOME ORDERS. IF SUCH WRITINGS ARE DISTRIBUTED TO MEMBERS OF THE BOARD OF DIRECTORS LESS THAN TWENTY-FOUR (24) HOURS PRIOR TO THE MEETING, THEY WILL BE SENT TO PARTICIPANTS REQUESTING VIA EMAIL DELIVERY. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IMMEDIATELY ON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES.

**THE PUBLIC MAY PARTICIPATE REMOTELY BY VIRTUAL MEANS FOR AUDIO
OF MEETING BY CLICKING ON THE LINK BELOW OR BY CALLING IN.**

Join Zoom Meeting
<https://socwa.zoom.us/>

Meeting ID: 867 0399 4578
Passcode: 617313

Dial by your location:

+1 669 900 6833 US (San Jose) +1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston) +1 312 626 6799 US (Chicago)

Find your local number: <https://socwa.zoom.us/j/86703994578>

AGENDA

Convene at Santa Margarita Water District, Rancho Santa Margarita, California

1. Call Meeting to order
Matt Collings, Board Chairman
2. Roll Call
3. Public Comments/Oral Communications
4. Facilitation of Organizational Feedback –
Alternative Wastewater Delivery Discussion
 - a. Opening Remarks – Board Chairman
 - b. Ohlund Presentation
 - c. Open discussion/comments/direction
5. Adjournment

I hereby certify that the foregoing Notice was personally emailed or mailed to each member of the SOCWA Board of Directors at least 24 hours prior to the scheduled time of the Special Meeting referred to above.

I hereby certify that the foregoing Notice was posted at least 24 hours prior to the time of the above-referenced Special Meeting at the usual agenda posting location of the South Orange County Wastewater Authority and at www.socwa.com.

Dated this 26th day of August 2022.



Betty Burnett, General Manager/Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

I hereby certify that the following Agenda was posted at least 72 hours prior to the time of the Board Meeting so noticed below, at the usual agenda posting location of the South Orange County Wastewater Authority [SOCWA] and at www.socwa.com.



Betty Burnett, General Manager
SOCWA and the Board of Directors thereof

*Regular Meeting of The
South Orange County Wastewater Authority
Board of Directors*

September 1, 2022
8:30 a.m.

PHYSICAL MEETING LOCATION:

Dana Hills Tennis Center
24911 Calle De Tennis
Dana Point, CA 92629

IN ACCORDANCE WITH AB361, MEMBERS OF THE PUBLIC ARE INVITED TO PARTICIPATE AND MAY JOIN THE MEETING VIA ONLINE FOR VISUAL INFORMATION ONLY (USE ZOOM LINK BELOW) AND BY TELECONFERENCE PHONE NUMBER FOR AUDIO PARTICIPATION (USE PHONE NUMBERS BELOW). THIS IS A PHONE CALL MEETING AND NOT A WEB-CAST MEETING SO PLEASE REFER TO AGENDA MATERIALS AS POSTED ON THE WEBSITE AT WWW.SOCWA.COM. ON YOUR REQUEST, EVERY EFFORT WILL BE MADE TO ACCOMMODATE PARTICIPATION.

PUBLIC COMMENTS WILL BE TAKEN DURING THE MEETING FOR ORAL COMMENTS. COMMENTS MAY ALSO BE SUBMITTED PRIOR TO THE MEETING VIA EMAIL TO ASSISTANT SECRETARY DANITA HIRSH AT DHIRSH@SOCWA.COM.

IF YOU REQUIRE ANY SPECIAL DISABILITY RELATED ACCOMMODATIONS, PLEASE CONTACT THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY SECRETARY'S OFFICE AT (949) 234-5452 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING TO REQUEST DISABILITY RELATED ACCOMMODATIONS. THIS AGENDA CAN BE OBTAINED IN ALTERNATE FORMAT UPON REQUEST TO THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY'S SECRETARY AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING.

AGENDA ATTACHMENTS AND OTHER WRITINGS THAT ARE DISCLOSABLE PUBLIC RECORDS DISTRIBUTED TO ALL, OR A MAJORITY OF, THE MEMBERS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY BOARD OF DIRECTORS IN CONNECTION WITH A MATTER SUBJECT TO DISCUSSION OR CONSIDERATION AT AN OPEN MEETING OF THE BOARD OF DIRECTORS ARE AVAILABLE BY PHONE REQUEST MADE TO THE AUTHORITY ADMINISTRATIVE OFFICE AT 949-234-5452. THE AUTHORITY ADMINISTRATIVE OFFICES ARE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY OFFICE"), BUT ARE NOT OPEN TO THE PUBLIC DURING THE PERIOD OF STAY AT HOME ORDERS. IF SUCH WRITINGS ARE DISTRIBUTED TO MEMBERS OF THE BOARD OF DIRECTORS LESS THAN SEVENTY-TWO (72) HOURS PRIOR TO THE MEETING, THEY WILL BE SENT TO PARTICIPANTS REQUESTING VIA EMAIL DELIVERY. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IMMEDIATELY ON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES.

THE PUBLIC MAY PARTICIPATE REMOTELY BY VIRTUAL MEANS FOR AUDIO OF MEETING USE THE CALL IN PHONE NUMBERS BELOW AND FOR VIDEO USE THE ZOOM LINK BELOW.

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South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

Find your local number: <https://socwa.zoom.us/j/kbXbIKYKTi>

1. CALL TO ORDER
2. PLEDGE OF ALLEGIANCE
3. ORAL COMMUNICATIONS

Members of the public may address the board regarding an item on the agenda or may reserve this opportunity during the meeting at the time the item is discussed by the board. There will be a three-minute limit for public comments.

PAGE NO

4. AB361 – ALLOWING FOR VIRTUAL MEETINGS – Findings and Approval to continue Virtual meetings 1

ACTION The staff recommends that the Board of Directors approve the following findings and actions:

- A. The Board hereby FINDS AND DECLARES that it has considered the circumstances of the proclaimed state of emergency declared by the Governor on March 4, 2020 relating to the Covid-19 pandemic;
- B. Based on the information provided in this staff report and pursuant to the information and discussion presented in the September 1, 2022 Board meeting, the Board hereby FINDS AND DECLARES that as a result of the Covid-19 pandemic, meeting in person presents imminent risks to the health or safety of attendees, and directly impacts the ability of the members to meet safely in person; and that state and/or local officials continue to impose or recommend measures to promote social distancing;
- C. The Board hereby makes these findings and approves for the upcoming 30-day period, September 1, 2022 to October 1, 2022, regular and special meetings of the SOCWA Board and its Standing Committees and Project Committees may continue to be virtual meetings held in accordance with AB 361's Public Notice and Public Participation requirements.
- D. The Board of Directors hereby delegates authority to the Standing Committees of SOCWA to make the necessary findings to continue holding virtual meetings in accordance with AB 361 if necessary.
- E. Staff is hereby directed to notice the upcoming board and committee meetings as virtual meetings if the proclaimed state of emergency remains, unless staff makes special arrangements to hold the Board or Committee Meetings at a location that will allow for social distancing in which case the meeting may be held in person, and to place AB 361 findings on the agenda for consideration at the next occurring meeting(s) so that, at that point in time, a determination can be made regarding whether as a result of the emergency, meeting in person would continue to present imminent risks to the health or safety of attendees.

South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

PAGE NO

5. CONSENT CALENDAR

- A. Minutes of Board of Directors 19
1. Board of Directors Special Meeting of May 19, 2022
 2. Board of Directors Regular Meeting of August 4, 2022

ACTION The Board will be requested to approve subject Minutes.

- B. Minutes of Joint PC 2 /Engineering Committee..... 34
- Joint PC 2 Committee & PC 2 Engineering Committee Meeting of August 4, 2022

ACTION The PC 2 Committee will be requested to approve subject Minutes as submitted, and the Board of Directors will be requested to receive and file subject Minutes.

- C. Minutes of Engineering Committee..... 37
- Engineering Committee Meeting of April 14, 2022
 - Engineering Committee Meeting of May 11, 2022
 - Engineering Committee Meeting of June 9, 2022

ACTION The Board of Directors will be requested to receive and file subject Minutes.

- D. Minutes of Finance Committee 48
- Finance Committee Meeting of April 19, 2022
 - Finance Committee Meeting of May 10, 2022

ACTION The Board of Directors will be requested to receive and file subject Minutes.

- E. Financial Reports for the Month of May 2022, and June 2022 Disbursements..... 55
1. Summary of Disbursements for May 2022 (Exhibit A-1); Summary of Disbursements for June 2022 (Exhibit A-2)
 2. Schedule of Funds Available for Reinvestment (Exhibit B)
 - Local Agency Investment Fund (LAIF)
 3. Schedule of Cash and Investments (Exhibit C)
 4. Capital Schedule (Exhibit D)
 - Capital Projects – Graph (Exhibit D-1)
 5. Budget vs. Actual Expenses:
 - Operations and Environmental Summary (Exhibit E-1)
 - Operations and Environmental by PC (E-1.2)
 - Residual Engineering, after transfer to Capital (Exhibit E-2)
 - Administration (Exhibit E-3)
 - Information Technology (IT) (Exhibit E-4)
 6. Q3 Fringe Pool and Fringe Rate Forecast (Exhibit E-5) (Updated Fringe Rate)

South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

PAGE NO

ACTION	The Finance Committee recommends that the Board of Directors (i) ratify the May 2022 disbursements for the period from May 1, 2022, through May 31, 2022, totaling \$3,370,435, and to receive and file the May 2022 Financial Reports as submitted; and (ii) ratify the June 2022 disbursements for the period from June 1, through June 30, 2022, totaling \$3,206,691.	
F.	Adoption of Other Post-Employment Benefits (OPEB) PARS Trust Account Investment Guidelines and the GM Signature Authority as Plan Administrator	75
ACTION	The Finance Committee recommends that the Board of Directors provide comments on the Draft Guidelines and adopt the Investment Guidelines including the GM Signature Authority as the Plan Administrator.	
G.	Other Post-Employment Benefits (OPEB) Trust Account Annual Review	83
ACTION	The Finance Committee recommends that the Board of Directors receive and file the PARS report.	
H.	Draft GASB 68 Report for the Fiscal Year Ended June 30, 2022	99
ACTION	The Finance Committee recommends that the Board of Directors receive and file the GASB 68 Report as an information item prior to receipt of the Annual Financial Report and the Auditor's report on the Annual Financial Statements Audit.	
I.	Bartel Associates, LLC was acquired by Foster & Foster Consulting Actuaries, Inc. Effective July 1, 2022.....	123
ACTION	The Finance Committee recommends that the Board of Directors authorize the General Manager to modify the Bartel services contract to receive services from the acquiring firm, Foster and Foster.	
J.	Operations Report (<i>July 2022</i>).....	125
	1. Monthly Operational Report	
	2. SOCWA Ocean Outfall Discharges by Agency	
	3. Beach Ocean Monitoring Report	
	4. Recycled Water Report	
	5. Pretreatment Report (<i>July and August</i>)	
ACTION	The Board will be requested to receive and file subject reports as submitted.	

South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

PAGE NO

K. Capital Improvement Program Status Report (*August 2022*) 166

ACTION Information Item, receive and file.

L. Capital Improvement Construction Projects Progress and Change Order Report (*August*) [Project Committees 2, 15, and 17]..... 170

- ACTIONS
1. Engineering Committee recommends that the PC-17 Board of Directors approve JR Filanc Change Orders Nos. 1 thru 3 for a total of \$65,337.02 with no additional days, for a revised contract value of \$1,812,531.02 for the RTP Aeration Diffuser Project.
 2. Staff recommends the Board of Directors receive and file the Report as an information item.

M. One (1) Year Contract Extension Award to Miles Chemical for Ferric Chloride..... 182

ACTION The Engineering Committee recommends that the Board of Directors authorize the General Manager to provide a 1-year contract extension to Miles Chemical, Inc. for Ferric Chloride at a rate of \$975.00 per dry ton for full loads (40,000+ dry tons), \$1,095.00 per dry ton for loads of 20,000 to <40,000 dry tons and \$1,216.00 per dry ton for loads of 10,000 to <20,000 dry ton.

6. GENERAL MANAGER'S REPORTS

A. Aliso & San Juan Creek Ocean Outfall Inspections [Project Committee Nos. 5 and 24] 182

ACTION Staff recommends that the PC5 and PC 24 Board members authorize awarding the contract for both outfall inspections to SubSea Global Solutions for an amount not to exceed \$89,600. Staff recommends that the Finance Department be instructed to retain \$90,000 cash on hand for the project with the close of the Fiscal Year Use Audit 2021-22 (cost to be shared equally between PC 5 and 24).

B. Stanford Wastewater Based Epidemiology SCAN Program Engagement..... 227

ACTION Staff is seeking concurrence of the Project Committees for each plant facility to participate at CTP, RTP and JBL in sampling for the SCAN project with a request of interest to the other 7 wastewater facilities under permits through SOCWA [Project Committee Nos. 2, 15 and 17]

South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

	<u>PAGE NO</u>
C. Flows and Solids Data for FY 2021-22 (Use Audit Related).....	229
ACTION Information Item.	
D. Renewal of MSDS Online and 24/7 On Call Services with VelocityEHS For \$4,907.00 [Project Committee Nos. 2, 15, and 17]	233
ACTION Staff recommends that the Board of Directors authorize the General Manager to execute the third year of the 3-year contract with VelocityEHS for \$4,907.00, for a total contract amount not to exceed \$14,721.00.	
E. Aptean Tabware Software Renewal for \$41,822.32 [Project Committee Nos. 2, 15, and 17]	236
ACTION Staff recommends that the Board of Directors approve an annual Contract renewal with Aptean for \$41,822.32 [Tabware Software].	
F. Cintas Corporation Extension to Uniform Rental and Laundry Service	238
ACTION Staff recommends that the Board of Directors authorize the General Manager to execute a one-year contract extension with Cintas Corporation at current prices (approximately \$6,000 per month).	
G. Eurofins Eaton Analytical Services Lab - Contract Extension 1 Year [PC. 5 & 24]	239
ACTION Staff recommends that the Board of Directors authorize the General Manager to extend the Eurofins Eaton Analytical Lab Services, 1 year contract at an estimated cost of \$5,000.	
H. COX Communication / Fiberoptic Internet Service for the Coastal Treatment Plant [Project Committee 15]	241
ACTION Staff recommends that the PC-15 Board of Directors authorize the General Manager to enter into a multi-year (5 year) contract with Cox Communications at an estimated value over five years of \$54,600.00 plus nominal fees for service for fiberoptic internet.	
I. General Counsel's Updates (verbal reports).....	
ACTION Information Items, Board Discussion and Direction	
J. General Manager's Status Report	243
ACTION Information Items, Board Discussion and Direction	

South Orange County Wastewater Authority
Board of Directors Meeting
September 1, 2022

Agenda

- K. MNWD Request to Operate AWT Facility at Regional Treatment Plant
[Project Committee 17] [Correspondence to be submitted under separate cover].....

ACTION Information, Discussion and Direction to SOCWA Staff

- L. Upcoming Meetings Schedule:

- September 2022 – PC-15 Committee Meeting – Actual Date to Be Determined to discuss CTP Capital Funding Options
- August 31, 2022 – All Hands Meeting
- September 1, 2022 – Board of Directors Regular Meeting
- September 8, 2022 – Engineering Committee Regular Meeting
- September 13, 2022 PC-2 Committee Meeting (*Tentative*)
- September 20, 2022 – Finance Committee Special Meeting
- September 27, 2022 – PC-2 Committee Meeting (*Tentative*)

ACTION Information Item

7. CLOSED SESSION

- A. A Closed Session Conference with legal counsel – Cyber Security/Security of Essential Public Services pursuant to Government Code Section § 54957(a).
- B. Report out of Closed Session.

8. OTHER MATTERS

Determine the need to take action on the following item(s) introduced by the General Manager which arose subsequent to the agenda being posted. [Adoption of this action requires a two-thirds vote of the Board, or if less than two-thirds are present a unanimous vote.]

ADJOURNMENT

THE NEXT SOCWA BOARD MEETING
OCTOBER 6, 2022

**NOTICE OF REGULAR MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

ENGINEERING COMMITTEE
TELECONFERENCE MEETING**

**September 8, 2022
8:30 a.m.**

Join Zoom Meeting by clicking on the link below:

Join Zoom Meeting
<https://socwa.zoom.us/>

Meeting ID: 824 0559 1641
Passcode: 696572

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+1 301 715 8592 US (Washington DC)

Find your local number: <https://socwa.zoom.us/j/kbBNvMiEIJ>

NOTICE IS HEREBY GIVEN that a Regular Meeting of the South Orange County Wastewater Authority (SOCWA) Engineering Committee was called to be held by Teleconference on **September 8, 2022**. SOCWA staff will be present and conducting the call at the SOCWA Administrative Office located at 34156 Del Obispo Street, Dana Point, California.

MEMBERS OF THE PUBLIC ARE INVITED TO PARTICIPATE IN THIS TELECONFERENCE MEETING AND MAY JOIN THE MEETING VIA THE TELECONFERENCE PHONE NUMBER AND ENTER THE ID CODE. THIS IS A PHONE CALL MEETING AND NOT A WEB-CAST MEETING SO PLEASE REFER TO AGENDA MATERIALS AS POSTED WITH THE AGENDA ON THE WEB-SITE WWW.SOCWA.COM. ON YOUR REQUEST, EVERY EFFORT WILL BE MADE TO ACCOMMODATE PARTICIPATION. IF YOU REQUIRE ANY SPECIAL DISABILITY RELATED ACCOMMODATIONS, PLEASE CONTACT THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY SECRETARY'S OFFICE AT (949) 234-5452 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING TO REQUEST DISABILITY RELATED ACCOMMODATIONS. THIS AGENDA CAN BE OBTAINED IN ALTERNATE FORMAT UPON REQUEST TO THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY'S SECRETARY AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING.

AGENDA ATTACHMENTS AND OTHER WRITINGS THAT ARE DISCLOSABLE PUBLIC RECORDS DISTRIBUTED TO ALL, OR A MAJORITY OF, THE MEMBERS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY ENGINEERING COMMITTEE IN CONNECTION WITH A MATTER SUBJECT FOR DISCUSSION OR CONSIDERATION AT AN OPEN MEETING OF THE ENGINEERING COMMITTEE ARE AVAILABLE BY PHONE REQUEST MADE TO THE AUTHORITY ADMINISTRATIVE OFFICE AT 949-234-5452. THE AUTHORITY ADMINISTRATIVE OFFICES ARE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY

OFFICE”), BUT ARE NOT OPEN TO THE PUBLIC DURING THE PERIOD OF STAY AT HOME ORDERS. IF SUCH WRITINGS ARE DISTRIBUTED TO MEMBERS OF THE ENGINEERING COMMITTEE LESS THAN SEVENTY-TWO (72) HOURS PRIOR TO THE MEETING, THEY WILL BE SENT TO PARTICIPANTS REQUESTING VIA EMAIL DELIVERY. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IMMEDIATELY ON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES.

AGENDA

1. **Call Meeting to Order**

2. **Public Comments**

THOSE WISHING TO ADDRESS THE ENGINEERING COMMITTEE ON ANY ITEM LISTED ON THE AGENDA WILL BE REQUESTED TO IDENTIFY AT THE OPENING OF THE MEETING AND PRIOR TO THE CLOSE OF THE MEETING. THE AUTHORITY REQUESTS THAT YOU STATE YOUR NAME WHEN MAKING THE REQUEST IN ORDER THAT YOUR NAME MAY BE CALLED TO SPEAK ON THE ITEM OF INTEREST. THE CHAIR OF THE MEETING WILL RECOGNIZE SPEAKERS FOR COMMENT AND GENERAL MEETING DECORUM SHOULD BE OBSERVED IN ORDER THAT SPEAKERS ARE NOT TALKING OVER EACH OTHER DURING THE CALL.

3. **Operations Report**

Recommended Action: Information Item.

4. **JB Latham Mass Balance Salt Loading Model Evaluation (Staff Report to be delivered under separate cover)**

Recommended Action: Comments and direction.

5. **NPDES Permit Asset Management Plan Update (Staff Report to be delivered under separate cover)**

Recommended Action: Comments and direction.

6. **Use Audit Flows and Solids Methodology Update (Staff Report to be delivered under separate cover)**

Recommended Action: Information Item; staff to receive comments from Engineering Committee

7. **Capital Improvement Program (CIP) Year-End Summary**

- Presentation to be provided at the meeting.

Recommended Action: Information Item.

8. **Capital Improvement Construction Projects Progress and Change Order Report (September) [Project Committee Nos. 2, 15 & 17]**

Recommended Action: Staff recommends that the Engineering Committee recommend that the PC 17 Board of Directors approve Change Order 4 to JR Filanc for \$0.00, including 234 additional day(s) for a total of \$0.00 and a revised contract value of \$1,1812,531.02 for the RTP Aeration Diffuser Project.

