

AGENDA  
IRVINE RANCH WATER DISTRICT  
ENGINEERING AND OPERATIONS COMMITTEE  
TUESDAY, APRIL 20, 2021

*Due to COVID-19, this meeting will be conducted as a teleconference pursuant to the provisions of the Governor's Executive Orders N-25-20 and N-29-20, which suspend certain requirements of the Ralph M. Brown Act. Members of the public may not attend this meeting in person.*

Participation by members of the Committee will be from remote locations. Public access and participation will only be available telephonically/electronically.

To virtually attend the meeting and to be able to view any presentations or additional materials provided at the meeting, please join online via Webex using the link and information below:

Via Web: <https://irwd.webex.com/irwd/j.php?MTID=m5814487175466132ebd471d17ced4716>

Meeting Number (Access Code): 146 441 0356

Meeting Password: SNe7AqEXa68

After joining the meeting, in order to ensure all persons can participate and observe the meeting, please select the "Call in" option and use a telephone to access the audio for the meeting by using the call-in information and attendee identification number provided.

*As courtesy to the other participants, please mute your phone when you are not speaking.*

**PLEASE NOTE:** Participants joining the meeting will be placed into the Webex lobby when the Committee enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Committee once the closed session has concluded.

Participants who join the meeting while the Committee is in closed session will receive a notice that the meeting has been locked. They will be able to join the meeting once the closed session has concluded.

CALL TO ORDER 1:30 p.m.

ATTENDANCE Committee Chair: John Withers \_\_\_\_\_  
Committee Member: Karen McLaughlin \_\_\_\_\_

<u>ALSO PRESENT</u>	Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
	Jose Zepeda	_____	Paul Weghorst	_____	Cheryl Clary	_____
	Rich Mori	_____	Eric Akiyoshi	_____	Richard Mykitta	_____
	Kelly Lew	_____	Jim Colston	_____	Ken Pfister	_____
	Lars Oldewage	_____	Malcolm Cortez	_____	Scott Toland	_____
	John Dayer	_____	Bruce Newell	_____	Mitch Robinson	_____
	Belisario Rios	_____	Jacob Moeder	_____		_____
		_____		_____		_____
		_____		_____		_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the “chat” feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing [comments@irwd.com](mailto:comments@irwd.com) before 9:00 a.m. on Tuesday, April 20, 2021.

**ALL VOTES SHALL BE TAKEN BY A ROLL CALL VOTE.**

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**COMMUNICATIONS**

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1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted.

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**WORKSHOP**

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| <p>4. <u>TWO-YEAR CAPITAL BUDGET AND LONG-TERM CAPITAL PROGRAM FOR FISCAL YEARS 2021-22 AND 2022-23 – ROBINSON / JOHNSON / AKIYOSHI / BURTON</u></p> |  |
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Recommendation: That the Committee provide comments on the Two-year Capital Budget for Fiscal Years 2021-22 and 2022-23 in advance of Board adoption on April 26, 2021.

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**INFORMATION**

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| <p>5. <u>UPDATE ON WATER/WASTEWATER INDUSTRY ENERGY TARIFF RESEARCH – BENNETT / WELCH / SANCHEZ / WEGHORST</u></p> |  |
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Recommendation: Receive and file.

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**ACTION**

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| <p>6. <u>SALT MANAGEMENT MODEL PHASE 1 UPDATE BUDGET INCREASE – BENNETT / WELCH / SANCHEZ / WEGHORST</u></p> |  |
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Recommendation: That the Board authorize a budget increase in the amount of \$65,000, from \$187,500 to \$252,500, for Project 11135 to complete the Salt Management Model Phase 1 Update and Validation Project.

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**ACTION - Continued**

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7. EASTWOOD RECYCLED WATER PUMP STATIONS CONTRACT  
CHANGE ORDER – MCGEHEE / MORI / BURTON

Recommendation: That the Board approve Contract Change Order No. 12 in the amount of \$353,968.15 with Pacific Hydrotech Corporation for work associated with the existing 54-inch diameter recycled water pipeline repairs for the Eastwood Zone A to B and Zone A to C Recycled Water Pump Stations project.

8. PLANNING AREA 12 INNOVATION PARK REGIONAL ZONE A  
RECYCLED WATER IMPROVEMENTS– RIOS / LEW / BURTON

Recommendation: That the Board authorize the General Manager to accept Irvine Community Development Company's construction contract with Paulus Engineering, Inc. in the amount of \$1,107,770.03 for the Planning Area 12 Innovation Park Regional Zone A Recycled Water Improvements, Project 11584.

9. SAN JOAQUIN MARSH OPERATING GUIDELINES AND NATURAL  
TREATMENT SYSTEM FACILITIES THREE-YEAR LANDSCAPE  
MAINTENANCE SERVICES CONTRACT – SWIFT / ZEPEDA /  
CHAMBERS

Recommendation: That the Committee provide input on the San Joaquin Marsh Operating Guidelines and that the Board authorize the General Manager to execute five three-year contracts for landscape maintenance services, including a provision for a two-year extension with LandCare and Endemic Environmental totaling \$4,560,733.

10. WOODBIDGE RECYCLED WATER PIPELINE REPLACEMENT  
CONSULTANT SELECTION – RYAN / CORTEZ / BURTON

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with West Yost Associates in the amount of \$848,949 for engineering design services for the Woodbridge Recycled Water Pipeline Replacement, Project 11571.

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## OTHER BUSINESS

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11. Directors' Comments

12. Adjourn

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Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to [comments@irwd.com](mailto:comments@irwd.com). Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.



April 20, 2021

Prepared by: E. Akiyoshi / M. Robinson /  
D. Johnson

Submitted by: K. Burton

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### CAPITAL BUDGET AND LONG-TERM CAPITAL PROGRAM FOR FISCAL YEARS 2021-22 AND 2022-23

#### SUMMARY:

Staff will provide a presentation on the Capital Budget and Long-Term Capital Program for Fiscal Year (FY) 2021-22 and FY 2022-23. The forecasted capital expenditures for FY 2021-22 and FY 2022-23 are \$114.2 and \$105.8 million, respectively. The Capital Budget is presented for information and discussion purposes prior to Board adoption on April 26, 2021.

#### BACKGROUND:

In 2019, IRWD transitioned from annual to biennial operating and capital budgets. Prior to 2019, staff traditionally presented the upcoming FY capital expenditures and Capital Budget for Board adoption. This year, consistent with the biennial budgeting process that started in 2019, staff will present the two-year Capital Budget. The presentation, provided as Exhibit “A,” includes a review of the FY 2019-20 and FY 2020-21 forecasted-to-actual capital expenditures, preview of the forecasted FY 2021-22 and FY 2022-23 capital expenditures, and update on the Long-Term Capital Program.

For the past two fiscal years, FY 2019-20 and FY 2020-21, forecasted expenditures were originally estimated at \$184.6 million. Actual expenditures are on track to be \$158.5 million (approximately 85% of forecasted expenditures).

Previewing the upcoming two fiscal years, estimated capital expenditures for FY 2021-22 and FY 2022-23 are \$114.2 and \$105.8 million, respectively. For both FY 2021-22 and FY 2022-23 three expenditure groups make up approximately 50% of projected expenditures: 1) Replacement – Facilities projects, 2) Water Banking – including the Kern Fan Groundwater Storage Project, and 3) Operational projects.

This year a change was made to include General and Administrative (G&A) costs as part of the capital budgeting process. The G&A costs will apply to IRWD labor only and account for a small portion of the Capital Budget that is captured by the 10% contingency built into each project.

#### FISCAL IMPACTS:

The following table shows the major expenditure groups for FY 2021-22 and FY 2022-23. The Capital Budget for FY 2021-22 and 2022-23, provided as Exhibit “B”, provides details on all capital projects with anticipated expenditures in FY 2021-22 and FY 2022-23.

<b>Expenditure Group Description</b>	<b>FY 2021-22 (\$ Million)</b>	<b>FY 2022-23 (\$ Million)</b>
Replacement – Facilities	40.1	30.5
Operational	21.0	19.0
Water Banking	14.4	25.1
OCSD CORF / Solids Lease	9.3	13.5
Non-potable Storage	8.7	6.1
Development	6.0	2.1
Property Management	5.0	0.0
Sewage Treatment	2.6	5.4
Replacement – Business Software	2.3	0.0
Planning	2.3	2.1
Water Resources	1.6	1.3
OCWD Annexation	0.6	0.6
Baker WTP	0.2	0.1
Solids Handling	0.1	0.0
<b>Total All Projects</b>	<b>\$114.2</b>	<b>\$105.8</b>

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

That the Committee provide comments on the Capital Budget for Fiscal Years 2021-22 and 2022-23 in advance of Board adoption on April 26, 2021.

