

**NOTICE OF REGULAR MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY
ENGINEERING COMMITTEE**

**March 14, 2024
8:30 a.m.**

NOTICE IS HEREBY GIVEN that a Regular Meeting of the South Orange County Wastewater Authority (SOCWA) Engineering Committee was called to be held on **March 14, 2024, at 8:30 a.m.** SOCWA staff will be present and conducting the meeting at the SOCWA Administrative Office located at 34156 Del Obispo Street, Dana Point, California.

THE SOCWA MEETING ROOM IS WHEELCHAIR ACCESSIBLE. 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 SUCH 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. MEMBERS OF THE PUBLIC HAVE THE OPTION TO PARTICIPATE IN AND MAY JOIN THE MEETING REMOTELY VIA VIDEO CONFERENCE FOR VISUAL INFORMATION ONLY (USE ZOOM LINK BELOW) AND BY TELECONFERENCE 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. FOR PARTIES PARTICIPATING REMOTELY, PUBLIC COMMENTS WILL BE TAKEN DURING THE MEETING FOR ORAL COMMUNICATION IN ADDITION TO PUBLIC COMMENTS RECEIVED BY PARTIES PARTICIPATING IN PERSON. COMMENTS MAY BE SUBMITTED PRIOR TO THE MEETING VIA EMAIL TO ASSISTANT SECRETARY DANITA HIRSH AT DHIRSH@SOCWA.COM WITH THE SUBJECT LINE "REQUEST TO PROVIDE PUBLIC COMMENT." IN THE EMAIL, PLEASE INCLUDE YOUR NAME, THE ITEM YOU WISH TO SPEAK ABOUT, AND THE TELEPHONE NUMBER YOU WILL BE CALLING FROM SO THAT THE COORDINATOR CAN UN-MUTE YOUR LINE WHEN YOU ARE CALLED UPON TO SPEAK. THOSE MAKING PUBLIC COMMENT REQUESTS REMOTELY VIA TELEPHONE IN REAL-TIME WILL BE ASKED TO PROVIDE YOUR NAME, THE ITEM YOU WISH TO SPEAK ABOUT, AND THE TELEPHONE NUMBER THAT YOU ARE CALLING FROM SO THE COORDINATOR CAN UN-MUTE YOUR LINE WHEN YOU ARE CALLED UPON TO SPEAK. ONCE THE MEETING HAS COMMENCED, THE CHAIR WILL INVITE YOU TO SPEAK AND ASK THE COORDINATOR TO UN-MUTE YOUR LINE AT THE APPROPRIATE TIME.

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 FOR PUBLIC INSPECTION IN THE AUTHORITY ADMINISTRATIVE OFFICE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY OFFICE") OR BY PHONE REQUEST MADE TO THE AUTHORITY OFFICE AT 949-234-5452. IF SUCH WRITINGS ARE DISTRIBUTED TO MEMBERS OF THE ENGINEERING COMMITTEE LESS THAN SEVENTY-TWO (72) HOURS PRIOR TO THE MEETING, THEY WILL BE AVAILABLE IN THE RECEPTION AREA OF THE AUTHORITY OFFICE AT THE SAME TIME AS THEY ARE DISTRIBUTED TO THE ENGINEERING COMMITTEE AND SENT TO ANY REMOTE PARTICIPANTS REQUESTING EMAIL DELIVERY OR POSTED ON SOCWA'S WEBSITE. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IN THE MEETING ROOM OR IMMEDIATELY UPON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES PARTICIPATING REMOTELY.

**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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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.

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3. Approval of Minutes..... 1

- Engineering Committee Minutes of January 18, 2024

Recommended Action: Staff requests that the Engineering Committee approve the subject Minutes as submitted.

4. Operations Report.....5

Recommended Action: Information Item.

5. Capital Improvement Construction Projects Progress and Change Order Report (February) [Project Committees 2, 5, 15 and 24] 6

Recommended Action: Staff recommends that the Engineering Committee recommend that the PC 15 Board approve Change Order 1 to Filanc to add 273 non-compensable days to the contract for the CTP Diffusers Replacement Project.

6. Coastal Treatment Plant (CTP) Funding Strategy and Implementation Plan [Project Committee 15] 10

Recommended Action: Committee Discussion/Direction/Action.

7. Coastal Treatment Plant (CTP) Drainage Pump Station Conceptual Drawing [Project Committee 15] 39

Recommended Action: Information Item.

8. J.B. Latham Treatment Plant (JBL) 2 Package B Update [Project Committee 2] 54

Recommended Action: Information Item.

9. Capital Improvement Program (CIP) Budget Update55

- Presentation

Recommended Action: Information Item.

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 7th day of March 2024.



Danita Hirsh, Assistant Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Agenda Item

3

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Roni Grant, Associate Engineer

SUBJECT: Approval of Minutes

Overview

Minutes from the following meetings are included for review and approval by the Engineering Committee:

- January 18, 2024

Recommended Action: Staff recommends that the Engineering Committee approve the Minutes as submitted.

**MINUTES OF SPECIAL MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY**

Engineering Committee

January 18, 2024

DRAFT

The Special Meeting of the South Orange County Wastewater Authority (SOCWA) Engineering Committee Meeting was held on January 18, 2024, at 8:30 a.m. in-person and via teleconferencing from the Administrative Offices located at 34156 Del Obispo Street, Dana Point, California. The following members of the Engineering Committee were present:

MARK McAVOY	City of Laguna Beach
HANNAH FORD	El Toro Water District
DAVE LARSEN	Moulton Niguel Water District
DON BUNTS	Santa Margarita Water District
MARC SERNA	South Coast Water District
MIKE DUNBAR	Emerald Bay Service District

Absent:

DAVE REBENDSORD	City of San Clemente
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Staff Present:

JIM BURROR	Acting General Manager/Director of Operations
RONI GRANT	Associate Engineer
MATT CLARKE	IT Administrator
MARY CAREY	Finance Controller
DINA ASH	HR Administrator
ANNA SUTHERLAND	Accounts Payable
JEANETTE COTINOLA	Procurement/Contracts Manager
DANITA HIRSH	Executive Assistant

Also Present:

ADRIANA OCHOA	Procopio Law
TARYN KJOLSING	South Coast Water District
SHERRY WANNINGER	Moulton Niguel Water District
ROGER BUTOW	Clean Water Now (CWN)

1. Call Meeting to Order

Ms. Roni Grant, Associate Engineer, called the meeting to order at 8:32 a.m.

2. Public Comments

None.

3. Approval of Minutes

- Engineering Committee Minutes of November 9, 2023.

ACTION TAKEN

A motion was made by Mr. Bunts and seconded by Mr. Serna to approve the Engineering Committee Minutes for November 9, 2023, as submitted.

Motion carried: Aye 6, Nay 0, Abstained 0, Absent 1
Mr. McAvoy Aye
Ms. Ford Aye
Mr. Dunbar Aye
Mr. Larsen Aye
Mr. Bunts Aye
Mr. Serna Aye
Mr. Rebensdorf Absent

4. Operations Report

Mr. Jim Burror, Acting General Manager/Director of Operations, reported on the schedule and timeline for the FY 2024-25 budget preparation. He stated that the budget assumptions were presented to the Finance Committee for feedback and direction. Mr. Burror also reported on behalf of Ms. Amber Baylor, Director of Environmental Compliance, that she was attending the 2nd workshop held by NWRI on ocean acidification modeling efforts to ensure future regulations associated with the process had meaningful impacts on the environment. An open discussion ensued.

This was an information item; no action was taken.

5. J.B. Latham Treatment Plant Package B Project [Project Committee 2]

An open discussion ensued regarding Olsson's response to Butier's TIA analysis. A meet and confer has been requested to discuss options.

This was an information item; no action was taken.

6. Capital Improvement Construction Projects Progress and Change Order Report (January) [Project Committee 2]

Ms. Grant updated the committee on the JBL Centrate Line project upgrades and the CTP Diffusers Replacement project timelines. An open discussion ensued.

This was an information item; no action was taken.

7. Contract Award for Aliso Creek Ocean Outfall and San Juan Creek Ocean Outfall Ballast Maintenance Project [Project Committee 5 and 24]

ACTION TAKEN

A motion was made by Mr. Dunbar and seconded by Mr. Bunts that the PC 5 and PC 24 Boards; i. Find that the Aliso Creek Ocean Outfall and San Juan Creek Ocean Outfall Ballast Maintenance Project is statutorily exempt; ii. Approve a budget amendment for Project 342410 (ACOO Ballast Repair) to increase the Project budget by \$30,000 to \$280,000; and iii. Approve the contract to Subsea Global Solutions, Inc., for a total amount of \$370,000 for the ACOO and SCJOO Ballast Maintenance Project with a contingency of \$37,000 (10% of the contract).

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Motion carried:	Aye 6, Nay 0, Abstained 0, Absent 1
Mr. McAvoy	Aye
Ms. Ford	Aye
Mr. Dunbar	Aye
Mr. Larsen	Aye
Mr. Bunts	Aye
Mr. Serna	Aye
Mr. Rebensdorf	Absent

Adjournment

There being no further business, Ms. Grant adjourned the meeting at 8:57 a.m.

I HEREBY CERTIFY that the foregoing Minutes are a true and accurate copy of the Minutes of the Special Meeting of the South Orange County Wastewater Authority Engineering Committee of January 18, 2024, and approved by the Engineering Committee and received and filed by the Board of Directors of the South Orange County Wastewater Authority.

Danita Hirsh, Assistant Board Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Agenda Item

4

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Jim Burror, Acting General Manager/Director of Operations

SUBJECT: Operations Report

Overview

Verbal update on operations and maintenance activities.

Recommended Action: Information Item.

Agenda Item

5

Engineering Committee

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Roni Grant, Associate Engineer

SUBJECT: Capital Improvement Construction Projects Progress and Change Order Report (February) [Project Committee Nos. 2, 5, 15 and 24]

Overview

This agenda item provides an update on projects in construction, including any change orders. Attached are the updated CIP reports.

Project Updates

JBL Centrate Line Upgrades

The notice to proceed (NTP) has been issued to SS Mechanical. Staff is working with the contractor to procure valves and piping for this project.

CTP Diffusers Replacement

The NTP has been issued to Filanc. Staff is working with the contractor to start the project. Due to unanticipated equipment delivery delays, there is one new change order to add 273 non-compensable days to the contract for a new completion date of 12/31/2024.

Aliso Creek and San Juan Creek Ocean Outfalls Ballast Maintenance

The NTP has been issued to Subsea Global Solutions. Staff is working with the contractor to start the project.

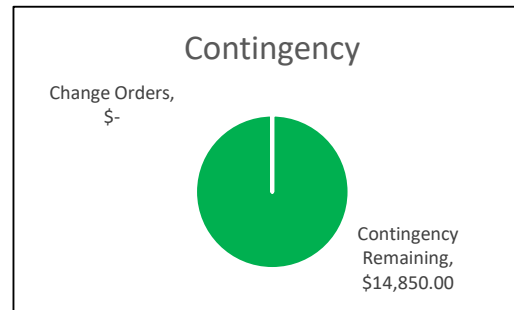
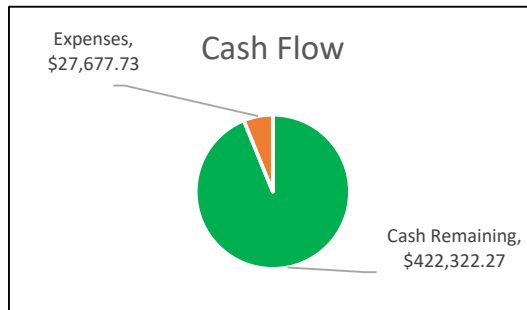
Recommended Action: Staff recommends that the Engineering Committee recommend that the PC 15 Board approve Change Order 1 to Filanc to add 273 non-compensable days to the contract for the CTP Diffusers Replacement Project.

Project Financial Status

Project Committee	2
Project Name	Centrate Line Upgrades - 3234
Project Description	Removal and replacement of centrate drain piping, non-potable water piping in the Solids Dewatering Building

Data Last Updated

March 7, 2024



Cash Flow

Collected	\$ 450,000.00
Expenses	\$ 27,677.73

Project Completion

Schedule	0%
Budget	13%

Contracts

Company	PO No.	Original	Change Orders*	Total	Invoiced
S&S Mechanical	19635	\$ 148,455.00		\$ 148,455.00	
Kleinfelder	14234	\$ 71,374.00	\$ -	\$ 71,374.00	\$ 6,486.25
SOCWA Staff Time	3234	\$ -	\$ -	\$ -	\$ 21,191.48
		\$ 219,829.00	\$ -	\$ 219,829.00	\$ 27,677.73

*Values include change orders to be reviewed by Engineering Committee

Contingency

Area	Project Code	Amount	Change Orders*	Total Remaining	Percent Used
Solids	3234	\$ 14,850.00		\$ 14,850.00	0.0%
		\$ 14,850.00	\$ -	\$ 14,850.00	0.0%

*Values include change orders to be reviewed by Engineering Committee

Change Orders

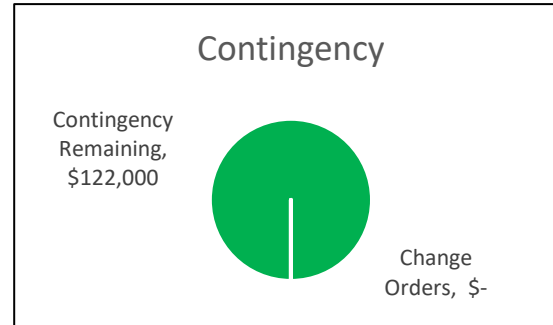
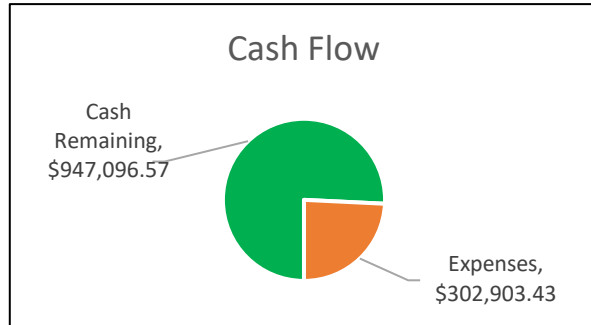
Change Order No.	Vendor Name	Project ID	Description	Status Date	Days	Amount
						\$ -

Project Financial Status

Project Committee	15
Project Name	CTP Diffusers
Project Description	Replacement of diffusers in the aeration basins

Data Last Updated

March 7, 2024

**Cash Flow**

Collected	\$ 1,250,000.00
Expenses	\$ 302,903.43

Project Completion

Schedule	0%
Budget	22%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Invoiced
Filanc	19640	\$ 1,022,250.00			\$ 1,022,250.00	\$ 25,887.50
EDI	16620	\$ 250,490.00			\$ 250,490.00	\$ 250,490.00
Hazen	17256/19641	\$ 93,578.00			\$ 93,578.00	
SOCWA Staff Time	35228L				\$ -	\$ 26,525.93
		\$ 1,366,318.00	\$ -	\$ -	\$ 1,366,318.00	\$ 302,903.43

**Values include change orders to be reviewed by Engineering Committee and deductive change orders*

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	35228L	\$ 122,000.00		\$ 122,000.00	0.0%
		\$ 122,000.00	\$ -	\$ 122,000.00	0.0%

Change Orders

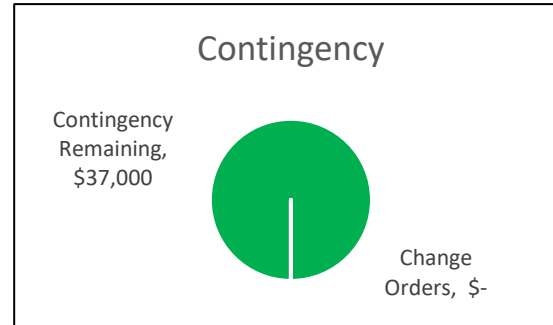
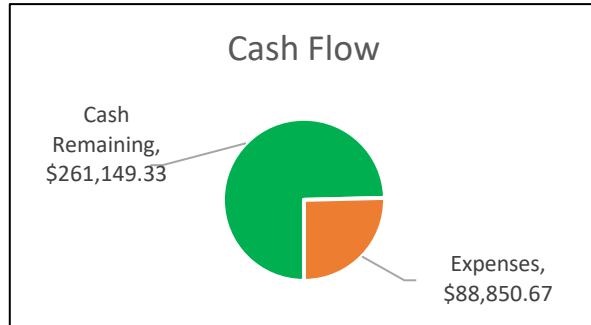
						\$ -

Project Financial Status

Project Committee	5 and 24
Project Name	SJCOO and ACOO Ballast Maintenance - 36241O/34241O
Project Description	Maintenance and repair of ballast at the two outfalls

Data Last Updated

March 7, 2024



Cash Flow

Collected	\$ 350,000.00
Expenses	\$ 88,850.67

Project Completion

Schedule	0%
Budget	24%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Invoiced
Subsea Global	19944	\$ 370,000.00			\$ 370,000.00	\$ 84,157.53
SOCWA Staff Time	36241O/34241O				\$ -	\$ 4,693.14
		\$ 370,000.00	\$ -	\$ -	\$ 370,000.00	\$ 88,850.67

**Values include change orders to be reviewed by Engineering Committee and deductive change orders*

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Outfall	36241O/34241O	\$ 37,000.00		\$ 37,000.00	0.0%
		\$ 37,000.00	\$ -	\$ 37,000.00	0.0%

Change Orders

						\$ -

Agenda Item

6

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Roni Grant, Associate Engineer

SUBJECT: Coastal Treatment Plant (CTP) Funding Strategy and Implementation Plan
[Project Committee 15]

Overview

SOCWA has been working with Hazen to develop the CTP funding strategy and implementation plan. The draft report is attached here. Hazen will be at the Engineering Committee meeting to present the findings.