9. JB Latham Treatment Plant Package B Project Update
[Project Committee 2]

- Presentation to be provided at the meeting.

Recommended Action: Information item.

10. JB Latham Package B Liquids Contingency and Project Update
[Project Committee 2]

- Presentation to be provided at the meeting.

Recommended Action: Staff recommends that the Engineering Committee recommend that the PC-2 Board of Directors approve the addition of \$250,000 of contingency to the J.B. Latham Package B Liquids Improvements (3220-000).

Adjournment

I hereby certify that the foregoing Notice was personally emailed or mailed to each member of the SOCWA Engineering Committee at least 72 hours prior to the scheduled time of the Regular Meeting referred to above.

I hereby certify that the foregoing Notice was posted at least 72 hours prior to the time of the above-referenced Engineering Committee meeting at the usual agenda posting location of the South Orange County Wastewater Authority and at www.socwa.com.

Dated this 1st day of September 2022.



Betty Burnett, General Manager/Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

**NOTICE OF SPECIAL MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

FINANCE COMMITTEE
TELECONFERENCE MEETING**

**September 20, 2022
10:30 a.m.**

Join Zoom Meeting by clicking on the link below:

Join Zoom Meeting
<https://socwa.zoom.us/>

Meeting ID: 848 1544 4439
Passcode: 517237

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+1 312 626 6799 US (Chicago)
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Find your local number: <https://socwa.zoom.us/j/84815444439>

NOTICE IS HEREBY GIVEN that a Special Meeting of the South Orange County Wastewater Authority (SOCWA) Finance Committee was called to be held by teleconference on **September 20, 2022**, located at 34156 Del Obispo Street, Dana Point, California.

MEMBERS OF THE PUBLIC ARE INVITED TO PARTICIPATE IN THIS TELECONFERENCE MEETING AND MAY JOIN THE MEETING VIA THE TELECONFERENCE PHONE NUMBER AND ENTER THE ID CODE. THIS IS A PHONE CALL MEETING AND NOT A WEB-CAST MEETING SO PLEASE REFER TO AGENDA MATERIALS AS POSTED WITH THE AGENDA ON THE WEB-SITE WWW.SOCWA.COM. ON YOUR REQUEST, EVERY EFFORT WILL BE MADE TO ACCOMMODATE PARTICIPATION. IF YOU REQUIRE ANY SPECIAL DISABILITY RELATED ACCOMMODATIONS, PLEASE CONTACT THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY SECRETARY'S OFFICE AT (949) 234-5452 AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE SCHEDULED MEETING TO REQUEST DISABILITY RELATED ACCOMMODATIONS. THIS AGENDA CAN BE OBTAINED IN ALTERNATE FORMAT UPON REQUEST TO THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY'S SECRETARY AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE SCHEDULED MEETING.

AGENDA ATTACHMENTS AND OTHER WRITINGS THAT ARE DISCLOSABLE PUBLIC RECORDS DISTRIBUTED TO ALL, OR A MAJORITY OF, THE MEMBERS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY FINANCE COMMITTEE IN CONNECTION WITH A MATTER SUBJECT TO DISCUSSION OR CONSIDERATION AT AN OPEN MEETING OF THE FINANCE COMMITTEE ARE AVAILABLE BY PHONE REQUEST MADE TO THE AUTHORITY ADMINISTRATIVE OFFICE AT 949-234-5452. THE AUTHORITY ADMINISTRATIVE OFFICES ARE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY OFFICE"), BUT ARE NOT OPEN TO THE PUBLIC DURING THE PERIOD OF STAY AT HOME ORDERS. IF SUCH WRITINGS ARE DISTRIBUTED

TO MEMBERS OF THE FINANCE COMMITTEE LESS THAN TWENTY-FOUR (24) HOURS PRIOR TO THE MEETING, THEY WILL BE SENT TO PARTICIPANTS REQUESTING VIA EMAIL DELIVERY. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IMMEDIATELY ON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES.

AGENDA

1. Call Meeting to Order
2. Public Comments

THOSE WISHING TO ADDRESS THE FINANCE COMMITTEE ON ANY ITEM LISTED ON THE AGENDA WILL BE REQUESTED TO IDENTIFY AT THE OPENING OF THE MEETING AND PRIOR TO THE CLOSE OF THE MEETING. THE AUTHORITY REQUESTS THAT YOU STATE YOUR NAME WHEN MAKING THE REQUEST IN ORDER THAT YOUR NAME MAY BE CALLED TO SPEAK ON THE ITEM OF INTEREST. THE CHAIR OF THE MEETING WILL RECOGNIZE SPEAKERS FOR COMMENT AND GENERAL MEETING DECORUM SHOULD BE OBSERVED IN ORDER THAT SPEAKERS ARE NOT TALKING OVER EACH OTHER DURING THE CALL.

3. Approval of Minutes

- Finance Committee Meeting of August 16, 2022

Recommended Action: Staff recommends the Finance Committee to approve subject minutes as submitted.

4. Financial Reports for the Month of June 2022 (Preliminary – Close of Fiscal Year), and July 2022

- The June 2022 preliminary reports included are as follows:
 - a. Budget vs. Actual Expenses (June 2022):
 - Operations and Environmental Summary (Exhibit E-1)
 - Operations and Environmental by PC (E-1.2)
 - Residual Engineering, after transfer to Capital (Exhibit E-2)
 - Administration (Exhibit E-3)
 - Information Technology (IT) (Exhibit E-4)
 - b. Q4 Fringe Pool and Fringe Rate (Exhibit E-5)
- The July 2022 financial reports included are as follows:
 - a. Summary of Disbursements for July 2022 (Exhibit A-1);
 - b. Schedule of Funds Available for Reinvestment (Exhibit B)
 - Local Agency Investment Fund (LAIF)
 - c. Schedule of Cash and Investments (Exhibit C)
 - d. Capital Schedule (Exhibit D)
 - Capital Projects – Graph (Exhibit D-1)
 - e. Budget vs. Actual Expenses:
 - Operations and Environmental Summary (Exhibit E-1)
 - Operations and Environmental by PC (E-1.2)
 - Residual Engineering, after transfer to Capital (Exhibit E-2)
 - Administration (Exhibit E-3)
 - Information Technology (IT) (Exhibit E-4)

Recommended Action: Staff recommends that the Finance Committee recommend that the Board of Directors (i) receive and file the June 2022 (Preliminary) Financial Reports, (ii) ratify the July 2022 disbursements for the period from July 1, through July 31, 2022, totaling \$4,925,747.

5. Preliminary Draft Use Audit, O&M only, FY 2021-22 Budget vs Actual including UAL and OPEB Expense Distribution by Member Agencies [Draft Use Audit to be distributed under separate cover]

- PowerPoint Presentation

Recommended Action: Information Items.

6. Unfunded Pension Liability (UAL) – Distribution by Project Committee and Member Agency

- See PowerPoint provided under agenda item 5

Recommended Action: Information Item.

Adjournment

I hereby certify that the foregoing Notice was personally emailed or mailed to each member of the SOCWA Finance Committee at least 24 hours prior to the scheduled time of the Special Meeting referred to above.

I hereby certify that the foregoing Notice was posted at least 24 hours prior to the time of the above-referenced Finance Committee at the usual agenda posting location of the South Orange County Wastewater Authority and at www.socwa.com.

Dated this 14th day of September 2022.



Betty Burnett, General Manager/Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Jointly with the

PLANNING & OPERATIONS COMMITTEE

September 6, 2022, 8:30 a.m.

Due to the current state of emergency related to the spread of COVID-19 and pursuant to Government Code Section 54953(e), MWDOC will be holding this Board and Committee meeting by Zoom Webinar and will be available by either computer or telephone audio as follows:

Computer Audio: You can join the Zoom meeting by clicking on the following link:

<https://zoom.us/j/8828665300>

Telephone Audio: (669) 900 9128 fees may apply

(877) 853 5247 Toll-free

Webinar ID: 882 866 5300#

P&O Committee:

Director Tamaribuchi, Chair

Director McVicker

Director Nederhood

Staff: R. Hunter, J. Berg, V. Osborn,

H. De La Torre, T. Dubuque,

D. Micalizzi, H. Baez, T. Baca

Ex Officio Member: Director Yoo Schneider

MWDOC Committee meetings are noticed and held as joint meetings of the Committee and the entire Board of Directors and all members of the Board of Directors may attend and participate in the discussion. Each Committee has designated Committee members, and other members of the Board are designated alternate committee members. If less than a quorum of the full Board is in attendance, the Board meeting will be adjourned for lack of a quorum and the meeting will proceed as a meeting of the Committee with those Committee members and alternate members in attendance acting as the Committee.

ROLL CALL

PUBLIC COMMENTS - Public comments on agenda items and items under the jurisdiction of the Committee should be made at this time.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED - Determine there is a need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda. (Requires a unanimous vote of the Committee)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING -- Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

ACTION ITEMS

1. UPDATE TO FLUME RESIDENTIAL END USES OF WATER STUDY
2. WEROC EMERGENCY OPERATIONS CENTER DESIGN UPDATE AND FUNDING FOR PHASE 2

DISCUSSION ITEMS

3. PRESENTATION REGARDING OC RELIABILITY STUDY PRELIMINARY FINDINGS
4. UPDATE ON COVID-19 (ORAL REPORT)

INFORMATION ITEMS (The following items are for informational purposes only – background information is included in the packet. Discussion is not necessary unless requested by a Director.)

5. MWDOC LEGISLATIVE POLICY PRINCIPLES ANNUAL UPDATE
6. METROPOLITAN'S ASSESSED VALUATION FOR MWDOC AND ORANGE COUNTY FOR FISCAL YEAR 2022-23
7. 2022 OC WATER SUMMIT
8. STATUS REPORTS
 - a. Ongoing MWDOC Reliability and Engineering/Planning Projects
 - b. WEROC
 - c. Water Use Efficiency Projects
 - d. Public and Government Affairs
9. REVIEW OF ISSUES RELATED TO PLANNING OR ENGINEERING PROJECTS, WEROC, WATER USE EFFICIENCY, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, PUBLIC AFFAIRS PROGRAMS AND EVENTS, PUBLIC INFORMATION PROJECTS, PUBLIC INFORMATION CONSULTANTS, DISTRICT FACILITIES, and MEMBER-AGENCY RELATIONS

ADJOURNMENT

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Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Maribeth Goldsby, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at P.O. Box 20895, Fountain Valley, CA 92728. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.

WORKSHOP MEETING OF THE
BOARD OF DIRECTORS WITH MET DIRECTORS
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
18700 Ward Street, Board Room, Fountain Valley, California
September 7, 2022, 8:30 a.m.

Due to the current state of emergency related to the spread of COVID-19 and pursuant to Government Code Section 54953(e), MWDOC will be holding this Board and Committee meeting by Zoom Webinar and will be available by either computer or telephone audio as follows:

Computer Audio: You can join the Zoom meeting by clicking on the following link:
<https://zoom.us/j/8828665300>

Telephone Audio: (669) 900 9128 fees may apply
(877) 853 5247 Toll-free
Webinar ID: 882 866 5300#

AGENDA

PLEDGE OF ALLEGIANCE

ROLL CALL

PUBLIC PARTICIPATION/COMMENTS

At this time members of the public will be given an opportunity to address the Board concerning items within the subject matter jurisdiction of the Board. Members of the public may also address the Board about a particular Agenda item at the time it is considered by the Board and before action is taken.

The Board requests, but does not require, that members of the public who want to address the Board complete a voluntary "Request to be Heard" form available from the Board Secretary prior to the meeting.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Determine need and take action to agendize item(s), which arose subsequent to the posting of the Agenda. (ROLL CALL VOTE: Adoption of this recommendation requires a two-thirds vote of the Board members present or, if less than two-thirds of the Board members are present a unanimous vote.)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING

Pursuant to Government Code Section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

NEXT RESOLUTION NO. 2130

PRESENTATION/DISCUSSION ITEMS

1. PRESENTATION BY METROPOLITAN STAFF (SHANTI ROSSET) REGARDING COLORADO RIVER BASIN CONDITIONS

Recommendation: Review and discuss the information presented.

2. LEGISLATIVE ACTIVITIES

- a. Federal Legislative Report (NRR)
- b. State Legislative Report (BBK)
- c. Legal and Regulatory Report (Ackerman)
- d. MWDOC Legislative Matrix
- e. Metropolitan Legislative Matrix

Recommendation: Review and discuss the information presented.

3. QUESTIONS OR INPUT ON MET ISSUES FROM THE MEMBER AGENCIES/MET DIRECTOR REPORTS REGARDING MET COMMITTEE PARTICIPATION

Recommendation: Receive input and discuss the information presented.

ACTION ITEMS

4. APPROVE CONTINUATION OF REMOTE MEETINGS PURSUANT TO AB 361 AND MAKE REQUIRED FINDINGS

Recommendation: Vote to continue virtual meetings pursuant to AB 361 for an additional 30 days based on the findings that (1) it has reconsidered the circumstances of the state of emergency for COVID-19, and (2) state and local officials continue to impose or recommend measures to promote social distancing.

INFORMATION ITEMS

5. MET ITEMS CRITICAL TO ORANGE COUNTY (The following items are for informational purposes only – a write up on each item is included in the packet. Discussion is not necessary unless requested by a Director)

- a. MET's Finance and Rate Issues
- b. MET's Integrated Resources Plan Update
- c. MET's Water Supply Condition Update
- d. Water Quality Update
- e. Colorado River Issues
- f. Delta Conveyance Activities and State Water Project Issues

Recommendation: Review and discuss the information presented.

6. METROPOLITAN (MET) BOARD AND COMMITTEE AGENDA DISCUSSION ITEMS

- a. Summary regarding August MET Board Meeting
- b. MET 4-Month Outlook on Upcoming Issues
- c. Review items of significance for MET Board and Committee Agendas

Recommendation: Review and discuss the information presented.

ADJOURNMENT

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MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
ADMINISTRATION & FINANCE COMMITTEE
September 14, 2022, 8:30 a.m.

Due to the current state of emergency related to the spread of COVID-19 and pursuant to Government Code Section 54953(e), MWDOC will be holding this Board and Committee meeting by Zoom Webinar and will be available by either computer or telephone audio as follows:

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Telephone Audio: (669) 900 9128 fees may apply

(877) 853 5247 Toll-free

Webinar ID: 882 866 5300#

A&F Committee:

Director Seckel, Chair
Director Thomas
Director Dick

Staff: R. Hunter, J. Berg, H. Chumpitazi,
H. De La Torre, K. Davanaugh, C. Harris

Ex Officio Member: Director Yoo Schneider

MWDOC Committee meetings are noticed and held as joint meetings of the Committee and the entire Board of Directors and all members of the Board of Directors may attend and participate in the discussion. Each Committee has designated Committee members, and other members of the Board are designated alternate committee members. If less than a quorum of the full Board is in attendance, the Board meeting will be adjourned for lack of a quorum and the meeting will proceed as a meeting of the Committee with those Committee members and alternate members in attendance acting as the Committee.

ROLL CALL

PUBLIC COMMENTS - Public comments on agenda items and items under the jurisdiction of the Committee should be made at this time.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED - Determine there is a need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda. (Requires a unanimous vote of the Committee)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING -- Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

PRESENTATION

1. PRESENTATION BY PARS REGARDING OTHER POST-EMPLOYMENT BENEFITS TRUST & PENSION RATE STABILIZATION PROGRAM (PRSP) TRUST CLIENT REVIEW

PROPOSED BOARD CONSENT CALENDAR ITEMS

- 2. **TREASURER'S REPORT**
 - a. Revenue/Cash Receipt Report – August 2022
 - b. Disbursement Approval Report for the month of September 2022
 - c. Disbursement Ratification Report for the month of August 2022
 - d. GM Approved Disbursement Report for the month of August 2022
 - e. Consolidated Summary of Cash and Investment – July 2022
 - f. OPEB and Pension Trust Fund statements

- 3. **FINANCIAL REPORT**
 - a. Combined Financial Statements and Budget Comparative for the Period Ending July 31, 2022

DISCUSSION ITEM

- 4. **ECONOMIC ANALYSIS OF STATE'S PROPOSED WATER USE EFFICIENCY STANDARDS**

ACTION ITEM

- 5. **2023 LIFE AND LONG-TERM DISABILITY INSURANCE POLICY RENEWALS**

INFORMATION ITEMS – (THE FOLLOWING ITEMS ARE FOR INFORMATIONAL PURPOSES ONLY – BACKGROUND INFORMATION IS INCLUDED IN THE PACKET. DISCUSSION IS NOT NECESSARY UNLESS REQUESTED BY A DIRECTOR.)

- 6. **MWDOC WATER FACILITIES CORPORATION (to be presented to the Water Facilities Corporation Board for action on September 21, 2022)**
 - a. 2022 Annual Filing of Tax Compliance Reports for the MWDOC Water Facilities Corporation
 - b. Annual Reorganization of Board Officers for the MWDOC Water Facilities Corporation

- 7. **SOLE SOURCE CONTRACT WITH CENTER FOR DEMOGRAPHIC RESEARCH**

- 8. **UPDATE REGARDING MEMBER AGENCY FACILITATED DISCUSSIONS**

- 9. **2023 BENEFIT RATES**
 - a. 2023 Health Saving Account Contributions
 - b. 2023 Medical, Vision and Dental Insurance Rates and Open Enrollment Dates

- 10. **DEPARTMENT ACTIVITIES REPORTS**
 - a. Administration
 - b. Finance and Information Technology

11. MONTHLY WATER USAGE DATA, TIER 2 PROJECTION, AND WATER SUPPLY INFORMATION

OTHER ITEMS

12. REVIEW ISSUES REGARDING DISTRICT ORGANIZATION, PERSONNEL MATTERS, EMPLOYEE BENEFITS FINANCE AND INSURANCE

ADJOURNMENT

NOTE: At the discretion of the Committee, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated, and may be subject to action by the Committee. On those items designated for Board action, the Committee reviews the items and makes a recommendation for final action to the full Board of Directors; final action will be taken by the Board of Directors. Agendas for Committee and Board meetings may be obtained from the District Secretary. Members of the public are advised that the Board consideration process includes consideration of each agenda item by one or more Committees indicated on the Board Action Sheet. Attendance at Committee meetings and the Board meeting considering an item consequently is advised.

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REGULAR MEETING
OF THE BOARD OF DIRECTORS
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
AND ANNUAL MEETING OF THE BOARD OF DIRECTORS
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
WATER FACILITIES CORPORATION
18700 Ward Street, Fountain Valley, California
September 21, 2022, 8:30 a.m.

Due to the current state of emergency related to the spread of COVID-19 and pursuant to Government Code Section 54953(e), MWDOC will be holding this Board and Committee meeting by Zoom Webinar and will be available by either computer or telephone audio as follows:

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(877) 853 5247 Toll-free**

Webinar ID: 882 866 5300#

AGENDA

MOMENT OF SILENCE

PLEDGE OF ALLEGIANCE

ROLL CALL

PUBLIC COMMENTS/PARTICIPATION

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The Board requests, but does not require, that members of the public who want to address the Board complete a voluntary "Request to be Heard" form available from the Board Secretary prior to the meeting.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Determine need and take action to agendize item(s) which arose subsequent to the posting of the Agenda. (ROLL CALL VOTE: Adoption of this recommendation requires a two-thirds vote of the Board members present, or, if less than two-thirds of the Board members are present, a unanimous vote of those members present.)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO

MEETING Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

EMPLOYEE SERVICE AWARDS

MWDOC WATER FACILITIES CORPORATION AGENDA ITEMS

WFC-1 FINANCIAL REPORT

- a. Annual Filing of Tax Compliance Reports.

Recommendation: Authorize the annual filing of the tax compliance reports as presented.

WFC-2 REORGANIZATION OF MWDOC WFC BOARD OFFICERS

Recommendation: Consider reorganizing the MWDOC WFC Board officers

ADJOURNMENT -- END MWDOC WFC AGENDA

MWDOC AGENDA

NEXT RESOLUTION NO. 2130

CONSENT CALENDAR (Items 1 to 8)

(All matters under the Consent Calendar will be approved by one motion unless a Board member requests separate action on a specific item)

1. MINUTES

- a. August 3, 2022 Workshop Board Meeting
- b. August 17, 2022 Board Meeting

Recommendation: Approve as presented.

2. COMMITTEE MEETING REPORTS

- a. Planning & Operations Committee Meeting: August 1, 2022
- b. Administration & Finance Committee Meeting: August 10, 2022
- c. Executive Committee Meeting: August 18, 2022

Recommendation: Receive and file as presented.

3. TREASURER'S REPORTS

- a. MWDOC Revenue/Cash Receipt Register as of August 31, 2022
- b. Disbursement Registers (August/September)

Recommendation: Ratify and approve as presented.