LIST OF EXHIBITS:

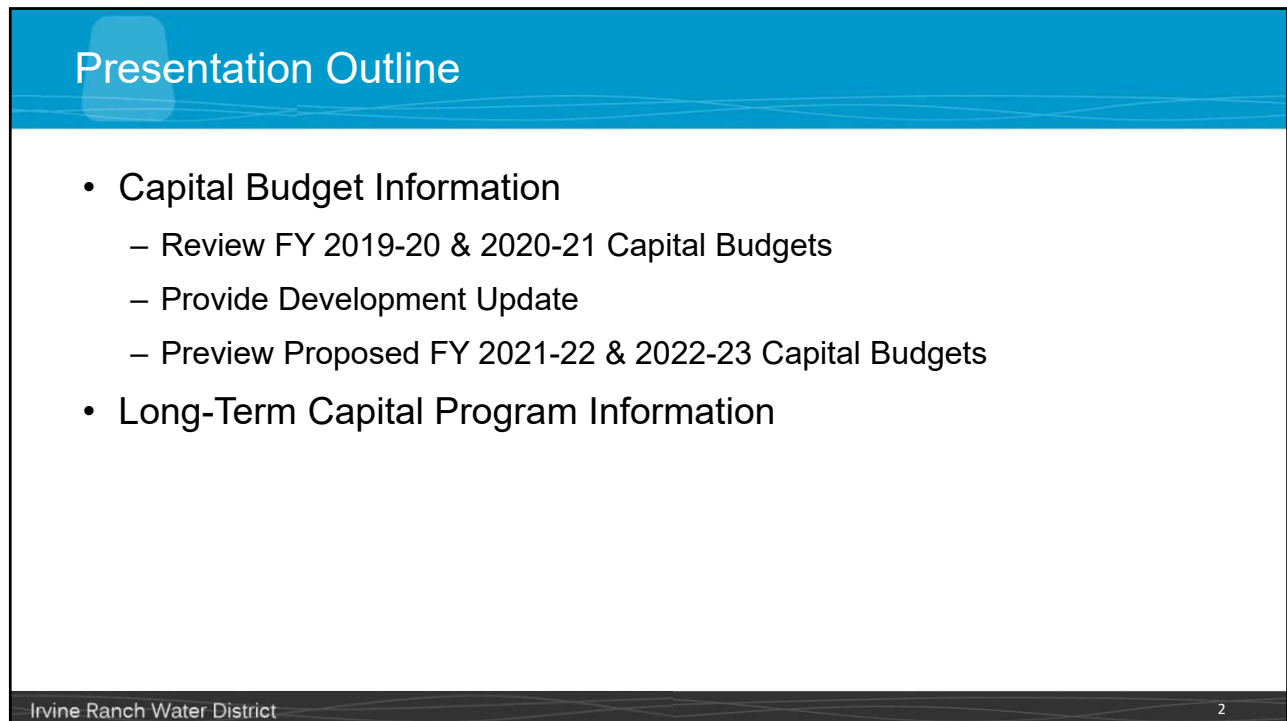
Exhibit “A” – Capital Budget Presentation

Exhibit “B” – Draft Capital Budget for FY 2021-22 and FY 2022-23

Exhibit “C” – Resolution



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## Capital Budget and Long-Term Capital Program

- Capital Budget Process
  - Biennial process to forecast two-year work effort and obtain Board approval of all capital projects in FY 2021-22 & FY 2022-23
- Long-Term Capital Program Overview
  - Identifies all new capital projects through FY 2049-50 and near-term replacement capital projects to assist the Financial Enterprise Model in setting property taxes, connection fees, user rates

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## Two-Year Capital Budget



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## Two-Year Capital Budget

- Accomplishes the following objectives:
  - Forecasts estimated work effort and two-year capital expenditures
  - Identifies all capital projects for next two years
  - Reflects Board approval for the capital budgets
  - Identifies “Flagged” projects for further Board discussion
  - Aligns with the two-year Operating Budget cycle

## Two-Year Capital Budget Outline

- Review forecast vs. actual expenditures from past two years
- Update on development activity
- Preview FY 2021-22 & 2022-23 capital expenditures

## Summary of Previous Forecast vs. Actual Expenditures

- FY 2019-20 & 2020-21 Capital Expenditures
  - Forecast for past two-year expenditures \$184.6M
  - Actual Expenditures = \$158.5 (≈85%)

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## Compare Previous Forecast to Actual Expenditures

No.	Description	Forecast (\$ Millions)	Actual (\$ Millions)	Delta (\$ Millions)
1	Water Banking	27.1	3.0	(24.1)
2	Operational	29.2	20.7	(8.5)
3	Development	22.4	18.8	(3.6)
4	Replacement - Facilities	48.7	45.4	(3.3)
5	Water Resources	3.4	0.6	(2.8)
6	Replacement-Business Software	4.2	1.5	(2.7)
7	OCSD - CORF - Solids Lease	1.3	(0.8)	(2.1)
8	Planning	4.0	1.9	(2.1)
9	General Plant	4.3	3.6	(0.7)
10	OCWD Annexation	1.2	0.7	(0.5)
11	Sewage Treatment	1.4	1.1	(0.3)
12	Property Management	14.3	14.3	0.0
14	Non-potable Storage	7.8	9.2	1.4
13	Solids Handling	15.3	38.5	23.2
Subtotal		184.6	158.5	(26.1)

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## Update on Development



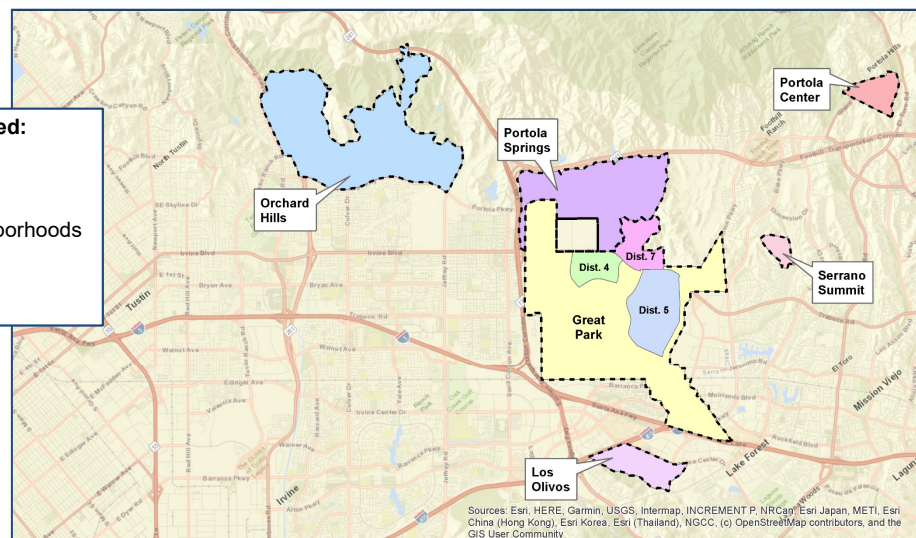
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## Review Development FY 2019-20 and FY 2020-21

### Active Areas Included:

- Portola Center
- Orchard Hills
- Portola Springs
- Great Park Neighborhoods (4,5, and 7)
- Los Olivos
- Serrano Summit



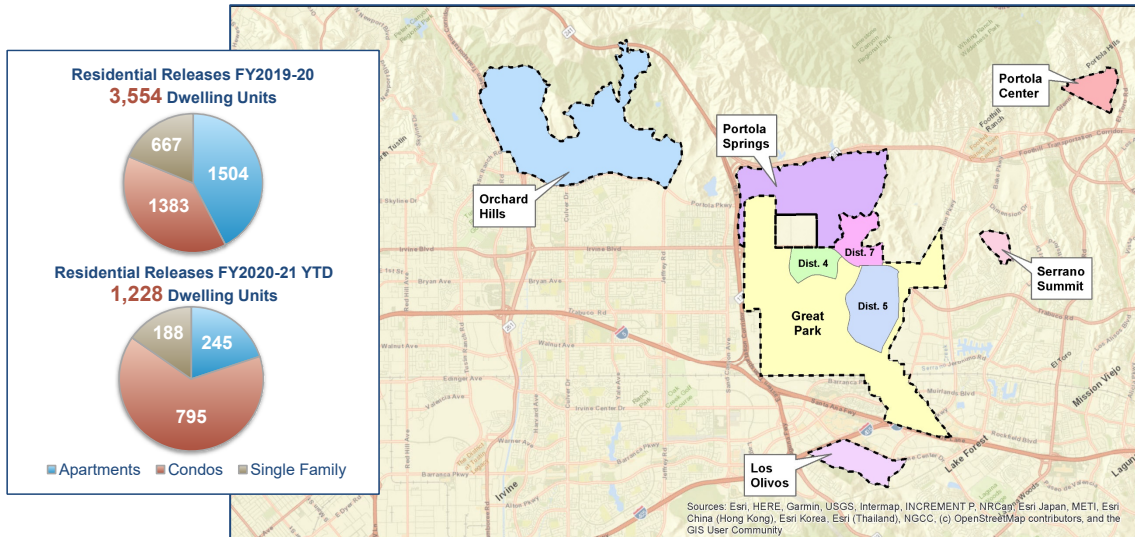
Irvine Ranch Water District

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## Review Development FY 2019-20 and FY 2020-21