Recommended Action: Committee Discussion/Direction/Action.

January 29, 2024

To: South Orange County Wastewater Authority
From: Lisa Hulette, Hazen and Sawyer, West Funding Lead
cc: Dave Jones, P.E., Hazen and Sawyer, Vice President

Re: South Orange County Wastewater Authority - Funding Strategy Plan Development for the Coastal Treatment Plant – Resiliency and Water Quality Improvements

INTRODUCTION

South Orange County Wastewater Authority (SOCWA) is anticipating a 4 million gallon per day (MGD) upgrade to its Coastal Treatment Plant to improve the plant's resiliency and water quality. At SOCWA's request, Hazen and Sawyer (Hazen) will identify potential funding opportunities for this program related to the following Bipartisan Infrastructure Law (BIL). In addition, Hazen will explore grant-related money offered by the following:

- California Department of Water Resources (DWR),
- Federal Emergency Management Agency (FEMA),
- U.S. Bureau of Reclamation (Reclamation),
- U.S. Environmental Protection Agency's Water Infrastructure Finance and Innovation Act (WIFIA) program, and the
- State Water Resources Control Board Clean Water State Revolving Fund (CWSRF) program.



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FUNDING BACKGROUND

The Bipartisan Infrastructure Law (BIL) was signed by President Biden in November 2021. It includes over \$50 Billion of funding (above baseline federal funding) to improve the availability, quality and resilience of water and wastewater infrastructure across the country, especially in historically underserved communities. The availability of BIL funding over the next 4-5 years, combined with new regulatory drivers and aging infrastructure has increased competition for project funding across the state and the nation, necessitating the establishment of informed funding strategies to increase owners' ability to leverage BIL funding.

Key to accessing BIL and other federal funding sources is the ability to demonstrate a project's benefits to historically underserved communities. Passed as part of President Joseph Biden's Executive Order 14008, Justice40 requires that at least 40 percent of the overall benefits from federal climate and infrastructure investments go toward disinvested and overburdened communities. The executive order is particularly beneficial for communities in California where the state's use of median household income (MHI) as an indicator is not as comprehensive for identifying disadvantaged communities that may be positively impacted by a project.

While the infusions of federal funding into existing funding programs are largely beneficial, these funding sources also include some drawbacks that must be considered as part of a project's comprehensive funding strategy. Primary among them is the Build American, Buy American Act (BABA). BABA requires that every federally funded public works project use domestically produced construction materials, iron, and steel. BABA intensifies the supply chain issues occurring locally and nationally and introduces potential for significant project schedule and cost implications for all infrastructure projects, particularly for federally funded projects that are not eligible for a BABA waiver.

The goal of this memorandum was to review the potential benefits and risks of leveraging alternative funding mechanisms to finance SOCWA's Coastal Treatment Plant (CTP) – Resiliency and Water Quality Improvement Program (Program) rather than conventional financing means (i.e., by using bonds and/or revenues alone). By evaluating feasible funding options, the project could potentially provide a greater return on investment with a reduced payback period, and lower rate-payer impacts. As such, this memorandum provides SOCWA with recommendations to inform the most beneficial, viable pathway to financing the CTP Program. The information included in this memorandum considers SOCWA's goals and outlines state and federal funding opportunities. Requirements of each funding source are also summarized.

PROJECT DESCRIPTION

The Coastal Treatment Plant (CTP) is in Laguna Beach, Orange County and has a capacity of 6.7 MGD. The CTP has a recycled water production of up to 1.5 MGD and incorporates preliminary, primary, and secondary treatment processes upstream of the advanced water treatment processes that produce the recycled water. SOCWA is currently exploring alternative treatment alternatives for the CTP as part of a 4 MGD upgrade. A comprehensive Future Alternatives Feasibility Study was completed to analyze treatment alternatives that prepare SOCWA for potential future considerations including regulations for enhanced effluent quality as well as impacts to the Advanced Water Treatment Plant (AWTP) to produce recycled water. Five alternative treatment options were evaluated in the study, where three treatment methods were shortlisted. The three treatment alternatives consist of Biological Nutrient Removal (BNR),

Membrane Bioreactor (MBR), and Aerobic Granular Sludge (AGS). Each short-listed alternative was further developed with site-specific comparative capital costs, operation and maintenance cost impacts, site layouts, and construction sequencing challenges.

Short-term benefits for the project include improvements to the water quality discharged to the ocean, a reduction of PFAS, 1,4-Dioxane, Contaminants of Emerging Concern (CEC's), microplastics, and pathogens as well as an increase to recycled water capacity, and achieving more rigorous overall standards for water recycling. Long-term benefits include an elevated level of treatment, overall reduction of discharge to the ocean, and multiple-barrier treatment options to better provide for potential potable reuse.

In addition to integrating the 4 MGD upgrade to the CTP with the shortlisted treatment alternatives mentioned above, the CTP's current infrastructure will also need repairs, rehabilitation, and replacements over the upcoming years leading up to the upgrade. This will necessitate extra funding.

The primary focus of this document is to provide a comprehensive funding strategy and implementation plan to plot a course to obtain and administer the best available funding opportunities. This document outlines various potential funding sources, offering the needed flexibility to adjust to new funding programs and assisting SOCWA in capitalizing on existing programs to secure capital investment.

Figure 1. SOCWA Service Area



0. WATER INFRASTRUCTURE FINANCE TERMINOLOGY

Congressional Earmarks

The term earmark has been used historically to describe distinct types of congressional spending actions, in the 110th Congress (2007-2008), the House and Senate each codified a formal definition of earmark into their respective chamber rules. The Senate codified the definition of

earmark as a “Congressionally directed spending item – a provision or report language included primarily at the request of a Senator providing, authorizing or recommending a specific amount of discretionary budget authority, credit authority, or other spending authority for a contract, loan, loan guarantee, grant, loan authority, or other expenditure with or to an entity, or targeted to a specific State, locality or congressional district, other than through a statutory or administrative formula driven or competitive award process.”¹

In 2012, the 112th Congress (2011-2012), the House and Senate began observing what has been referred to as an “earmark moratorium” or “earmark ban.” The moratorium did not exist in House or Senate rules, however, and therefore was not enforced by points of order. Instead, the moratorium was established by party rules and committee protocols and was enforced by chamber and committee leadership through their agenda-setting power. For example, the Rules of the House Republican Conference for the 112th Congress (2011-2012) included a standing order labeled Earmark Moratorium that stated, “It is the policy of the House Republican Conference that no Member shall request a congressional earmark, limited tax benefit, or limited tariff benefit, as Lifting the Earmark Moratorium: Frequently Asked Questions Congressional Research Service 2 such terms have been described in the Rules of the House.”²

In a February 26, 2021, press release, the House Appropriations Committee announced that for FY 2022, Members may submit up to 10 requests for Community Project Funding across all the appropriations bills. The total amount available for designation is limited to 1% of discretionary spending³. In 2022, President Joseph Biden signed a revision to the Water Resources and Development Act (WRDA), described in greater detail below. SOCWA may want to consider WRDA as a viable funding approach for Coastal Treatment Plant projects.

Federal Justice40 Initiative

The Justice40 Initiative requires that a minimum of 40% of the benefits from specific federal investments be directed to underserved communities. This initiative represents a comprehensive approach involving the entire government and is collaboratively overseen by the Council on Environmental Quality (CEQ), the Office of Management and Budget (OMB), and the White House Office of Domestic Climate Policy. Additionally, the White House Environmental Justice Interagency Council, convened by the CEQ, plays a key role in its implementation. This differs from a State Disadvantaged Community (DAC) which is defined as a community with an annual median household income (MHI) that is less than 80% of the Statewide annual MHI (PRC Section 75005(g)) and those census geographies with an annual MHI less than 60% of the Statewide annual MHI are considered “Severely Disadvantaged Communities” (SDAC).

This particularly matters in communities in California where the use of MHI as an indicator of disadvantage would not fully highlight disadvantages where the data can skew or not include non-monetary forms of disadvantages (i.e., environmental justice communities/underrepresented communities). A Justice 40 Map is required for all federal funding opportunities.

¹ House and Senate Appropriations Committees, “House and Senate Appropriations Committees Announce Additional Reforms in Committee Earmark Policy.

² House Republican Conference, “Conference Rules of the 115th Congress,” Standing Orders for the 115th Congress, <https://www.gop.gov/115th-rules/>.

Federal Crosscutters

This section discusses the typical federal cross-cutting requirements that apply primarily to project construction activities supported by federal funds, regardless of funding program and type of project. Programs subject to federal cross-cutting requirements include California state funding programs bolstered by federal money (e.g., State Revolving Fund or iBank). The potential burden of federal cross-cutting compliance must be taken into consideration relative to project cost, schedule, and reporting requirements and any related ground-disturbing investigations implemented in the project area.

1. **National Environmental Policy Act (NEPA).** The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. Most federally funded projects/programs require compliance with NEPA, including water and wastewater projects. Detailed documents are assembled surrounding the project that include information on how the project will promote efforts to prevent, minimize, or eliminate adverse impacts to the environment and stimulate the health and welfare of people, ecological systems, and natural resources. These detailed documents are submitted to the federal agency for review by various cross-cutting federal departments and the public.

For replacement or rehabilitation projects, NEPA compliance could be limited to completing a Categorical Exclusion⁴. However, the extent of NEPA review would be made by the U.S. Bureau of Reclamation (Reclamation) or other federal agency (acting as the federal Lead Agency). At a minimum, the NEPA process may add 3-6 months to the implementation schedule for documentation review, a coordinated review with other federal agencies, and a public comment period.

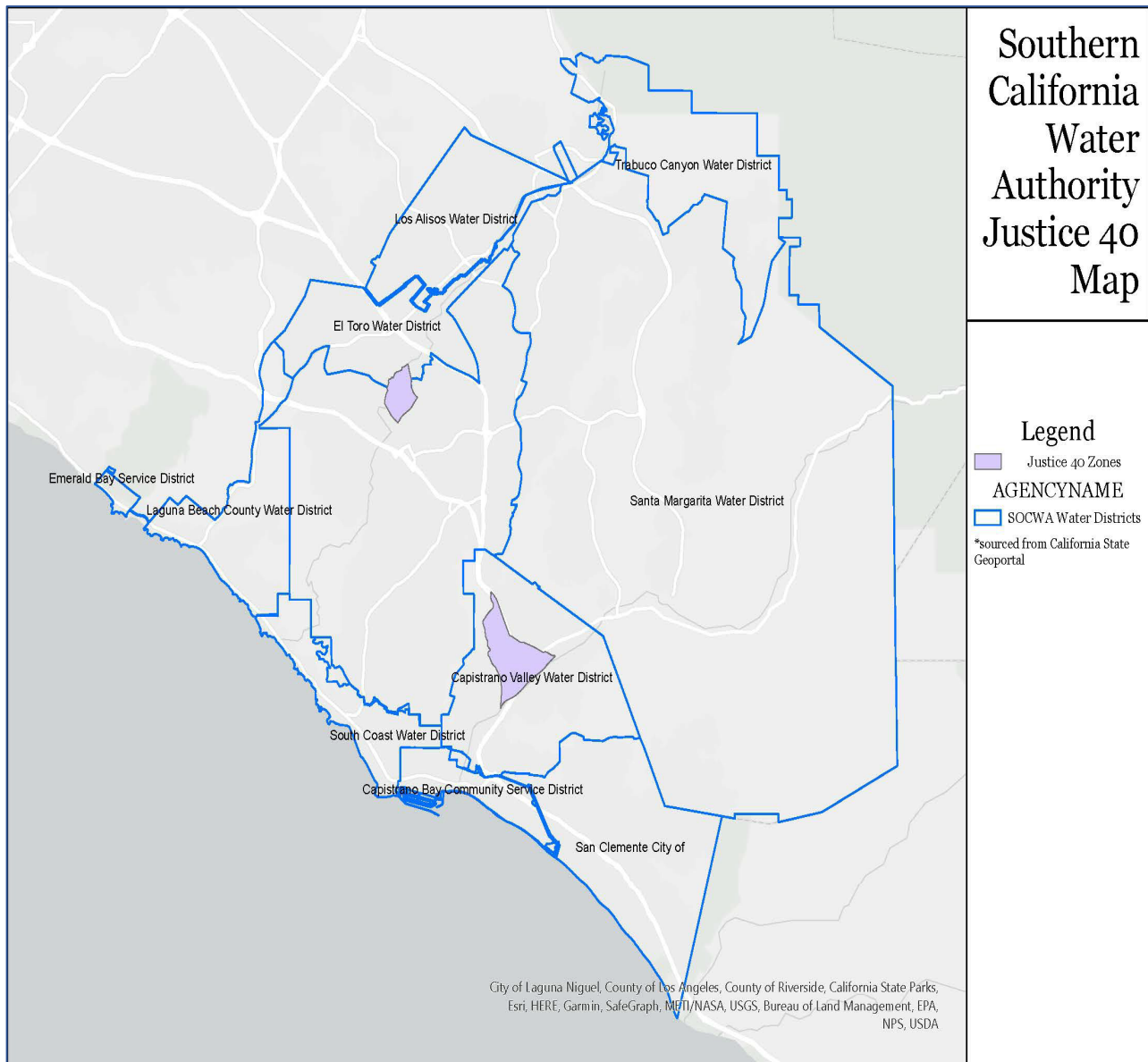
2. **Labor Requirements and Davis-Bacon Related Acts (DBRA).** The Davis-Bacon Act of 1931 was put in place to strengthen working conditions for laborers and mechanics, primarily through the establishment of prevailing wage regulations. As a result of the Great Recession that began in 2007 and ended in June of 2009, the American Recovery and Reinvestment Act (ARRA) and the Water Resources Reform and Development Act (WRRDA) of 2014 made the Davis-Bacon Act and related acts (DBRA) part of the SRF program for construction projects. DBRA only applies to construction or ground-breaking projects where a construction contractor is procured and will be paid for with federal funds. To comply with DBRA, construction contractors must be procured through the requirements in the Federal Code of Regulations (2CFR200.317- 2CFR200.318).
3. **American Iron and Steel (AIS).** As part of the Consolidated Appropriations Act of 2014, the American Iron and Steel (AIS) requirement was put into effect. The AIS requirement is associated with programs that provide funding assistance to and make it mandatory to use iron and steel products that are produced in the United States for the construction, alteration, maintenance, or repair of public water systems or treatment works. Therefore, AIS would apply to the Lead Service Line (LSLR) replacement projects only. The programs that are impacted by this requirement include WIFIA, SRF, and other federally funded projects. This requirement has the potential to increase the cost of construction and could delay the replacement due to ongoing supply chain shortages of iron and steel components.
4. **Build America, Buy America (BABA).** The Build America, Buy America Act (BABA) expands the AIS requirement beyond iron and steel to manufactured products and construction materials used in infrastructure projects funded by federal assistance. BABA

requires all federal agencies to ensure that no federal financial assistance for infrastructure projects is provided unless all the iron, steel, manufactured products, and construction materials used in the project are produced in the United States. (FEMA, 2023)³ Technical assistance, management costs, planning, engineering, and debris removal projects are not subject to BABAA requirements.