- c. Summary of Cash and Investment and Portfolio Master Summary Report (Cash and Investment report) as of July 31, 2022
- d. PARS Monthly Statement (OPEB Trust)

Recommendation: Receive and file as presented.

4. FINANCIAL REPORT

- a. Combined Financial Statements and Budget Comparative for the Period Ending July 31, 2022

Recommendation: Receive and file as presented.

5. APPROVE CONTINUATION OF REMOTE MEETINGS PURSUANT TO AB 361 AND MAKE REQUIRED FINDINGS

Recommendation: Vote to continue virtual meetings pursuant to AB 361 for an additional 30 days based on the findings that (1) it has reconsidered the circumstances of the state of emergency for COVID-19, and (2) state and local officials continue to impose or recommend measures to promote social distancing.

6. UPDATE TO FLUME RESIDENTIAL END USES OF WATER STUDY

Recommendation: Authorize the General Manager to execute a Change Order to the professional services agreement with Flume, Inc., in the amount of \$25,000, to update the Residential End Uses of Water Study and Dashboard to include two additional quarters (6 months) of data, which will provide for a full year of data in the Study and Dashboard.

7. 2023 LIFE AND LONG-TERM DISABILITY INSURANCE POLICY RENEWALS

Recommendation: Authorize the enhancement to the life insurance policy/benefit at an annual increase of \$1,425 and the long-term disability insurance policy/benefit at an annual increase of \$1,253, as presented

8. 2023 HEALTH SAVINGS ACCOUNT CONTRIBUTIONS

Recommendation: Establish the District's annual Health Saving Account (HSA) contributions for 2023, per JPIA recommendation which are the same as the 2022 contributions.

End Consent Calendar

INFORMATION CALENDAR (All matters under the Information Calendar will be Received/Filed as presented following any discussion that may occur)

9. GENERAL MANAGER'S REPORT, SEPTEMBER 2022 (ORAL AND WRITTEN)

a. Report from the Building Management Committee

Recommendation: Receive and file report(s) as presented.

10. MWDOC GENERAL INFORMATION ITEMS

- a. Board of Directors - Reports re: Conferences and Meetings
- b. Requests for Future Agenda Topics

Recommendation: Receive and file as presented.

CLOSED SESSION ITEMS

11. PUBLIC EMPLOYEE PERFORMANCE EVALUATION

Title: General Manager
Government Code Section 54957

12. CONFERENCE WITH LABOR NEGOTIATORS

District Designated Representatives: Joseph Byrne, Legal Counsel
Unrepresented Employee: General Manager
Government Code Section 54957.6

RECONVENE FROM CLOSED SESSION

13. ANNOUNCEMENTS FROM CLOSED SESSION

14. CONSIDERATION OF AMENDMENTS TO GENERAL MANAGER CONTRACT

Recommendation: Discuss the General Manager's Employment Agreement and take action as appropriate.

ADJOURNMENT

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**GENERAL MANAGER REPORT
OF STAFF ACTIVITIES**

September 2022

MWDOC AGENCIES MANAGERS MEETING

MWDOC held its Member Agency Managers' meeting via Zoom on Thursday, August 18, 2022.

In attendance were: R. Correa – Brea, M. McGee – Buena Park, D. Youngblood – EOCWD, D. Cafferty – El Toro WD, M. Dunbar - Emerald Bay SD, M. Sprague & H. Lee – Fountain Valley, C. Pasillas – Garden Grove, K. Vecchiarelli – Golden State WC, C. Davis – Huntington Beach, P. Shoenberger, L. Rocha, K. Young & M. Collings – Moulton Niguel WD, S. Catron – Newport Beach, J. Kennedy – OCWD, S. Tran – Orange, D. Rebensdorf – San Clemente, J. Leach & C. Monaco – Santa Margarita WD, I. Lee – Seal Beach, J. Vilander – Serrano WD, M. Serna & J. Lopez – South Coast WD, F. Paludi – Trabuco Canyon WD, D. Davert – Yorba Linda WD, D. Mitchell, K. Blonka, I. Castillo

Staff attendance included: H. De La Torre, A. Heide, C. Lingad, C. Busslinger, V. Osborn, M. Baum-Haley, D. Micalizzi, K. Hostert, H. Baez, and J. Berg.

General Meeting Information/Discussion Items:

- MWDOC Draft Agendas
- MWDOC Grand Jury Comment Letter
- Colorado River Conditions Update
- Economic Impact Study of Proposed WUE Standards
- Upper Feeder Emergency Shutdown Update
- Finalization of Member Agency Boundaries
- WEROC Update

Announcements:

- Member Agency Facilitated Discussion
- MWDOC Reserves Discussion
- OC Water Summit

The next meeting will tentatively be held on September 22, 2022.

ENGINEERING & PLANNING

MEETINGS

- MWDOC hosted a workshop on August 9, 2022, for member agencies on the economic analysis of Proposed Water Use Efficiency Standards.
- Charles Busslinger and Vicki Osborn met with El Toro Water District and consultant Brady and Associates on August 10, 2022, and August 23, 2022, to discuss progress on the design of the Emergency Operations Center and new ETWD warehouse.
- Charles Busslinger, Kevin Hostert, and Chris Lingad met with CDR staff on August 10, 2022, to discuss updates to the OC water distribution and transmission main wall maps. New digital maps are now complete.
- Charles Busslinger, Melissa Baum-Haley, and Chris Lingad met with David Mitchell of M. Cubed on August 10, 2022, to discuss the Water Use Efficiency Analysis.
- Charles Busslinger attended the August 11, 2022, CDR Management Oversight Committee meeting.
- Charles Busslinger, Joe Berg, and Chris Lingad met with consultants WSC and M.Cubed on August 16, 2022, to discuss the Water Use Efficiency Analysis.
- Charles Busslinger participated in the August 16, 2022, South OC IRWM Ad Hoc meeting to review Proposition 1 Round 2 grant funding project submissions.
- The MWDOC Engineering and Metropolitan and Water Issues Departments held a meeting with CDM Smith on August 17, 2022, to review the preliminary results of the OC Water Reliability Study Update.
- Charles Busslinger and Chris Lingad met with WSC staff on August 17, 2022, to discuss the progress of the Water Use Efficiency Analysis.
- Charles Busslinger met with El Toro Water District and consultant Brady and Associates on August 24, 2022, to discuss the design of the Emergency Operations Center and new ETWD warehouse
- Charles Busslinger attended the August 25, 2022, CalDesal Regulatory Committee meeting.
- Charles Busslinger and Chris Lingad attended the August 30, 2022, CDR Management Oversight Committee meeting.
- Charles Busslinger participated in the August 31, 2022, South OC IRWM Ad Hoc meeting to review Proposition 1 Round 2 grant funding project submissions.

WATER USE EFFICIENCY STANDARDS ANALYSIS

On May 2, 2022, the Board approved entering into an agreement with Water Systems Consulting (WSC) and sub-consultant M. Cubed to complete an economic analysis of proposed State water use efficiency standards. MWDOC has partnered with SMWD to fund this project. There are four main components of the scope of work:

1. A customized version of the recently completed Urban Water Use Objective Analyzer (Model) developed by M. Cubed for the Department of Water Resources (DWR). M. Cubed will customize the Model to allow individual retail agencies to evaluate the impacts of the proposed standards on their operations and customers.
2. Evaluate the relative impact of the proposed standards on Disadvantaged Communities (DACs).
3. Evaluate compliance cost estimates for MWDOC retail water agencies with information on water service affordability.
4. Develop a web interface of the Model using a visual analytics platform (i.e., dashboard).

The updated Model has been completed.

Initial findings of the analysis were presented to MWDOC's member agencies on August 9, 2022.

Due to a scheduling conflict, the study findings will be presented at the September 14, 2022, A&F Committee meeting. A draft report will be included in the A&F packet.

DOHENY OCEAN DESALINATION PROJECT

South Coast Water District (SCWD) continues to develop the Doheny Ocean Desalination Project. SCWD is currently working through multiple due diligence items to move the project forward, including; permitting, plant sizing and siting, financing, and project delivery method. SCWD anticipates having all necessary permits by the end of summer 2022 and estimates an online date of 2026 if approved by the SCWD Board.

SCWD held a Special Board Meeting on September 2, 2021, to discuss the financial implications of the project. Clean Energy Capital (CEC) presented a water cost analysis for the project where CEC presented cost projections for a 2 MGD project with an estimated 1st-year water cost of \$1,928/AF in 2021\$ and a 5 MGD project with an estimated 1st-year water cost of \$1,479/AF in 2021\$ (later updated to \$1,807/AF in 2027\$ vs. \$1,545/AF MET Rate in 2027\$).

On March 9, 2022, the San Diego Regional Water Quality Control Board approved the Tentative Orders related to the NPDES permits for discharge associated with the Doheny Desalination Project operation. This is an important step forward toward the realization of this project.

On April 14, 2022, Dudek presented information to the SCWD Board on a conceptual study of Ocean Water Augmentation for the Doheny Desalination Project. The study considered utilizing Direct Potable Reuse (DPR) source water by two alternative methods from the JB Latham Wastewater Treatment Plant to augment raw ocean water supplies to the proposed Doheny Desalination Project. The proposed conceptual raw water augmentation could potentially become a future phase of the ocean desalination project and was identified by the name: Doheny Ocean Pure Water Augmentation (DOPWA). This concept was based on the proposition that the challenges of ocean desalination and DPR could offset each other's advantages. The conceptual project proposes 5 MGD of product water from each source (recycled and ocean source water)

to produce a combined total of 10 MGD of potable water. The report indicated that the gross cost of water in 2021 dollars for the DOPWA concept is similar in price to the cost of desalinated water from the Doheny Desalination Project, as shown below.

Gross Water Cost
(without MET LRP incentive)

- 5 MGD Doheny Ocean Desalination Project \$2,081/AF
- DOPWA Raw Water Augmentation \$2,227/AF
- DOPWA Treated Water Augmentation \$1,954/AF

Further study is needed to determine the impacts on ocean desalination brine mixing in the San Juan Creek Ocean Outfall from reduced wastewater discharges.

SCWD anticipates Coastal Commission consideration of a Coastal Development Permit in October 2022.

EAST ORANGE COUNTY FEEDER NO. 2 (EOCF#2) EMERGENCY PILOT PROGRAM

Staff and Means Consulting are working with Metropolitan (MET) on defining and phasing a scope of work for emergency pump-in of local water supplies into EOCF #2 under MET Admin Code 4519: Emergency Deliveries of Member Agency Water Supplies in Metropolitan’s System. The program is intended to enhance water supply reliability in the event of a prolonged emergency. This is a multi-year effort. The intended outcome of this effort is establishing an emergency pump-in program for EOCF#2 as provided by MET Admin Code 4519 and a set of guidelines for MET member agencies to use to establish their own emergency pump-in programs. Hazen & Sawyer is also providing technical assistance for this effort.

Staff has also been working with MET staff on a potential cost share for the project.

Staff met with the Orange County EOCF #2 Joint Power Agreement members and capacity right holders to discuss the pilot project on March 31, 2022. Background information and key points/questions were presented to the group. A follow-up meeting will be scheduled in late June once JPA members have had a chance to review the information, discuss clarifications of key points, and determine how best to move forward with the Pilot Project.

Staff met with Moulton Niguel WD and Orange County WD on May 16, 2022, to discuss the scope of work developed with MET. MNWD is currently reviewing the scope to see how their design efforts with the City of Santa Ana will fit into the scope.

SAN JUAN BASIN AUTHORITY

The San Juan Basin Authority (SJBA) has been conducting a hydrogeology study of the San Juan Basin to understand better how groundwater flows through the lower portions of San Juan Basin under various conditions. How groundwater flows in the vicinity of Stonehill Drive is important due to potential impacts on pumping within the basin and may potentially influence pumping for the Doheny Desalination project.

A technical review panel consisting of three teams of hydrogeologists presented their preliminary findings at a special meeting on May 12, 2022. The presentation is available from the SJBA website: <https://www.sjbauthority.com/meetings/meetings-2022.html> (2022-05-12 SJBA Board Meeting TRP).

The preliminary findings are:

1. The Basin behaves like two separate areas or ‘buckets’ that are connected by a bedrock ledge area in the vicinity of Stonehill Drive. The bedrock ledge operates similarly to a spillway, which, although not a boundary, somewhat restricts flows under normal groundwater conditions.
2. Groundwater flows through the bedrock ledge area (spillway) are greatly restricted between the upper and lower portions of the basin when groundwater levels are low. This occurs during dry or excessive pumping periods.
3. Pumping on either side of the spillway (north or south) influences portions of the basin on the other side of the spillway. Without recharge and continued pumping, groundwater levels at the divide could decline precipitously.
4. Saline intrusion in the basin result from seasonal or longer-term declines in freshwater recharge coupled with pumping. Pumping to the north contributes by restricting freshwater flow across the spillway. Pumping south of the spillway exacerbates saline intrusion more than pumping to the north.

The August SJBA meeting has been canceled, and the next meeting is scheduled for September 28, 2022. The Technical Review Panel recommends additional geologic and geophysical assessments of the spillway area. The area also recommends additional monitoring of groundwater levels and flow across the spillway.

SHUTDOWNS

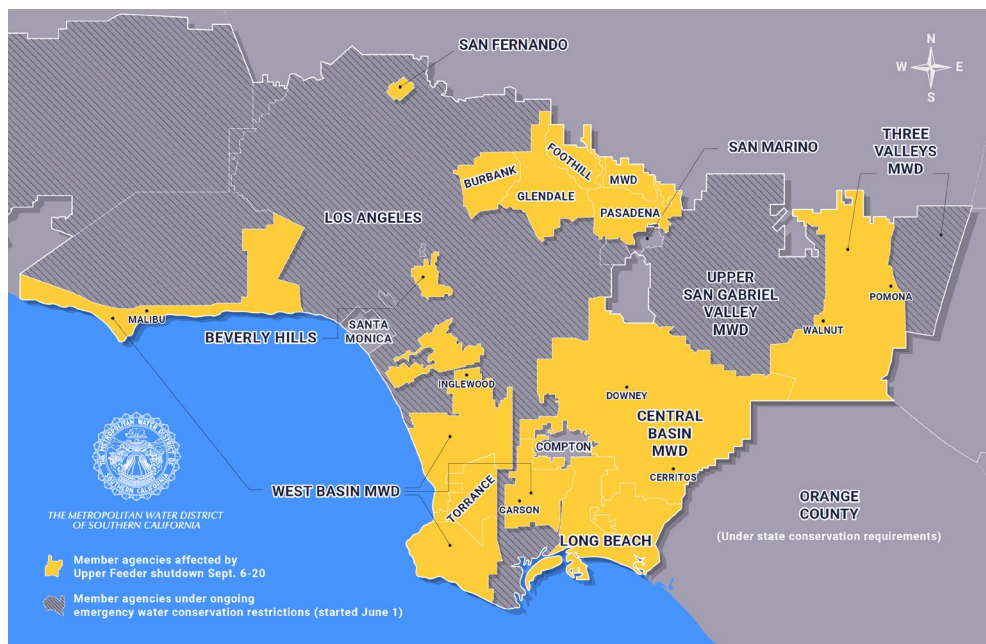
Upper Feeder

MET has sent notification of a pending emergency repair to the Upper Feeder at the Santa Ana River (which feeds the MET Weymouth Water Treatment Plant in La Verne). An expansion joint installed at the Santa Ana Bridge in 2018 developed a leak before Easter weekend in April 2022. After an inspection in early June 2022, the leak had expanded, and MET declared an emergency on June 8, 2022. Temporary repairs were made to keep the Upper Feeder operating at reduced flows.

A replacement joint will be installed during a 14-day shutdown of the Upper Feeder from September 6-20, 2022. MET media messaging for the shutdown will ask residents in the

Weymouth service areas to voluntarily go to no outdoor watering to reduce demands on the system during the shutdown. Weymouth will switch to 100% State Project Water during the shutdown.

OC agencies are supportive of demand curtailment efforts and have been asked to ‘do what they can to help reduce Diemer’s demands by switching to local supplies where possible. This will allow Diemer water to be extended as much as possible to Long Beach and other areas outside Orange County to reduce demands on Weymouth and Jensen, which will both be on State Water Project water during the shutdown. Information concerning the shutdown was passed along at the July and August MWDOC Member agencies meetings. A special meeting was held on July 27, 2022, to explore ways OC agencies can reduce demands on the MET system. A follow-up meeting with OC agencies and MET was held on August 3, 2022. The operational needs of the shutdown, conservation messaging, and OC agencies’ potential to reduce demand on the MET system were discussed.



Orange County Feeder

MET has approved the construction contract for the relining and replacing valves in a section of the Orange County Feeder from the Willits Pressure Control Structure (north of South Coast Plaza) to Irvine Cross Feeder (south of UC Irvine).

This 9-month shutdown is scheduled to begin on September 18, 2022, through June 16, 2023. MWDOC staff has been working with the affected agencies in preparation for this shutdown. Another coordination meeting has been scheduled for September 6, 2022.

Orange County Feeder Extension

MET plans to reline the final 300-linear feet of the OC Feeder extension from the Irvine Cross Feeder to the terminus affecting the City of Newport Beach, IRWD, and LBCWD following completion of the up gradient portion of the OC Feeder.

MET has proposed new shutdown dates of June 18, 2023, through July 14, 2023. LBCWD has raised concerns about the shutdown timing given recent fire events. MWDOC staff is working with LBCWD and MET to find a shutdown date that works for everyone.

Lake Mathews Facility Shutdown

The shutdown of the Lake Mathews Facility has been rescheduled for March 13-14, 2023. The following agencies will be affected during the shutdown: OCWD, YLWD, Serrano WD, IRWD, TCWD, ETWD, SMWD, MNWD, and the City of San Clemente.

Orange County Reservoir

The decommissioning of the Orange County Reservoir has been rescheduled to March 20, 2023, through March 25, 2023. This work will affect the cities of Brea and La Habra.

Diemer Water Treatment Plant

MET is planning to repair a chlorine diffuser pipe at the Diemer WTP, which will require a seven-day full-plant shutdown. Shutdown dates for the repair of the Diemer chlorine diffuser pipe are being reevaluated by MET staff at this time. A meeting was held on February 3, 2022, to inform MET of the agencies' local supply conditions for this calendar year. MET reported that the diffuser pipe was not an imminent failure issue.

Diemer also recently experienced a backwash valve failure in the filter backwash system. Two 48 filters will remain out of service through the summer, slightly limiting Diemer's maximum flow capacity by 4% to 498 MGD.

Allen-McColloch Pipeline

MET has completed 50% of the preliminary design of the AMP Prestressed Concrete Cylinder Pipe (PCCP) rehabilitation and is expected to complete the design by 2023. Preliminary design work currently underway includes identifying priority reaches, developing access locations, conducting geotechnical assessments, modeling a surge analysis, conducting real property assessments, identifying permitting requirements, and developing a feeder isolation plan. A draft project schedule will be developed at the completion of the preliminary design. Rehabilitation of individual reaches will be based on ongoing condition assessments, priorities, and shutdown schedules.

MET plans to inspect additional PCCP sections of the AMP in FY 2023-24.

MWDOC staff continues to lead working group meetings with the impacted AMP agencies to discuss options to reduce the number of shutdowns needed for the AMP PCCP rehabilitation project while also helping to increase reliability toward future MET shutdowns. Two potential sites have been identified for constructing a possible pump station to enhance the ability to accommodate longer shutdown durations for the rehabilitation project and provide long-term reliability benefits for future MET shutdowns.

MWDOC has formally proposed to MET staff a conceptual cost share savings incentive approach following well-established public works contractor cost-share incentive programs that would allow for a sharing of realized cost savings. Staff looks forward to MET's response.

EMERGENCY PREPAREDNESS

COVID-19 (CORONA VIRUS) COORDINATION

As of 8/19, Orange County moved from the High Level to **Medium Level** rate of community spread.

- ** Note with many people continuing to use the at-home testing kits unless people are seeing their physician or self-reporting, it is hard to say exactly how accurate these numbers are for cases per 100,000
- The key statistic to track continues to be the impact on our medical system and agencies reporting if they have operational impacts due to employees out ill. The medical system:
 - 8/29 230 Hospitalizations (3day average -6.7%)
36 ICU
 - 8/11 291 Hospitalizations
44 ICU
 - 7/21 351 Hospitalizations
35 ICU
 - 7/14 277 Hospitalizations
35 ICU
- This statement was in last month's report and has not changed. With high levels of population immunity from both vaccination and infections, the risk of medically significant disease, hospitalization, and death from COVID-19 is greatly reduced for most people. While the severity of the current Omicron Strains (BA1, BA2, BA4, and the latest BA5) is not as severe for MOST people, creating a business continuity issue for many agencies with a recent increase in COVID cases and people being out sick for days. [Some people and communities](#), such as our oldest citizens, people who are immunocompromised, and people with disabilities, are at higher risk for serious illness and face challenging decisions navigating a world with COVID-19.