Irvine Ranch Water District

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## Projected Development Through FY 2022-23

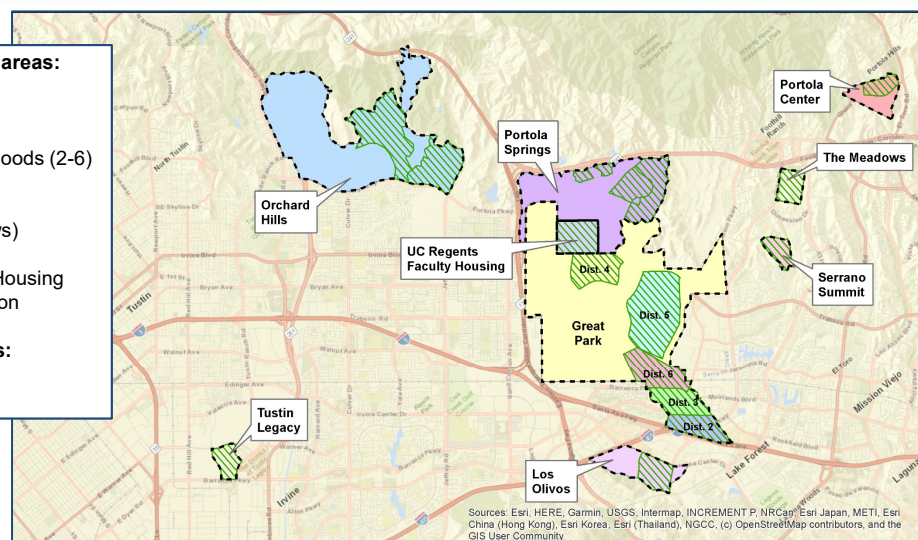
### Projected development areas:

- Portola Center
- Orchard Hills
- Portola Springs
- Great Park Neighborhoods (2-6)
- Los Olivos
- Serrano Summit
- Nakase (The Meadows)
- Tustin Legacy
- UC Regents Faculty Housing
- UCI Campus Expansion

### Projected dwelling units:

- FY 2021-22: 2,500
- FY 2022-23: 2,800

Green hatch fill denotes active development through FY 2022-23



Irvine Ranch Water District

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## Preview Capital Budget for Fiscal Years 2021-22 and 2022-23



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## FY 2021-22 & 2022-23 Expenditures by Category

Description	FY 2021-22 Expenditures (\$ Millions)	FY 2022-23 Expenditures (\$ Millions)
Replacement - Facilities	40.1	30.5
Operational	21.0	19.0
Water Banking	14.4	25.1
OCSD - CORF - Solids Lease	9.3	13.5
Non-potable Storage	8.7	6.1
Development	6.0	2.1
Property Management	5.0	0.0
Sewage Treatment	2.6	5.4
Replacement-Business Software	2.3	0.0
Planning	2.3	2.1
Water Resources	1.6	1.3
OCWD Annexation	0.6	0.6
Baker WTP	0.2	0.1
Solids Handling	0.1	0.0
<b>Total</b>	<b>114.2</b>	<b>105.8</b>

Irvine Ranch Water District

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## Top Expenditure Projects

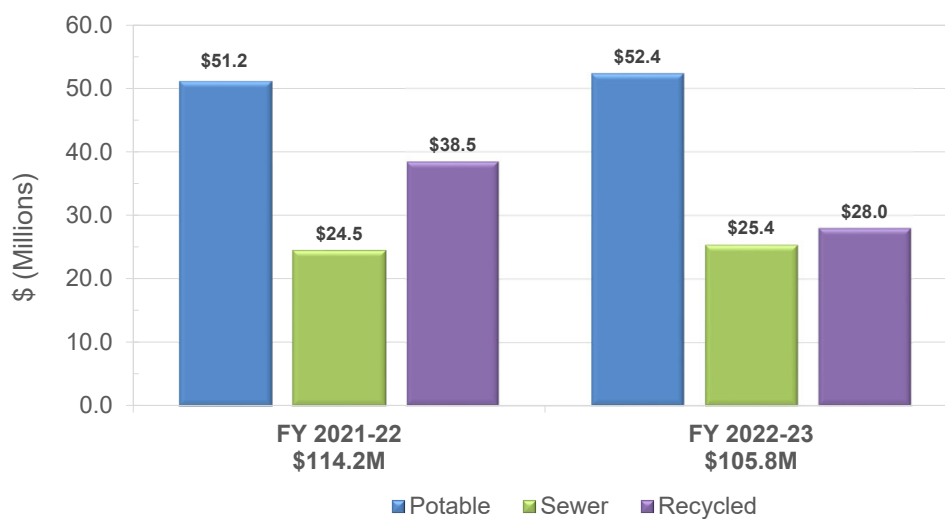
Fiscal Year	Description	Expenditure Category	Forecasted Expenditures (\$ Millions)
Fiscal Year 2021-22	KERN FAN GROUNDWATER STORAGE	Water Banking	14.0
	WOODBIDGE RW PIPELINE REPLACEMENT (ACP)	Replacement - Facilities	9.0
	OCSD CORF LONG TERM CAPITAL PROGRAM 2018 TO 2050	OCSD - CORF - Solids Lease	8.8
	ZONE A TO RATTLESNAKE RESERVOIR PUMP STATION	Replacement - Facilities	7.2
	GENERAL SYSTEM REPLACEMENTS AND MODIFICATIONS DW 21/22	Replacement - Facilities	6.3
	SYPHON RESERVOIR IMPROVEMENTS	Non-potable Storage	5.9
Fiscal Year 2022-23	KERN FAN GROUNDWATER STORAGE	Water Banking	25.1
	OCSD CORF LONG TERM CAPITAL PROGRAM 2018 TO 2050	OCSD - CORF - Solids Lease	10.2
	MWRP TERTIARY FILTER REHABILITATION	Replacement - Facilities	7.3
	ZONE A TO RATTLESNAKE RESERVOIR PUMP STATION	Replacement - Facilities	6.5
	GENERAL SYSTEM REPLACEMENTS AND MODIFICATIONS DW 22/23	Replacement - Facilities	6.3
	SYPHON RESERVOIR IMPROVEMENTS	Non-potable Storage	5.9
	LAWRP TREATMENT PROCESS MODERNIZATION	Sewage Treatment	5.2

Irvine Ranch Water District

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## Expenditures by System

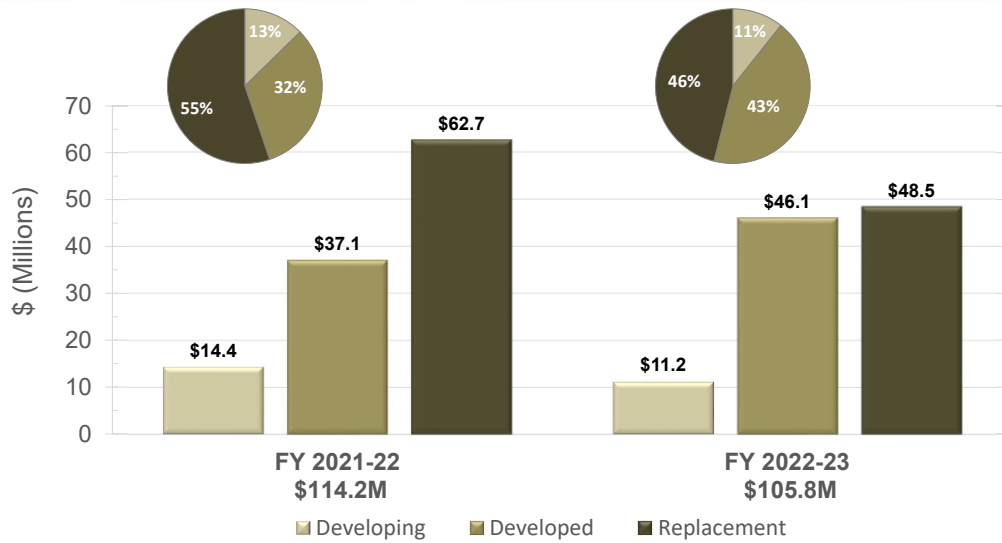


Irvine Ranch Water District

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## Funding Sources



Irvine Ranch Water District

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## Long-Term Capital Program