A federal agency may waive the application of a domestic preference under a financial assistance program if the Administrator in charge of the financial assisting program finds that (EPA, 2023):

- Application of the BABAA requirements would be inconsistent with the public interest (“public interest waiver”)
 - Types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality (a “nonavailability waiver”); or
 - The inclusion of iron, steel, manufactured products, or construction materials produced in the United States would increase the cost of the overall project by more than 25% (an
5. **Additional Requirements.** Additional requirements of alternative funding mechanisms can include monitoring and audit requirements and site visits. These items can increase the total project costs if additional consultants are needed to perform these services. While they do not have an impact on the construction schedule, they may impact the overall project timeline.

Figure 2. Justice 40 Map



FUNDING OPPORTUNITIES AND RECOMMENDATIONS

This section summarizes an investigation of funding opportunities and presents preliminary funding recommendations for SOCWA's CTP Resiliency and Water Quality Improvement Program. The focus of this evaluation was identifying funding sources (e.g., grants, bonds, and loans) with funding eligibility criteria, timing and budget that may potentially align with the schedule for implementation of the CT Resiliency and Water Quality Improvement Program, or discrete projects within the larger program.

Table 1 lists the funding sources that were preliminarily identified to align with Hazen's understanding of the project scope.

Table 1. Applicable Sources of Infrastructure Funding
Federal
American Rescue Plan Act – State and Local Fiscal Recovery Funds
Bipartisan Infrastructure Law (BIL)
Department of Energy (DOE) Grants
Federal Emergency Management Agency (FEMA) Grants
EPA – Water Infrastructure Financing and Innovation Act (WIFIA)
EPA – Water & Climate Resiliency Grants
Inflation Reduction Act (IRA)
US Bureau of Reclamation (Reclamation) -WaterSmart Grants
State
CA State Drinking Water Revolving Fund (DWSRF)
CA Department of Water Resources

1.1.1 THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

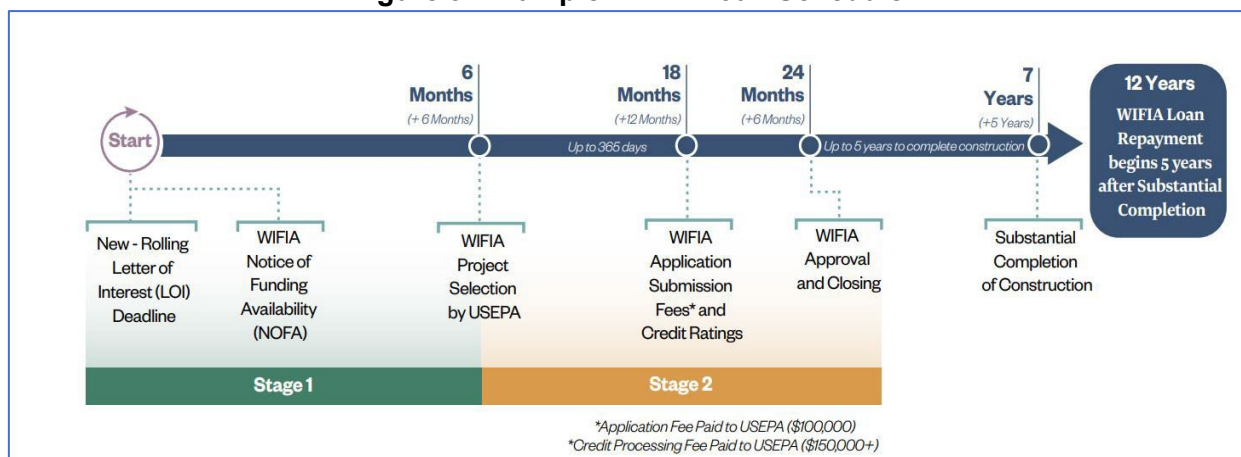
1.1.1.1 *Water Infrastructure Finance and Innovation Act (WIFIA)*

Description and Intent. The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. WIFIA and the WIFIA implementation rule outline the eligibility and other requirements for prospective borrowers. The benefits of the WIFIA program increase as the project size increases. By strategically scoping the inventory and implementation SOCWA can optimize WIFIA funding to enhance return on investment, however this may also add some complexity to the application and to overall loan administration.

Estimated Funding Opportunity Window. The WIFIA program sets its interest rate based on the U.S. Treasury rate on the date of loan closing. The rate is calculated using the weighted average life (WAL) of the loan rather than the loan maturity date. The WAL is generally shorter than the loan's actual length, resulting in a lower interest rate. WIFIA loan applications are accepted on a rolling basis. Interest rate will be equal to or greater than the U.S. Treasury rate of

a similar maturity. **Figure 3** is a sample schedule that may be truncated or expanded based on the project approach and timeline.

Figure 3: Example WIFIA Loan Schedule



- Minimum Project Size \$20 million
- Minimum Project Size for Small Communities (25,000 or less): \$5 million
- Maximum portion of eligible project costs that WIFIA can fund: 49%

Recommendation. Consider developing a programmatic WIFIA loan agreement for the entirety of The Coastal Treatment Plant – Resiliency and Water Quality Improvement Program. This can also be accomplished by each of the member cities as stand-alone loan agreements and/or use a multi-city/utility approach. If a WIFIA agreement is pursued, then note that the maximum federal funding that can go to the project(s) are 80% of total project cost.

1.1.2 CALIFORNIA STATE WATER RESOURCES CONTROL BOARD (SWRCB)

1.1.2.1 Clean Water State Revolving Fund (CWSRF)

Description and Intent. The CWSRF program assists public water systems in financing the cost of water Reclamation infrastructure projects needed to achieve or maintain compliance with Clean Water Act requirements, administered by the State Water Resources Control Board (SDWA) requirements. The State Water Resources Control Board's interest rate for Clean Water State Revolving Fund financing is 50 percent of California's average general obligation bond rate obtained by the State Treasurer for the previous calendar year. The FY23/24 CWSRF Intended Use Plan has added incentives for "New consolidation incentives to encourage the regionalization of wastewater service (State Water Resources Control Board, 2023)." Priorities for CWSRF include Disadvantaged Communities (DACs) and Small Severely Disadvantaged Communities (SDACs); Onsite Wastewater Treatment Systems; San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta); and Sustainability and Climate Change projects .

The CA CWSRF interest rates are at or near 2.10%. Below are the steps detailing the CWSRF process:

1. Contact SWRCB's Division of Financial Assistance (Division) to coordinate your application with the project schedule.
2. Complete the below packages and submit via the SWRCB's Financial Assistance Application Tool (FAAST). Example SRF packages can be available to SOCWA upon request.
 - a. Potential Red Flags Worksheet
 - b. General Project Information Worksheet
 - c. Technical Application Package
 - d. Environmental Package
 - e. Financial Security Package

Estimated Funding Opportunity Window. The estimated funding opportunity for CWSRF is ongoing and awards are given out on a rolling basis and must be submitted by 12/31 to be considered for funding in the next fiscal year as prioritized in the CWSRF Intended Use Plan (IUP).

Recommendation. Consider developing a programmatic or project specific CWSRF loan agreement for the entirety of The Coastal Treatment Plant – Resiliency and Water Quality Improvement Program led by SOCWA or, for stand-alone project, led by each member city, as appropriate. Given the ongoing high loan demand on the CWSRF compared to the funds available, the State Water Board will not be able to fund all projects currently requesting loan funding in SFY 2023-24 or anticipated in 2024-2025. If SOCWA is considering utilizing this type of loan interest loan for funding, then consultation with SWRCB early in the process is recommended.

1.1.3 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

1.1.3.1 Hazard Mitigation Grant Program (HMGP)

Description and Intent. FEMA's Hazard Mitigation Grant Program provides funding to state, local, tribal, and territorial governments so they can develop hazard mitigation plans and rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is available after a presidentially declared disaster.

- Minimum Project Cost: \$ 100,000
- Maximum Grant: \$5,000,000

Estimated Funding Opportunity Window. FEMA HMGP only opens after a Presidential Declaration of Disaster. The first step of the application is a Notice of Intent, which establishes eligibility and then the sub-applicant has about 3 months to submit application to the California Office of Emergency Services (CalOES). CalOES is the applicant, and SOCWA would be the sub-applicant.

Recommendation. HMGP is an excellent source of grant funding for infrastructure projects. Since the Notice of Funding Opportunity is only released after a Presidential Declaration of Disaster and the Benefit-Cost Analysis component of the grant sub-application is tied to disaster economics before and after mitigation, SOCWA may want to consider preparing a task order for the development of a project specific sub-application to prepare for this future grant opportunity.

1.1.3.2 *Building Resilient Infrastructure and Communities (BRIC)*

Description and Intent. BRIC is a nationally competitive mitigation grant program designed provide states, local communities, tribes, and territories to address high-level future risks to natural disasters such as wildfires, drought, hurricanes, earthquakes, extreme heat, and

increased flooding to foster greater community resilience and reduce disaster suffering. The program's guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large infrastructure projects; maintaining flexibility; and providing consistency.

Estimated Funding Opportunity Window. FEMA BRIC releases its Notice of Funding Opportunity (NOFO) through the CalOES, usually around August of each year. The first step of the application is a Notice of Intent, which establishes eligibility and then the sub-applicant has about 3 months to submit application to the California Office of Emergency Services (CalOES). CalOES is the applicant, and SOCWA would be the sub-applicant.

- Minimum Project Size \$250,000
- Maximum Federal Share: \$50,000,000

Recommendation. This grant opportunity has an emphasis on building resilient communities using nature-based solutions and stakeholder inclusion. This grant application has a strong emphasis on economics and pre & post-mitigation costs, which required in the Benefit-Cost Analysis. SOCWA should consider a project within the larger CTP Program that has these elements, develop a list of projects that can be pre-screened through BRIC's scoring criteria and then choose a project, no later than July to be ready for the release of the NOFO in August.

1.1.4 **UNITED STATES BUREAU OF RECLAMATION (Reclamation)**

1.1.4.1 *WaterSMART Water and Energy Efficiency Grants*

Description and Intent. On-the-ground water management improvement projects, including projects that conserve water and address water supply reliability. Up to \$500,000 for projects to be completed within two years; up to \$2 million for projects to be completed within three years; and up to \$5 million for large projects to be completed within three years.

Benefits related to the upgrades to the CTP which would align with this grant include improving water discharged to the ocean, increased recycled water capacity, and meeting stringent water reuse requirements which would support and address overall water supply reliability.

Estimated Funding Opportunity Window

- Calendar Year 2024 Application Due Date: February 22, 2024
- Cost Share: 50 percent or more of total project costs.
- No minimum set
- Maximum Award: \$5,000,000

Recommendation. This grant program requires a Drought Management Plan (DMP) and/or a Water Conservation Plan that meets Reclamation requirements. For cities that have a DMP, this is an underutilized funding opportunity that SOCWA would have a high chance of grant success. The first steps would be to contact Reclamation staff and initiate a pre-grant consultation to determine eligibility and pathway to success.

1.1.4.2 *WaterSMART Drought Resiliency Projects*

Description and Intent. Drought Resiliency can be defined as the capacity of a community to cope with and respond to drought. Under this element of the program, RECLAMATION will provide funding for projects that will help communities prepare for and respond to drought. Typically, these types of projects are referred to as "mitigation actions" in a drought contingency plan. RECLAMATION will fund projects that will build resiliency to drought by:

- Increasing the reliability of water supplies
- Improving water management
- Providing benefits for fish and wildlife and the environment

Benefits related to the upgrades to the CTP which would align with this grant include having advanced treatment processes required to meet current drinking water standards which would support and address overall water supply reliability which would support recycled water capacity for SOCWA's service area.

Estimated Funding Opportunity Window.

- Application Due Date: The 2024 Funding Opportunity was posted August 7, 2023. Applications received by November 7, 2023, are currently under review. Selections are expected around mid- March 2024. A NOFO for federal FY 24/25 is expected to be released August 2024.
- Cost Share: 50 percent or more of total project costs.
- Minimum Award: \$25,000
- Maximum Award: \$5,000,000

Recommendation. This grant program requires a Drought Management Plan (DMP) and/or a Water Conservation Plan that meets Reclamation requirements. This is a highly competitive grant opportunity for cities that rely on either the Colorado River or the State Water Project. The first steps would be to contact Reclamation staff and initiate a pre-grant consultation to determine eligibility and pathway to success.

1.1.4.3 *WaterSMART Environmental Water Resources Projects*

Description and Intent. WaterSMART Environmental Water Resources Projects is a category of



funding to support projects focused on environmental benefits and that have been developed as

part of a collaborative process to help conduct an established strategy to increase the reliability of water resources. Applicants are invited to leverage their money and resources by cost sharing with Reclamation on Environmental Water Resources Projects, including water conservation and efficiency projects that result in quantifiable and sustained water savings and benefit ecological values or watershed health; water management or infrastructure improvements to benefit ecological values or watershed health; and watershed restoration projects benefitting ecological values or watershed health that have a nexus to water resources or water resources management.

Benefits related to the upgrades to the CTP which would align with this grant include the short-term benefit of improving water discharged to ocean as well as the overall long-term benefit of reducing discharge to the ocean which would support ecological values. The upgrades to CTP would also result in multiple barrier treatment that would make overall improvements to ocean water discharge and provide improved treatment for potential potable reuse.

Estimated Funding Opportunity Window

- Selections for the FY23 Environmental Water Resources Projects funding opportunity were announced November 15, 2023. Reclamation releases NOFO's for this grant type on an annual basis and is expected to release a FY24 NOFO in spring 2024.
- Cost Share: 25 percent or more of total project costs.
- Minimum Award: No minimum set
- Maximum Award: \$3,000,000

Recommendation. This grant program requires a Drought Management Plan (DMP) and/or a Water Conservation Plan that meets Reclamation requirements. This is a highly competitive grant opportunity for cities that rely on either the Colorado River or the State Water Project. The first steps would be to contact Reclamation staff and initiate a pre-grant consultation to determine eligibility and pathway to success.

1.1.4.4 WaterSMART Planning and Project Design Grants

Description and Intent. New for 2023, Project Design Grants offers cost sharing with Reclamation for the site-specific final design of medium and large-scale on-the ground water supply construction (including domestic water supply projects for Tribes, insular areas, and disadvantaged communities), water management construction, and restoration projects. This grant has funding for both Water Strategy Grants and Project Design Grants as well as Drought Contingency Planning.

Benefits related to the upgrades to the CTP which would align with this grant include having long-term drivers for advanced treatment and potable reuse in the region.

Estimated Funding Opportunity Window

- Calendar Year 2024 Application Due Date: April 2, 2024.
- Cost Share: 0 percent, 25 percent, or 50 percent, depending on the project type.
- Minimum Award: \$100,000.00 (Planning & Design)

- Maximum Award: \$400,000.00 (Planning & Design)
- Minimum Award: \$25,000 (Drought Contingency Planning)
- Maximum Award: \$400,000 (Drought Contingency Planning)

Recommendation. A first step for receiving Reclamation funding for any opportunities that fall under the WIIN Act is to develop a feasibility study. SOCWA should consider applying for this funding to develop a Congressionally Authorized Feasibility Study for the entirety of the CTP Program. The first step is to consult with Reclamation to determine which components of SOCWA's program can be included in a Reclamation funded feasibility study.

1.1.4.5 *WaterSMART Water Recycling and Desalination*

Description and Intent. Water recycling and desalination are essential tools for stretching limited water supplies in the Western United States. Reclamation provides cost-shared funding on a competitive basis for planning, design, and construction of water recycling and desalination projects. Funding is made available for projects through the Title XVI Water Reclamation and Reuse Program, the Desalination Construction Program, and the Large-Scale Water Recycling Program.

Benefits related to the upgrades to the CTP which would align with this grant include long term advanced treatment and reuse in the region as well as short-term drivers for improved recycled water capacity.

Estimated Funding Opportunity Window

- Calendar Year 2024 Application Due Date: September 30, 2024.
- Cost Share: 75 percent or more of total project costs.
- Minimum Award: No minimum set
- Maximum Award: Up to \$200 Million. The Federal Award Amount is based on a max of 25% of the expected total project cost.

Recommendation. This funding source requires a Congressionally Authorized Title XVI Feasibility Study. The first step for this funding is to work with Reclamation, either through a funding agreement or other federal nexus, to develop a Reclamation approved study for consideration by Congress.

1.1.4.6 *WaterSMART Large-Scale Water Recycling Project*

Description and Intent. The program will provide \$450 million over the next five years to projects in Reclamation states that have a total project cost greater than or equal to \$500,000,000, at 25% Federal cost share, with no per-project maximum. Large-scale recycled water projects will play a key role in helping communities develop local, drought-resistant sources of water supply by turning currently unusable water sources into a new source of water supply that is less vulnerable to drought and climate change.