People get COVID multiple times regardless of vaccination status from the current Omicron variants.
- On 8/11/22, the CDC updated its COVID guidance. The CDC acknowledges that the pandemic is not over but also helps us reach a point where COVID-19 no longer disrupts our daily lives. ** Note the changes CDC has made align more with what California already has in place regarding testing and masking guidance in coordination with the CalOSHA ETS.

Among the most significant differences in the new recommendations:

- The CDC's COVID-19 prevention guidance will no longer differentiate by whether people are up-to-date on their vaccinations.
 - Testing to screen for COVID-19 will no longer be recommended in most places for people who do not have COVID symptoms.
 - The CDC says people who have tested positive for COVID-19 can stop wearing masks if their symptoms have improved and they test negative twice in a row — initially on the sixth day after their infection began and then again on the eighth day.
 - And the CDC says that "to limit social and economic impacts, quarantine of exposed persons is no longer recommended, regardless of vaccination status."
-
- County of Orange Health Officer Order (Updated 8/19/22) – Nothing changed; just cleaned up language and links to clarify isolation language
 - WEROC continues to host monthly coordination calls with member agencies to provide updates regarding COVID and other items occurring in the OA.
 - CalOSHA Emergency Temporary Standards Update - On June 9, 2022, the Division of Occupational Safety and Health (Cal/OSHA) posted the proposed non-emergency [COVID-19 Prevention standards](#) on its [Cal/OSHA – Proposed Regulations webpage](#). The dates for the public hearing have not yet been set. WEROC will continue tracking and reporting on the new standards' progression. In reviewing the proposed language, the actions being administered by employers would be adopted for two years at a time. WEROC will provide more information as this changes.
 - Remaining in effect is California's State of Emergency for COVID-19; therefore, the end date will be dependent on when the state feels the emergency is over. Based on a conversation with Dr. Chau on 8/10, the Governor intends to keep the California State of Emergency in place as long as the Federal Public Health Emergency Declaration remains. Discussions at the federal level indicate this will most likely be renewed in October and stay in place this winter. The County Proclamation will remain in place, following the same pattern as the state. WEROC will continue to track this information
 - AB 361 - Open meetings: state and local agencies: teleconferences. For those agencies continuing to protect employees' safety with the provisions of the use of teleconference for Board Meetings, the following is still effect for the requirements of AB 361

- The California State of Emergency is still active
- As of the time of this report, the County of Orange Health Officer Order remained unchanged even with the CDC changes, still including Vulnerable Populations, and social distancing is still referenced in the Orange County Health Officer Order
- ***For Vulnerable Populations.*** *In general, the older a person is, the more health conditions a person has, and the more severe the conditions, the more important it is to take preventive measures for COVID-19, such as getting vaccinated, including boosters, social distancing, and wearing a mask when around people who don't live in the same household and practicing hand hygiene. For more information, see <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>.*
- As of the time of this report, on 8/15, we have had three agencies request assistance with an additional procurement of tests. This is currently being coordinated and addressed with member agencies.

MonkeyPox Update

Current Situation in Orange County: (As of 8/29/22)

OC Health Care Agency - Monkeypox Situation Summary	
Total Cases	Hospitalizations - n (%)
143	3 (2%)

Compared to: (as of 7/26/2022) No. of Confirmed and Probable Cases : 3

AUGUST EVENT INCIDENTS/EVENTS (NON-COVID)

- Cyber Event - 1 Agency - Email Intrusion
- Water Line Break – 1 agency

Vicki can provide an additional oral update to WEROC activities specific to the event as required/requested.

ELECTRICAL GRID AND CAL ISO MONITORING

As requested from the last Board meeting. Based on the summer outlook “2022 Summer Loads and Resources Assessment” Report and the adoption of the new Energy Emergency Alert (EEA) notification systems. Cal ISO issued one Flex Alert in August, and overall the electrical grid remained stable in a good position except for drought effects on hydro supplies.

As of the time of this report, a week-long heat event is predicted for the beginning of August 30th and thru the first week of September. WEROC will monitor and coordinate information and actions with member agencies as required.

COORDINATION/PARTICIPATION WITH MEMBER AGENCIES AND OUTSIDE AGENCIES MEETINGS OUTSIDE OF PROGRAMS AREAS AND EMERGENCY RESPONSE

- On 8/2, Vicki attended the ISDOC Executive Committee Meeting
- On 8/2, Vicki and MNWD had a meeting with OCFA (see planning efforts below)
- On 8/2, Vicki conducted the Monthly WEROC Coordination calls with member agencies
- On 8/3, Vicki attended the National Special Districts Action Week Briefing
- On 8/3, Vicki attended the Upper Feeder Emergency Shutdown Briefing
- On 8/4, Vicki participated in the monthly OCEMO meeting
- On 8/5, Vicki provided the WEROC update to WACO
- On 8/8, Vicki attended the CountyTsunami Working Group meeting.
- On 8/9, Vicki attended the CESA Legislative Working Group call
- On 8/10, Janine attended the UAWG quarterly meeting
- On 8/10, Vicki attended the OA Executive Board meeting as the W/WW Mutual Aid Coordinator representative.
- On 8/12, Vicki participated in the SDGE Exercise briefing
- On 8/15, Vicki participated in the SDGE PSPS Exercise
- On 8/15, Vicki attended the Diemer Plant Exercise Planning Team Meeting
- On 8/16, Vicki participated in the CalWarn Board meeting
- On 8/17, Vicki participates in the County Disease Outbreak Response Plan Revision Meeting
- On 9/17, Vicki participated in the Public Outreach for Filter Building Site Use Project/WEROC Emergency Operations Center
- On 8/18, Vicki participated in the MWDOC Managers Meeting
- On 8/24, Janine participated in the Operational Area Technology Subcommittee meeting.

PLANNING AND PROGRAM EFFORTS

AlertOC

Janine continues to work with special district member agencies participating in the AlertOC program. Currently, approximately 86% of the staff with access to the system to send messages have received training.

Coastal Fire Reimbursement

Vicki continues to work with CalOES and FEMA on the FMAG for the Coastal Fire and trying to get the water used for the suppression at a claimable cost, based on Prop 218 concerning PUC 2713, AB 1432, and Governor EO N-10-19. As of this report on 8/15, CalOES is only following PUC 2713; Vicki is putting together more information for the state and will advise on the progress or outcome.

Cyber Security

WEROC continues to send out important information to the Cyber Security Distribution Group as received from DHS or the OCIAC.

Vicki continues to follow up with agencies who have a cyber-event and reminds all agencies she can assist by bringing in free DHS resources to assist with mitigating the issue.

EOC Readiness Documents and Planning

Vicki has updated the EOC Initial Activation/Startup Checklist for the EOC Manager and the overall EOC responder initial activity checklist. Vicki updated the Facility Inspection EOC checklist

Training and Exercises

Vicki is offering a G775 EOC Operations and G191 ICS/EOC Interface Courses from September 13-15th. MNWD is hosting the location for WEROC.

In partnership with MNWD, Vicki has scheduled a meeting with OCFA to discuss a training series for incoming fire candidates and OCFA engineers regarding water systems, how they work, and the information they need to understand. This was an outcome of the Coastal Hotwash, and OCFA was very receptive. The first planning meeting for the concept with OCFA was held on 8/2, and a follow-up meeting will be scheduled.

Vicki is collaborating with MET on an exercise at Diemer in November. This will establish a Multi-Agency Coordination (MAC) Policy Group coordination call to share information and allow agencies whose recent real-world events have not been impacted to see how this coronation will work. WEROC will be communicating with member agencies to establish a communications and coordination drill as part of the exercise.

Vicki participated in the SDG&E PSPS Exercise on 8/12 and 8/15, focusing on the communication and coordination piece and how WEROC procedures with this event can be strengthened.

WEROC Emergency Operations Center Project/Funding

Senator Feinstein and Senator Padilla summited the project for the FY23 appropriated directed funding. Unfortunately, the project did not make the final bill. Not many California Projects made the list.

Vicki will present this item to the MWDOC Board at the September P&O Meeting on the status and next steps.

WEROC Personnel Update

The vacant WEROC Specialist Position recruitment closed on 7/22. Interviews were conducted in August, and the New WEROC Specialist will begin in September.

Operational Area and Member Agency Plan Review/Working Groups

Vicki has reviewed and provided written changes or feedback to the following Annexes/Plans. These are currently being reviewed in working group meetings focusing on 1-2 chapters at a time:

- County of Orange - Yorba Linda Dam Emergency Response Plan
- Orange County Operational Area – Disease Outbreak Annex
- Orange County Operational Area – Recovery Annex
- Operational Area Tsunami Annex

MET ITEMS CRITICAL TO ORANGE COUNTY

MET FINANCE AND RATE ISSUES

Current Update

Water Transactions for June 2022 totaled 139.9 thousand acre-feet (TAF), which was 7.1 TAF lower than the budget of 147.0 TAF and translated to \$131.7 million in revenues for June 2022, which was \$23.2 million lower than the budget of \$154.9 million.

Year-to-date water transactions through June 2022 were 1,645.8 TAF, which was 45.8 TAF higher than the budget of 1,600.0 TAF. Year-to-date water revenues through June 2022 were \$1,515.1 million, which was \$23.5 million higher than the budget of \$1,491.6 million.

As of June 30, 2022, Metropolitan's investment portfolio balance was \$1.54 billion.

In June 2022, Metropolitan staff prepared several bond disclosure documents, including some presented to the Board and Ad Hoc Committee, to prepare bond transactions that would occur in July. In addition, Metropolitan presented their financial and other critical information to representatives of Moody's and Standard & Poor's to discuss Metropolitan's credit fundamentals and various bond transaction structures.

MET INTEGRATED RESOURCES PLAN UPDATE

Recent Activity

In 2022, Metropolitan adopted the 2020 Integrated Water Resources Plan Needs Assessment. Although earlier studies also foreshadowed a reliability challenge, this latest IRP assessment directly incorporated scenario planning to address wide-ranging uncertainties and to pre-experience alternative and plausible futures through 2045. The IRP assessment included numerous findings that called for enhanced accessibility to core supplies and storage and new storage accessible to SWP-dependent areas. Unfortunately, the challenging future projected by the IRP scenarios and the other studies arrived early.

Also, in 2022, the Metropolitan Board approved the General Manager's strategic priorities for the current biennial budget period. One of the five priorities (Adapt) led with the goal of providing each member agency with an equivalent level of water supply reliability through adaptive implementation of the IRP findings.

Metropolitan continued implementing the Emergency Water Conservation Program (EWCP) to address severely limited water supplies available to member agencies needing SWP system water. Since June 1, there has been a positive demand response across the SWP-dependent area. Overall, the affected Member Agencies continued to show reductions in purchases from Metropolitan compared with their historical levels, indicating consumer responsiveness to demand-cutting measures. Metropolitan

continuously monitors performance to ensure total SWP water usage stays within the available supplies. Through July, those agencies' total use of SWP supplies is more than 35 percent below what was initially expected without emergency conservation.

Four projects to enhance near-term water supplies in response to the drought emergency are midway through design. Metropolitan staff worked with the SWP-dependent agencies to develop a Call-to-Action presented to the Board in August. The associated Metropolitan Resolution is attached.

With this Call-to-Action, the Metropolitan Board directs the General Manager to take on these actions through a One Water approach, with robust Board oversight through the implementation phase of the IRP. Four elements of action include:

1. Upgrade water infrastructure to ensure equitable access to supply and storage assets.
2. Increase long-term water savings through water use efficiency and transforming non-functional turf grass into a more appropriate Southern California landscape.
3. Advance development of local supplies for recycled water, groundwater recovery, stormwater capture, and desalination.

Align imported supply planning and actions for the full potential impacts of climate change using the best available science. These actions include stabilizing those supplies through conveyance improvements, storage infrastructure and programs, water-loss prevention, and voluntary transfers

MET'S SUPPLY CONDITION UPDATE

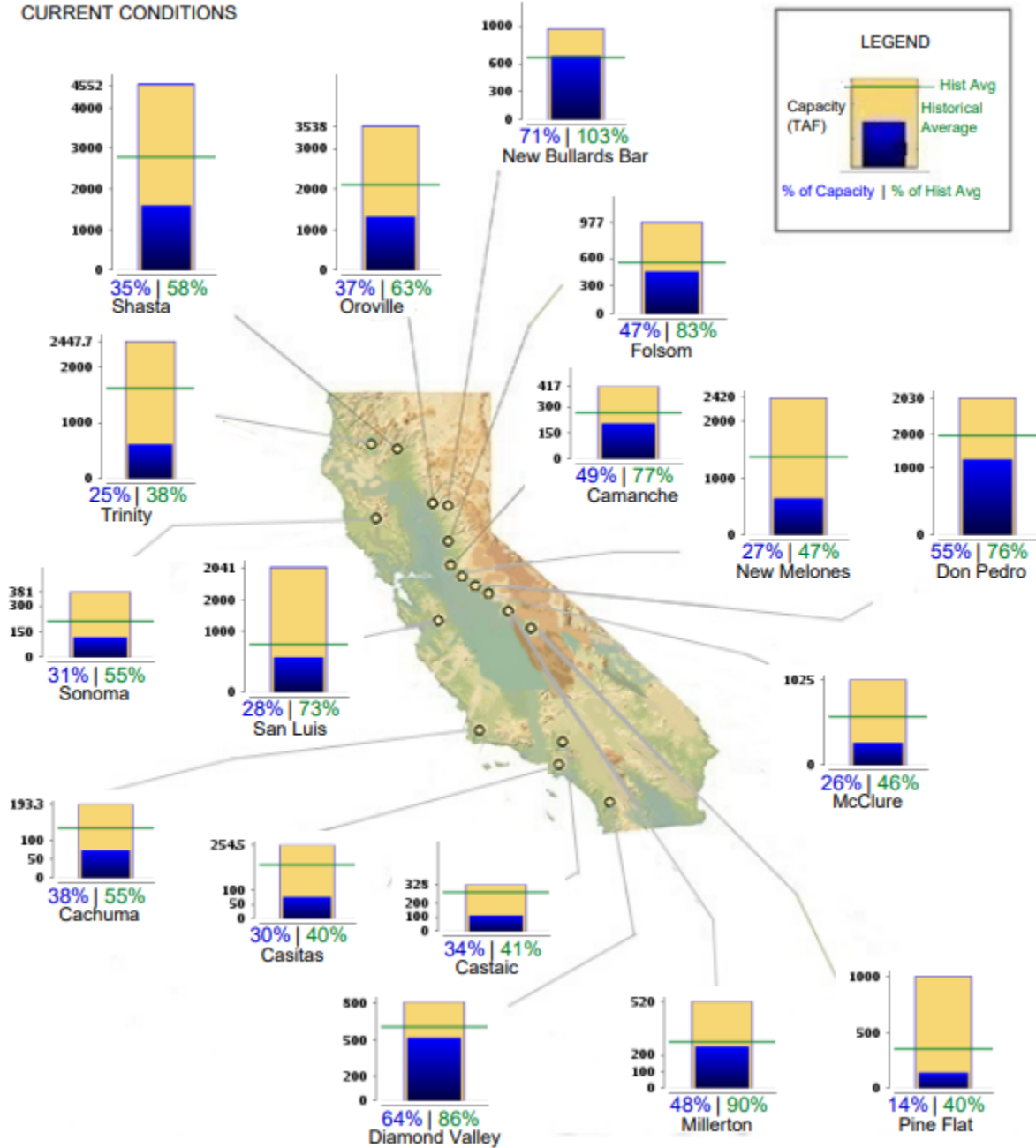
The 2021-22 Water Year (2021-22 WY) officially started on October 1, 2021. Thus far, Northern California accumulated precipitation (8-Station Index) reported **41.4 inches or 84% of normal** as of July 25th. For 2021-22 WY, the Northern Sierra Snow Water Equivalent was at **7.7 inches on April 1st**, which is **27% of normal** for that day. Due to historical low precipitation/snowfall from January to March 2022, the Department of Water Resources (DWR) has decreased the State Water Project (SWP) **“Table A” allocation to 5%**. This allocation provides Metropolitan with approximately **95,575 AF in SWP deliveries this water year**. Metropolitan will also receive 133,000 AF for Human Health and Safety Supply. DWR's SWP Allocation considers several factors, including existing storage in SWP, conservation reservoirs, SWP operational, regulatory constraints, and the 2022 contractor demands.

Snowpack is measured across four states in the Upper Colorado River Basin on the Colorado River system. The Upper Colorado River Basin accumulated precipitation is reporting 27.9 inches or 102% of normal as of August 22nd. The Upper Colorado River Basin Snow Water Equivalent reported **17.2 inches as of April 15th**, which is **86% of normal** for that day. Due to the below-average precipitation/snowfall in 2020-21 WY, the United States Bureau of Reclamation **declared a shortage at Lake Mead starting January 1st, 2022**. There is a 100% chance of the shortage continuing in 2023.

As of August 28th, Lake Oroville storage is **37% of total capacity and 63% of normal**.
 As of August 28th, San Luis Reservoir has a current volume of **28% of the reservoir's total capacity and is 73% of normal**.

CALIFORNIA MAJOR WATER SUPPLY RESERVOIRS
 CURRENT CONDITIONS

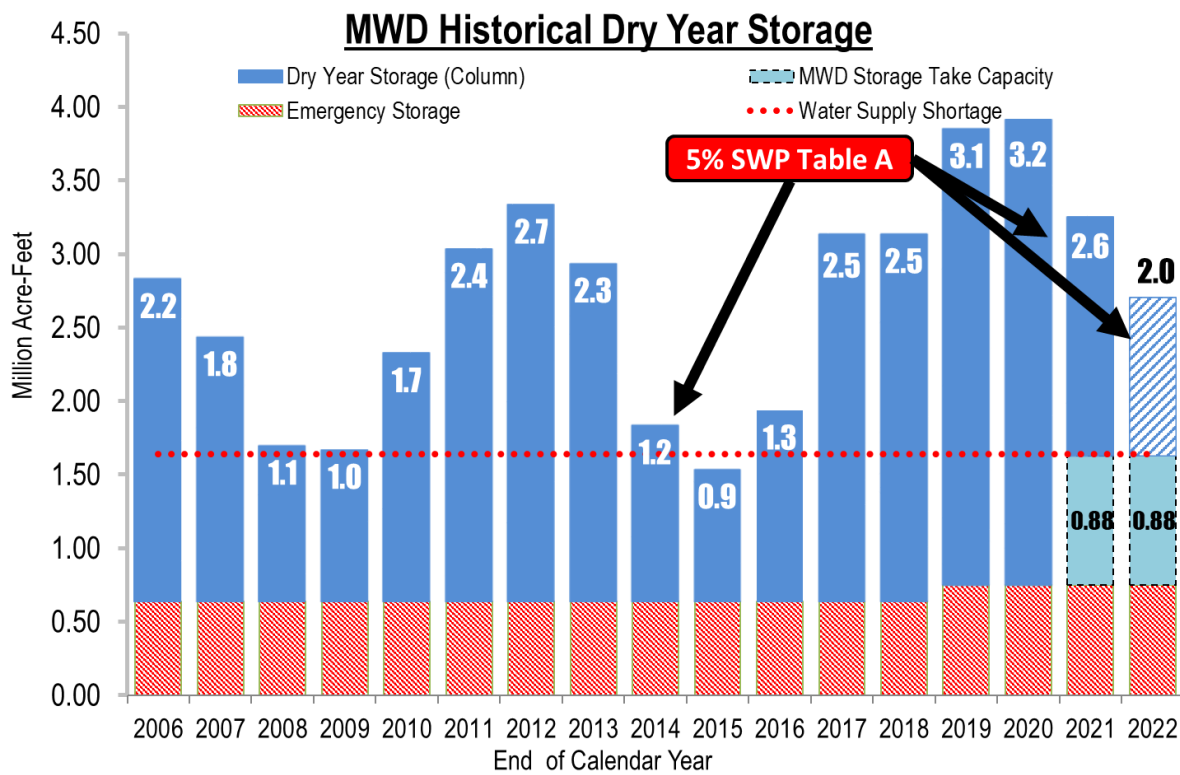
Midnight - August 28, 2022

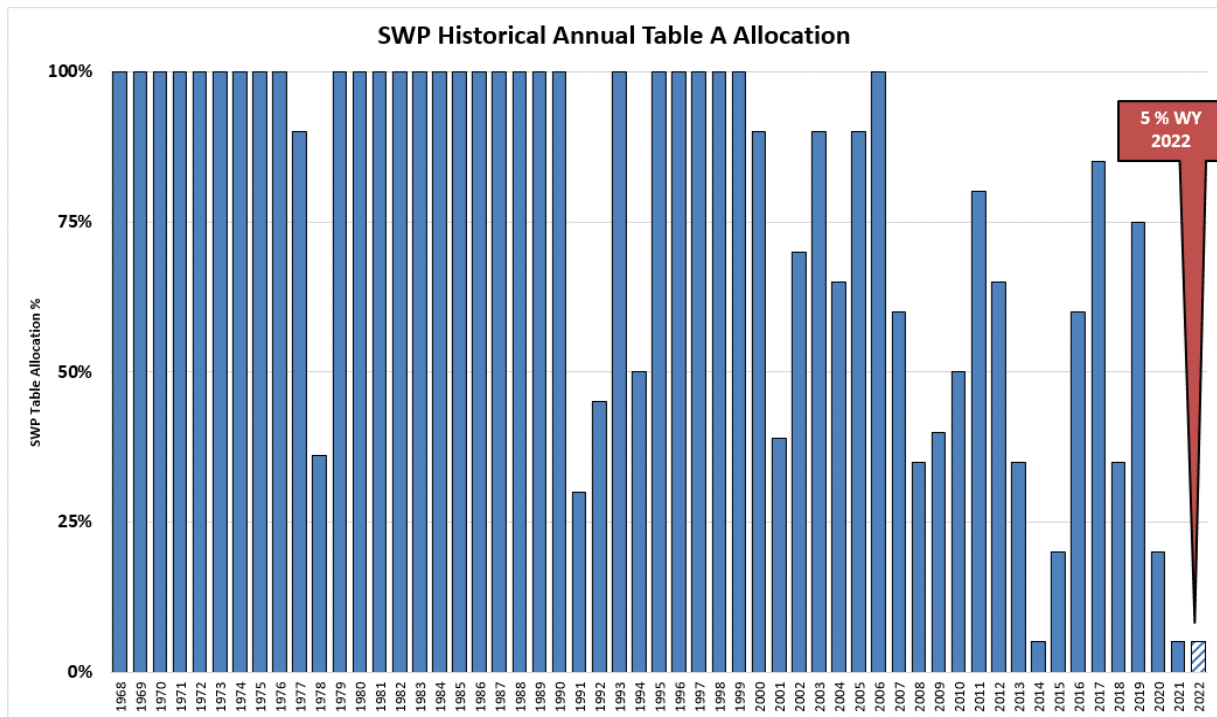


Updated 08/29/2022 03:48 PM

With early CY 2022 estimated total demands and losses of 1.732 million acre-feet (MAF) and with a 5% SWP Table A Allocation, Metropolitan is projecting that demands will exceed supply levels in Calendar Year (CY) 2022. Based on this, the estimated total dry-year storage for Metropolitan at the end of **CY 2022 will go down to approximately 1.955 MAF.**

A projected dry-year storage supply of **1.955 MAF would still be about 0.955 MAF above, where MWD has historically declared a water supply allocation.** A large factor in maintaining a high water storage level is lower than expected water demands. We are seeing regional water demands reaching a 38-year low.