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## Long-Term Capital Program Description

- Identifies all planned capital projects through 2050
- Includes four years of replacement projects
- Excludes Replacement Planning Model 100-year funding requirements
- Provides data to the Financial Enterprise Model for setting Connection Fees, Property Taxes, and User Rates
- Estimates capital cash flow

## Long-Term Capital Program Summary

Component	Budget and Expenditures (\$ Millions)
Remaining LTCP on July 1, 2019	\$760 M
Expenditures for FY 2019-20 and 2020-21 <sup>1</sup>	(\$160 M)
Mid-Cycle Board Increases (Santiago Dam, Syphon Reservoir, STMP Projects)	\$530 M
Proposed LTCP Increases	\$70 M
<b>Total Proposed Remaining LTCP<sup>2</sup></b>	<b>\$1,200 M</b>

<sup>1</sup> Forecast through June 30, 2021 (Rounded up from \$158.8M)

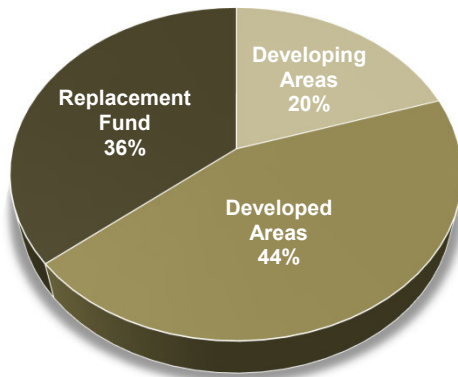
<sup>2</sup> The Financial Replacement Model includes 3 years of replacement expenditures from the LTCP and major R&R projects.

All costs and expenditures account for applicable offsets

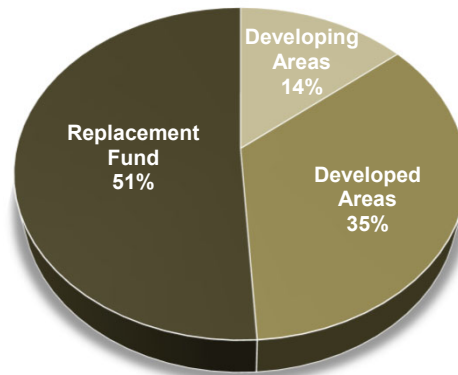
## Long-Term Capital Program Overview

### FY 2021-23 Proposed Long Term Capital Program = \$1.2 Billion

FY 2019-21  
LTCP Funding Sources



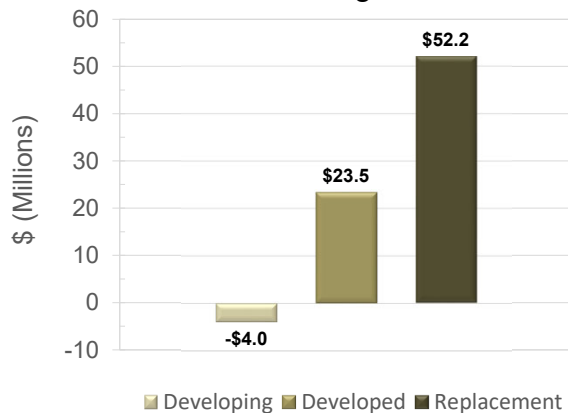
FY 2021-23  
LTCP Funding Sources



## Long-Term Capital Program Increases

### Total By Funding Sources = \$71.7 M

LTCP Funding Sources



Description	LTCP Increases (\$ Millions)
KERN FAN GROUNDWATER STORAGE	21.6
ETM REACH A REHABILITATION	15.0
WOODBIDGE ACP REPLACEMENT	10.4
SEWER SIPHON REHABILITATION PHASE 2	9.7
<b>Subtotal</b>	<b>56.7</b>
OTHER PROJECTS	15
<b>Total</b>	<b>71.7</b>

## Recommendation

THAT THE BOARD ADOPT THE FOLLOWING RESOLUTION BY TITLE:

RESOLUTION NO. 2021 –

RESOLUTION OF THE BOARD OF DIRECTORS OF  
IRVINE RANCH WATER DISTRICT, ORANGE COUNTY  
CALIFORNIA, APPROVING THE DISTRICT'S CAPITAL  
BUDGET FOR FISCAL YEAR 2021-22 and 2022-23

# **CAPITAL BUDGET**

FISCAL YEAR 2021-22  
and  
FISCAL YEAR 2022-23



**E&O Committee**

**April 20, 2021**

**DRAFT**

Irvine Ranch Water District  
15600 Sand Canyon Avenue  
Irvine, CA 92618

# CAPITAL BUDGET

## TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>
1.	Project Expenditures by Project Number with Improvement District Allocations
2.	Flagged Projects
3.	Summary of Projected Expenditures by Category
4.	Details of Projected Expenditures by Category
5.	Water Improvement District Map
6.	Sewer Improvement District Map



Irvine Ranch Water District  
Capital Budget for Fiscal Year 2021-22 and Fiscal Year 2022-23  
Section 1 - Projected Expenditures by Project

								Improvement Districts																		
System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880
Potable Capital	05761	15 MG ZONE 1 RESERVOIR INTERIOR COATING	6/1/2019	6/30/2022	\$2,642,973	\$0	\$2,748,500	100.0																		
Potable Capital	11686	ASSET MANAGEMENT CAPITAL IMPROVEMENT PL	10/1/2020	6/30/2023	\$182	\$182	\$225,500	100.0																		
Recycled Capital	11687	ASSET MANAGEMENT CAPITAL IMPROVEMENT PL	10/1/2020	6/30/2023	\$182	\$182	\$225,500										100.0									
Sewer Capital	11688	ASSET MANAGEMENT CAPITAL IMPROVEMENT PL	10/1/2020	6/30/2023	\$182	\$182	\$225,500										100.0									
Potable Capital	11586	AUTOMATION CYBERSECURITY - DW	7/1/2020	6/30/2024	\$449,750	\$449,750	\$1,350,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Potable Capital	11615	BAKER PIPELINE RELOCATION IN SANTIAGO CREEK	5/1/2020	12/31/2021	\$809,620	\$0	\$1,005,400	100.0																		
Potable Capital	11864	BAKER WTP DIESEL FUEL STORAGE	7/1/2021	10/31/2022	\$173,503	\$120,497	\$294,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Potable Capital	10559	BAKER WTP OUTFALL STRUCTURE, FENCING & AC	2/16/2017	7/31/2021	\$1,122	\$0	\$1,422,500		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Recycled Capital	07086	CALIFORNIA AVE RW PIPELINE-ACADEMY TO THE	6/1/2023	5/31/2025	\$0	\$11,208	\$814,000										100.0									
Potable Capital	11781	CAPITAL PLANNING SUPPORT DW 21/22-22/23	7/1/2021	6/30/2023	\$675,900	\$675,900	\$1,351,800		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Recycled Capital	11783	CAPITAL PLANNING SUPPORT RW 21/22-22/23	7/1/2021	6/30/2023	\$675,900	\$675,900	\$1,351,800											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Sewer Capital	11785	CAPITAL PLANNING SUPPORT SS 21/22-22/23	7/1/2021	6/30/2023	\$675,900	\$675,900	\$1,351,800											5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Potable Capital	10546	CC&B & OUBI SOFTWARE UPGRADE-DW	2/1/2021	6/30/2022	\$1,005,529	\$0	\$1,424,500	100.0																		
Sewer Capital	10547	CC&B & OUBI SOFTWARE UPGRADE-SS	2/1/2021	6/30/2022	\$1,005,529	\$0	\$1,424,500										100.0									
Potable Capital	07881	CNG AND DIESEL/GASOLINE FILLING STATION-DW	7/1/2017	12/31/2022	\$1,333,843	\$840,517	\$2,630,000	23.3	26.9	3.7	2.6	35.6	6.0	0.3	1.2	0.4										
Sewer Capital	07882	CNG AND DIESEL/GASOLINE FILLING STATION-SS	7/1/2017	12/31/2022	\$2,666,573	\$1,680,034	\$5,257,000										23.3	5.4	3.0	19.4	36.1	3.0	8.1	0.2	1.3	0.2
Recycled Capital	11568	COASTAL ZNS B&D BPS ELECRICAL REPLACEMENT	6/1/2022	6/30/2024	\$30,772	\$369,268	\$1,737,000										100.0									
Potable Capital	11912	COASTAL ZONE 1-2 PS AND ZONE 2-4 PS REHABILI	3/15/2021	6/30/2023	\$200,495	\$1,134,131	\$1,392,000	100.0																		
Potable Capital	06159	CP IMP-CANADA RD JOINT BONDING	6/1/2023	6/30/2025	\$0	\$4,400	\$280,000	100.0																		
Potable Capital	06162	CP IMP-CRYSTAL COVE RECT-DW	7/1/2020	6/30/2025	\$0	\$2,600	\$170,000	100.0																		
Recycled Capital	06163	CP IMP-CRYSTAL COVE RECT-RW	7/1/2020	6/30/2025	\$0	\$2,200	\$157,500										100.0									
Recycled Capital	06164	CP IMP-CULVER CP5 RECT AND ANODE BED REPLA	6/1/2023	6/30/2025	\$0	\$4,440	\$291,000										100.0									
Potable Capital	01414	CP IMP-SAND CYN 16" DW ANODE REPLACE	6/1/2023	6/30/2026	\$0	\$3,024	\$278,100	100.0																		
Potable Capital	06169	CP IMP-ZN 8-9 PIPELINE ANODE BED LEAD WIRE R	6/1/2023	5/31/2025	\$0	\$6,667	\$385,000	100.0																		
Potable Capital	11483	DATS MISCELLANEOUS REHABILITATION	3/1/2020	3/30/2022	\$1,956,779	\$0	\$2,278,500	100.0																		
Potable Capital	11747	DELTA CONVEYANCE PROJECT PLANNING AND EN	12/1/2020	12/31/2023	\$85,302	\$85,302	\$263,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Potable Capital	11570	DRWF WELLSITE REHAB	8/3/2020	6/30/2024	\$267,312	\$127,273	\$1,588,000	100.0																		
Potable Capital	11536	EMERGENCY GENERATOR FUEL STORAGE - DW	4/1/2021	6/30/2023	\$288,142	\$485,414	\$819,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										