Benefits of the upgrades to the CTP include long term drivers that would reduce dependence on traditional water supplies and increase resiliency efforts which would align with this program.

Estimated Funding Opportunity Window

- Calendar Year 2024 Application Due Date: September 30, 2024.
- Cost Share: 75 percent or more of total project costs.
- Minimum Award: No minimum set
- Maximum Award: Up to \$180 Million. The Federal Award Amount is based on a max of 25% of the expected total project cost.

Recommendation. This funding source requires a Congressionally Authorized Title XVI Feasibility Study. The first step for this funding is to work with Reclamation, either through a funding agreement or other federal nexus, to develop a Reclamation approved study for consideration by Congress.

1.1.5 WaterSMART TITLE XVI

Title XVI of P.L. 102-575, as amended (Title XVI), provides authority for Reclamation's water recycling and reuse program, titled "Title XVI." Through the Title XVI program, Reclamation identifies and investigates opportunities to reclaim and reuse wastewater and impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects in partnership with local government entities. Funding for implementation of projects must have a Congressionally Authorized Feasibility Report that has been approved by the Reclamation.

1.1.5.1 Title XVI Congressionally Authorized Projects

Description and Intent. The objective of this program is to invite sponsors of congressionally authorized water Reclamation and reuse projects (Projects) to request cost-shared funding for the planning, design, and/or construction of those Projects. Benefits of the upgrades to CTP would include improving recycled water capacity, which would encourage water reuse. These benefits would align with this program.

Funding Opportunity Window.

- Calendar Year 2024 Application Due Date: September 30, 2024.
- Cost Share: 75% or more of total project costs.
- Minimum Award: None set
- Maximum Award: Up to \$20 Million unless otherwise specified by Congress.

Recommendation. This funding source requires a Congressionally Authorized Title XVI Feasibility Study. The first step for this funding is to work with Reclamation, either through a funding agreement or other federal nexus, to develop a Reclamation approved study for consideration by Congress.

1.1.5.2 WaterSMART: Desalination Construction Projects Under the WIIN Act

Description and Intent. The Water Infrastructure Improvements for the Nation (WIIN) Act provides new authority to the Reclamation to develop a desalination construction program that will provide a path for ocean or brackish water desalination projects to receive Federal funding. Benefits of the upgrades to the CTP include conserving and enhancing recycled water capacity

for water reuse which would improve overall water supply which would align with this program. To be eligible for WIIN Act funding, the CTP project that SOCWA is seeking must have a completed Title XVI feasibility study submitted to the Reclamation. Completed feasibility studies must be found by Reclamation to meet all the requirements of WTR 11-01. If a feasibility study has been reviewed by Reclamation and found to meet the requirements of WTR 11-01, but the review findings have not yet been transmitted to Congress, Reclamation will transmit those findings to Congress either before project selections are made or concurrently with project selections.

Estimated Funding Opportunity Window.

- Calendar Year 2024 Application Due Date: September 30, 2024.
- Cost Share: 75% or more of total project costs.
- Minimum Award: None set
- Maximum Award: Up to \$30 Million per project. The Federal Award Amount is based on a max of 25% of the expected total project cost.

Recommendation. This funding source requires that a Congressionally Authorized Title XVI Feasibility Study be submitted to and is in the review process by Reclamation. The study does not have to be authorized by Congress, but steps must be documented showing progress toward authorization. The first step for this funding is to work with Reclamation, either through a funding agreement or other federal nexus, to develop a Reclamation approved study for consideration by Congress.

1.1.5.3 WaterSMART: Title XVI WIIN Act Water Reclamation and Reuse Projects for Fiscal Years 2023 and 2024

Description and Intent. Through the Title XVI Water Reclamation and Reuse Program (Title XVI), authorized by P.L. 102-575 in 1992, Reclamation provides financial and technical assistance to local water agencies for the planning, design, and construction of water Reclamation and reuse projects. Water recycling is a valuable tool used to stretch limited water supplies in the Western United States. Title XVI projects develop and supplement urban and irrigation water supplies through water reuse—thereby improving efficiency, providing flexibility during water shortages, and diversifying the water supply. These projects provide growing communities with new sources of clean water which increases water management flexibility and makes water supplies more reliable.

Estimated Funding Opportunity Window

- Calendar Year Application Due Date: September 30, 2024.
- Cost Share: 75% or more of total project costs.
- Minimum Award: None set
- Maximum Award: Up to \$30 Million per project. The Federal Award Amount is based on a max of 25% of the expected total project cost.

Recommendation. This funding source requires that a Congressionally Authorized Title XVI Feasibility Study be submitted to and is in the review process by Reclamation. The study does not have to be authorized by Congress, but steps must be documented showing progress toward authorization. The first step for this funding is to work with Reclamation, either through a funding agreement or other federal nexus, to develop a Reclamation approved study for consideration by Congress.

1.1.6 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

1.1.6.1 *Environmental Protection Agency (EPA) Midsize and Large Drinking Water Systems Infrastructure Improvement Grant & Sustainability Program*

Description and Intent. This grant program assists medium and generous size public water systems with protecting drinking water sources from natural hazards, extreme weather events, and cybersecurity threats. Funds may also be used for projects or programs that:

- Reduce extreme weather events and cybersecurity vulnerabilities.
- Conserve or enhance water supply through water reuse measures.
- Form regional water partnerships to address water shortages.

All public water systems that serve a community with a population of 10,000 or more. 50% of the program's appropriation will go to public water systems that serve a population of between 10,000 and 100,000, and 50% of the program's appropriation will go to public water systems that serve a population 100,000 or more.

Estimated Funding Opportunity Window

The Notice of Funding Opportunity (NOFO) for this grant is anticipated to be released in spring 2024.

Recommendation Benefits of the upgrades to the CTP include conserving and enhancing recycled water capacity for water reuse with long term benefits of improving advanced treatment and reuse in the region which would align with this program.

ALTERNATIVE FUNDING SOURCES

2.1.1 **Water Resources Development Act (WRDA).**

The Water Resources Development Act (WRDA) is a pertinent legislation in the U.S., enabling the Army Corps of Engineers (USACE) to conduct studies, construct projects and research activities that can lead to the improvement of rivers and harbors of the United States. The U.S. Army Corps of Engineers (USACE) is a Department of Defense agency that develops water resource projects, principally to improve navigable channels, reduce flood and storm damage, and restore aquatic ecosystems. Congress often considers, on a biennial schedule, omnibus legislation to authorize USACE water resource activities. Congress regularly refers to this legislation as a Water Resources Development Act (WRDA). WRDAs are distinguished from each other by the year of enactment (e.g., WRDA 1986). Authorization is generally a precondition for USACE activities to be eligible for federal appropriations. To obtain WRDA funding, SOCWA will first need to contact the Southern Area Office in Los Angeles. The office contact information is: U.S. Army Corps of Engineers, 40015 Sierra Highway, Suite B145, Palmdale, CA, 93554 or by phone at (661) 265-7222.

2.1.2 **The Safe, Clean Water Program (Measure W).**

The Safe, Clean Water Program (SCWP), also known as Measure W, is funded by the local taxpayers and has many mechanisms for supporting transparency and accountability in the expenditure of those funds. The new parcel tax now mandates a 2.5 cent/square foot assessment

on all buildings located in Los Angeles County. Revenue generated from Measure W will help cities across the County meet obligations under the federal Clean Water Act and associated permits that are given out by the state. Funds are being used to pay for regional and municipal projects that improve water quality and may also increase water supply and provide community benefits such as parks or wetlands. This is especially critical as the region and the state needs to be more water resilient as we face the effects of climate change. Additionally, 10 percent of the revenue is earmarked for the L.A. County Flood Control District for administration. Measure W currently only provides funding for projects in Los Angeles County. ***This is not a viable option for SOCWA or projects in Orange County.***

2.1.3 Water rates and surcharges.

Establishing cost-based rates, fees, and charges is a key component in a well-managed and operated water utility. Cost-based rates provide sufficient funding to allow communities to build, operate, maintain, and reinvest in their water system that provides the community with safe and reliable drinking water and fire protection. Properly and adequately funded water systems also allow for the economic development and sustainability of the local community. The purpose of this manual is to discuss standard practices in financial planning and rate making that a utility can use to establish cost-based rates, fees, and charges to recover the full costs associated with their water system. (American Water Works Association, 2021).

2.1.4 Municipal bonds.

The current market and estimated bond rate. As of December 12, 2023, Interest rates have been trending down for the last 6 weeks as the market sees signs of a rebound from higher yields this year. The rally came after the Fed meeting in October 2023 with the markets predicting fed cuts in 2024. As of December 15, 2023, employment data was strong and the debt that is invested by the United States yields increased. For a 20-year tax-exempt water revenue rate, a good ballpark is 4.50%. As the market trends into 2024, Hazen can provide SOCWA with more information on Municipal Bonds and update on the impact to ratepayers. (NHA, 2023)

2.1.5 Private capital and Non-Governmental Organizations (NGO).

In addition to federal and state resources, nonprofit foundations have provided funding for water infrastructure:

- **Pisces Foundation:** Pisces Foundation is based in San Francisco and has a large philanthropic focus on water issues throughout the west. Their water strategy is “We support local efforts in cities from coast-to-coast to implement One Water approaches, like green infrastructure, which can reduce water pollution, add parks and other amenities, reduce flooding, and augment water supply. We fund leaders who are bringing this new thinking and bold practice to the urgent task of ensuring safe, sufficient, and secure water, creating more resilient communities, healthier waters, and stronger economies.” (Pisces Foundation, 2022)

Pisces Foundation Projects: The Pisces Foundation does not accept unsolicited proposals; however, they have supported organizations throughout California to implement innovative solutions to protect and conserve water. The level of giving ranges from \$5,000 to \$2,000,000 and may be a good strategy for a partnership, but not for considerable water infrastructure project funding.

- **Ford Foundation:** The goal of the Ford Foundation with regards to Climate and the Environment is “Throughout the Global South, the extraction of natural resources—metals, minerals, forests, and fossil fuels—is growing rapidly, causing severe environmental damage and social harm, particularly to indigenous and rural communities. Added to that, weak governance and corruption mean that revenues from extraction disproportionately benefit big corporations, and all too commonly bypass the communities of origin entirely.

Ford Foundation Projects: Their philanthropic focus is in Central and South America. This potential funding source was reviewed but deemed not a good fit for SOCWA.

- **Walton Family Foundation:** The goal of the Walton Family Foundation (WFF) regarding water is “protecting water during climate change is one of the most important challenges of our time. Whether it is droughts, floods, wildfires, rising sea levels or changes in the ocean food chain – climate change affects every place we have water. We are in a water crisis, and we need to act like it. The foundation's Environment strategy seeks lasting water solutions in three key geographies: The Colorado River Basin, the Mississippi River Basin, and our Oceans. Our goal is to make sure there is enough healthy, available water for people and nature to thrive together.” (Walton Family Foundation, 2023)

WFF does not seek unsolicited proposals; however, a relationship can be started if SOCWA has projects that reduce reliance on water from the Colorado River, protect beaches or lessen water quality impacts to the ocean.

WFF Projects: United States funded projects have centered around reduction of reliance on Colorado River, and while WFF states that their geography spreads to California, examples projects are primarily research. This may not be a good fit for SOCWA unless there is an innovative research project, in partnership with UC Irvine or other universities, to be considered.

FUNDING TIMELINE AND TOTAL COST DASHBOARD

Figure 4. Grant Timeline

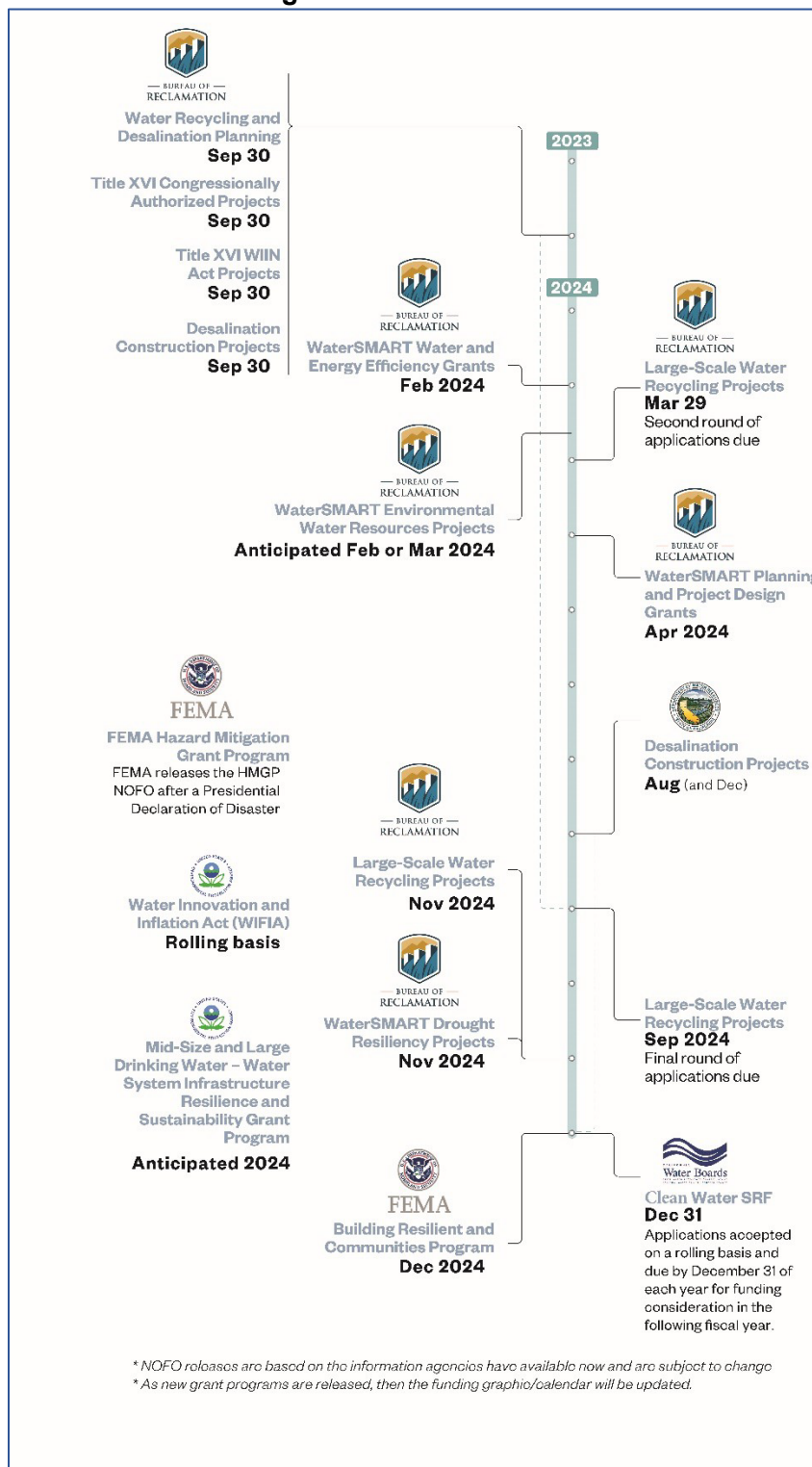
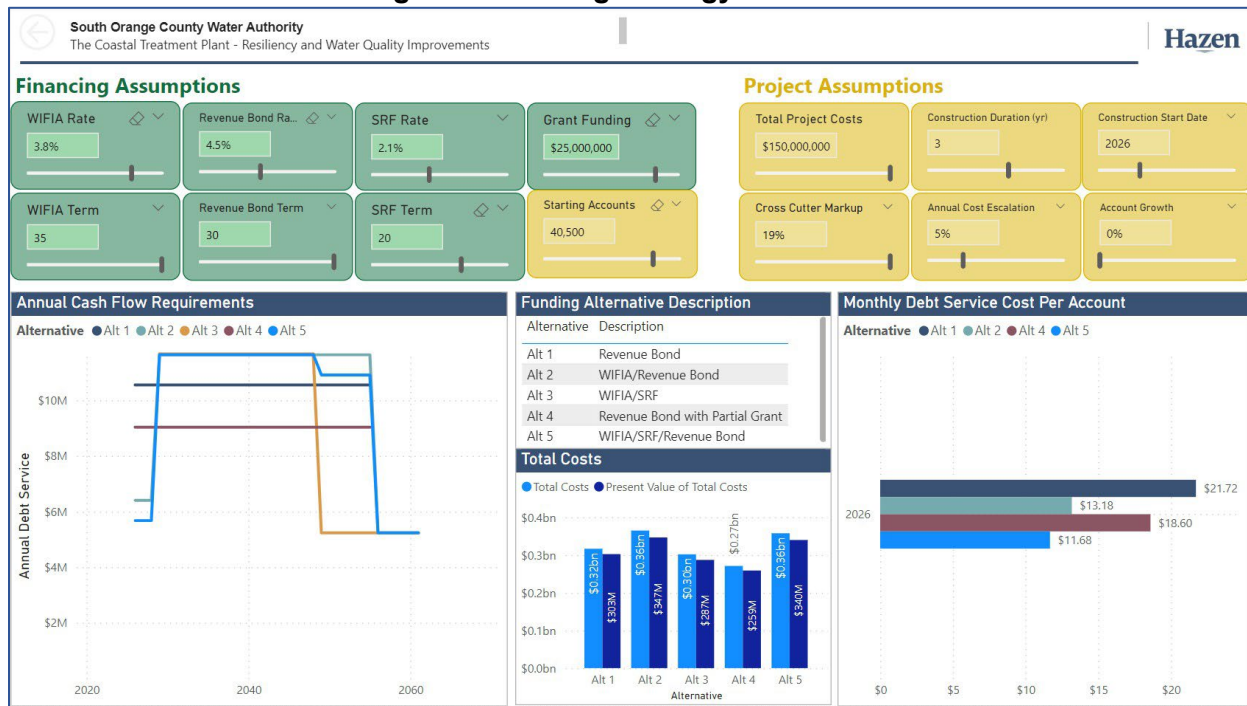


Figure 5. Funding Strategy Dashboard



3.1.1 RECOMMENDATION SUMMARY

After completing a preliminary evaluation, Hazen has identified potential funding options for SOCWA. The following are options further assessed; however, there are several combinations that can be assembled to accomplish the mission of funding CIP water related projects.