MET’S WATER QUALITY UPDATE

Recent Activity

Water System Operations

Metropolitan released its [Annual Drinking Water Quality Report](#) in July. The report summarizes 2021 monitoring results which show that Metropolitan’s water quality is equal to or better than what is required by regulations to safeguard public health. This year’s report highlights Metropolitan’s continued focus on source water protection, the Partnership for Safe Water program, measures to comply with new laboratory accreditation regulations, and our proactive approach to emerging contaminants.

The report summarizes the results of required monitoring in the calendar year 2021, showing that Metropolitan’s water quality is equal to or better than what is required by regulations to safeguard public health. This year’s report also highlights Metropolitan’s continued focus on source water protection, the Partnership for Safe Water program, measures taken at the Water Quality Lab to comply with new laboratory accreditation regulations, and our proactive approach to emerging contaminants.

Water Treatment and Distribution

The State Water Project (SWP) target blend entering the Weymouth and Diemer plants and Lake Skinner was zero percent in July. A small amount of flow from Silverwood Lake was temporarily needed to supplement demand in the Weymouth and Jensen service areas because of the Upper Feeder flow limitation to minimize a leak at the Santa Ana River bridge.

Flow-weighted running annual averages for total dissolved solids from April 2021 through March 2022 for Metropolitan's treatment plants capable of receiving a blend of supplies from the SWP and the Colorado River Aqueduct were 594, 590, and 582 mg/L for the Weymouth, Diemer, and Skinner plants, respectively.

During July, several meetings were held to discuss required functions, activities, specialized equipment, and space requirements supporting the Water Quality Laboratory seismic retrofit and building improvement capital project. This project aims to ensure that Metropolitan has a seismically resilient, state-of-the-art laboratory to meet all regulatory compliance monitoring requirements, support treatment development and optimization, and provide applied research facilities to address emerging water quality issues. The meetings focused on different user groups within the Water Quality Section and involved managers, project engineers, and design consultants.

Source Water Quality

On June 13, Metropolitan staff participated in the Department of Water Resources' quarterly Specific Project Committee meeting for the Municipal Water Quality Investigations (MWQI) Program. A key highlight was an update on the completion of the State Water Project 2021 Watershed Sanitary Survey, which was submitted to the Division of Drinking Water in June 2022.

The Municipal Water Quality Investigations (MWQI) program provides water quality monitoring, forecasting, and reporting to support the effective and efficient use of the State Water Project as a municipal water supply. It conducts scientific studies, provides early warning of changing conditions in source water quality, and provides data and knowledge to support operational decision-making. Metropolitan is one of the State Water Contractors that voluntarily funds the MWQI program and will chair the Specific Project Committee for the fiscal year 2022/23, as well as help plan and coordinate the annual MWQI meeting in October 2022.

Water Quality Compliance, Worker Safety, and Environmental Protection.

Metropolitan complied with all water quality regulations and primary drinking water standards during June 2022.

Capital Project Planning and Execution

During July, several meetings were held to discuss required functions, activities, specialized equipment, and space requirements supporting the Water Quality Laboratory seismic retrofit and building improvement capital project. This project aims to ensure that Metropolitan has a seismically resilient, state-of-the-art laboratory to meet all regulatory compliance monitoring requirements, support treatment development and optimization, and provide applied research facilities to address emerging water quality issues. The meetings focused on different user groups within the Water Quality Section and involved managers, project engineers, and design consultants.

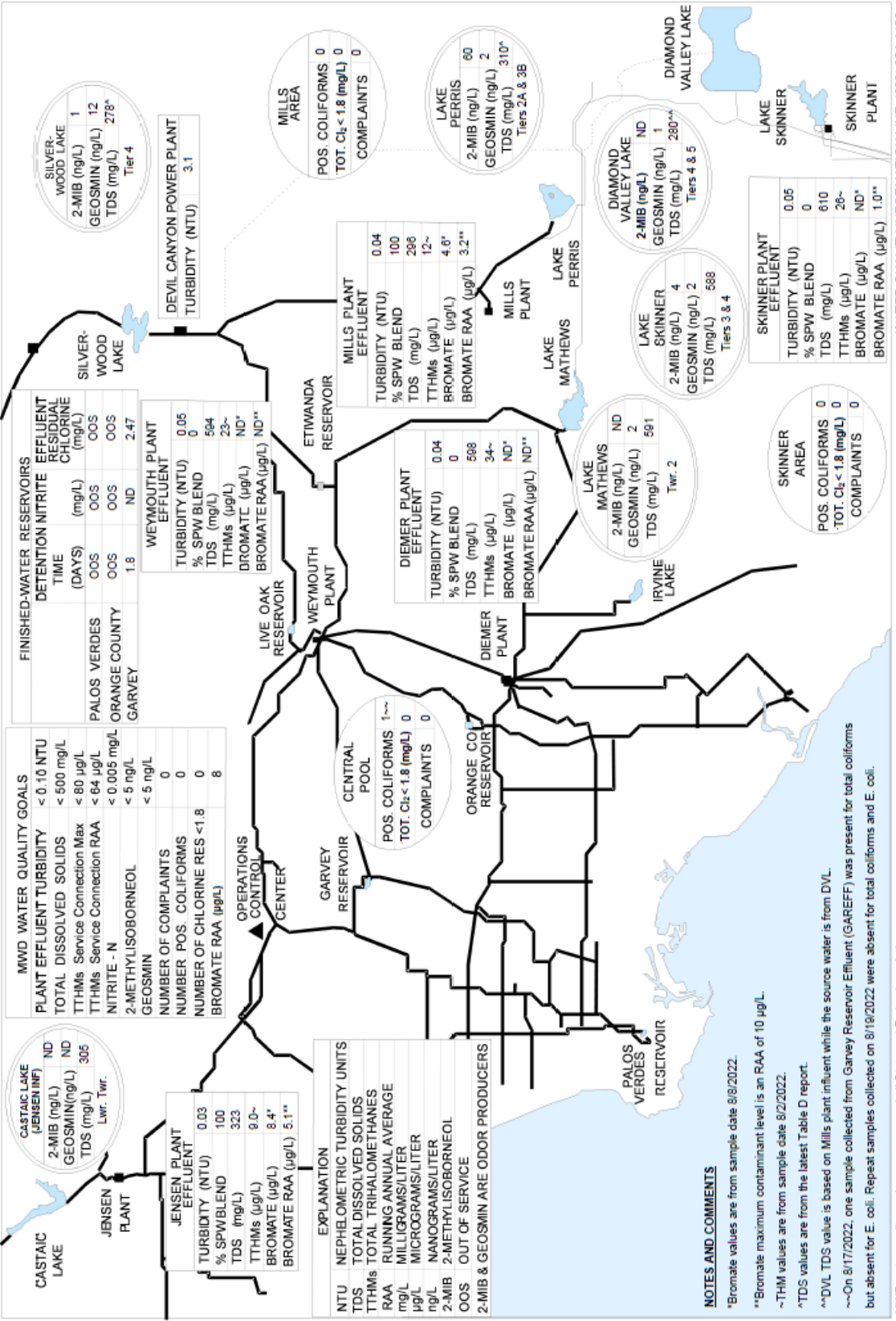
Weekly Water Quality System Status

Wednesday, August 17, 2022

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THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

No violations of State or Federal regulations were recorded during the current period.

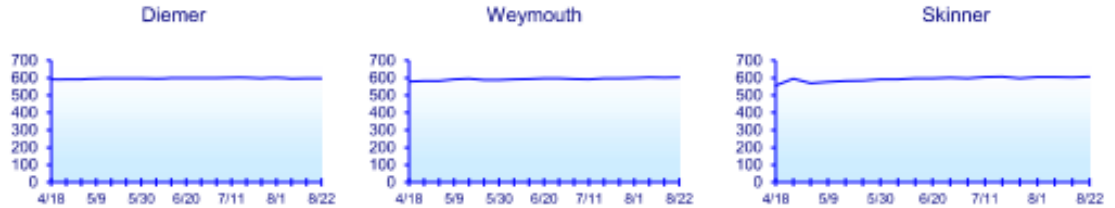


Water Quality Section Weekly TDS Report For the week of 8/21/2022

Percent SPW Needed to Achieve TDS Goal of 500 mg/L				Estimated TDS for Reservoirs		
Source Water TDS		SPW Required		Reservoir (Effluent)	Date	mg/L
Plant	CRW	SPW	Percent			
Weymouth	592	282	30%	Lake Havasu (Table D)	5/11/22	588
Diemer	592	282	30%	Lake Mathews (DFPI-LWRFDR)	8/22/22	592
Skinner-Silverwood	586	282	28%	Lake Skinner (Outlet Structure)	8/22/22	587
Skinner-Perris	586	310	31%	Castaic Lake (JFPI)	8/21/22	301
CRW for Diemer and Weymouth is Lake Mathews and San Jacinto - West Portal for Skinner.				DVL (Mills Inf)	8/21/22	282
				Lake Perris (Table D)	5/2/22	310
				DVL Outlet (Table D)	5/9/22	271

SUNDAY COMPOSITE ESTIMATED TDS FOR 04/17/22 - 08/21/22

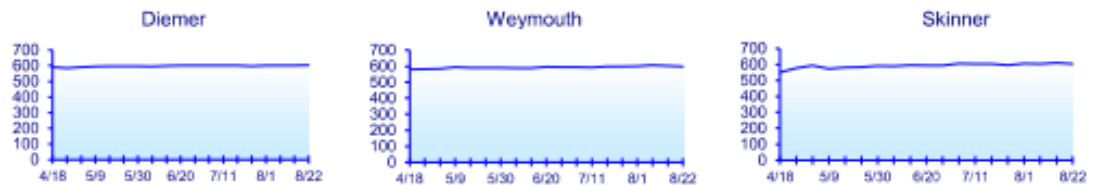
TDS For Week of 8/21	
Plant Eff.	mg/L
Diemer	597
Weymouth	602
Skinner	606
Jensen	322
Mills	297



Sunday composite estimated TDS measured from plant effluent composite samples collected on Sunday and analyzed for hardness and electrical conductivity.

WEEKLY COMPOSITE ESTIMATED TDS FOR 04/17/22 - 08/21/22

TDS For 8/15 - 8/21	
Plant Eff.	mg/L
Diemer	604
Weymouth	599
Skinner	603



Weekly composite estimated TDS measured from plant effluent composite samples collected Monday through Sunday and analyzed for hardness and electrical conductivity.

MONTHLY COMPOSITE CALCULATED TDS FOR June 2021 - May 2022

TDS For May 2022	
Plant Eff.	mg/L
Diemer	593
Weymouth	600
Skinner	580
Jensen	326
Mills	290



Monthly calculated TDS calculated from plant effluent monthly composite sample for total anions and cations. These results are also used for Table D.

FLOW WEIGHTED RAA TDS FOR June 2021 - May 2022

Flow-Weighted RAA TDS Jun 2021 - May 2022	
Plant	mg/L
Diemer	590
Weymouth	594
Skinner	585
Jensen	319
Mills	291



Seasonal flow-weighted RAA TDS calculated from plant effluent monthly composite sample for total anions and cations. Results are based on average monthly flows.

DELTA CONVEYANCE ACTIVITIES AND STATE WATER PROJECT ISSUES

Delta Conveyance

On July 27, the California Department of Water Resources (DWR) released the public Draft Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA) for the Delta Conveyance Project (DCP) for public review and comment. Comments are due October 27, 2022.

DWR prepared the following fact sheets to help the public review and comment on the Draft EIR:

- [Delta Conveyance Project Overview and Update](#)
- [What is the Draft Environmental Impact Report for the Delta Conveyance Project?](#)
- [Tips for Commenting on an EIR](#)

These documents and other fact sheets and summary information, as well as the newly developed “Quick Questions Video Series” and “Deep Dive” videos, can be found on DWR’s Delta Conveyance Project website: <https://water.ca.gov/deltaconveyance>.

The U.S. Army Corps of Engineers, as part of its permitting review under the Clean Water Act and Rivers and Harbors Act, is preparing an Environmental Impact Statement (EIS) to comply with the National Environmental Policy Act and is planning to release a draft EIS for public review later this year.

Joint Powers Authority

During the July 15 Special Board of Directors Meeting, the Delta Conveyance Design and Construction Authority (DCA) Board of Directors approved a resolution to extend virtual board and committee meetings pursuant to AB 361.

For fiscal years 2022-2024, the DCA Board appointed Director Sarah Palmer, representing Alameda County Flood Control Zone 7 Water District, as President of the Board of Directors (BOD), Director Martin Milobar, representing Kern County Water Agency, as Vice President of the BOD, and Director Gary Martin, representing Santa Clarita Valley Water Agency, as Secretary of the BOD. Since the DCA contracts with Metropolitan for Treasurer services, Katano Kasaine was reappointed as Treasurer of the BOD.

The regularly scheduled July 21 Delta Conveyance Finance Authority meeting was canceled.

Sites Reservoir

In their July meetings, the Sites Project Authority Board (Authority Board) and the Sites Reservoir Committee (Reservoir Committee) authorized the Executive Director to submit the Biological Assessment to the U.S. Bureau of Reclamation (Reclamation) for consultation under the federal Endangered Species Act covering construction and operations and submit the

Operations Incidental Take Permit application to the California Department of Fish and Wildlife (CDFW) under the State Endangered Species Act.

The Reservoir Committee recommended, and the Authority Board adopted the CEQA Initial Study/Mitigated Negative Declaration and adopted the Mitigation, Monitoring, and Reporting Program for the 2022-2024 Sites Reservoir Geologic, Geophysical, and Geotechnical Investigations Project. The Authority Board also approved this Project and authorized the Executive Director to file all related notices and pay all associated fees.

Science Activities

Metropolitan staff continued participating in the Collaborative Science and Adaptive Management Program (CSAMP), including participation in the Collaborative Adaptive Management Team (CAMT). In July, the CAMT and CSAMP Policy Group meetings focused on the CAMT Monitoring Assessment Project, which is divided into three tasks: (1) understanding the approaches and recommendations of previous and ongoing reviews of long-term monitoring programs, (2) articulating the objectives of CSAMP members concerning monitoring, and (3) developing a process for the next phase of monitoring reviews and an implementation plan for recommendations. The July meetings focused on task 2 and included a discussion of shared objectives for monitoring, areas of disagreement on monitoring needs, and the potential role of CSAMP in addressing monitoring recommendations and supporting meaningful science-policy engagement on monitoring.

Metropolitan staff co-authored a scientific paper reporting on findings from a symposium that showcased practical applications of methods for detecting environmental DNA (eDNA) in the San Francisco Estuary to complement traditional monitoring and inform species management decisions in aquatic environments. The paper, "Environmental DNA Methods for Ecological Monitoring and Biodiversity Assessment in Estuaries," was published in the *Estuaries and Coasts* journal ([Environmental DNA Methods for Ecological Monitoring and Biodiversity Assessment in Estuaries \(springer.com\)](https://doi.org/10.1007/s12237-022-00909-1)). The proceedings paper includes findings from Metropolitan supported studies to develop eDNA detection methods in the San Francisco Estuary and recommendations for improving communication between eDNA researchers and natural resource managers

Metropolitan staff also co-authored a scientific paper in the *San Francisco Estuary and Watershed Science* journal titled "Considerations for the Development of a Juvenile Production Estimate for Central Valley Spring-Run Chinook Salmon" ([Considerations for the Development of a Juvenile Production Estimate for Central Valley Spring-Run Chinook Salmon \(escholarship.org\)](https://doi.org/10.1007/s12237-022-00909-1)). The paper reports on the outcomes of a workshop for managers, scientists, and stakeholders to develop a juvenile production estimate (JPE) for the spring run, defined here as an annual forecast of the number of juvenile Central Valley spring-run Chinook Salmon that enter the Delta from the Sacramento Valley. The paper summarizes spring-run biology, monitoring, and emergent methods for assessment and the guiding concepts identified by workshop participants necessary to develop a JPE for spring-run Chinook Salmon. The development of a JPE will support spring-run management actions, including evaluating

population status and managing water project operations issues such as entrainment of this species at water diversions.