System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	Improvement Districts																		
								1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880
Sewer Capital	11537	EMERGENCY GENERATOR FUEL STORAGE - SS	4/1/2021	6/30/2023	\$201,293	\$278,263	\$522,000											5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Sewer Capital	11842	ETM REACH A REHABILITATION	6/1/2023	7/31/2028	\$0	\$3,571	\$15,035,800										100.0									
Potable Capital	11602	GENERAL SECURITY SYSTEM MODIFICATIONS - D	6/1/2020	6/30/2023	\$40,541	\$40,541	\$125,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5											
Sewer Capital	11192	GENERAL SECURITY SYSTEM MODIFICATIONS - SS	6/1/2020	6/30/2023	\$40,541	\$40,541	\$125,000										3.4	3.4	33.1	48.6		9.6	0.3	1.3	0.3	
Potable Capital	11772	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2021	6/30/2022	\$6,283,000	\$0	\$6,283,000	100.0																		
Potable Capital	11773	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2022	6/30/2023	\$0	\$6,283,000	\$6,283,000	100.0																		
Recycled Capital	11775	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2021	6/30/2022	\$2,103,000	\$0	\$2,103,000										100.0									
Recycled Capital	11776	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2022	6/30/2023	\$0	\$2,103,000	\$2,103,000										100.0									
Sewer Capital	11778	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2021	6/30/2022	\$2,035,000	\$0	\$2,035,000										100.0									
Sewer Capital	11779	GENERAL SYSTEM REPLACEMENTS AND MODIFICA	7/1/2022	6/30/2023	\$0	\$1,785,000	\$1,785,000										100.0									
Sewer Capital	11122	HATS DIVERSION STRUCTURE REHABILITATION	4/1/2020	3/31/2022	\$445,580	\$0	\$707,000										100.0									
Potable Capital	10854	KERN FAN GROUNDWATER STORAGE	7/1/2021	6/30/2028	\$14,044,500	\$25,052,600	\$115,410,500	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5											
Sewer Capital	11749	LAKE FOREST NAKASE 12 INCH SANITARY SEWER	7/1/2021	12/31/2023	\$69,333	\$171,017	\$377,000														100.0					
Recycled Capital	11582	LAKE FOREST NAKASE 24 ZB RW	1/1/2021	7/31/2023	\$680,053	\$544,209	\$1,365,000											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Potable Capital	10096	LAKE FOREST NAKASE DW IMPROVEMENTS	1/1/2021	7/31/2023	\$105,475	\$251,562	\$437,000					100.0														
Potable Capital	11218	LAKE FOREST WELL NO. 2 TREATMENT & BYPASS S	6/1/2023	12/31/2026	\$0	\$4,558	\$676,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5											
Sewer Capital	11123	LAKE FOREST WOODS SEWER ACCESS IMPROVEM	7/1/2019	6/30/2024	\$49,691	\$146,691	\$353,000										100.0									
Recycled Capital	11168	LAKE FOREST ZONE C RECYCLED WATER PUMP ST	7/1/2019	8/31/2022	\$2,819,433	\$147,320	\$3,801,600										60.0								40.0	
Sewer Capital	11878	LAWRP DIVERSION TO MWRP DURING CONSTRUC	6/1/2022	8/31/2026	\$2,857	\$140,577	\$11,671,000											5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Sewer Capital	11081	LAWRP SYSTEM REPLACEMENTS 21/22	7/1/2021	6/30/2022	\$138,000	\$0	\$138,000										100.0									
Sewer Capital	11082	LAWRP SYSTEM REPLACEMENTS 22/23	7/1/2022	6/30/2023	\$0	\$138,000	\$138,000										100.0									
Sewer Capital	01477	LAWRP TREATMENT PROCESS MODERNIZATION	1/1/2021	6/30/2030	\$2,632,500	\$5,249,000	\$202,434,250										100.0									
Potable Capital	11888	MAXIMO SCHEDULER REPLACEMENT-DW	10/1/2021	6/30/2022	\$75,000	\$0	\$75,000	100.0																		
Sewer Capital	11889	MAXIMO SCHEDULER REPLACEMENT-SS	10/1/2021	6/30/2022	\$150,000	\$0	\$150,000										100.0									
Potable Capital	11593	MODJESKA RD BRIDGE 172 AT MARKUSON RD DW	2/16/2017	7/31/2024	\$16,470	\$25,963	\$564,900	100.0																		
Potable Capital	11567	MORSE/GILLETTE DW REPLACEMENT	2/1/2020	5/31/2022	\$463,392	\$0	\$674,000	100.0																		
Sewer Capital	04286	MWRP BIOSOLIDS AND ENERGY RECOVERY FACILI	4/1/2013	7/31/2021	\$65,175	\$0	\$265,542,100										45.5	1.5	1.5	18.9	27.7		4.1	0.1	0.6	0.1
Sewer Capital	11569	MWRP CAS ELECRICAL CONDUITS REPLACEMENT	6/1/2023	6/30/2025	\$0	\$12,929	\$654,000										100.0									
Sewer Capital	11833	MWRP EXPANSION PHASE 3 (CAS) IMPROVEMENT	6/1/2023	12/31/2029	\$0	\$769	\$17,867,000											5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Recycled Capital	01659	MWRP EXPANSION PHASE 3 (MBR)-RW	6/1/2023	12/31/2029	\$0	\$13,908	\$21,258,000											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Sewer Capital	01797	MWRP EXPANSION PHASE 3 (MBR)-SS	6/1/2023	12/31/2029	\$0	\$27,415	\$43,680,000											5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4