Leveraging funding opportunities.

- Reviewing various aspects of a project to combine funding to offset loan amounts
- Optimizing components of projects that could be within a project and highlighting that aspect to create a portion that is fundable to grant programs.
- This could be an option for if the full scope of the program has not yet been formulated. Additional project investigation and agency conversations should be part of the vetting process.

The option of using the SRF with the WIFIA and offsetting debt with grant funding is the most valuable to the CTP Resiliency and Water Quality Improvement Program. This option has the potential for being partnered with other funding to offset the loan repayments.

Hazen has evaluated the recommended financing option, included a Funding Dashboard that can be utilized to weigh the potential financial fiscal impacts, project cost, interest rates, grant amounts, crosscutter requirements percentage increases, etc., and allow SOCWA to better evaluate the savings and impacts to rate payer that each funding option options provides.

PROPOSED NEXT STEPS

There are several circumstances that come into view due to the increasing cost because of federal requirements that have been placed into effect with the new legislation of the BIL and IRA. However, municipalities can capitalize on the benefits of lower interest rates, longer terms, and flexible cash flows. Additional workshops should be a consideration to best understand SOCWA's short and long-term financial goals and use the grant decision tree to determine which specific parts of the CTP Program are appropriate for funding, and then utilize the grant development timeline found in Appendix A to determine the timing of developing grant and or loan documents.

1. Determine the sequence for funding of projects of projects in SOCWA's Coastal Treatment Plant – Resiliency and Water Quality Improvements Program (CTP Program).
2. Develop project specific Funding Strategy Dashboard to determine effects of project cost on rates using various funding mechanisms (i.e., loans, bonds, grants)
3. Consider SRF and WIFIA as interim funding sources to kick-start CTP Program
 - a. Contact Department of Water Resources SRF staff to gauge projects best suited to meet CWSRF funding priorities
 - b. Contact WIFIA program staff to initiate the loan process
4. Contact the Reclamation to discuss the potential for the CTP Program, or individual projects, which may be suitable funding. If SOCWA or its member agencies do not have a Congressionally Authorized Feasibility Study or one in process being reviewed by Reclamation, then a Reclamation Planning Grant to develop should be considered a priority.
5. Apply for Title XVI grant funding through the following programs:
 - i. Planning and Design (Feasibility Study)
 - ii. Desalination Planning and Project
 - iii. Large-scale Water Recycling
 - iv. Drought Management
6. Apply for EPA grant funding in FY24 for EPA'S Large Drinking Water Systems Infrastructure Improvement Grant & Sustainability Program
7. Prepare to apply for FEMA's Building Resilient Infrastructure and Communities grant
8. Prepare to apply for FEMA's Hazard Mitigation Grant Program

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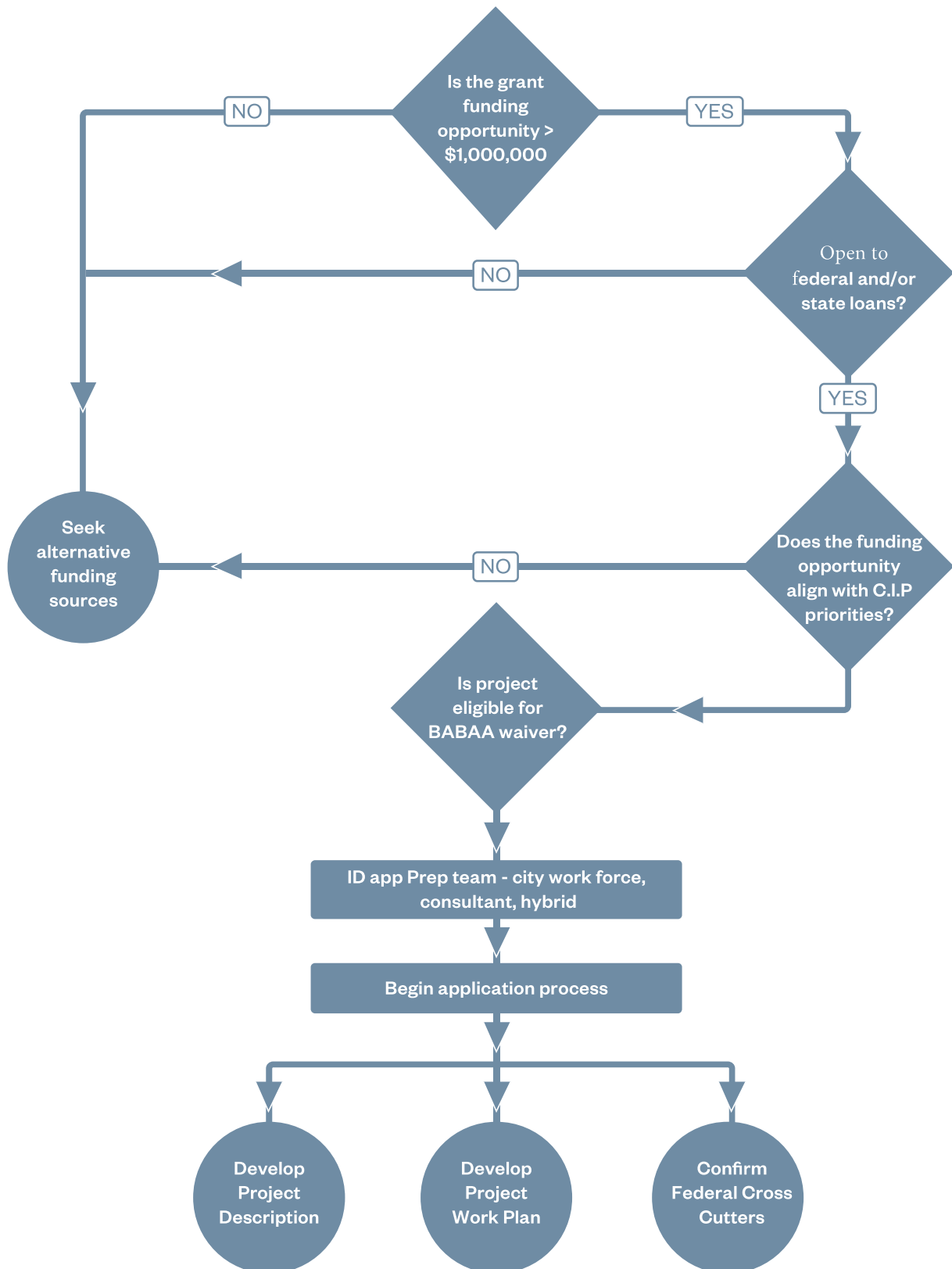
APPENDIX A
FUNDING SOURCE

Agency	Funding Program	Maximum Award	NOFO Release Date	2024 Submittal Due Date	Description	Agency Requirements	Eligible Project Types
United States Environmental Protection Agency	Grant: Midsize and Large Drinking Water Systems Infrastructure Improvement Grant & Sustainability Program	\$5,000,000	Anticipated release in 2024	Not posted	This grant program assists medium and generous size public water systems with protecting drinking water sources from natural hazards	All public water systems that serve a community with a population of 10,000 or more. 50% of the program's appropriation will go to public water systems that serve a population of between 10,000 and 100,000, and 50% of the program's appropriation will go to public water systems that serve a population 100,000 or more.	Planning, design, construction, implementation, operation or maintenance projects that have a goal of enhancing drinking water system resilience
	Loan: Water Infrastructure Finance and Innovation Act (WIFIA)	Total project cost must be >\$20,000,000.	Rolling Basis	Rolling Basis	The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program administered by EPA for eligible water and wastewater infrastructure projects.	Minimum Project Size for WIFIA is \$20 million	Projects that are eligible for Drinking Water SRF
						Federal Crosscutters apply	Energy efficiency projects at drinking water and wastewater facilities
						51% cost share from non-federal source	Brackish or desalination, aquifer recharge, alternative water supply and water recycling projects
						Two part application process	Drought prevention reduction or mitigation
State Water Resources Control Board	Loan: Clean Water SRF	>\$100,000,000	Rolling Basis	Dec-24	Financing for publicly owned treatment facilities, nonpoint source projects, and estuary projects. The most common types of application are for wastewater treatment plants and sewer systems.	Federal Crosscutters apply. Preference given to Disadvantaged Communities. Interest rate is half of the most recent General Obligation Bond Rate.	Regionalization of wastewater service, water quality programs (e.g., emerging contaminants), onsite wastewater system upgrades, recycled water reuse. water conservation and promotion of low impact development
Federal Emergency Management Agency	Grant: Hazard Mitigation Grant Program (HMGP)	\$5,000,000	Following a Presidential Declaration of Disaster	TBD	The Notice of Funding Opportunity is released through DEMA following a Presidential Declaration of Disaster.	FEMA approved hazard mitigation plan & 25% non-federal cost share	Development of aHazard Mitigation Plan
						Reduces risk from hazards and demonstrates the cost of the project is greater than the cost of catastrophic loss of the facility.	Harden ore habilitate infrastructure to reduce hazard risk to critical facilities, people & property(e.g., drought, flooding, wind, extreme heat)
	Grant: Building Resilient Infrastructure and Communities (BRIC)	\$50,000,000	Jun-24	Dec-24	BRIC releases its Notice of Funding Opportunity through DEMA, usually around June of each year.	FEMA approved hazard mitigation plan, federal cross cutter compliance & 25% cost share	Phased projects which include design, environmental compliance and construction
						Reduces risk from hazards and demonstrates the cost of the project is greater than the cost of catastrophic loss of the facility.	Harden ore habilitate infrastructure to reduce hazard risk to critical facilities, people & property(e.g., drought, flooding, wind, extreme heat)
						Incorporation of nature-based solutions and partnerships	Phased projects which include design, environmental compliance and construction
United States Bureau of Reclamation	Grant: WaterSMART Water and Energy Efficiency Grants	\$5,000,000	12-Nov-23	28-Feb-24	On-the-ground water management improvement projects, including projects that conserve water and address water supply reliability.	Applicants must have a Drought Management Plan, a Water Conservation Plan or both. 50% cost share from non-federal source.	Water Conservation (e.g., Turf replacement, irrigation efficiency, and commercial cooling systems),
	Grant: WaterSMART Drought Resiliency Projects	\$5,000,000	7-Aug-23	30-Sep-24	This program will provide funding for projects that will help communities prepare for and respond to drought.	Applicants must have a Drought Management Plan, a Water Conservation Plan or both. 50% cost share from non-federal source.	Develop and update drought plans and implement projects that will build long-term resiliency to drought
	Grant: WaterSMART Environmental Water	\$3,000,000	Mar-24	5/30/2024	Projects focused on environmental benefits and that have been developed as part of a collaborative process to help conduct an established strategy to increase the reliability of water resources.	Applicants must have a Drought Management Plan, a Water Conservation Plan or both. 50% cost share from non-federal source.	Water supply drought resilience projects with a co-benefit of addressing an environmental issue (i.e., active stream or wetland restoration, instream water dedication, and riparian habitat improvements.

APPENDIX A
FUNDING SOURCE

Agency	Funding Program	Maximum Award	NOFO Release	2024 Submittal Due Date	Description	Agency Requirements	Eligible Project Types
United States Bureau of Reclamation (Continued)	Grant: WaterSMART Planning and Project Design Grants	\$400,000	7-Aug-23	Apr-24	Funding for the site-specific final design of medium and large-scale on-the ground water supply construction, water management construction, and restoration projects. This funding can be used to develop a WIIN Act/Title XVI Feasibility Study and/or a Drought Management Plan.	Applicants must have a Drought Management Plan, a Water Conservation Plan or both. 50% cost share from non-federal source.	Funding for planning and design projects to support water management: (1) Water Strategy Grants to conduct planning activities to improve water supplies (e.g., water supplies to disadvantaged communities, water marketing, water conservation, drought resilience, and ecological resilience); (2) Project Design Grants to conduct project-specific design for projects to improve water management; and (3)Drought Contingency Plans.
	Grant: WaterSMART Water Recycling and Desalination	\$30,000,000	27-Sep-23	29-Mar-24	Water recycling and desalination are essential tools for stretching limited water supplies in the Western United States. Reclamation provides cost-shared funding on a competitive basis for planning, design, and construction of water recycling and desalination projects.	Applicant must have a Congressionally Authorized Feasibility Study and Report approved by Reclamation. 50% cost share	Water recycling desalination projects
	Grant: WaterSMART Large-Scale Water Recycling Project	< \$180,000,000	6-Sep-23	1-Nov-24	The program will provide \$450 million over the next five years to projects in Reclamation states that have a total project cost greater than or equal to \$500,000,000, at 25% Federal cost share, with no per-project maximum	Applicant must have a Congressionally Authorized Feasibility approved by Reclamation. 75% cost share	Water recycling and reuse projects that have a total project cost >\$500,000,000
	Grant: WaterSMART Title XVI Congressionally Authorized Projects	< \$20,000,000unless otherwise specified by Congress.	28-Sep-23	30-Sep-24	Up to \$20 Million unless otherwise specified by Congress.	Applicant must have a Congressionally Authorized Feasibility Study approved by Reclamation. 50% cost share	Project identified in the approved and authorized feasibility study
	Grant: WaterSMART: Water Reclamation and Reuse	< \$30,000,000	28-Sep-23	1-Nov-24	Through the Title XVI Water Reclamation and Reuse Program (Title XVI), authorized by P.L. 102-575 in 1992.	Must have a Congressionally Authorized Feasibility Study approved by Reclamation or one that has been submitted for review 75% cost share	Water reclamation and reuse
Non-Government Organization (NGO)							
Non-governmental organization (NGO)	Private Philanthropic Funding: Walton Family Foundation	TBD	N/A	N/A	The Foundations Environment [Initiative] strategy seeks lasting water solutions in three key geographies: the Colorado River Basin, the Mississippi River Basin, and our Oceans. Our goal is to make sure there is enough healthy, available water for people and nature to thrive together.	The Walton Family Foundation does not accept unsolicited proposals.	To be discussed & determined through a collaborative process with WFF.

Funding Decision Tree



Agenda Item

7

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Roni Grant, Associate Engineer

SUBJECT: Coastal Treatment Plant Drainage Pump Station Conceptual Design
[Project Committee 15]

Overview

The Drainage Pump Station (DPS) at the Coastal Treatment Plant (CTP) was planned to be replaced by a new station as part of the 2019 Facility Improvements Project. However, during construction, it was discovered that field conditions would not allow for the construction of the new station as designed. Engineering and Operations staff have met to discuss various options to repair or replace the DPS and have agreed that rehabilitating the existing station is the preferred approach. The DPS was last modified in 1987, and the equipment has reached the end of useful life. A full station rehabilitation would include new pumps, piping, electrical equipment, and structural modifications.

SOCWA retained Tetra Tech in April 2023 to perform the conceptual design of the rehabilitation of the DPS. The conceptual design was documented in a technical memorandum, including the findings and conclusions of the following preliminary evaluation tasks:

- Wet well rehabilitation
- Compliance evaluation
- Corresponding construction and overall project cost estimate of the recommended alternative

The draft technical memorandum was transmitted to the PC 15 Engineering Committee members for review and comment. The memorandum is also attached here.