PUBLIC/GOVERNMENT AFFAIRS

MEMBER AGENCY RELATIONS

Public Affairs Staff:

- Added a board member of El Toro Water District to the interest list for inspection trips
- Designed and printed Fall Bill Inserts
- Met with the City of Westminster, Wyland Foundation, and Saddleback College about the Pocket Park progress and next steps

Government Affairs Staff:

- Distributed the monthly grants tracking and acquisition report to member agencies
- Distributed information on the Urban Community Drought Relief grant program, which is currently soliciting feedback before guidelines are finalized in late September

COMMUNITY RELATIONS

Public Affairs Staff:

- Sent a box of promotional items to Niguel Hills Middle School
- Planned activity and purchased materials for the 2022 Girl Scout's STEM Expo
- Met with Girl Scouts of Orange County to discuss the Water Resources and Conservation Patch Program
- Staffed a booth at the Festival of the Butterflies, saw around 550 community members, and gave away almost 600 prizes
- Worked with Hashtag Pinpoint on a set of videos for the OC is Garden Smart series
- Prepared and sent a letter of support for the Wyland Foundation's Streams of Hope to grant application to the National Endowment for the Arts
- Speakers Bureau Presentation Drought and Water Issues Facing Orange County– Director Dick California State Retirees

Government Affairs Staff:

- Participated in the Solve the Water Crisis stakeholder working group
- Attended the ACWA Region 10 meeting at Olivenhain Municipal Water District
- Met with staff at Valley-Wide Recreation and Park District who is resurrecting the Riverside County CSDA Chapter, and provided them with various forms and feedback

EDUCATION

Public Affairs Staff

- Presented MWDOC education updates at Metropolitan Water District of Southern California's (Metropolitan) Education Coordinator meeting

- Met with Metropolitan to discuss Water Energy Education Alliance (WEEA) workforce development initiatives
- Participated in the bi-weekly California Environmental Literacy Initiative's Green Careers Innovation Hub meeting
- Participated in a statewide check-in meeting with the California Municipal Utilities Association (CMUA) on a High Road Training Partnerships (HRTTP) grant application. Provided partnership content to support the application.
- Met with Latinos for Water regarding the CMUA HRTTP grant application and partnership opportunities
- Met with Ignited and San Mateo County Office of Education to discuss an HRTTP grant application to introduce career exploration in middle and high schools – Orange County Department of Education is mirroring this grant structure
- Met with Western Municipal Water District to discuss sponsorship of WEEA
- Met with the Centers of Excellence for Labor Market Research (COE) to discuss the statewide water and wastewater survey progress through WEEA
- Collaborated with the State Water Resources Control Board to distribute the WEEA/COE water and wastewater workforce needs assessment survey to water and wastewater agencies throughout the state
- Prepared the [WEEA year-end report](#) and distributed it to WEEA sponsors
- Finalized two (2) promotional brochures that introduce water and energy careers to California middle and high school students
- Provided information regarding MWDOC Choice School Programs to the City of Santa Ana
- Met with MWDOC 3-12 Choice School Programs contractor, Orange County Department of Education's Inside the Outdoors, to discuss program progress and set goals for the upcoming school year
- Began meeting with the Department of Water Resources and Orange County Department of Education's Inside the Outdoors to plan the forthcoming Water Education Committee meeting

MEDIA RELATIONS

Public Affairs Staff

- Prepared and distributed the August issue of MWDOC eCurrents Newsletter
- Prepared and distributed content for social media
- Prepared and submitted articles to Association of California Water Agencies News
 - <https://www.acwa.com/news/mwdoc-offers-quick-video-tips-for-successful-water-smart-gardens/>
- Distributed weekly news digests to MWDOC managers and Board
- Promoted OC Water Summit on social media
- Responded to various media inquiries

SPECIAL PROJECTS

Public Affairs Staff:

- Participated in several OC Water Summit Planning committee meetings
- Coordinated with Orange County Water District in the planning and producing of materials for OC Water Summit
- Prepared and sent out a second invite for OC Water Summit
- Sent out sponsorship brochure for OC Water Summit
- Coordinated registration and sponsorships for OC Water Summit
- Created OC Water Summit signage
- Responded to MWDOC department requests for website information and published website updates
- Worked with Metropolitan on the inspection trip program
- Participated in an inspection trip planning meeting for a shared State Water Project trip with Directors Ackerman and Hawkins
- Attended the Upper Feeder Emergency Shutdown discussion with Metropolitan meeting
- Participated in the Metropolitan Public Information Officers working group meeting

Governmental Affairs Staff:

- Along with Tina Dubuque, I staffed the ISDOC Quarterly Luncheon meeting, featuring speakers from OCIAC on cybersecurity.
- Staffed the ISDOC Executive Committee meeting
- Invited speakers for the September and October WACO meetings and answered related questions
- Staffed the August WACO meeting, featuring speakers from Metropolitan Water District and Bard Water District on their seasonal fallowing program
- Distributed an invitation to the OC Water Summit to all legislative offices in Orange County
- Worked with Tina Dubuque to distribute the ISDOC Officer Election information for the 2023/2024 term and answered various questions from members
- Staffed the WACO Planning meeting
- Attended the CSDA County Chapter Roundtable meeting
- Began inviting speakers for the October ISDOC Quarterly Luncheon

LEGISLATIVE AFFAIRS

Governmental Affairs Staff:

- Participated in the ACWA SB 222 (Dodd) advocacy meeting
- Attended the National Special Districts Association webinar
- Participated in the ACWA Region 10 State Legislative Committee prep call
- Participated in the ACWA Low Income Rate Assistance Program working group meeting
- Attended the ACWA State Legislative Committee meeting

- Met with the new governmental affairs manager at IEUA
- Coordinated with staff at IRWD on a possible recycled water amendment to benefit water retailers in Orange County
- Attended the OCBC virtual Federal Advocacy forum
- Attended the CSDA Legislative Committee meeting
- Attended the CSDA Annual Conference in Palm Desert and joined various breakout sessions on LAFCOs, the Brown Act, redistricting, and legislative updates
- Worked with our Sacramento advocate on outreach to our delegation for SB 1157 (Hertzberg)
- Attended the ACWA State Legislative Committee meeting
- Sent a letter to Governor Newsom asking him to sign AB 2449 (Rubio) per the request of the bill's sponsor, Three Valleys Municipal Water District

WATER USE EFFICIENCY

FESTIVAL OF THE BUTTERFLIES EVENT

On August 6, Tina Fann assisted Public Affairs at the Goin' Natives Therapeutic Gardens Festival of the Butterflies event at Los Rios Park in San Juan Capistrano. The MWDOC booth saw over 200 visitors. Guests were able to win a prize after answering a water-awareness-related question. Prizes included MWDOC branded reusable straws, wildflower seed kits, sunglasses, drawstring bags, garden hose nozzles, hand sanitizer, and reusable produce bags.

ORANGE COUNTY DATA ACQUISITION PARTNERSHIP (OCDAP) MEETING

On August 9, Rachel Waite attended the OCDAP Working Group meeting. The working group collaborates on and organizes a regional effort to cost share the acquisition of high-resolution aerial imagery and related products. Topics on the agenda included:

- Consent Calendar
- Cycle 2 Deliverables Status & MOU between County & OCCOG for Lead Agency and Billing
- Cycle 2 Website Changes
- OCDAP Data Sharing/Efforts/Projects Underway/Cycle 2 Derived Products
- OC GIS User Group Update

The next meeting is scheduled for September 13.

DEDICATED IRRIGATION METER (DIM) LANDSCAPE AREA MEASUREMENTS PROJECT MEETING – CITY OF TUSTIN

On August 9, Rachel W. and Sam Fetter met with City of Tustin staff to provide an overview of the DIM Landscape Area Measurements Project. This Project provides Orange County retail water agencies access to MWDOC's consultant, NV5, to obtain DIM landscape area measurements and classifications as required by SB606 and AB1668 (Conservation Framework). Topics discussed included a broad overview, how the project supports compliance with the Conservation Framework, administrative duties, and next steps.

The next meeting will be held with City staff and NV5 on September 20.

COOLING TOWER PROJECT ADVISORY COMMITTEE (PAC) MEETING

On August 9, Sam participated in the Cooling Technology PAC meeting hosted by Alliance for Water Efficiency (AWE) and attended by water professionals in California, Arizona, and Texas. The topics discussed included a report on the Cooling Tower Estimation Model, alternative cooling technologies, and the Cooling Tower Audit Tool.

A follow-up meeting is not scheduled at this time.

CALWEP PROGRAM COMMITTEE MEETING

On August 11, Beth Fahl attended the CalWEP Program Committee meeting. Topics discussed included:

- CalWEP Updates
- AWE Updates
- Member Media Training – Help Us Plan
- CII Classification Progress
- Task Force Updates
- Announcements

The next meeting is scheduled for October 19.

CONSERVATION DATA COLLABORATIVE CALL

On August 12, Rachel W. joined the Conservation Data Collaborative call hosted by San Antonio Water Systems (SAWS) and was joined by conservation-focused data analysts from across the Pacific Northwest, California, Arizona, and Texas. The discussion focused on classifying commercial, industrial, and institutional customers using North American Industry Classification System (NAICS) coding. Topics included lessons learned, tips and tricks, and associated benefits, including compliance with the Conservation Framework.

The next meeting will be held at a to-be-determined date in November.

PA 22 ADVISORY WORKGROUP MEETING

On August 15, Joe and Rachel W. joined the PA 22 Advisory Workgroup meeting hosted by SAWPA and attended by SAWPA member agency staff and MWDOC staff. Topics on the agenda included:

- Prop 1 Enhanced Decision Support Tool Update
 - SARCCUP Water Budget Assistance
 - Update on Retail Water Agency Status
 - Amount of Customer Meter Service Area (MSA) Budgets Created

The next meeting is scheduled for October 17.

CAL-NEV AWWA WATER EDUCATION SEMINAR

On August 17, Rachel Davis, Sam, Tina, Letty Aguilar, Hugo Escamilla, Guillermo Zavala, and Trent Blue attended the Cal-Nev AWWA Water Education Seminar at Santiago Canyon College. Rachel D., Hugo, and Guillermo gave a presentation on the MWDOC Distribution System Leak Detection Program. Other presentation topics included:

- Reducing Non-Revenue Water by Tackling both Real and Apparent Loss with Integral Metered Solutions
- Drinking Water Regulatory Update

- What do the Drought and Water Restrictions Mean for Us?
- Supply Chain Resiliency
- MicroPlastics: Potential Impacts and Treatment Options for a New Class of Emerging Contaminant
- NO-DES Truck Demo

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA WATER USE EFFICIENCY WORKGROUP MEETING

On August 18, Beth, Sam, Tina, Rachel W., and Joe participated in Metropolitan's Water Use Efficiency Workgroup meeting via Zoom. Topics on the agenda included:

- Welcome
- MWD Board - One Water Committees
 - August Board Presentations
 - i. SBR Grant Application
 - ii. Update on Conservation Programs
 - iii. Initial Results from Household Water Use Study
 - iv. Metropolitan Nonfunctional Turf Efforts Update
 - Potential Upcoming September Items
- ICP Project Update
- External Affairs Update
- MWD Updates
 - Proposed new changes to MAA program
 - MWELo and WELDCP Class Updates
 - Review of Team leads on different programs
- Member Agency Roundtable
 - Drought Response Actions

The next meeting is scheduled for September 15.

NORTH AND CENTRAL OC IRWM STAKEHOLDER GROUP MEETING

On August 18, Joe and Rachel W. attended the North and Central OC IRWM Stakeholder Group meeting hosted by County of Orange Staff. The purpose of this meeting was for stakeholders to vote on projects and funding allocations selected by the North/Central OC IRWM Ad Hoc Committee. Included for consideration is MWDOC's project, Making Conservation an Orange County Way of life, which aims to transform turf grass into California Friendly landscapes and upgrade antiquated irrigation and indoor equipment/appliances to high-efficiency options. The following lists the Ad Hoc recommendation, which the Stakeholder Group unanimously supported.

Project	Project Proponent	Recommended Funding
Making Conservation an Orange County Way of Life	MWDOC	\$780,275
Orange County Regional PFAS Groundwater Treatment Program	Orange County Water District	\$4,200,000
Santa Ana Zoo Stormwater Capture and Diversion	City of Santa Ana	\$2,603,525

Next, the recommendation will go to the following committees for approval: the SAWPA OWOW Steering Committee on September 22 and the Department of Water Resources, estimated in February 2023.

ANNUAL WATER AUDIT VALIDATIONS

Between August 18 and September 12, Rachel D. met via Zoom with the City of Westminster, South Coast Water District, the City of La Habra, El Toro Water District, the City of Brea, and the City of Tustin to validate their AWWA Water Audit Results. Each water retailer in California must submit a validated water audit to the Department of Water Resources annually. MWDOC has been offering Water Audit Validations to Orange County agencies, via a consultant, through the Water Loss Control Technical Assistance Program. This is the first year the services were offered through the Water Loss Control Shared Services Program and performed by MWDOC staff. During the validation meeting, the audit inputs and supporting documentation were examined, necessary corrections were made, key performance indicators were considered, and water loss control strategies were discussed. In total, MWDOC staff will perform 24 water audit validations in 2022.

CALWEP RESEARCH AND EVALUATION COMMITTEE MEETING

On August 24, Joe and Rachel W. attended the CalWEP Research and Evaluation Committee. Topics discussed included:

- Committee Ideas Discussion
 - Suggestions for How to Better Coordinate with AWE
 - Potential Research on Technology and Water Savings
- Long-Term Framework CII Updates & Discussion
- AWE Research Committee Updates
- Committee Member Research Activity & Drought Updates

The next meeting is scheduled for November 16.

SOUTH ORANGE COUNTY IRWM PROP 1 ROUND 2 PROJECT INTERVIEW

On August 31, Rachel D. presented MWDOC's South Orange county IRWM Prop 1 Round 2 project to the South OC IRWM Ad Hoc committee. The project, titled South Orange County

Water Use Efficiency Program Phase II, is a water use efficiency program that will facilitate the transformation of turf grass to California Friendly landscapes, upgrade antiquated irrigation equipment to high-efficiency options, and incentivize the conversion of potable to recycled irrigation meters. This will result in reduced water consumption and numerous secondary benefits, including supporting Orange County urban water suppliers in complying with the Conservation Framework.

The next steps include a recommendation from the Ad Hoc committee. A follow-up meeting is not scheduled at this time.

MWDOC ORANGE COUNTY WATER USE EFFICIENCY WORKGROUP MEETING

On September 1, Beth, Tina, and Sam hosted the Orange County Water Use Efficiency Workgroup meeting. Items on the agenda included:

- MWDOC Updates
- Agency Problem Solving Roundtable
- UC Sustainable Societies Capstone
- Recent Metropolitan Turf Studies
 - Turf Multiplier Study
 - Turf Reversion Study
- Metropolitan Update
- Metropolitan Update
 - Initial Results from Household Water Use Study
 - Metropolitan Nonfunctional Turf Efforts Update
- Water Use Efficiency Updates
 - Turf Removal Program Update
 - Turf Removal Phone Number
 - Grant Funding Update
 - Inspections/Measurements
 - Training
 - LDAP PAC
- CalWEP Update
- Future Agenda Items

The next meeting is scheduled for some time in October.

CALIFORNIA WATER EFFICIENCY PARTNERSHIP (CALWEP) FALL PLENARY MEETING

On September 8, Joe and Beth attended the CalWEP Fall Plenary meeting. Joe attended in person, and Beth attended remotely via Zoom. Items on the agenda included:

- Welcome and Opening Remarks
- Host Presentation

- What's Happening at CalWEP
- What's New at the Alliance
- New Member Spotlight: Flow Active
- Business Member Spotlight: Green Media Creations
- What We Learned from Drought Focus Groups
- CalWEP Committee Reports
- What You Need to Know from the State
- Sustainable Landscape Market Transformation Presentation
- Wrap-Up and Networking

The Winter Plenary Meeting is scheduled for December 6.

POSTER CONTEST AWARDS CEREMONY

On September 10, Tina and Cristal Castro assisted Public Affairs at the Poster Contest Awards Ceremony hosted at the Shipley Nature Center in Huntington Beach. Winners of MWDOC's 2022 Poster Contest and their family members celebrated with a picnic lunch. Attendees participated in interactive learning stations about compost, the local water supply, nature journaling, and taking a water conservation pledge. The winners also received their framed artwork, a certificate, and an art supply kit.

Municipal Water District of Orange County **Legislative and Regulatory Policy Principles**

OVERALL POLICY

Legislation and regulations addressing water resource management issues should be guided by local and regional water resource officials with knowledge and experience in addressing opportunities, threats and needs for success within the water industry.

IMPORTED WATER SUPPLY

It is MWDOC's policy to support legislation, regulations and administrative actions that:

1) Facilitates the implementation of a Sacramento-San Joaquin Delta Improvement program, such as the Delta Conveyance Project that addresses the co-equal goals of reliable water supply and ecosystem restoration, and related policies that provide long term, comprehensive solutions for the San Francisco Bay/Sacramento-San Joaquin River Delta that:

- a) Improve the reliability and quality of water delivered through the Delta;
- b) Employ validated sound scientific research and evaluation to advance the co-equal goals of improved water supply and ecosystem health and sustainability.
- c) Expedite the completion of the State Water Project and EcoRestore initiative;
- d) Encourages regular infrastructure maintenance and upkeep of the levees.

2) Facilitates the resolution of supply conflicts on the Colorado River and protects California's rights to supply and storage in the negotiations of the 2026 management guidelines including actions that:

- a) Promote continued federal funding and coordination between states for the Colorado River Basin Salinity Control Program under the Federal Departments of Agriculture and Interior.
- b) Protect and preserve Metropolitan Water District of Southern California's interest in binational water conservation programs.
- c) Promote continued coordination between states for the Colorado River Basin Salinity Control Program, including work to secure funding for the continued

operation of USBR's Paradox Valley salinity control project to reduce salt loads to the Colorado River

- d) Resolve issues with the Salton Sea with key funding to be provided by the State and Federal sources.

3) Authorizes, appropriates, and expeditiously distributes the state and federal share of funding to improve the State Water Project and EcoRestore initiative.

4) Supports the completion of the Central Valley Project (CVP) which may include the construction of conveyance facilities in the Sacramento-San Joaquin Bay Delta and the raising of Shasta Dam.

LOCAL WATER RESOURCES

It is MWDOC's policy to support legislation and regulation that:

1) Supports the development of, provides funding for, and authorizes and/or facilitates the expanded use of, cost-effective, water recycling, potable reuse, conservation, water use efficiency, groundwater recovery and recharge, storage, brackish and ocean water desalination and surface water development projects where water supply quality and/or reliability is improved and the beneficiaries of the project pay for the portions of the project not funded by state or federal funds.

2) Reduces and/or streamlines regulatory burdens on augmented or alternative water supply projects, and provides protections for the use of these supplies during water supply shortages, through incentives, exemptions or provisions of credit during state mandated reductions.

3) Supports ecosystem restoration, increased stormwater capture where the capture avoids impact to others, and sediment management activities that are cost-effective and enhance the quality and/or reliability of water supplies.

4) Support the inclusion of environmental infrastructure projects the Army Corps of Engineers must consider in its Report to Congress.

5) Allows Investor Owned Utilities to invest in redundancy and reliability projects.

6) Encourages the State and Federal government to foster investments in water quality, storage, and/or reliability projects.

7) Recognizes that desalinated water, recycled water, and potable reuse are important components of water use efficiency and drought resiliency.

8) Promote science-based and peer-reviewed standards; take economic feasibility and impact into consideration, respect existing water rights, include reasonable time for implementation and compliance, and, be subject to Legislative oversight and review biennially.

9) Authorizes, promotes, and/or provides incentives for the development of extraordinary emergency water supplies for voluntary use by local water agencies during times of drought or water shortages.

10) Is inclusive of transparent collaboration techniques for legislation and regulation regarding water use efficiency.

WATER STORAGE

It is MWDOC's policy to support legislation and regulation that:

1) Supports “beneficiaries pay” for water storage that ensure full cost recovery.

2) Supports the siting and construction of surface storage in Southern California, which is sited to receive either State Water Project (SWP) or Colorado River Aqueduct (CRA) supplies.

3) Supports funding at the state and federal level for surface and groundwater storage, including reauthorization and expansion of the WIIN Water Storage Program and bifurcation of Surface and Groundwater Storage Funding at the state and federal levels.

4) Supports the development of both a state and federal funding program to provide funding for local and regional dam safety/improvement projects and programs to repair conveyance facilities that have been damaged due to subsidence.

WATER USE EFFICIENCY AND DISTRIBUTION SYSTEM WATER LOSS

It is MWDOC's policy to support legislation and regulation that:

1) Furthers increasing reasonable water use efficiency, throughout the state, and water conservation for local, regional, or statewide emergencies.

2) Would allow flexibility and fosters local and regional collaboration to develop and implement options for compliance in achieving statewide water reduction goals.

3) Seeks to cost-effectively improve water efficiency standards and policies for water-using devices such as, but not limited to, the EPA Water Sense Program and Cal Green Building Standards.

4) Reasonably improves Commercial, Institutional and Industrial (CII) water use efficiency programs while preserving community choice and the local economy.

5) Provides financially appropriate incentives, funding, and other assistance to facilitate market transformation and gain wider implementation of water-efficient indoor and outdoor technologies and practices.

6) Recognizes and protects past investments of agencies and customers in water use efficiency measures, especially from the demand hardening perspective.

7) Provides federal and state tax exemptions for water conservation or efficiency incentives for measures including, but not limited to, turf removal, devices, and other measures to reduce consumption of water or enhance the absorption and infiltration capacity of the landscape.

It is MWDOC's policy to oppose legislation or regulations that:

1) Places unreasonable conservation measures on residential, commercial, industrial and institutional customers that would negatively impact or limit the potential for economic growth.

2) Requires water efficiency standards or performance measures that are infeasible, not practical or fail to have a positive cost-benefit ratio when comparing the cost of meeting the standard or implementing the performance measure with the value of the volume of water saved.

WATER QUALITY AND ENVIRONMENTAL IMPACTS

It is MWDOC's policy to support:

1) Legislation that protects the quality of surface water and groundwater including salinity management and the reduction of salt loading to groundwater basins.

2) The establishment and/or implementation of standards for water-borne contaminants based on sound science and with consideration for cost-effectiveness.

3) A science-based regulatory process that has been established under the Safe Drinking Water Act and that considers feasibility, benefits and cost, is the best approach for any consideration and development of drinking water regulations to address any contaminant or family of contaminants, including per- and polyfluoroalkyl (PFAS).

4) The investment in the development of analytical methods to more reliably and accurately measure various contaminants, including PFAS, in drinking water.

5) Administrative/legislative actions to improve clarity and workability of CEQA, and eliminate other duplicative state processes.

6) Streamlining water, recycled and desalinated water, wastewater projects, and/or environmental restoration projects, from the California Environmental Quality Act (CEQA).