System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	Improvement Districts																			
								1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880	
Sewer Capital	11899	MWRP PAVING	2/16/2017	7/31/2022	\$70,623	\$4,496	\$243,000											100.0									
Sewer Capital	11599	MWRP PRIMARY CLARIFIERS 1-5 COVERS REPLACE	5/1/2020	12/31/2021	\$416,243	\$0	\$1,419,000											100.0									
Sewer Capital	11879	MWRP SLUDGE RECEIVING STATION FACILITY	6/1/2022	8/31/2025	\$1,429	\$8,571	\$1,581,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Recycled Capital	07892	MWRP TERTIARY FILTER REHABILITATION	8/1/2018	12/31/2023	\$717,508	\$7,344,445	\$9,875,600											100.0									
Sewer Capital	11832	MWRP TRIBUTARY GRAVITY DIVERSION TO LAWR	6/1/2023	12/31/2027	\$0	\$11,026	\$2,942,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Recycled Capital	11791	NON-POTABLE WATER STUDIES 21/22-22/23	7/1/2021	6/30/2023	\$50,000	\$50,000	\$100,000												8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Potable Capital	07895	NTS MASTER PLAN UPDATE	1/1/2021	7/30/2022	\$257,591	\$20,773	\$400,000	100.0																			
Potable Capital	05406	NTS-EL MODENA MODS	6/1/2023	7/30/2025	\$0	\$6,480	\$347,000	100.0																			
Potable Capital	11142	NTS-WOODBRIDGE NTS RELOCATION	6/1/2021	6/30/2023	\$57,600	\$57,600	\$120,000	100.0																			
Sewer Capital	10502	OCSD CORF LONG TERM CAPITAL PROGRAM 2018	7/1/2017	6/30/2050	\$8,781,125	\$10,230,125	\$210,379,000											72.7	0.9	0.9	9.0	13.3		2.6	0.1	0.4	0.1
Sewer Capital	10500	OCSD EQUITY LONG TERM CAPITAL PROGRAM 20	7/1/2017	6/30/2050	\$0	\$3,231,625	\$16,742,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Sewer Capital	10594	OCSD SOLIDS LEASE LONG TERM CAPITAL PROGRA	7/1/2017	12/31/2021	\$500,000	\$0	\$12,082,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4
Potable Capital	10503	OCWD ANNEXATION LONG TERM CAPITAL PROGR	7/1/2017	1/30/2050	\$625,400	\$634,800	\$22,861,400		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5											
Potable Capital	06160	OPERATIONS CENTER FACILITY REFRESH-DW	7/1/2021	6/30/2024	\$42,500	\$186,591	\$370,000	100.0																			
Sewer Capital	06161	OPERATIONS CENTER FACILITY REFRESH-SS	6/30/2021	6/30/2024	\$79,864	\$368,045	\$740,000											100.0									
Potable Capital	11808	ORACLE BI UPGRADE 2021 - DW	2/1/2021	9/30/2021	\$56,250	\$0	\$150,000	100.0																			
Sewer Capital	11810	ORACLE BI UPGRADE 2021 - SS	2/1/2021	9/30/2021	\$56,250	\$0	\$150,000											100.0									
Recycled Capital	11500	PA 1 JEFFREY RD EXT 6RW & 12RW	1/1/2020	2/28/2023	\$60,773	\$68,347	\$163,000																	100.0			
Potable Capital	11395	PA 12 INNOVATION PARK 12DW	7/1/2019	8/31/2022	\$230,346	\$51,703	\$410,000						100.0														
Recycled Capital	11584	PA 12 REGIONAL ZONE A RW IMPROVEMENTS	7/1/2020	12/31/2022	\$1,238,939	\$72,727	\$1,615,000												8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Recycled Capital	01722	PA1 NHB4 ORCHARD HILLS RW	7/1/2020	7/31/2025	\$27,915	\$12,515	\$566,500																	100.0			
Sewer Capital	07173	PA1 PORTOLA PKWY SEWER REPLACEMENT	6/1/2023	7/31/2025	\$0	\$15,538	\$759,700																	100.0			
Recycled Capital	03734	PA12 INNOVATION PARK RW	7/1/2020	7/31/2023	\$125,139	\$216,233	\$447,700																	100.0			
Sewer Capital	05788	PA51 ALTON PKWY SS RELOCATION 12 AND 18	8/1/2014	7/31/2021	\$20,771	\$0	\$1,232,300											100.0									
Potable Capital	05816	PA51 ALTON-TECHNOLOGY TO MUIRLANDS 12 D	9/1/2014	7/31/2021	\$2,948	\$0	\$177,100			20.9			79.1														
Sewer Capital	05817	PA51 ALTON-TECHNOLOGY TO MUIRLANDS SS REL	9/1/2014	7/31/2021	\$27,204	\$0	\$1,326,300											100.0									
Potable Capital	05756	PA51 B ST FROM SOCIABLE TO IRVINE BLV 12 ZN 4	8/1/2014	7/31/2021	\$4,020	\$0	\$243,100			98.2			1.8														
Recycled Capital	05757	PA51 B ST FROM SOCIABLE TO IRVINE BLV 16 ZN C	8/1/2014	7/31/2021	\$3,993	\$0	\$240,900											99.6						0.4			
Recycled Capital	05758	PA51 CADENCE-PUSAN TO CHINON 12_16RW	8/1/2014	7/31/2021	\$4,154	\$0	\$271,700											87.4						12.6			
Potable Capital	10796	PA51 D5 "P" ST & CHINON 12DW	1/1/2021	7/31/2023	\$34,762	\$78,274	\$147,000			100.0																	
Potable Capital	10343	PA51 D5 A ST 12 DW	4/1/2018	7/31/2022	\$300,311	\$27,950	\$989,000			100.0																	

System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	Improvement Districts																		
								1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880
Recycled Capital	10344	PA51 D5 A ST 12_10 RW	4/1/2018	12/31/2021	\$406,751	\$0	\$1,059,000												100.0							
Recycled Capital	10864	PA51 D5 ASTOR 10RW	6/1/2019	12/31/2021	\$98,929	\$0	\$342,000												100.0							
Potable Capital	10863	PA51 D5 ASTOR 12DW	6/1/2019	7/31/2022	\$51,329	\$5,049	\$147,000			100.0																
Recycled Capital	10862	PA51 D5 BB ST 12 RW	6/1/2019	12/31/2021	\$83,755	\$0	\$297,000												100.0							
Recycled Capital	10255	PA51 D5 CADENCE S 10RW	4/1/2018	7/31/2021	\$3,966	\$0	\$138,000												100.0							
Potable Capital	10254	PA51 D5 CADENCE S 12DW	4/1/2018	7/31/2022	\$31,630	\$2,935	\$138,000			100.0																
Sewer Capital	10117	PA51 D5 CADENCE S FROM O TO CHINON 12SS	4/1/2018	7/31/2021	\$16,921	\$0	\$487,000												100.0							
Recycled Capital	10024	PA51 D5 CHINON 16 RW, 12 RW and 10 RW ZONE	4/1/2018	7/31/2021	\$19,565	\$0	\$457,000												100.0							
Sewer Capital	10023	PA51 D5 CHINON FROM SOUTH CADENCE TO CAD	4/1/2018	7/31/2021	\$22,090	\$0	\$502,000												100.0							
Potable Capital	10022	PA51 D5 CHINON FROM SOUTH CADENCE TO CAD	4/1/2018	7/31/2022	\$134,196	\$12,740	\$392,000			100.0																
Recycled Capital	10865	PA51 D5 E ST 12RW	6/1/2019	12/31/2021	\$47,048	\$0	\$181,000												100.0							
Recycled Capital	10878	PA51 D5 F ST N ST 12_10RW	6/1/2019	12/31/2021	\$85,447	\$0	\$317,000												100.0							
Potable Capital	10875	PA51 D5 F ST N ST 12DW	6/1/2019	7/31/2022	\$57,430	\$5,680	\$157,000			100.0																
Recycled Capital	10861	PA51 D5 MERIT 12_10_RW	6/1/2019	12/31/2021	\$85,183	\$0	\$312,000												100.0							
Potable Capital	10860	PA51 D5 MERIT 12_DW	6/1/2019	7/31/2022	\$25,759	\$2,525	\$72,000			100.0																
Potable Capital	11176	PA51 D6 MARINE AND ALTON 12DW	6/1/2022	7/31/2025	\$5,079	\$65,118	\$488,000			100.0																
Recycled Capital	11177	PA51 D6 MARINE AND ALTON 16RW	6/1/2022	7/31/2025	\$8,925	\$113,589	\$813,000												100.0							
Sewer Capital	10868	PA51 D6 P ST 18SS	6/1/2019	12/31/2021	\$151,185	\$0	\$542,000												100.0							
Recycled Capital	06514	PA51 GP GP-1 ST (MARINE TO GP-2 ST) 10 RW	6/1/2015	7/31/2021	\$9,783	\$0	\$536,800												87.4					12.6		
Recycled Capital	06732	PA51 GP MAGNET (FROM RIDGE V. TO BOSQUE) 6	9/1/2015	7/31/2021	\$3,796	\$0	\$206,800												87.4					12.6		
Recycled Capital	06595	PA51 GP TERRAPIN (TRABUCO TO CADENCE) 6 RW	7/1/2015	7/31/2021	\$3,212	\$0	\$180,400												87.4					12.6		
Potable Capital	06512	PA51 GP-1 ST (MARINE TO GP-2 ST) 12 DW	6/1/2015	7/31/2021	\$6,622	\$0	\$355,300			20.9			79.1													
Sewer Capital	06513	PA51 GP-1 ST (MARINE TO GP-2 ST) 12 SS	6/1/2015	7/31/2021	\$14,448	\$0	\$753,300												100.0							
Recycled Capital	06538	PA51 GP-2 ST (BOSQUE TO GP1 ST) 10 RW	6/1/2015	7/31/2021	\$21,070	\$0	\$1,169,400												87.4					12.6		
Potable Capital	06536	PA51 GP-2 ST (BOSQUE TO GP1 ST) 12 DW	6/1/2015	7/31/2021	\$8,428	\$0	\$531,300			20.9			79.1													
Sewer Capital	06537	PA51 GP-2 ST (BOSQUE TO GP1 ST) 12 SS	6/1/2015	7/31/2021	\$5,117	\$0	\$333,300												100.0							
Recycled Capital	07022	PA51 GP-2 ST (FROM GP-3 TO BOSQUE) 12 RWZC	2/1/2016	7/31/2021	\$3,587	\$0	\$180,400												99.6					0.4		
Recycled Capital	05536	PA51 LQ ST FROM BOSQUE TO Z ST 12 RW	5/1/2014	7/31/2021	\$6,432	\$0	\$416,900												99.6					0.4		
Sewer Capital	05535	PA51 LQ ST FROM BOSQUE TO Z ST 12 -SS	5/1/2014	7/31/2021	\$18,981	\$0	\$1,075,300												100.0							
Recycled Capital	10447	PA51 MARINE WAY AND BAKE 16RW	4/1/2018	7/31/2021	\$10,047	\$0	\$273,000												100.0							
Sewer Capital	10574	PA51 MARINE WAY AT OCTA 18 SS	6/1/2019	12/31/2021	\$356,434	\$0	\$970,000												100.0							