Recommended Action: Information Item.

Draft Technical Memorandum

Date: February 19, 2024

To: Roni Young Grant, PMP, Associate Engineer

Cc: Neha Gajjar, Tetra Tech

From: Tom Epperson, Tetra Tech

Project: CTP DPS Rehabilitation Conceptual Design **Project Number:** 200-09312-23001

Subject: CTP Drainage Pump Station Conceptual Design

Tetra Tech was authorized by South Orange County Wastewater Authority (SOCWA) in April 2023 to perform a Conceptual Design of the Rehabilitation of the Coastal Treatment Plant (CTP) Drainage Pump Station (DPS). This Draft Technical Memorandum documents the findings and conclusions of the following preliminary evaluation tasks: wet well rehabilitation; compliance evaluation; containment wall; pump alternatives; discharge piping modifications; bypassing and construction sequencing; and the corresponding construction and overall project cost estimate of the recommended rehabilitation plan.

BACKGROUND

The CTP is a conventional activated sludge treatment plant with a secondary treatment design capacity of 6.7 million gallons per day (MGD). The main wastewater treatment processes are: screening; aerated grit removal; primary sedimentation; activated sludge aeration; and secondary sedimentation. The advanced wastewater treatment (AWT) facility within the CTP can produce 2.5 MGD of recycled water.

The DPS is located adjacent to the facility property line, next to the Aliso Creek, and is potentially within the flood zone of the creek. See attached Figure No. 1. The DPS was originally built in 1967 (last modified in 1987) and the equipment has reached the end of its useful life. The original purpose of the DPS was to handle all incoming flows from the north influent sewer.

Currently, there are no flows from the north influent sewer, but the DPS still handles all drainage flows from within the facility. Flows include storm water, process return flows (tank drains, AWT backwash, etc.) and building drains. Originally, the DPS discharged into an influent force main just before it entered the headworks facility. In 2019, the influent force main was rehabilitated and the DPS discharge location was changed to the primary influent channel and the grit chamber.

No major upgrades have occurred since 1987 and the DPS is now in need of rehabilitation and modifications to ensure proper and effective operation. Over the last 10 years, the DPS has been the focus of the following evaluations: 2013 Replacement Alternatives Evaluation; 2019 Replacement Design Memorandum and Design Drawings (not constructed); and 2020 Flood Protection Evaluation.

The purpose of this project is to provide a conceptual recommendation to rehabilitate the DPS by replacing aging equipment, upgrading the structure, and bringing it up to code, especially NFPA 820.

GOALS

The expectation for this project is to perform a conceptual level design to assess feasibility prior to proceeding with a detailed design. The goals for the conceptual design services for the DPS Rehabilitation are as follows:

- Perform a wet well condition assessment to determine the type of rehabilitation needed to the structure and interior components.
- Evaluate options for a new discharge location. The current location causes issues with treatment during periods of high usage.
- Provide a conceptual design of the facility that meets current functional needs and code requirements (e.g., NFPA).
- Evaluate construction feasibility, bypassing and sequencing options to minimize disruption to the DPS and the treatment plant.

EXISTING PUMP STATION

The existing DPS is located on the western side of the CTP at a lower elevation than the rest of the plant. It is adjacent to Aliso Creek and is accessible from both a stairway for personnel and a roadway for operations vehicles. See attached Figure No. 1. The existing pump station is constructed with a wet-well/dry-well configuration. There are two 50 HP dry-well vertical, non-clog, centrifugal pumps, each with a capacity of 2,300 gallons per minute (gpm) at 54 feet of total dynamic head, driven by variable frequency drives (VFD) which are located within the existing DPS building. There is one submersible pump, with a capacity of 350 gpm at 30 feet of total dynamic head, driven by a constant speed motor, located within the existing wet well. The existing DPS plan view and section are shown in attached Figures No. 2 and 3.

The existing wet well has a capacity of roughly 8,500 gallons (using the full depth of the wet well). The wet well has a capacity of about 660 gallons per foot of height.

The operation of the DPS is based on level within the wet well. The submersible pump within the wet-well is the lead pump with one of the dry-well vertical pumps as the lag pump. When the lead pump cannot keep up with the incoming flows and the wet well level rises, the lag pump is turned on and the submersible pump is turned off. If the lag pump cannot keep up with the incoming flows and the wet well continues to rise, the second dry-well vertical pump is turned on. Once the level in the wet well goes down, then the second dry-well pump will turn off and if the level continues to drop then the lag pump will turn off.

In general, the submersible pump turns on at elevation 7 feet and turns off at elevation 4 feet (this is a volume of about 2,000 gallons).

SUMMARY OF FLOWS

The DPS receives flows from several CTP processes: filter backwash waste flow; Dissolved Air Flotation Thickener (DAFT) overflow; drainage flow from primary clarifiers, aeration basins, secondary clarifiers, and tertiary filters when these tanks are drained; and building drains. In addition, it receives drainage flows from various on-site catch basins. The following is a summary of the existing pipe inlets to the existing wet well: 18-inch vitrified clay pipe (VCP) centered on the north wall; 8-inch plant drain pipe centered on the south wall; 1.5-inch pipe penetration in the southwest corner; and a PVC pipe penetration on the ceiling in the northeast corner (serves as a drain for the nearby chemical scrubbers in the northeast).

Attached Figure No. 4 provides a conceptual understanding of the drains coming into the existing DPS.

Based on discussions with SOCWA staff, the submersible pump is on/off constantly during the day with a minimum run time of about 5 minutes and pumps at a rate of about 400 to 430 gpm. Per staff, the average daily flow of the submersible when the AWT is off is about 0.23 to 0.30 mgd. During the summer when the AWT is operating, the average daily flow of the submersible is about 0.40 mgd. The fixed pumps typically only turn on during a storm event and normally operate at about 1,400 gpm. During a large storm event, both fixed pumps can operate with a total flow of about 2,500 gpm.

SOCWA provided historical flow data from the existing DPS for three months (July 2022, December 2022 and January 2023). The following is a summary of the flow data:

Summary of Flow Data	July 2022	December 2022	January 2023
Submersible Pump: Range of Maximum Flow Reading per day during month	378 gpm to 396 gpm	304 gpm to 531 gpm	316 gpm to 530 gpm
Submersible Pump: Range of Approximate % of Day Pump is on during month	66% to 85%	28% to 54%	30% to 60%
Submersible Pump: Average Quantity Pumped per Day for the month	0.47 mgd	0.25 mgd	0.26 mgd
Fixed Pump: Number of Days operated during month	6 days	11 days	16 days
Fixed Pump: Total Volume Pumped during month	87,000 gallons	630,000 gallons	510,000 gallons
Fixed Pump: Maximum Daily Volume Pumped in a Day during month	28,000 gallons July 12	91,600 gallons Dec. 10 & 11	151,400 gallons Jan. 19
Fixed Pump: Maximum Number of Reading Cycles Pump was turned on per Day during month (reading cycle varies from 18 to 22 minutes)	45% of cycles July 12	100% of cycles Dec. 2-5 & 8-11	100% of cycles Jan. 9 & 10
Fixed Pump: Minimum Average gallons pumped during one pump on/off cycle	1,200 gallons	1,200 gallons	1,200 gallons
Fixed Pump: Maximum Volume Differential within one Reading Cycle (minutes running at 1,400 gpm) (reading cycle varies from 18 to 22 minutes)	4,760 gallons (3.4 minutes) July 13	4,050 gallons (3 minutes) Dec. 12	12,900 gallons (9 minutes) Jan. 11 & 15

Interpretation of flow data:

- Submersible pump capacity is about 400 gpm and it is able to meet the non-rain flows from the plant except when certain facilities are drained at which point the fixed pump must turn on for a minimum run time.
- Fixed pumps are required to be turned on to handle rain events. If it is assumed the capacity of the fixed pump at full speed is about 1,400 gpm, the maximum amount of time the pump ran was about 9 minutes out of the 18/22 minute reading cycle.

SUMMARY OF PREVIOUS EVALUATIONS

The following is a brief summary of the evaluations of the DPS completed over the last 10 years:

2013 Replacement Alternatives Evaluation

In 2013, CH2M Hill prepared Technical Memorandum 2-4 “Drainage Pump Station”. The purpose of the technical memorandum was to identify two feasible alternatives for modifying the existing DPS to handle the process drain flows separately from the emergency sewage overflow from the north influent sewer (from Moulton Niguel Water District (MNWD)).

Separating these flows would allow returning the process recycled water and plant drains to the primary clarifier influent channel while eliminating the interference with the plant influent sampling. In addition, it would allow MNWD emergency overflows to return only to the headworks, to be included in the plant influent sampling when they occur.

Two feasible alternatives were evaluated: Alternative 1 required the installation of a new DPS (two submersible pumps in a pre-cast concrete manhole) and a corresponding valve vault to handle only the process drain flows and dedicating the existing DPS to handle only the emergency overflows from MNWD.

Alternative 2 would replace the existing DPS with a new DPS containing two separate wet wells, each containing two submersible pumps with VFDs. One of the wet wells would receive and handle the process drain flows and the other would receive and handle the MNWD emergency overflow. Both alternatives would discharge the MNWD emergency overflow to the Headworks and the process drain flows to the Primary Influent Channel. Alternative 2 was the recommended solution, because the existing DPS was over 25 years old and located in the flood zone of CTP site.

2019 Replacement Design Memorandum and Design Drawings (not constructed)

In 2018, Hazen and Sawyer prepared a Technical Memorandum “CTP Facility Improvements Engineering Services – Basis of Design Memorandum”, with Section 4 dealing specifically with the DPS. The goal of this design was to return the process drainage flows to the Primary Clarifier Influent Channel instead of the Headworks because returning to the Headworks has an adverse effect on influent sampling.

To accomplish this, a new DPS was to be constructed. The drainage pipes feeding the wet well of the existing DPS was to be relocated to feed the new DPS. The new DPS consisted of two submersible pumps (one duty and one standby) in an 8-foot diameter circular pre-cast wet well approximately 25 feet deep. Each submersible pump was to have a 10 HP VFD and be rated for a capacity of 740 gpm with a discharge head of 37 feet (with a low flow of 300 gpm). The station was capable of operating both pumps, even though the station was designed as duty/standby. A separate rectangular precast concrete discharge valve vault would be installed adjacent to the wet well to house the discharge isolation and check valves.

Construction drawings were prepared by Hazen and Sawyer for these improvements and have been included in Appendix D. The construction included the demolition of the existing submersible pump and piping and construction of a new DPS. Included within the construction drawings was the DPS discharge piping to the Primary Clarifier Influent Channel.

However, during construction, the DPS replacement was removed from the construction contract when it was discovered that additional drains that were not shown on the facility records and/or plans.

After it was removed from the construction contract, Engineering and Operations staff met to discuss various options to repair or replace the DPS and agreed that rehabilitating the existing station was the preferred approach.

2020 Flood Protection Evaluation

In 2020, Tetra Tech prepared a memorandum “Conceptual Evaluation for the Protection of the CTP DPS”. The purpose of the memorandum was to evaluate options to protect the existing DPS from flooding during a storm event since it lies within the 100-year flood zone as well as ensuring that no site drainage is released into the adjacent Aliso Creek. Based on previous Floodplain Mapping, the 100-year water surface elevation (WSE), at the River Section where the DPS is located, is 47 feet. This means the 100-year flood elevation would envelop the existing DPS station as well as the access road to it.

The recommended option for containing the on-site drainage/spillage from entering Aliso Creek was to construct a perimeter wall, with the top of wall greater than elevation 47, along the west side of the DPS within SOCWA's current property limits. This perimeter wall will also prevent any flooding from Aliso Creek from spilling into the DPS area which has a lower elevation than the rest of the plant. To protect the DPS from a 100-year storm event, the perimeter wall limits would need to extend past the 47-foot contour line on either side of the DPS. Also, a new storm drain catch basin and associated drainage piping will need to be constructed within the limits of the proposed perimeter wall.

PRELIMINARY EVALUATIONS

Tetra Tech evaluated and analyzed the following items:

Wet Well Rehabilitation Plan

V&A Consulting Engineers, Inc. (V&A) was retained by Tetra Tech to perform a condition assessment and corrosion evaluation of the existing wet well at the CTP DPS. The condition assessment and corrosion evaluation methods consisted of visual evaluations and confined space entry for complementary testing that helped quantify the condition of various assets based on their materials of construction. The purpose of the assessment was to determine the existing condition of the concrete and metallic structural and mechanical components in order to provide recommendations for repairs and rehabilitation. V&A's report, dated August 18, 2023, is attached in Appendix A.

The following is a summary of the results of the assessments and recommendations for improvements:

The existing wet well interior lining system consisted of a two-stage epoxy base coat and polyurethane elastomer topcoat that covered the ceiling and upper walls down to approximately 6 feet above the floor. Moderate exposed aggregate was observed throughout the wake zone of the high level water line where the lining has failed, and throughout the lower 6 feet of the north section of the structure. Fine aggregate was observed as typical throughout all other areas of the exposed concrete surfaces, which are normally submerged.

The equipment within the wet well consisted of ductile iron piping, instrumentation equipment and stainless steel equipment supports. In general, the piping had severe corrosion.

One pair of concrete cores were collected from the wet well interior. The compressive strength test results met the requirements of ACI 350-06 to mitigate flexural cracking. The maximum depth of carbonation was measured at 0.4-inches, and the maximum level of chlorides measured was 180-ppm between 0.5-in to 1.0-in, which is 51% of the concentration required to induce corrosion reinforcement.

Based on the results of the visual assessment and field testing of the wet well, V&A recommended the following:

1. Rehabilitate the wet well interior lining with a 100% epoxy topcoat over a 100% solids polyurethane base coat. The following steps should be implemented for concrete restoration throughout the interior of the wet well:
 - Delaminated coating and degraded concrete surfaces should be prepared per SSPC SP13 abrasive blast to produce a surface profile conforming to an ICRI 03732 Concrete Surface Profile No. 5 and remove all brown or white concrete surface.
 - Apply a minimum of 0.50-inch of Sikatop 123 Plus, Sherwin Williams Dura Plate 2300 or similar fast set, non-sag repair mortar on the blasted surfaces. Repair depths for typical repair areas may require up to 0.75-inch of repair mortar in severely deteriorated areas.
 - Apply 2-mil to 3-mil DFT of a primer such as Sauereisen Penepriime 500, Raven 155 or Sherwin Williams Corobond 100. Apply 125 mils of 100% solid epoxy such as Sewergard 210XB, Ravin 405 or Sherwin Williams Dura-Plate 6100.

2. Remove and replace the 8-inch drain penetration at the south wall. If not feasible, CCTV the line from an access point upstream of the wet well to assess the extent of the damage throughout the pipe interior.
3. Remove and replace the 1.5-inch pipe penetration on the southwest wall.
4. Replace all interior piping or provide a complete coating rehabilitation on all interior ductile iron pipe including the 12-inch suction piping and the 4-inch vertical pipe near the access manway if the budget for replacement is not available.

Compliance Evaluation

The existing DPS is located within the site's 100-year water flood zone as shown on Figure No. 1. Currently, if the site is flooded, the water will spill into the electrical room. The existing vertical, non-clog pumps are not designed for submergence and the motors would be inoperable in the event of a flood. In addition, the electrical controls for the submersible pump would also be inoperable during a flood event.

The existing DPS electrical installation doesn't meet the latest NFPA 70 and NFPA 820. The dry well and the electrical room require continuous ventilation which currently does not exist. Also, there is electrical equipment that does not have the required clearance per NFPA 70. Some of the existing electrical equipment are old and either do not function properly or spare parts are not easily available.

To bring the electrical system into compliance with the latest codes, the MCC, panelboard, step-down transformers, control panel and lighting need to be replaced. The following are the two feasible options:

New Electrical Equipment within Existing Electrical Building

If the existing dry well is abandoned, the wet well fitted with acceptable roof manholes and any wall penetrations adjacent to the wet well are made gas tight, then the existing electrical equipment could be removed and new electrical equipment placed within the existing electrical building. It should be noted that the existing stairway within the electrical building and the existing floor openings in the electrical building floor will need to be filled with concrete as part of the dry well abandonment. To minimize disturbance to the existing concrete floor, the electrical conduits may be located above ground and attached to the masonry walls or penetrated from the outside of the building. New HVAC and ventilation improvements will be required. In addition, it is recommended that a minimum 6-inch equipment pad be provided under all electrical equipment to protect it from any site ponding coming in through the door. See attached Figure No. 5 for a conceptual layout for this new electrical equipment.