7) Provides liability protections to public water districts, and related wholesale water providers, seeking to consolidate with or serve as the administrator for troubled water systems that cannot consistently demonstrate that they are able to provide safe, clean and reliable water supplies to their customers.

8) State-funded groundwater basin contamination studies and associated economic or environmental impacts.

9) Supports the efforts of water industry to promote policies that enhance the pace and scale of headwaters and forest management, including improved planning, coordination, and implementation; increase financing, research, and resources to protect water supply and quality; bring management practices in line with modern challenges; and provide multiple benefits to the State's water users.

10) Support the eradication and prevention of invasive species from becoming established in or around water supplies.

11) Legislation and/or regulations that enforce against cannabis growers' water theft and/or negative impacts to water quality.

It is MWDOC's policy to oppose:

1) Legislation or regulation that would mandate an unscientifically supported federal or state maximum contaminant level, or mandating an artificial deadline for promulgating a maximum contaminant level for drinking water.

2) Legislation, regulation or other policy that would hold drinking water and wastewater facilities liable for PFAS contamination caused by third parties; or that does not clearly state that the party directly responsible for the PFAS pollution is solely liable for the costs associated with the contamination cleanup.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

It is MWDOC's policy to oppose legislation or regulation that:

1) Compromises the existing governance structure and the representation of member agencies on the Metropolitan Water District Board of Directors.

2) Would restrict MET's rate-making ability.

WATER TRANSFERS

It is MWDOC's policy to support legislation and regulation that:

1) Encourages and facilitates voluntary water transfers, or streamlines the transfer approval process.

2) Provides appropriate protection or mitigation for impacts on the environment, aquifers, water-rights holders and third-parties to the transfer including those with interests in the facilities being used.

It is MWDOC's policy to oppose legislation or regulation that:

1) Undermines the operations and maintenance of the conveyance system conveying the water.

2) Interferes with the financial integrity of a water utility or compromises water quality and/or reliability.

WATER INFRASTRUCTURE FINANCING AND PROJECT FUNDING

It is MWDOC's policy to support legislation and regulation that:

- 1) Employs a "beneficiary pays" principle that establishes a clear nexus between the costs paid to the direct benefit received.
- 2) Reduces the cost of financing water infrastructure planning and construction, establishes grants or other funding and finance opportunities.
- 3) Considers local investments made in infrastructure, programs, mitigation and restoration in determining appropriate cost shares for water infrastructure, and project investments.

It is MWDOC's policy to oppose legislation or regulation that:

- 1) Establishes a fee or tax that does not result in a clear and proportional benefit to the District, its member agencies, and their customers.
- 2) Would reduce the total available water infrastructure financing measures such as WIFIA, state-revolving funds, and others.

ENERGY

It is MWDOC's policy to support legislation or regulation that:

- 1) Facilitates the development and expansion of clean, and cost-effective renewable energy in California, and recognizes hydroelectric power as a clean, renewable energy source and that its generation and use meets the greenhouse gas emission reduction compliance requirements called for in the Global Warming Solutions Act of 2006 (AB 32 and SB 100).
- 2) Facilitates voluntary and cost-effective local investments in renewable energy, energy management and storage, and energy efficiency which improve the water-energy nexus and reduce local agency costs.
- 3) Provides water agencies greater flexibility to run backup generators to support critical facilities during de-energization and PSPS events.

FISCAL POLICY

It is MWDOC's policy to support legislation or regulation that:

- 1) Allows retail water providers to voluntarily offer localized Water Rate Assistance Programs that comply with Proposition 218 of California's Constitution and/or are funded either voluntarily or via non-restricted/non-water-rates revenues.

2) Support Proposition 13 as embodied in Article XIII A of the California Constitution, and oppose the “split roll” efforts that would increase property taxes on businesses.

3) Changes how inverse condemnation liability is determined for water service providers in order to limit water agency liability for impacts of wildfire.

It is MWDOC's policy to oppose legislation or regulation that:

1) Is inconsistent with the District's current investment policies and practices.

2) Pre-empts the District's or its member agencies' ability to impose or change cost-of-service-based water rates, fees, or assessments, or requires them to submit their rates or charges to any state agency for approval.

3) Impairs the District's ability to maintain levels of reserve funds that it deems necessary and appropriate.

4) Makes any unilateral reallocation of District revenues, or those of its member agencies, by the state unless the state takes compensatory measures to restore those funds.

5) Mandates a specific rate structure for water agencies.

6) Imposes a “public goods charge” “water user fee”, or “water tax” on public water agencies or their ratepayers.

GOVERNANCE

It is MWDOC's policy to support legislation or regulation that:

1) Advances good government practices and public transparency measures in a manner that does not take a "one-size-fits-all" approach, respects local government control, and facilitates technological efficiencies to meet state reporting and disclosure requirements.

2) Supports or facilitates responsible programs, procedures, and methods that promote collaboration, transparency and open government.

It is MWDOC's policy to oppose legislation or regulation that:

1) Imposes unnecessarily broad burdens or new costs upon all local governments absent a clear and necessary benefit.

2) Reduces or diminishes the authority of the District to govern its affairs.

3) Resolves state budget shortfalls through shifts in the allocation of property tax revenue or through fees for which there is no direct nexus to benefits received.

PUBLIC EMPLOYEE PENSION REFORM

It is MWDOC's policy to support legislation that:

- 1) Seeks to contain public employee pension and other post-employment benefit (OPEB) cost obligations that are borne by public agencies via taxpayers and ratepayers.

EMERGENCY RESPONSE

It is MWDOC's policy to support legislation that:

- 1) Increases coordination on Homeland Security and emergency response efforts among the federal, state, and local governments with clearly defined roles and responsibilities for each.
- 2) Provides continued funding to enhance and maintain local Homeland Security infrastructure, including physical and cyber protection of critical infrastructure.
- 3) Ensures adequate funding for expenditures related to disaster response and all phases of emergency management; including the earthquake early notification system and efforts to enhance water infrastructure resiliency.
- 4) Strengthens intergovernmental planning and preparation coordination for emergency response and drills.
- 5) Enhances protection of information and cyber security for critical infrastructure through policy and funding for local efforts.
- 6) Supports water utility capability to notify customers of emergency protective measures through mass notification systems.
- 7) Properly recognizes water agencies' role in emergency response to wildfires and other natural disasters, where water service is needed or may be impacted, because water and wastewater services are essential public utilities that ensure public health and safety.

NOTICE OF ADJOURNMENT

**LOCAL AGENCY FORMATION COMMISSION OF
ORANGE COUNTY**

REGULAR MEETING AGENDA

**Wednesday, September 14, 2022
8:15 a.m.**

**County Administration South (CAS MPR) Multipurpose Room
601 North Ross Street
Room 103, Santa Ana, CA 92701**

The Local Agency Formation Commission of Orange County will not conduct its Regular Meeting on September 14, 2022. The next scheduled meeting of the Commission will take place on Wednesday, October 12, 2022, commencing at 8:15 a.m. at the County Administrative North (CAN), Floor 1 Multipurpose Room, 400 W. Civic Center Dr., Santa Ana, CA 92701.

For more information or questions, you may contact Cheryl Carter-Benjamin, Clerk of the Commission at (714) 640-5100 or by email at ccarter-benjamin@oclafco.org.

Posted: September 6, 2022



Executive Committee Meeting

Tuesday, September 6, 2022

7:30 a.m.

The next meeting of the ISDOC Executive Committee will be via teleconference only. The MWDOC/OCWD offices are closed to the public. Please use the information below to access the meeting.

Mailing Address

P.O. Box 20895
Fountain Valley, CA 92728

Meeting Location

MWDOC/OCWD
18700 Ward Street
Fountain Valley, CA 92708

(714) 963-3058
(714) 964-5930 fax

<https://isdoc.specialdistrict.org/>

Executive Committee

President

Hon. Mark Monin
El Toro Water District

1st Vice President

Hon. Arlene Schafer
Costa Mesa Sanitary District

2nd Vice President

Hon. Bob McVicker
*Municipal Water District
Orange County*

3rd Vice President

Hon. Brooke Jones
Yorba Linda Water District

Secretary

Hon. Greg Mills
Serrano Water District

Treasurer

Hon. Bill Green
South Coast Water District

Immediate Past President

Hon. Sandra Jacobs
Santa Margarita Water District

Staff Administration

Heather Baez

*Municipal Water District of Orange
County*

Tina Dubuque

*Municipal Water District of Orange
County*

Join Zoom Meeting

<https://zoom.us/j/99287384726>

Dial by your location

669 900 9128 US (San Jose)

877 853 5247 US Toll-free

888 788 0099 US Toll-free

Meeting ID: 992 8738 4726

AGENDA

I. Welcome, Introductions – 7:30 am

[Please mute yourself when not speaking. Please raise hand on Zoom if you have a question or comment.]

II. Approval of Minutes – 7:35 am

- Approval of August 2, 2022 minutes

III. Public Comments on items not on the agenda- 7:40 am

IV. New Business – 7:45 am

- Excess funds discussion – Director Green
- CSDA Conference Chapter Meeting
- Highlights of CSDA Conference
- CSDA Awards to Orange County Special Districts

V. Old Business – 8:00 am

- Election Process – Heather Baez

VI. Treasurer's Report – 8:05 am – Director Green

- Report of accounts

VII. CSDA Report – 8:10 am – Director Schafer

- Receive, discuss and file the CSDA Report

VIII. LAFCO Report – 8:15 am – Director Fisler

- Receive, discuss and file the LAFCO report

IX. ACWA Report – 8:20 am – Director Jacobs

- Receive, discuss and file the ACWA report

X. OCCOG Report – 8:25 am – Director Scheafer

- Receive, discuss and file OCCOG report

XI. Orange County Operational Area Report - 8:30 am – Vicki Osborn

- Receive, discuss and file OCOA report

XII. Subcommittee Reports – 8:35 am

- Programs – Director Schafer
- Membership - Director McVicker
- Legislative – Director Jones

XIII. Adjourn – 8:40 am



ISDOC Executive Committee (Virtual Meeting via Zoom)

August 2, 2022

Minutes

I. Welcome

President Mark Monin called the meeting to order at 7:33 a.m. and welcomed all.

Mark Monin, President (ETWD)
Arlene Schafer, 1st Vice President (CMSD)
Bob McVicker, 2nd Vice President (MWDOC)
Brooke Jones, 3rd Vice President (YLWD)
Greg Mills, Secretary (SWD)
Bill Green, Treasurer (SCWD)
Saundra Jacobs, Immediate Past President (SMWD)

Others Present:

Heather Baez (MWDOC)
Stacy Taylor, Water Policy Manager (Mesa WD)
Laura Heflin, Administrative Assistant (Serrano WD)
Jim Fisler (Mesa WD)
Vicki Osborn (WEROC)
Stephen Faessel (City of Anaheim)
Paul Mesmer (Surfside Colony Community)
John Withers (IRWD)
Alison Martin (YLWD)
Jim Fisler (Mesa WD)
Larry Dick (MWDOC)
Kay Havens (ETWD)
Mike Scheafer (CMSD)

II. Minutes

A motion was made (Director McVicker), seconded (Director Mills), and unanimously carried via roll call vote to approve the minutes of the July 5, 2022 meeting as submitted. A motion was made (Director Schafer), seconded (Director Mills), and unanimously carried via roll call vote to approve the quarterly minutes of July 28, 2022.

III. Public Comments

- Director Schafer remarked that the luncheon selection was great at the quarterly meeting.

IV. New Business

- None.

V. Old Business

- Elections: President Monin thanked Ms. Baez and Ms. Dubuque for their work on the election timeline and call for candidates' information. President Monin noted that he has received many calls requesting his support. He noted that he will not be taking a position but will be in full support of all candidates. Ms. Baez reported that this information has been distributed and reviewed the timeline as well as the protocol to be followed. Please let Ms. Baez know if you are interested in any of the ISDOC officer positions. Director Mills stated that he was very interested in running for the position of President and that he is the current Secretary. Director Jacobs stated that in the past positions have been rotated and wondered if this protocol will be followed. Director Jones reported that he is very happy in the 3rd Vice President position and would like to maintain this role. Director McVicker stated that it was his intention to move up and run for the 1st Vice President position. Director Schafer announced that she will not be running for the President due to her current commitments but will be running for the sanitary district. Director Green stated that he felt that seniority should be looked at and that he would not be running but would ensure that the audit gets completed. Director Mesmer stated that it was his intent to run for the 2nd Vice President position. President Monin noted that they are looking for the Secretary and Treasurer position and stated that the role of President does require lots of communication, etc. Director Jacobs noted that it was important that the bulk of work does not fall on Ms. Baez. Director Mills stated that the continuity that ISDOC brings is absolutely essential to support the special districts and their missions. President Monin noted that it had been a pleasure serving on the ISDOC Executive Committee.

VI. Treasurer's Report – Director Green

- Director Green reported that there is a balance of \$11,804.54 in the checking account. There was one expenditure in July for \$25 for Secretary of State filing for ISDOC. A check was authorized for MWDOC yesterday to reimburse them for the luncheon in the amount of \$1,207. Director Green remarked that the revised balance will be \$10,532.70 when all charges are passed through. Ms.

Dubuque is in the process of billing the no shows and are awaiting the final reconciliation of the income and this will be deposited for next month.

- Director Jacobs asked that the excess funds discussion be placed on the next agenda.
- Director Green reported that Pamela King will be performing ISDOC's audit on 12/31/2022.

VII. CSDA - Director Schafer

- Director Schafer expressed thanks to all who attended the ISDOC quarterly meeting.
- August 22 – 25 is CSDA's Annual Conference and Exhibitor's Showcase is in Palm Desert. The chapter meeting is August 22nd at 3:00 p.m. Director Mills remarked that he will be at the CSDA conference and hopes to see everybody there.
- The CSDA and SDRMA staff are doing an excellent job on these conferences and programs.

VIII. LAFCO Report – Director Fisler

- Director Fisler reported that the next LAFCO meeting is next week at the new location in Room #104 which may change. Staff will publish the location in advance on oclafco.org.
- The public draft for the MSR will be available and a public hearing will be conducted to consider approval.
- Adoption of the 2022-2025 strategic plan will be considered.
- Many parcels are outside of the OCSD area and these areas will be considered for annexation.
- Milestones and a year-end report will be presented.
- Director Schafer remarked on the excellent job that Director Fisler is doing.

IX. ACWA Report – Director Jacobs

- Director Jacobs reported that the ACWA Region 10 event is scheduled for today 9:30 a.m. – 1:30 p.m. in Encinitas and encouraged all to attend. Climate change will be covered. There will also be a General Manager panel discussion to discuss industry changes including the drought. Several General Managers will be in attendance today.
- Quench California is an ACWA program to advocate infrastructure. This is an educational program to expand public knowledge. Quench.ca.com is the website. The new video will be available at the fall conference.
- The Fixed Cost Facts Committee activities were reviewed.
- Director Mesmer received communication about the Orange County Water Summit and asked if this was of value to a non-water agency to attend. Director Jacobs will forward the preliminary agenda to him. Director McVicker encouraged attendance at this informative presentation regardless of whether or not your industry is water.

X. OCCOG Report – Director Scheafer

- Director Scheafer stated that OCCOG did not have a Board meeting for the month of July.

- OCCOG is increasing their dues for the first time in 12 years. OCCOG has invoiced ISDOC for \$1,000 (an increase of \$500).
- OCCOG has done an excellent job in extending their membership. Benefits have been added to member agencies in terms of videos and outreach. Please contact Director Scheafer for more information.
- The next OCCOG conference is potentially set for the fall of next year at the Grand California at Disneyland. President Monin advised everybody to go.
- Director Jacobs asked if all dues went up for all agencies and Director Scheafer stated that he was not sure.
- Ms. Baez requested a formal letter detailing the dues increase. Director Scheafer responded that he would do this.

XI. Orange County Operational Area Report – Vicki Osborn

- Ms. Osborn reported that Covid is still being tracked and appropriate action is being taken. The Governor did proclaim an emergency yesterday for monkeypox.
- No agencies were impacted with cyberattacks this past month.
- President Monin thanked Ms. Osborn for speaking at the quarterly meeting.
- President Monin asked Director Mills to assist with getting thank you letters out to the various speakers at the quarterly meeting on ISDOC letterhead.

XII. Subcommittee Reports

- Programs – Director Schafer asked for input for guest speakers for the quarterly meetings. Director McVicker suggested a presentation by Darrell Johnson from OCTA. Director Dick suggested the Registrar of Voters as a potential guest speaker. Ms. Taylor suggested a reporter from the *Orange County Register*, Brooke Staggs. Discussion ensued regarding the timing of the various speakers, and it was decided that it would be based upon availability. Ms. Taylor will work with Ms. Baez to reach out the *Orange County Register* as will Director McVicker for OCTA. President Monin stated that he would like the El Toro Water District to be spotlighted as the member agency at the last quarterly meeting of the year. President Monin reported that he thought it was a great event. Ms. Baez stated that we need to be in a holding position regarding MWDOC opening up the campus for the next quarterly meeting. Ms. Baez will keep us apprised.
- Membership – Director McVicker stated that the recent associate members have been added to the website.
- Legislative – Director Jones gave a comprehensive report of the status of all assembly bills including federal bills. President Monin suggested that all ISDOC membership receive this legislative update as it is very useful. It was recommended that it be uploaded to the District’s website but ultimately decided that it would be sent to ISDOC membership via email. Director Schafer reminded attendees to write letters on behalf of their special districts to their legislators. Director Mills stated that he will issue regular reminders to the Governor’s office to determine if their staff are able to attend the regularly scheduled Executive Committee meetings.

XIII. Adjourn: President Monin thanked the various attendees and staff for their assistance and participation—and especially, Ms. Baez, in particular regarding her assistance with the quarterly luncheon. The next meeting is scheduled for September 6, 2022 at 7:30 a.m. via Zoom and the next quarterly meeting is October 27th. The meeting was adjourned at 8:50 a.m.

Signed: 
ISDOC Secretary

Date: August 2, 2022



AGENDA

Friday, September 9, 2022
7:30 a.m. – 9:00 a.m.

Register in advance:

<https://us06web.zoom.us/meeting/register/tZAqceihqzqiE93vVQwA6TgzLuujU19vaNI4>

Mailing Address

P.O. Box 8300
Fountain Valley, CA 92708

Meeting Location

Via Zoom

(714) 378-3200
(714) 963-0291 fax

www.ocwd.com/news-events/events/waco
www.mwdoc.com/waco

Officers

Chair
Hon. Cathy Green
Orange County Water District

Vice Chair
Hon. Mark Monin
El Toro Water District






Staff Contacts

Alicia Dunkin/Medha Paliwal
Orange County Water District (OCWD)






Heather Baez
Municipal Water District of Orange County (MWDOC)

Stay connected with OCWD and MWDOC

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-  mwdoc
-  Municipal Water District of OrangeCounty

1. Welcome

- Cathy Green, Orange County Water District

2. Housekeeping & Meeting Etiquette

3. Pledge of Allegiance

4. Reports

- Water Emergency Response of Orange County (WEROC) – Vicki Osborn
- Metropolitan Water District of Southern California (MET) – Linda Ackerman
- Association of California Water Agencies (ACWA) – Cathy Green

5. Program

Climate Change Series Part I:
West Virginia v. EPA Ruling: What Happened, Impacts & What's Next

Speaker:
David D. Boyer, Attorney, Atkinson, Andelson, Loya, Ruud & Romo

6. Adjourn

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Next WACO Meeting

Friday, October 7, 2022 at 7:30 a.m. via Zoom

Next WACO Planning Committee Meeting

Tuesday, September 20, 2022 at 7:30 a.m. via Zoom

DATES TO REMEMBER
SEPTEMBER/OCTOBER 2022

1. Sept 22 – 10:30 a.m. – MWDOC Managers Meeting
2. Sept 22 – 12 noon – South Orange County Agencies Meeting
3. Sept 23 – DISTRICT OFFICE CLOSED
4. Sept 27 – 10:00 a.m. - SOCWMA
5. Sept 30 – 12 noon – Pres/VP/GM Meeting
6. Oct 3 – 1:30 p.m. – SOCWMA Management Committee Meeting
7. Oct 4 – 7:30 a.m. – ISDOC Executive Committee
8. Oct 4 – 10:00 a.m. – RRC Meeting
9. Oct 6 – 8:30 a.m. – SOCWA Board Meeting
10. Oct 7 – 7:30 a.m. – WACO
11. Oct 7 – DISTRICT OFFICE CLOSED
12. Oct 12 – 8:15 a.m. – LAFCO
13. Oct 14 – Noon – Pres/VP/GM Meeting
14. Oct 17 – 10:00 a.m. – Agenda Review
15. Oct 18 – 7:30 a.m. – WACO Planning Committee
16. Oct 20 – 10:30 a.m. – MWDOC Managers Meeting
17. Oct 21 – DISTRICT OFFICE CLOSED
18. Oct 24 – 7:30 a.m. – Regular Engineering & Finance Committee Meeting
19. Oct 27 – 7:30 a.m. – Regular Board Meeting
20. Oct 27 – 11:30 a.m. – ISDOC Quarterly Meeting
21. Oct 28 – Noon – Pres/VP/GM Meeting

EL TORO WATER DISTRICT

Glossary of Water Terms

Accumulated overdraft: The amount of water necessary to be replaced in the intake area of the groundwater basin to prevent the landward movement of ocean water into the fresh groundwater body.