System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	Improvement Districts																											
								1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880									
Potable Capital	06086	PA51 MARINE WAY FROM ALTON TO BARRANCA	1/1/2015	7/31/2021	\$8,845	\$0	\$438,700				20.9			79.1																					
Potable Capital	04153	PA51 MARINE WAY ZN3 DW	11/1/2012	7/31/2021	\$6,772	\$0	\$420,200				20.9			79.1																					
Sewer Capital	06476	PA51 MARINE WAY. RIDGE VALLEY TO 3000 FT EA	6/1/2015	7/31/2021	\$7,592	\$0	\$426,800																					100.0							
Potable Capital	06208	PA51 MARINE WAY: SR133 TO RIDGE VALLEY 12 Z	3/1/2015	7/31/2021	\$1,604	\$0	\$82,500				20.9			79.1																					
Recycled Capital	06209	PA51 MARINE WAY: SR133 TO RIDGE VALLEY 6 ZO	1/1/2021	7/31/2023	\$13,126	\$27,734	\$53,900												87.4								12.6								
Recycled Capital	06087	PA51 MARINE WAY-ALTON TO BARRANCA 16 RW	1/1/2015	7/31/2021	\$9,515	\$0	\$481,600												87.4								12.6								
Sewer Capital	06048	PA51 MARINE WAY-ALTON TO BARRANCA 18 SS	1/1/2015	7/31/2021	\$13,975	\$0	\$874,500												100.0																
Recycled Capital	10734	PA51 MARINE WY (BARRANCA TO OCTA) 16 RW	6/1/2019	7/31/2021	\$6,904	\$0	\$512,000												100.0																
Recycled Capital	10804	PA51 P ST & CADENCE 12_10RW	6/1/2019	12/31/2021	\$141,369	\$0	\$497,000												100.0																
Sewer Capital	10576	PA51 REACH B EAST 18 SS	6/1/2019	12/31/2021	\$786,293	\$0	\$2,580,000												100.0																
Potable Capital	04268	PA51 RIDGE VALLEY-MARINE WAY TO TRABUCO D	1/1/2013	7/31/2021	\$6,836	\$0	\$486,200				20.9			79.1																					
Recycled Capital	04278	PA51 RIDGE VALLEY-MARINE WAY TO TRABUCO R	1/1/2013	7/31/2021	\$7,072	\$0	\$464,200												87.4								12.6								
Recycled Capital	01762	PA9B PHASE 5 GATEWAY PARK RW PIPES	6/1/2023	7/31/2025	\$0	\$14,275	\$506,100																					100.0							
Potable Capital	06214	PDF SODIUM HYPOCHLORITE STORAGE AND FEED	4/1/2017	1/31/2023	\$3,188,124	\$1,460,229	\$8,026,900	21.4	27.6	3.8	2.7	36.5	6.1	0.3	1.2	0.4																			
Potable Capital	07682	PILOT SOUTH BASIN GROUNDWATER CLEANUP	7/1/2020	12/31/2021	\$333,333	\$0	\$1,127,500		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5																			
Potable Capital	07898	PLC REPLACEMENT-DW	7/1/2017	6/30/2023	\$102,389	\$83,834	\$670,000	100.0																											
Recycled Capital	07899	PLC REPLACEMENT-RW	7/1/2017	6/30/2023	\$32,111	\$26,333	\$210,000												100.0																
Sewer Capital	11174	PLC REPLACEMENT-SS	7/1/2019	6/30/2023	\$70,909	\$24,242	\$220,000												100.0																
Potable Capital	11585	PUBLIC OUTREACH CAMPAIGN REPLACEMENTS	4/1/2020	12/31/2022	\$97,676	\$48,600	\$500,000	100.0																											
Potable Capital	11854	PURCHASING WAREHOUSE-DW	7/1/2021	6/30/2024	\$174,000	\$364,531	\$797,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5																			
Sewer Capital	11855	PURCHASING WAREHOUSE-SS	7/1/2021	6/30/2024	\$174,000	\$364,530	\$797,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4								
Potable Capital	11154	RADIO TOWER IMP-DW	7/1/2021	6/30/2024	\$32,667	\$32,667	\$228,000	100.0																											
Recycled Capital	11157	RADIO TOWER IMP-RW	7/1/2021	6/30/2024	\$33,667	\$33,667	\$236,000												100.0																
Sewer Capital	11156	RADIO TOWER IMP-SS	7/1/2021	6/30/2024	\$33,667	\$33,667	\$236,000												100.0																
Recycled Capital	11566	RATTLESNAKE INLET-OUTLET REPLACEMENT	6/1/2023	6/30/2025	\$0	\$18,185	\$1,213,000												100.0																
Recycled Capital	11170	RATTLESNAKE RESERVOIR FILTRATION	6/1/2023	12/31/2025	\$0	\$3,571	\$3,055,000												8.8	4.2	15.3	49.2	7.9	13.1		1.5									
Recycled Capital	11187	RW CONVERSION IMPROVEMENTS FOR OFF-SITE	7/1/2021	6/30/2022	\$444,000	\$0	\$444,000												100.0																
Recycled Capital	11188	RW CONVERSION IMPROVEMENTS FOR OFF-SITE	7/1/2022	6/30/2023	\$0	\$444,000	\$444,000												100.0																
Potable Capital	11193	SAFETY- DISTRICT-WIDE FALL PROTECTION ASSESS	6/1/2023	5/30/2026	\$0	\$3,948	\$142,000		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5																			
Sewer Capital	11195	SAFETY- DISTRICT-WIDE FALL PROTECTION ASSESS	6/1/2023	5/30/2026	\$0	\$3,948	\$142,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4								
Sewer Capital	11194	SAFETY- MWRP MBR FALL PROTECTION IMP	4/1/2020	6/30/2022	\$179,164	\$0	\$262,000												5.4	3.7	35.4	45.0		7.9	0.4	1.8	0.4								