New Electrical Building

If the existing dry well is to remain in service, a new electrical building will be required. The minimum size of the new building would be 15 feet by 10 feet. The building would require HVAC and ventilation improvements. Additionally, electrical conduits would be required from the existing facility to the new location. See attached Figure No. 6 for a conceptual layout for this new electrical building. If the building is located within the sump area of the site, it is recommended that a minimum 6-inch equipment pad be provided under all electrical equipment to protect from any site ponding coming in through the door.

Containment Wall Plan

SOCWA had approved the conceptual design summarized in the 2020 Flood Protection Evaluation. As previously noted, the recommended option for containing the on-site drainage/spillage from entering Aliso Creek was to construct a perimeter wall, with the top of wall greater than elevation 47, along the west side of the DPS within SOCWA's current property limits. This perimeter wall will also prevent any flooding from Aliso Creek from spilling in the DPS area which has a lower elevation than the rest of the plant.

To protect the DPS from a 100-year storm event, the perimeter wall limits would need to extend past the 47-foot contour line on either side of the DPS. Also, it is recommended that two new storm drain catch basins and associated drainage piping be constructed in the pavement area on the west side of the building including grated inlets within the roof of the wet well to ensure no ponding adjacent to the electrical building.

Attached Figure No. 7 summarizes the limits of the proposed wall, new curb, new catch basins and corresponding piping, and grated openings in the wet well roof. The flood wall detail, dimensions and reinforcing are shown in Figure No. 8.

Recommended Pump Design Criteria

Pump Design

Based on the review of the historical DPS flows, the proposed pumps shall be able to meet the following flow conditions:

- Normal daily flows: approximately 400 gpm (on/off operation similar to existing submersible pump)
- Wet weather flows: 1,400 to 1,500 gpm (on/off)

Tetra Tech prepared the system curve for the proposed pumps and the calculations are included in Appendix B.

Based on the system curve, the pump design criteria are the following:

- Normal daily flows: 400 gpm at TDH of 36 feet
- Wet weather flows: 1,500 gpm at TDH of 40 feet
- Both pumps running: 1,500 gpm at TDH of 42 feet (total pump station flow rate of 3,000 gpm)

Per the 2013 Replacement Alternatives Evaluation, the recommended pump design was two pumps at 740 gpm at TDH of 30 feet. Per the 2019 Replacement Design Memorandum and Design Drawings, the recommended pump design was two pumps at 740 gpm at TDH of 37 feet. Both of the above designs assumed that both pumps were needed to meet the peak wet weather flows and did not provide redundancy for these flows.

To provide redundancy for wet weather flows, Tetra Tech recommends that one pump driven by a VFD be used to meet both the normal daily flows (400 gpm) and the peak wet weather flows (1,500 gpm). Therefore, SOCWA would have a redundant pump available for all conditions. The following is a conceptual mode of operation:

- | | |
|---|-----------|
| • Turn on Lead Pump at about 400 gpm (lower speed setting; greater 65% speed) | 7 feet |
| • Increasing wet well level (increase VFD speed to maintain 7.25 feet) | 7.25 feet |
| • Reach 100% VFD speed | 7.50 feet |
| • Alarm notification that 2 nd pump is turning on | 7.50 feet |
| • Turn on Second Pump (lower speed setting) and keep first pump at 100% speed | 7.50 feet |
| • Increasing wet well level (increase second VFD speed to keep 7.75 feet level) | 7.75 feet |
| • High Water Alarm | 8.00 feet |

A level transmitter will need to be installed within the wet well to implement this mode of operation. A secondary level transmitter or level measuring device should be installed as a redundancy with alarm settings.

Based on the above peak flow rate of 1,500 gpm at TDH of 42 feet, a 25 HP motor is recommended.

In selecting the recommended pumps, the VFD should be able to operate at a speed greater than 65% when the pump is at a flow rate of about 400 gpm. When the VFD is at 100% speed, the pump should have a flow rate of at least 1,400 gpm.

Pump Station Piping Design

For each of the three options noted below, Tetra Tech evaluated the suction requirements from the wet well based on the Hydraulic Institute Standards (HI). Per HI, for the dry well suction piping, the maximum velocity should be 8 feet per second (fps). Requirements for the suction pipe are that it should be at least as large as the pump suction nozzle; valves shall be at least one pipe size larger than the pump suction nozzle; and if valves are needed they shall be 100% open valves. For the pump discharge piping, HI recommends the maximum velocity to be 15 feet per second but this should be reduced if there is a check valve in the outlet piping.

The following table summarizes the piping velocities at the design flow rates (individual pumps and headers) for each of the potential pipe sizes:

Flow Rate (gpm)	Individual Pump Suction		Individual Pump Discharge		Discharge Header	
	10" pipe Velocity	12" pipe Velocity	6" pipe Velocity	8" pipe Velocity	10" pipe Velocity	12" pipe Velocity
400 gpm (daily flows)	1.6 fps	1.1 fps	4.5 fps	2.6 fps	1.6 fps	1.1 fps
1,500 gpm (wet weather)	6.1 fps	4.3 fps	17.1 fps	9.6 fps	6.1 fps	4.3 fps
3,000 gpm (two pumps)	--	--	--	--	12.3 fps	8.5 fps

For the dry well option, the suction piping should be 10-inches or 12-inches in diameter. Replacing the existing 12-inch piping through the wet well wall may be easier if it is replaced with 10-inch piping.

For both submersible and dry well options, the discharge piping should be 8-inches in diameter. The discharge header shall be 12-inches in diameter.

Pump Station Rehabilitation Alternatives

The goal of the rehabilitation of the existing DPS is to bring the existing pump station into compliance with NFPA 70 and NFPA 820. To do this, the existing electrical equipment cannot be located upstairs of the existing dry well. Due to the age of the electrical equipment, Tetra Tech is recommending that the existing electrical equipment be replaced in its entirety. With this understanding, Tetra Tech evaluated the following three options:

Option 1: Rehabilitate the existing wet well; dispose of the existing submersible pump and piping; construct a new wet well roof slab; install two new submersible pumps driven by VFDs; construct a new discharge piping, valves and meter; dispose of the existing dry well pumps, piping and valves; abandon the existing dry well; concrete fill every opening in the floor of the existing building (stairs and pump removal hatches); dispose of all existing electrical equipment; install new HVAC/ventilation equipment; install new electrical equipment within the existing building; and construct new discharge piping with two discharge locations to the Primary Influent Channel.

Option 2: Rehabilitate the existing wet well; dispose of the existing submersible pump and piping; construct a new wet well roof slab; construct new inlet piping from wet well to dry well; dispose of the existing dry well pumps, piping and valves; dispose of the existing electrical equipment; install two new dry well pumps driven by VFDs; install new suction/discharge piping, valves and meter; remove and dispose of the existing building and concrete floor; construct concrete drop beams and new concrete floor slab with dry well access hatch; install new dry well ventilation; construct a new electrical building containing all new electrical equipment at a different location; construct new electrical conduits from existing electrical source to new building; and construct new discharge piping with two discharge locations to the Primary Influent Channel.

Options 3: Rehabilitate the existing wet well; dispose of the existing submersible pump and piping; construct a new wet well roof slab; construct a new wet well with submersible pumps driven by VFDS and valve vault similar to the facility designed in the 2019 Replacement Drawings; construct new suction piping and a new manhole to deliver drain water from the existing wet well and northerly sewer to the new wet well; dispose of the existing dry well pumps, piping and valves; abandon the existing dry well; concrete fill every opening in the floor of the existing building (stairs and pump removal hatches); dispose of all existing electrical equipment; install new HVAC/ventilation equipment; install new electrical equipment within the existing building; construct electrical conduits from the new wet well with submersible pumps to the existing power source; and construct new discharge piping with two discharge locations to the Primary Influent Channel.

Tetra Tech did evaluate the feasibility of installing new vertical pumps on top of the existing wet well but vertical pumps are not recommended for this application with storm water/sewage.

The following is a brief description of the proposed improvements for the three options.

Option 1: Submersible Pumps in Existing Wet Well

Pumps: For this option, Tetra Tech recommends Flygt N-Pump Series self-cleaning submersible pumps, Model NP 3171 or approved equal. The discharge pipe size is 6-inches in diameter.

The operating design points are:

- Design Point: 1,500 gpm at 42 feet TDH at about 77% efficiency (1770 rpm)
- Low Flow: 400 gpm at 37 feet TDH at about 63% efficiency with VFD operating at about 74% speed

These submersible pumps will meet HI intake requirements assuming the existing wet well dimensions.

Assuming a three-foot operating range, the maximum number of starts in an hour is about 3 (about 21 minutes to drain and fill the wet well at 200 gpm inflow and pump outflow of 400 gpm).

The proposed improvements for Option 1 are shown in the attached Figure Nos. 9 and 10.

Existing Wet Well: In addition to the wet well rehabilitation recommendations recommended above, Tetra Tech recommends the concrete roof of the existing wet well be removed and replaced with a new concrete roof with: two manholes for removal of the submersible pumps; two pump discharge pipe penetrations; two level measurement devices; and a minimum of two 12-inch diameter grated inlets.

Discharge Piping: Dispose of the existing submersible pump, piping, valves and meter. Each pump discharge piping shall be provided with an 8-inch piping, check valve and gate valve. The common pump discharge header shall be provided with an 8-inch magnetic flow meter prior to increasing to 12-inch diameter and joining the buried existing 12 inch PVC pump station discharge piping.

Existing Dry-Well: The existing dry-well pumps, piping, valves and meters will be demolished. Drill holes within the dry well floor for drainage. Abandon the dry well in place by filling with sand/slurry. Plug all existing pipe penetrations to the wet well. Install a blind flange on the existing pump discharge header leaving the dry well.

Existing Electrical Building: Remove and dispose of all existing electrical equipment. Install new electrical equipment within the existing room including: automatic transfer switch; panelboard; motor control center; two 25 HP VFDs; and control panel. Construct a new HVAC/ventilation system including flood switches.

Option 2: Dry Well Pumps

Pumps: For this option, Tetra Tech identified the following three pumps that meet the design criteria:

- a. Cornell Solids Handling Pump Model 6NHTA12: 6-inch suction; 1165 RPM
Design Point: 1,500 gpm at 42 feet TDH at about 80% efficiency
Low Flow: 400 gpm at 37 feet TDH at about 68% efficiency with VFD operating at about 72% speed
- b. Fairbanks Solids Handling Pump Model 5443: 5-inch discharge; 1780 RPM
Design Point: 1,500 gpm at 42 feet TDH at about 70% efficiency
Low Flow: 400 gpm at 37 feet TDH at about 62% efficiency with VFD operating at about 71% speed
- c. Fairbanks Solids Handling Pump Model 5444: 6-inch discharge; 1185 RPM
Design Point: 1,450 gpm at 45 feet TDH at about 72% efficiency
Low Flow: 400 gpm at 37 feet TDH at about 62% efficiency with VFD operating at about 70% speed

The most efficient pump is the Cornell Pump, however, it is operating at the lower speed (1165 RPM).

If SOCWA is concerned with operating at the lower RPM driven by a VFD, then the Fairbanks Model 5443 pump would be the next best option.

Tetra Tech confirmed that the existing orientation of the inlet piping within the existing wet well meets HI intake requirements.

The proposed improvements for Option 2 are shown in the attached Figure Nos. 11, 12 and 13.

Existing Wet Well: In addition to the wet well rehabilitation recommendations recommended above, Tetra Tech recommends the concrete roof of the existing wet well be removed and replaced with a new concrete roof with: two manholes for ease of future maintenance; two level measurement devices; and a minimum of two 12-inch diameter grated inlets.

Dry Well Pumps/Piping: Remove and dispose of the existing dry-well pumps, piping, valves, and meter. Construct new piping to the wet well (assume 10-inches in diameter). Each dry well pump will be provided with a 10-inch suction gate valve, piping and 8-inch discharge check valve, gate valve and piping. The discharge header shall include a 12-inch magnetic flow meter, piping and connect to the existing 12-inch pipe penetrating the dry well wall.

Existing Dry-Well: The existing dry-well will be rehabilitated for the new pumps and new suction/discharge piping. Construct new ventilation equipment within the existing dry-well. Remove and dispose existing dry-well concrete roof. Construct new 8-inch thick concrete dry-well roof including: two 12-inch wide by 24-inch high by 19 feet span concrete drop beams; and a new access hatch for the existing stairs. Emergency shut off facilities must be added since the electrical building will not be adjacent to the dry-well.

Existing Electrical Building: Remove and dispose of all existing electrical equipment within the electrical building. Remove and dispose of the masonry building and roof along with the existing ventilation equipment.

New Electrical Building: Construct a new electrical building, minimum of 10 feet by 15 feet in footprint. Install new electrical equipment within the new building including: automatic transfer switch; panelboard; motor control center; two 25 HP VFDs; and control panel. Construct new HVAC/ventilation system including flood switches. Construct new electrical and control conduits from existing location to the new electrical building.

Location of New Electrical Building: It is recommended that the new electrical building be constructed in the general area shown in the attached Figure No. 13. Locating the new electrical building at this location will maintain the existing vehicle access to the dry-well and wet-well. The existing retaining wall and stairway will need to be removed and replaced once construction is completed. Assuming a maximum back cut slope of 1-foot vertical to 1-foot horizontal, shoring will be required on the: existing roadway (east) side to protect the existing 8-inch drain line as well as the existing roadway; and on the Aliso Creek (west) side of the proposed building. The east and south walls of the proposed building will be designed to retain the adjacent slopes. It appears that two chemical pipes may need to be relocated in order to perform the building excavation.

Options 3: New Wet Well and Submersible Pumps

Pumps: For this option, Tetra Tech recommends the same submersible pumps recommended in Option 1.

The proposed improvements for Option 3 are shown on the attached Figure No. 14.

New Wet Well: Similar to the 2019 Replacement Design Drawings (included in Appendix D), the two proposed submersible pumps would be located within a circular pre-cast concrete wet well with a diameter of 8 feet. The depth of the new wet well would be about 25 feet deep. The key will be to determine an open utility corridor to construct the new wet well and valve vault. Potholing is recommended and should consist of a trench excavation from the existing 18-inch VCP to the existing easterly curb in order to determine the available open utility corridor.

Suction Manhole and Piping: Since the existing wet well is structurally sound and only needs the previous mentioned rehabilitation work, Tetra Tech recommends that it remain in service in order to provide additional available wet well storage. A new pipe penetration will be required below the existing 18-inch penetration. In order to ensure a pipeline corridor, it is recommended that the new gravity drain line be constructed below the existing 18-inch VCP (about 7 to 8 feet below it). This will require the removal of the existing pipe during the trench excavation. A new manhole will be constructed to intercept the flow coming from the northerly 18-inch pipe and the drainage from the existing wet well. These flows would then be conveyed to the new wet well.

New Valve Vault: Similar to the 2019 Replacement Design Drawings, the proposed valve vault would be 6 feet wide by 8 feet long by 8 feet deep and will house the two discharge check valves, shut-off valves and corresponding piping. A separate meter vault or a meter on the discharge piping as it travels up the exterior wall of the primary sedimentation tank will also be required. The 12-inch discharge piping shall connect to the existing 12-inch pump station discharge piping adjacent to the existing DPS pump station facility.

Existing Wet Well: In addition to the wet well rehabilitation recommendations recommended above, Tetra Tech recommends the concrete roof of the existing wet well be removed and replaced with a new concrete roof with: two manholes for ease of future maintenance; two level measurement devices; and a minimum of two 12-inch diameter grated inlets.

Existing Discharge Piping: Dispose of the existing submersible pump, piping, valves and meter.

Existing Dry-Well: The existing dry-well pumps, piping, valves and meters will be demolished. Drill holes into the dry-well floor for drainage. Abandon dry-well in place by filling with sand/slurry. Plug all existing pipe penetrations to the wet well. Install a blind flange on existing pump discharge header leaving the dry-well. (Similar to Option No. 1)

Existing Electrical Building: Remove and dispose of all existing electrical equipment. Install new electrical equipment within the existing room including: automatic transfer switch; panelboard; motor control center; two 25 HP VFDs; and control panel. Construct new HVAC/ventilation system including flood switches. (Similar to Option No. 1)

Discharge Piping Modifications

Since the discharge water from the pump station is process or site drainage flows, the preferred discharge location is the Primary Clarifier Influent Channel. To ensure that the flow is evenly distributed to more than one Primary Sedimentation Tank, it is recommended that the discharge occur at more than one location. Similar to the 2019 Replacement Design Drawings, it is recommended that the discharge occur at both ends of the Primary Clarifier Influent Channel, with gate valves to try to distribute the flow to both discharge locations. The 2019 Replacement Design Drawings designed the discharge piping to be located within the Export Sludge Pump Room. As an alternative, the discharge piping could be located on the roof of the Export Sludge Pump Room at an acceptable distance parallel from the influent channel, with two penetrations to the influent channel (one in the vicinity of east tank (Tank W-1) and one in the vicinity of the west tank (Tank W-3). See attached Figure No. 15.