Acre-foot, AF: A common water industry unit of measurement. An acre-foot is 325,851 gallons, or the amount of water needed to cover one acre with water one foot deep. An acre-foot serves annual needs of two typical California families.

ACWA: Association of California Water Agencies.
A statewide group based in Sacramento that actively lobbies State and Federal Government on water issues.

Advanced treatment: Additional treatment processes used to clean wastewater even further following primary and secondary treatment. Also known as tertiary treatment.

AFY: Acre-foot per year.

Alluvium: A stratified bed of sand, gravel, silt, and clay deposited by flowing water.

AMP: Allen McCulloch pipeline.

Major pipeline transporting treated water to water districts between Yorba Linda, where it starts to El Toro Water District reservoir, where it terminates.

Annexation: The inclusion of land within a government agency's jurisdiction.

Annual overdraft: The quantity by which the production of water from the groundwater supplies during the water year exceeds the natural replenishment of such groundwater supplies during the same water year.

Aqueduct: A man-made canal or pipeline used to transport water.

Aquifer: An underground geologic formation of rock, soil or sediment that is naturally saturated with water; an aquifer stores groundwater.

Arid: Dry; deserts are arid places. Semi-arid places are almost as dry as a desert.

Artesian: An aquifer in which the water is under sufficient pressure to cause it to rise above the bottom of the overlying confining bed, if the opportunity is provided.

Artificial recharge: The addition of surface water to a groundwater reservoir by human activity, such as putting surface water into recharge basins. (See also: groundwater recharge and recharge basin.)

AWWA American Water Works Association
Nationwide group of public and private water purveyors and related industrial suppliers.

Base flow: The portion of river surface flow which remains after deduction of storm flow and/or purchased imported water.

Bay-Delta: The Sacramento-San Joaquin Bay-Delta is a unique natural resource of local, state and national significance. The Delta is home to more than 500,000 people; contains 500,000 acres of agriculture; provides habitat for 700 native plant and animal species; provides water for more than 25 million Californians and 3 million acres of agriculture; is traversed by energy, communications and transportation facilities vital to the economic health of California; and supports a \$400 billion economy.

BIA: Building Industry Association.

Biofouling: The formation of bacterial film (biofilm) on fragile reverse osmosis membrane surfaces.

Biosolids: Solid organic matter recovered from a sewage treatment process and used especially as fertilizer.

BMP: Best Management Practice. An engineered structure or management activity, or combination of these, that eliminates or reduces adverse environmental effects.

Brackish water: A mixture of freshwater and saltwater.

Brown Act: Ralph M. Brown Act enacted by the State legislature governing all meetings of legislative bodies. Also known as the Open Meeting requirements.

Canal: A ditch used to move water from one location to another.

CASA: California Association of Sanitation Agencies The sanitation equivalent of ACWA concerned solely with issues affecting the treatment and disposal of solid waste and wastewater.

CEQA: California Environmental Quality Act.

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act. This federal law establishes the Superfund program for hazardous waste sites. It provides the legal basis for the United States EPA to regulate and clean up hazardous waste sites, and if appropriate, to seek financial compensation from entities responsible for the site.

CFS: Cubic feet per second.

Chloramines: A mixture of ammonia and chlorine used to purify water.

Clarify: To make clear or pure by separation and elimination of suspended solid material.

Coagulation: The clumping together of solids so they can more easily be settled out or filtered out of water. A chemical called aluminum sulfate (alum) is generally used to aid coagulation in water treatment and reclamation.

Coastkeepers: A non-profit organization dedicated to the protection and preservation of the marine habitats and watersheds of Orange County through programs of education, restoration, enforcement and advocacy.

Colored water: Groundwater extracted from the basin that is unsuitable for domestic use without treatment due to high color and odor exceeding drinking water standards.

Condensation: The process of water vapor (gas) changing into liquid water. An example of condensation can be seen in the tiny water droplets that form on the outside of a glass of iced tea as warmer air touches the cooler glass.

Confined aquifer: An aquifer that is bound above and below by dense layers of rock and contains water under pressure.

Conjunctive use: Storing imported water in a local aquifer, in conjunction with groundwater, for later retrieval and use.

Contaminate: To make unclean or impure by the addition of harmful substances.

CPCFA: California Pollution Control Financing Authority. State agency providing funds for wastewater reclamation projects.

Crisis:

1. **a:** The turning point for better or worse **b:** a paroxysmal attack of pain, distress, or disordered function **c:** an emotionally significant event or radical change of status in a person's life <a midlife *crisis*>
2. The decisive moment (as in a literary plot)
3. **a:** An unstable or crucial time or state of affairs in which a decisive change is impending; *especially* : one with the distinct possibility of a highly undesirable outcome <a financial *crisis*> **b:** a situation that has reached a critical phase

CTP Coastal Treatment Plant

CWPCA California Water Pollution Control Association. A 7000 member non-profit educational organization dedicated to water pollution control.

Dam: A barrier built across a river or stream to hold water.

Decompose: To separate into simpler compounds, substances or elements.

Deep percolation: The percolation of surface water through the ground beyond the lower limit of the root zone of plants into a groundwater aquifer.

Degraded water: Water within the groundwater basin that, in one characteristic or another, does not meet primary drinking water standards.

Delta: Where the rivers empty; an outlet from land to ocean, also where the rivers deposit sediment they carry forming landforms.

Delta Vision: Delta Vision is intended to identify a strategy for managing the Sacramento-San Joaquin Delta as a sustainable ecosystem that would continue to support environmental and economic functions that are critical to the people of California.

Demineralize: To reduce the concentrations of minerals from water by ion exchange, distillation, electro-dialysis, or reverse osmosis.

De-nitrification: The physical process of removing nitrate from water through reverse osmosis, microfiltration, or other means.

Desalting (or desalination): Removing salts from salt water by evaporation or distillation. Specific treatment processes, such as reverse osmosis or multi-stage flash distillation, to demineralize seawater or brackish (saline) waters for reuse. Also sometimes used in wastewater treatment to remove salts other pollutants.

Desilting: The physical process of removing suspended particles from water.

Dilute: To lessen the amount of a substance in water by adding more water.

Disinfection: Water treatment which destroys potentially harmful bacteria.

Drainage basin: The area of land from which water drains into a river, for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called catchment area, watershed, or river basin.

Drought: A prolonged period of below-average precipitation.

DPHS: California Department of Public Health Services. Regulates public water systems; oversees water recycling projects; permits water treatment devices; certifies drinking water treatment and distribution operators; supports and promotes water system security; provides support for small water systems and for improving technical, managerial, and financial (TMF) capacity; provides funding opportunities for water system improvements.

DVL: Diamond Valley Lake. Metropolitan's major reservoir near Hemet, in southwestern Riverside County.

DWR: California Department of Water Resources. Guides development/management of California's water resources; owns/operates State Water Project and other water facilities.

Endangered Species: A species of animal or plant threatened with extinction.

Endangered Species Act of 1973 (ESA): The most wide-ranging of the dozens of United States environmental laws passed in the 1970s. As stated in section 2 of the act, it was designed to protect critically imperiled species from extinction as a "consequence of economic growth and development untended by adequate concern and conservation.

Ecosystem: Where living and non-living things interact (coexist) in order to survive.

Effluent: Wastewater or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

Evaporation: The process that changes water (liquid) into water vapor (gas).

Estuary: Where fresh water meets salt water.

Evapotranspiration: The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surface. Quantitatively, it is expressed in terms of depth of water per unit area during a specified period of time.

FCH Federal Clearing House – Environmental Review/Processing

FEMA Federal Emergency Management Agency

Filtration: The process of allowing water to pass through layers of a porous material such as sand, gravel or charcoal to trap solid particles. Filtration occurs in nature when rain water soaks into the ground and it passes through hundreds of feet of sand and gravel. This same natural process of filtration is duplicated in water and wastewater treatment plants, generally using sand and coal as the filter media.

Flocculation: A chemical process involving addition of a coagulant to assist in the removal of turbidity in water.

Forebay: A reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water level; also, a portion of a groundwater basin where large quantities of surface water can recharge the basin through infiltration.

Gray water reuse: Reuse, generally without treatment, of domestic type wastewater for toilet flushing, garden irrigation and other non-potable uses. Excludes water from toilets, kitchen sinks, dishwashers, or water used for washing diapers.

Green Acres Project (GAP): A 7.5 million gallons per day (MGD) water reclamation project that serves tertiary treated recycled water to irrigation and industrial users in Costa Mesa, Fountain Valley, Huntington Beach, Newport Beach, and Santa Ana.

God Squad: A seven-member committee that is officially called the "Endangered Species Committee". Members consist of Secretary of the Interior, the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Council of Economic Advisers, the Administrator of the National Oceanic and Atmospheric Administration and one individual from the affected state. The squad was established in 1978 by an amendment to the 1973 Endangered Species Act (ESA). It has only been called into action three times to deal with proposed federal agency actions that have been determined to cause "jeopardy" to any listed species. Such actions may receive an exemption from the ESA if five members of the committee determine that the action is of regional or national significance, that the benefits of the action clearly outweigh the benefits of conserving the species and that there are no reasonable and prudent alternatives to the action.

Groundwater: Water that has percolated into natural, underground aquifers; water in the ground, not water puddled on the ground.

Groundwater basin: A groundwater reservoir defined by the overlying land surface and the underlying aquifers that contain water stored in the reservoir. Boundaries of success-ively deeper aquifers may differ and make it difficult to define the limits of the basin.

Groundwater mining: The withdrawal of water from an aquifer in excess of recharge over a period of time. If continued, the underground supply would eventually be exhausted or the water table could drop below economically feasible pumping lifts.

Groundwater overdraft: The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average.

Groundwater recharge: The action of increasing groundwater storage by natural conditions or by human activity. See also: Artificial recharge.

Ground Water Replenishment System (GWRS): A joint project of the Orange County Water District and the Orange County Sanitation District that will provide up to 100,000 acre-feet of reclaimed water annually. The high-quality water will be used to expand an existing underground seawater intrusion barrier and to replenish the groundwater basin underlying north and central Orange County.

Groundwater table: The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

GPM: Gallons per minute.

Ground Water Replenishment System (GWRS): Orange County Water District's state-of-the-art, highly advanced, waste-water treatment facility.

Hydrologic balance: An accounting of all water inflow to, water outflow from, and changes in water storage within a hydrologic unit over a specified period.

Hydrologic cycle: The process of water constantly circulating from the ocean, to the atmosphere, to the earth in a form of precipitation, and finally returning to the ocean.

Imported water: Water that has originated from one hydrologic region and is transferred to another hydrologic region.

Inflatable rubber dams: Designed to replace temporary sand levees that wash out during heavy storm flow, the dams hold back high-volume river flows and divert the water into the off-river system for percolation.

Influent: Water or wastewater entering a treatment plant, or a particular stage of the treatment process.

Irrigation: Applying water to crops, lawns or other plants using pumps, pipes, hoses, sprinklers, etc.

JPIA Joint Powers Insurance Authority. A group of water agencies providing self-insurance to members of the ACWA.

LAIF Local Agency Investment Fund. Statewide pool of surplus public agency money managed by State Treasurer.

Leach: To remove components from the soil by the action of water trickling through.

MAF: Million acre feet.

MCL: Maximum contaminant level set by EPA for a regulated substance in drinking water. According to health agencies, the maximum amount of a substance that can be present in water that's safe to drink and which looks, tastes and smells good.

MET: Metropolitan Water District of Southern California.

MGD: Million gallons per day.

Microfiltration: A physical separation process where tiny, hollow filaments members separate particles from water.

Microorganism: An animal or plant of microscopic size.

MWD: Metropolitan Water District of Southern California.

MWDOC: Municipal Water District of Orange County. Intermediate wholesaler between MWD and 27 member agencies including ETWD.

Non-point source pollution: Pollution that is so general or covers such a wide area that no single, localized source of the pollution can be identified.

NPDES National Pollution Discharge Elimination System

OCBC: Orange County Business Council.

OCEMA Orange County Environmental Management Agency

OCWD: Orange County Water District.

Opportunity:

1. A favorable juncture of circumstances.
2. A good chance for advancement or progress .

Organism: Any individual form of life, such as a plant, animal or bacterium.

PCM Professional Community Management, Inc. Property Management company providing services to Laguna Woods Village and other homeowner associations.

Perched groundwater: Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.

Percolation: The downward movement of water through the soil or alluvium to the groundwater table.

Permeability: The capability of soil or other geologic formations to transmit water.

Point source: A specific site from which waste or polluted water is discharged into a water body, the source of which is identified. See also: non-point source.

Potable water: Suitable and safe for drinking.

PPB: Parts per billion.

Precipitation: Water from the atmosphere that falls to the ground as a liquid (rain) or a solid (snow, sleet, hail).

Primary treated water: First major treatment in a wastewater treatment facility, usually sedimentation but not biological oxidation.

Primary treatment: Removing solids and floating matter from wastewater using screening, skimming and sedimentation (settling by gravity).

Prior appropriation doctrine: Allocates water rights to the first party who diverts water from its natural source and applies the water to beneficial use. If at some point the first appropriator fails to use the water beneficially, another person may appropriate the water and gain rights to the water. The central principle is beneficial use, not land ownership.

Pumping Plant: A facility that lifts water up and over hills.

Recharge: The physical process where water naturally percolates or sinks into a groundwater basin.

Recharge basin: A surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin.

Reclaimed wastewater: Wastewater that becomes suitable for a specific beneficial use as a result of treatment. See also: wastewater reclamation.

Reclamation project: A project where water is obtained from a sanitary district or system and which undergoes additional treatment for a variety of uses, including landscape irrigation, industrial uses, and groundwater recharge.

Recycling: A type of reuse, usually involving running a supply of water through a closed system again and again. Legislation in 1991 legally equates the term "recycled water" to reclaimed water.

Reservoir: A place where water is stored until it is needed. A reservoir can be an open lake or an enclosed storage tank.

Reverse osmosis: (RO) A method of removing salts or other ions from water by forcing water through a semi-permeable membrane.

RFP Request for Proposal

Riparian: Of or on the banks of a stream, river, or other body of water.

RO: Reverse osmosis. See the listing under "reverse osmosis."

R-O-W Right-of-way

Runoff: Liquid water that travels over the surface of the Earth, moving downward due to gravity. Runoff is one way in which water that falls as precipitation returns to the ocean.

RWQCB Regional Water Quality Control Board. State agency regulating discharge and use of recycled water.

Safe Drinking Water Act (SDWA): The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.) SDWA authorizes the United States Environmental Protection Agency (US EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems work together to make sure that these standards are met.

Safe yield: The maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft, sometimes referred to as sustained yield.

SAFRA Santa Ana River Flood Protection Agency

Salinity: Generally, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids - TDS), electrical conductivity, or osmotic pressure. Where seawater is known to be the major source of salt, salinity is often used to refer to the concentration of chlorides in the water.

SAWPA: Santa Ana Watershed Project Authority.

SCADA Supervisory Control and Data Acquisition

SCAP Southern California Alliance of Publicly. Newly formed group of public agencies seeking reasonable regulation of sewer industry.

SCH State Clearing House – Environmental Review/Processing

Seasonal storage: A three-part program offered by Metropolitan Water District of Southern California:

STSS (Short Term Seasonal Storage) financially encourages agencies with local groundwater production capabilities to produce a higher percentage of their demand in the summer from their local groundwater supplies, thus shifting a portion of their demand on the MWD system from the summer to winter;

LTSS (Long Term Seasonal Storage) financially encourages retail agencies to take and store additional amounts of MWD water above their normal annual demands for later use; Replenishment Water provides less expensive interruptible water that is generally available and used to increase the operating yield of groundwater basins.

Seawater intrusion: The movement of salt water into a body of fresh water. It can occur in either surface water or groundwater basins.

Seawater barrier: A physical facility or method of operation designed to prevent the intrusion of salt water into a body of freshwater.

Secondary treatment: The biological portion of wastewater treatment which uses the activated sludge process to further clean wastewater after primary treatment. Generally, a level of treatment that produces 85 percent removal efficiencies for biological oxygen demand and suspended solids. Usually carried out through the use of trickling filters or by the activated sludge process.

Sedimentation: The settling of solids in a body of water using gravity.

Settle: To clarify water by causing impurities/solid material to sink to a container's bottom.

Sewer: The system of pipes that carries wastewater from homes and businesses to a treatment plant or reclamation plant. Sewers are separate from storm drains, which is a system of drains and pipes that carry rain water from urban streets back to the ocean. Overwatering your yard can also cause water to run into the streets and into storm drains. Storm drain water is not treated before it is discharged.

SigAlert: Any unplanned event that causes the closing of one lane of traffic for 30 minutes or more, as opposed to a planned event, like road construction, which is planned.

SJBA San Juan Basin Authority

Sludge: The solids that remain after wastewater treatment. This material is separated from the cleaned water, treated and composted into fertilizer. Also called biosolids.

SOCWA South Orange County Wastewater Authority. Regional Joint Powers Authority formed for collection and treatment of sewerage (previously known as AWMA/SERRA/SOCRA). SOCWA member agencies:

CSC – City of San Clemente

CSJC – City of San Juan Capistrano

CLB – City of Laguna Beach

ETWD – El Toro Water District

EBSD – Emerald Bay Service District

IRWD – Irvine Ranch Water District

MNWD – Moulton Niguel Water District

SCWD – South Coast Water District

SMWD – Santa Margarita Water District

TCWD – Trabuco Canyon Water District

SRF State Revolving Fund

Storm Drain: The system of pipes that carries rain water from urban streets back to the ocean. Overwatering your yard can also cause water to run into the streets and into storm drains. Storm drain

water is not treated before it is discharged. Storm drains are separate from sewers, which is a separate system of pipes to carry wastewater from homes and businesses to a treatment plant or reclamation plant for cleaning.

Storm flow: Surface flow originating from precipitation and run-off which has not percolated to an underground basin.

SWP: State Water Project. An aqueduct system that delivers water from northern California to central and southern California.

SWRCB State Water Resources Control Board

TDS: Total dissolved solids. A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter.

Tertiary treatment: The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of nutrients, such as phosphorous and nitrogen, and a high percentage of suspended solids.

THM: Trihalomethanes. Any of several synthetic organic compounds formed when chlorine or bromine combine with organic materials in water.

TMA: Too many acronyms.

TMDL: Total maximum daily load; A quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water.

Transpiration: The process in which plant tissues give off water vapor to the atmosphere as an essential physiological process.

Turbidity: Thick or opaque with matter in suspension; muddy water.

Ultraviolet light disinfection: A disinfection method for water that has received either secondary or tertiary treatment used as an alternative to chlorination.

VE Value Engineering

VOC: Volatile organic compound; a chemical compound that evaporates readily at room temperature and contains carbon.

Wastewater: Water that has been previously used by a municipality, industry or agriculture and has suffered a loss of quality as a result.

Water Cycle: The continuous process of surface water (puddles, lakes, oceans) evaporating from the sun's heat to become water vapor (gas) in the atmosphere. Water condenses into clouds and then falls back to earth as rain or snow (precipitation). Some precipitation soaks into the ground (percolation) to replenish groundwater supplies in underground aquifers.

Water rights: A legally protected right to take possession of water occurring in a natural waterway and to divert that water for beneficial use.

Water-use Efficiency: The water requirements of a particular device, fixture, appliance, process, piece of equipment, or activity.

Water year (USGS): The period between October 1st of one calendar year to September 30th of the following calendar year.

Watermaster: A court appointed person(s) that has specific responsibilities to carry out court decisions pertaining to a river system or watershed.

Water Reclamation: The treatment of wastewater to make it suitable for a beneficial reuse, such as landscape irrigation. Also called water recycling.

Watershed: The total land area that from which water drains or flows to a river, stream, lake or other body of water.

Water table: The top level of water stored underground.

WEF Water Environment Federation. Formerly – Water Pollution Control Federation (WPCF). International trade group advising members of sewage treatment techniques and their effect on the environment.

Weir box: A device to measure/control surface water flows in streams or between ponds.

Wellhead treatment: Water quality treatment of water being produced at the well site.

Wetland: Any area in which the water table stands near, at, or above the land surface for a portion of the year. Wetlands are characterized by plants adapted to wet soil conditions.

Xeriscape: Landscaping that requires minimal water.