Bypassing and Construction Sequencing

Bypassing Wet Well

In order to perform the wet well rehabilitation work, the inflow to the existing wet well will need to be bypassed by temporary pumping. To bypass the wet well, Tetra Tech recommends the construction of new manhole on top of the existing 8-inch plant drain on the south side of the existing wet well. The location of the new manhole will depend on concerns with the required shoring construction for the manhole which is why we do not feel it is feasible to be constructed within the retaining wall interior pad. Therefore, the new manhole should be located within the existing landscape area on the exterior of the retaining wall as close as is feasible to the retaining wall. Once the manhole is constructed, the flow can be diverted by the temporary bypass pumps and conveyed to the existing 12-inch DPS discharge piping. The required temporary bypass pumping equipment (with 100% redundancy) will be installed in the general area of the new manhole.

Once the bypass manhole has been constructed, the existing pipe between the manhole and the wet well should be CCTV to determine its condition. If the condition of the pipe is acceptable, then only the pipe penetration into the wet and the adjacent pipe will need to be replaced.

A bypass pumping system must be installed for the north drainage flows. This flow could be bypassed at the existing catch basin to the north of the pump station. The 1.5-inch pipe should also be bypassed as well with a temporary bypass pump system.

Temporary Power during Installation of New Electrical Equipment

For Option No. 2, the new electrical equipment and building will be constructed at a new location while the existing pump station electrical equipment remains in operation. The only time the power will be lost is during the transition from the existing electrical room to the new electrical room. During this time, the pump station could be powered by a portable generator while the new electrical building is getting energized.

For Option No. 1 and Option No. 3, the new electrical equipment will be installed within the existing electrical building. Therefore, the existing electrical equipment will need to be removed prior to the installation of the new equipment. To minimize the duration of providing temporary pumping, the existing MCC can be disconnected and moved to a location away from the construction and be re-connected using portable cables to power the MCC and other loads. However, the existing MCC is not rated for outdoor application, so a temporary enclosure must be provided.

For budgetary purposes we have assumed that a temporary fiberglass enclosure will be provided on a concrete foundation to house the relocated existing MCC. Once the existing MCC is removed, the new MCC can be installed and wired.

The only times the power will be lost is during the relocation of the existing MCC and the transition of the load from the existing MCC to the new MCC. During both of these times, the pump station could be powered by a portable generator while this work is being accomplished.

New Pump Construction

For Option 1, the existing submersible and dry well pumps will need to be taken out of service during: the wet well rehabilitation work; the re-construction of the wet well roof; and the installation of the new submersible pumps and corresponding discharge piping. For budgetary purposes, we have assumed that bypass pumping will be required for 45 consecutive days.

For Option 2, the existing submersible and dry well pumps will need to be taken out of service during: the wet well rehabilitation work; and the construction of the new suction piping connection to the existing wet well. The existing submersible pump can stay in service during the replacement of the discharge header meter, piping and valves. If the location of the new suction dry pit suction piping and the discharge header piping lines up with the existing dry pit pump suction and discharge locations, one dry pit pump at a time could be taken out of service and replaced while the other dry pit pump remains operational including the existing submersible pump. For budgetary purposes, we have assumed that bypass pumping will be required for 30 consecutive days.

For Option 3, the existing submersible and dry well pumps will need to be taken out of service during: the wet well rehabilitation work; re-construction of the wet well roof; and the construction of the new gravity pipeline from the existing wet well to the new suction manhole adjacent to the new wet well. For budgetary purposes, we have assumed that bypass pumping will be required for 45 consecutive days.

Sequencing of recommended Option 1

1. Construct upstream manhole.
2. Delivery of all piping, valves, pumps and electrical equipment to the site.
3. Set up bypass pumping systems (8-inch drain, 1.5-inch piping and northerly drainage at catch basin) to bypass all existing wet well inflows.
4. Perform wet well rehabilitation work; repair wet well inlet piping; and construct new roof.
5. Remove downstream plug with in upstream manhole (increase suction storage capacity).
6. Install new submersible pumps and corresponding discharge piping and connect relocated MCC powered by temporary power connection or generator to one of the new pumps.
7. Remove bypass pumping systems.
8. Demolish existing electrical building and electrical equipment.
9. Remove and dispose of the existing dry well pumps, valves, piping and meter. Abandon dry well.
10. Concrete fill all existing openings in the dry well roof slab (electrical building floor slab).
11. Install new electrical equipment.
12. Transfer relocated MCC and temporary power to the new electrical facilities.

COST ESTIMATE

The conceptual cost estimates for the three options described above were prepared in accordance with the guidelines of the AACE, Class 5 estimate. This type of estimate is based on limited information, where little more than proposed layouts, location and capacity are known. The typical expected accuracy range for this class of estimates are -20% to -30% on the low side and +30% to +50% on the high side.

These estimates are based on the list prices for pipe materials, pumps, equipment, and the following markups:

- Contractor's Mark-up 15-percent
- Mobilization, Bonds, Permits, Cleanup, Demobilization 10-percent
- Contingency 30-percent
- Bidding Climate Contingency 25-percent
- Design 12-percent
- SOCWA Engineering, CM, Admin 16/17-percent

The conceptual cost estimates for the three options are presented in the table below.

Item	Option 1	Option 2	Option 3
Total Construction Cost including Contingency (<i>low range of construction cost</i>)	\$3,400,000	\$3,850,000	\$4,250,000
Total Construction Cost including Bidding Climate Contingency (<i>high range of construction cost</i>)	\$4,200,000	\$4,800,000	\$5,300,000
Design	\$500,000	\$580,000	\$640,000
SOCWA Engineering, CM, and Administration	\$700,000	\$820,000	\$860,000
Total Project Cost	\$5,400,000	\$6,200,000	\$6,800,000

Appendix C includes the construction cost estimate by item for each of the Options.

RECOMMENDATIONS

In Tetra Tech's opinion, Option No. 1 is the most cost-effective option for the rehabilitation of the DPS facility.

Tetra Tech is available to meet with SOCWA to discuss our findings, recommendations, and corresponding cost estimates for the three options.

Agenda Item

8

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Jim Burror, Acting General Manager/Director of Operations
Roni Grant, Associate Engineer

SUBJECT: J.B. Latham Treatment Plant (JBL) Package B Update [Project Committee 2]

Overview

There have been two informal meet and confer meetings between representatives from Olsson, SOCWA, and Butier. At this time, the parties were unable to resolve any outstanding items. SOCWA staff will update the committee as new information becomes available.

Recommended Action: Information Item.

Agenda Item

9

Engineering Committee Meeting

Meeting Date: March 14, 2024

TO: Engineering Committee

FROM: Jim Burror, Acting General Manager/Director of Operations/
Roni Grant, Associate Engineer

SUBJECT: Capital Improvements Program (CIP) Budget Update

Overview

Staff met with plant staff to identify and update the upcoming CIP work plan. The draft plan will be presented at the Engineering Committee meeting.

Recommended Action: Information Item.



SOCWA Draft CIP Budget

March 14, 2024

Agenda Item 9

FY23-24 Summary/Recap

- Budget \$12,083,000
- Expenses as of 12/31/2023 \$ \$1,510,154
- Expenses est. as of 6/30/2024 \$ \$5,402,630
- Two open staff positions delayed projects
 - One temporary staff brought on as a stopgap
- Construction/Assessment Update
 - Aliso Creek Outfall Seal Replacement – complete
 - Aliso Creek/San Juan Creek Outfall Ballast Maintenance - ongoing
 - JBL Centrate Piping Replacement - ongoing
 - JBL Package B Construction - substantially complete
 - JBL Administration Building Roof – complete
- Construction/Assessment Update (cont'd)
 - JBL Plant 2 Primary Basins Condition Assessment – starting soon
 - CTP Diffuser Upgrade - ongoing
 - CTP Export Sludge Forcemain – nearly complete with environmental mitigation
 - CTP Guardrail Replacement - complete
 - RTP Diffuser Upgrade – complete
 - Fall Protection at Three Plants – substantially complete
 - Lab Rehabilitation Design – starting
 - CTP Assessment – Complete (design to follow)
 - ETM AirVac Options Assessment – Complete
 - Trail Bridge Options Assessment - Complete
 - JBL Plant 2 Headworks Design – Ongoing
 - JBL MCC M Replacement - ongoing

FY24-25 Summary

FY24-25 Cash Requests(1)	Current Project Phase
\$5,705,633	In construction/implementation
\$1,233,031	In design
\$701,752	Planned FY24-25 start
\$2,012,000	Planned small capital
\$730,000	Non-cap studies est. (placeholder until finalized)
\$10,382,416	Total FY24-25 Budget

(1) Does not include ongoing project cash balances from prior Fiscal Years.

Key Updates

- Program was updated for ongoing actual/expected construction schedules and restrictions.
- Data includes FY21-22 Q1 to Q4 billings.
- Program scheduling updated based on one SOCWA employee and two contact employees.
- Included an updated of the Ten-Year+ Spending Plan
- Projected spending and project cashflows are presented for individual projects.
- Caveat: Supply chain-related risks and cost increases remain for CIP implementation.

Current FY24-25 Versus FY24-25 Planned in FY23-24

	FY24-25 Budget From FY23-24 Budget Book	Proposed FY24-25 Budget	Delta from Budget for FY24-25
Planned Cash Request	\$17,788,000	\$10,382,416	(\$7,405,584)

Current FY24-25 Versus FY24-25 Planned in FY23-24

Member Agency	Proposed FY24-25 Cash Request	FY24-25 Cash Request for FY23-24	Delta
CLB	\$1,375,031	\$2,209,718	(\$834,687)
CSC	\$4,155	\$174,511	(\$170,356)
EBSB	\$104,686	\$162,907	(\$58,221)
ETWD	\$246,175	\$910,962	(\$664,787)
IRWD (c/o ETWD)	\$3,940	\$202,123	(\$198,183)
MNWD	\$3,702,246	\$7,131,702	(\$3,429,456)
SCWD	\$2,278,123	\$3,453,944	(\$1,175,821)
SMWD	\$2,668,061	\$3,542,133	(\$874,072)
Total	\$10,382,416	\$17,788,000	(\$7,405,584)

SLIDE 6

FY24-25 Variability

- Delay due to staffing issues
- Member agency requested delays
- Permitting/licensing
- Updated cost estimates and schedules
- Others....

Planned CIP Resource Utilization

- Up to 2 construction projects at each treatment plant (limited overlap of area usage)
- Engineering staff (3 employees (1 staff/2 contract))
 - 1 to 2 projects in construction
 - 3 projects currently in design
 - 2 to 3 projects to be started in FY22-23
 - 6 to 8 total of actively manage projects by each employee
- Consider pre-procurements

Ten-Year CIP Update Summary

- Adjusted project schedules based on site constraints or permitting timelines
- Consolidated project elements into proposed projects with similar construction activities (rescheduled and needed)
- Added future projects
 - Updated Facility Master Plans
 - Large fleet purchases
 - Recent assessments/studies results

Ten Year CIP Update Summary

- Excel spreadsheet provided to member agencies for review of the program
- Pdf's of key sheets in Engineering Committee packets
- Individual meetings to review CIP being setup

Draft CIP Budget Summary

	FY 2024/2025	FY 2025/2026	Total
Large Capital	\$ 7.64 MM	\$ 12.84 MM	\$ 20.48 MM
Non & Small Cap	\$ 2.74 MM	\$ 2.74 MM	\$ 5.48 MM
Total	\$ 10.38 MM	\$ 15.70 MM	\$ 25.96 MM

Capital Budget by PC and Agency

PC	Facility	FY 2024/25	FY 2025/26	Total
PC-2	JBL	\$4,936,601	\$6,886,280	\$11,822,881
PC-15	CTP	\$3,267,325	\$3,618,600	\$6,885,925
PC-17	RTP	\$2,128,490	\$2,979,943	\$5,108,434
PC-5	SJCOO	\$25,000	\$190,000	\$215,000
PC-24	ACOO	\$25,000	\$25,000	\$50,000
PC-21	ETM	\$0	\$1,886,873	\$1,886,873
TOTAL		\$10,382,416	\$15,586,697	\$25,969,113

Member Agency	FY 2024/25	FY 2025/26	Total
Laguna Beach	\$1,375,031	\$1,508,876	\$2,883,907
San Clemente	\$4,155	\$31,578	\$35,733
Emerald Bay SD	\$104,686	\$115,207	\$219,893
El Toro WD	\$246,175	\$858,075	\$1,104,250
IRWD (c/o ETWD)	\$3,940	\$616,021	\$619,961
Moulton Niguel WD	\$3,702,246	\$5,753,492	\$9,455,738
South Coast WD	\$2,278,123	\$2,722,618	\$5,000,741
Santa Margarita WD	\$2,668,061	\$3,980,829	\$6,648,890
TOTAL	\$10,382,416	\$15,586,697	\$25,969,113

JBL (PC-2) FY24/25 Budget Summary

Construction	\$3,402,696	<ul style="list-style-type: none"> • 32231L MCC G Replacement and Electrical Rehab • 32234L-000 Chlorine Contact Basin Isolation Gates and Structural Rehab • 32226L-000 - Effluent Pump Station Upgrades • 32225S-000 - JBL Energy Building Upgrades with Hoist Upgrades • Cogen Overhaul
Design	\$448,905	<ul style="list-style-type: none"> • 3285-000 - Main Plant Drain Line Reconstruction (2018) • 32232S-000 Buried Digester and Flare Gasline Replacement • 32234S-000 JBL Heat exchanger #4 pipe replacement • 32231C-000 Process Water Repiping • 32243L-000 - Plant 2 Headworks Rehabilitation
Planning	\$100,000	<ul style="list-style-type: none"> • 32211L-000 - Plant 2 Grit Area Rehabilitation
Non & Small Cap	\$985,000	<ul style="list-style-type: none"> • Placeholder until final list generated

CTP (PC-15) FY24/25 Budget Summary

Construction	\$2,192,000	<ul style="list-style-type: none">• Export Sludge Project Mitigation• 35246L-000 - West Primary Sludge Skimmers and Launderers/Weirs• 35239L-000 CTP west secondary scum skimmers• Access Road Repaving
Design	\$135,324	<ul style="list-style-type: none">• 3522AL-000 - Drainage Pump Station Rehabilitation• 35228L-000 - Aeration Blower System Upgrades (cash on hand only)
Planning	\$200,000	<ul style="list-style-type: none">• 35235L-000 - Odor Control Scrubber/Foul Air System Reconstruction
Non & Small Cap	\$740,000	<ul style="list-style-type: none">• Placeholder until final list generated

RTP (PC-17) FY24/25 Budget Summary

Construction	\$110,937	<ul style="list-style-type: none">• 3750-000 - Dewatering Room Floor Sealing and Lighting (2019)
Design	\$250,000	<ul style="list-style-type: none">• 37244C-000 - MCC Replacements/Power System Improvements• 37246S-000 - Digester 1 Piping Replacement
Planning	\$401,751	<ul style="list-style-type: none">• 3790-000 - Solids Area Upgrade Design (2018)• 37231S-000 - Solids Area Overhaul Plan• 37245S-000 - Digester Gas System Improvements
Non & Small Cap	\$967,000	<ul style="list-style-type: none">• Placeholder until final list generated

Outfalls/ETM FY24/25 Budget Summary

Construction	\$20,000	<ul style="list-style-type: none">• Small Capital (Placeholder until final list generated)
Design	\$0 (Cash on hand to be used)	<ul style="list-style-type: none">• ETM Air Valve Replacements• Trail Bridge Trail Bridge Crossing Protection
Planning	\$30,000	<ul style="list-style-type: none">• Special Studies (Placeholder until final list generated)

Budget Schedule

- Feb 23 - Draft 10 Year Spending Plan released
- **March 14 to 28 (next 2 weeks) – Budget Review Meetings**
 - Staff are available to meet to discuss your comments, questions, and concerns with the budget.
- April 11 – Revised budget presentation to Engineering Committee
- April 16 – Finance Committee Budget Review Meeting
- TBD – Board Budget Workshop
- TBD – Board Meeting (Budget Consideration for Approval)



Discussion & Questions