								Improvement Districts																		
System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850	2880
Recycled Capital	10379	SAN JOAQUIN RESERVOIR FILTRATION FACILITY	2/1/2019	12/31/2022	\$2,484,533	\$219,539	\$3,654,000											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Recycled Capital	03780	SAN JOAQUIN RESERVOIR LINER REPLACEMENT	6/1/2023	12/31/2026	\$0	\$3,158	\$2,880,400										100.0									
Potable Capital	11869	SAND CANYON PROFESSIONAL CENTER - GENERAL	4/1/2021	7/31/2022	\$4,977,652	\$28,125	\$5,350,000	100.0																		
Potable Capital	10101	SANTIAGO CANYON FLEMING STORAGE AND PUM	1/1/2018	6/30/2024	\$1,658,502	\$2,910,788	\$9,001,000	10.5	89.5																	
Potable Capital	01398	SANTIAGO CYN AREA PS IMPROVEMENTS	6/1/2018	11/30/2023	\$1,721,214	\$3,348,412	\$6,613,000		100.0																	
Potable Capital	01813	SANTIAGO DAM OUTLET AND SPILLWAY	7/1/2013	6/30/2026	\$2,804,367	\$2,804,367	\$139,307,000	94.8	1.8	0.2	0.2	2.3	0.4	0.1	0.1	0.1										
Recycled Capital	11597	SEAWATCH RW PRV	4/1/2020	6/30/2022	\$925,385	\$0	\$1,095,000											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Sewer Capital	11881	SECONDARY CIRCLE CLARIFIER IMPROVEMENTS	6/1/2023	6/30/2025	\$0	\$20,000	\$460,000										100.0									
Sewer Capital	07886	SEWER SIPHON REHABILITATION	1/1/2019	12/31/2021	\$2,156,218	\$0	\$9,746,000										100.0									
Sewer Capital	11841	SEWER SIPHON REHABILITATION PHASE 2	2/1/2023	1/31/2026	\$0	\$136,111	\$9,725,000										100.0									
Recycled Capital	11834	SGU PFAS TREATMENT	6/1/2023	12/31/2025	\$0	\$1,818	\$5,137,950											8.8	4.2	15.3	49.2	7.9	13.1		1.5	
Sewer Capital	07452	SHII CANYON VIEW (AT JAMBOREE RD) 15 SS	6/1/2023	7/31/2026	\$0	\$2,899	\$259,600																100.0			
Potable Capital	07376	SHII PH1 D ST (FROM SANTIAGO TO B ST) 12 DW	6/1/2023	7/31/2026	\$0	\$1,976	\$176,000						100.0													
Recycled Capital	07377	SHII PH1 D ST (FROM SANTIAGO TO B ST) 6 RW	6/1/2023	7/31/2026	\$0	\$1,822	\$162,800																100.0			
Sewer Capital	07379	SHII PH2 A ST (FROM SANTIAGO TO B ST) 12 SS	6/1/2023	7/31/2026	\$0	\$2,283	\$205,000																100.0			
Recycled Capital	07380	SHII PH2 A/B/F ST (TR 17995) 6 AND 8 RW	6/1/2023	7/31/2026	\$0	\$5,464	\$487,000																100.0			
Potable Capital	07378	SHII PH2 B/F ST (FROM C ST TO Z5 RES) 12 DW	6/1/2023	7/31/2026	\$0	\$10,874	\$974,000						100.0													
Potable Capital	07451	SHII SANTIAGO CYN (FROM D ST TO A ST) 12 DW	6/1/2023	7/31/2026	\$0	\$13,156	\$1,126,900						100.0													
Recycled Capital	07453	SHII SANTIAGO CYN AND JAMBOREE 6 8 12 16 RW	6/1/2023	7/31/2026	\$0	\$25,798	\$2,228,300																100.0			
Recycled Capital	07486	SHII SOUTH TR 16199 12 8 AND 6 RW	6/1/2023	7/31/2026	\$0	\$8,951	\$808,000																100.0			
Sewer Capital	07484	SHII SOUTH TR 16199 15 AND 12 SS	6/1/2023	7/31/2026	\$0	\$7,182	\$668,000																100.0			
Potable Capital	11588	SILVERADO CANYON RD BRIDGE 174 AT SILVERAD	2/16/2017	5/31/2023	\$107,572	\$351,843	\$504,900	100.0																		
Potable Capital	11587	SILVERADO CANYON RD BRIDGE 175 AT LADD CA	3/1/2020	4/29/2022	\$15,527	\$0	\$674,900	100.0																		
Potable Capital	11589	SILVERADO CANYON RD BRIDGE 177 AT READ RES	2/16/2017	7/31/2024	\$16,470	\$25,963	\$564,900	100.0																		
Potable Capital	11746	SITES RESERVOIR PLANNING AND ENVIRONMENT	12/1/2020	12/31/2021	\$323,769	\$0	\$701,500		35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Sewer Capital	11189	SOCWA ETM AVAC VALVE REPLACEMENT REACHE	7/1/2019	12/31/2024	\$24,278	\$213,191	\$1,000,000										100.0									
Sewer Capital	03750	SOCWA ETM PROTECTION-TRAIL BRIDGE CROSSIN	8/1/2016	12/31/2025	\$44,285	\$3,226	\$1,215,000										100.0									
Sewer Capital	11906	SOCWA ETM REACH B/C REPLACEMENT	1/1/2022	12/31/2025	\$75,000	\$150,000	\$3,800,000										100.0									
Potable Capital	11815	SR 55 WIDENING DW RELOCATION	7/1/2021	12/31/2022	\$59,225	\$72,775	\$132,000	100.0																		
Sewer Capital	11583	SR 55 WIDENING SEWER RELOCATION	7/1/2020	12/31/2021	\$67,398	\$0	\$262,000										100.0									
Recycled Capital	10580	SUNNYHILL RW PIPE REHAB	6/1/2023	4/30/2026	\$0	\$4,657	\$423,000										100.0									

System	Project Number	Project Title	Start	End	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A	Improvement Districts																	
								1100	1110	1120	1130	1250	1530	1540	1850	1880	2100	2120	2130	2220	2250	2400	2530	2560	2850
Recycled Capital	03808	SYPHON RESERVOIR IMPROVEMENTS	6/1/2015	8/31/2026	\$5,921,513	\$5,899,867	\$146,000,000											8.8	4.2	15.3	49.2	7.9	13.1		1.5
Sewer Capital	11359	TL NH D SOUTH 12SS	1/1/2021	7/31/2023	\$178,341	\$205,096	\$448,000												100.0						
Potable Capital	11840	TURTLE ROCK ZONE 3 RESERVOIR CHLORAMINE B	2/1/2021	12/30/2023	\$316,250	\$1,140,000	\$1,705,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Recycled Capital	07535	TUSTIN LEGACY FLIGHT DR 6 RW	8/1/2016	7/31/2021	\$4,891	\$0	\$270,000												100.0						
Potable Capital	11118	VALVE REPLACE-DW	6/1/2023	6/30/2025	\$0	\$5,599	\$384,200	100.0																	
Recycled Capital	11120	VALVE REPLACE-RW	6/1/2023	6/30/2025	\$0	\$5,519	\$384,200										100.0								
Potable Capital	10542	VAULT LID REPLACEMENT-IRV BLVD	5/1/2019	11/30/2021	\$20,000	\$0	\$1,078,350	100.0																	
Potable Capital	11139	VAULT LID REPLACEMENT-PH2 DW	6/1/2023	6/30/2025	\$0	\$7,956	\$453,200	100.0																	
Recycled Capital	11145	VAULT LID REPLACEMENT-PH2 RW	6/1/2023	6/30/2025	\$0	\$3,652	\$259,000										100.0								
Sewer Capital	11147	VAULT LID REPLACEMENT-PH2 SS	6/1/2023	6/30/2025	\$0	\$3,652	\$259,000										100.0								
Potable Capital	11799	WATER STUDIES 21/22-22/23	7/1/2021	6/30/2023	\$735,000	\$735,000	\$1,470,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Recycled Capital	11171	WELL ET-1 PFAS TREATMENT	1/1/2020	3/30/2023	\$2,718,960	\$1,738,474	\$5,167,450											8.8	4.2	15.3	49.2	7.9	13.1		1.5
Potable Capital	11050	WELL MAINTENANCE AND REHABILITATION 21/22	7/1/2021	6/30/2022	\$360,000	\$0	\$360,000	100.0																	
Recycled Capital	11127	WELL MAINTENANCE AND REHABILITATION 21/22	7/1/2021	6/30/2022	\$90,000	\$0	\$90,000										100.0								
Potable Capital	11065	WELL MAINTENANCE AND REHABILITATION 22/23	7/1/2022	6/30/2023	\$0	\$360,000	\$360,000	100.0																	
Recycled Capital	11128	WELL MAINTENANCE AND REHABILITATION 22/23	7/1/2022	6/30/2023	\$0	\$90,000	\$90,000										100.0								
Potable Capital	11720	WELL OPA 1 PFAS TREATMENT	10/1/2020	9/30/2022	\$299,939	\$28,042	\$363,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Potable Capital	07092	WELL REHAB-DRWF 01	7/1/2020	8/31/2021	\$30,714	\$0	\$770,000	100.0																	
Potable Capital	07087	WELL REHAB-DRWF 10	2/1/2018	8/31/2023	\$40,692	\$617,450	\$810,000	100.0																	
Potable Capital	07088	WELL REHAB-DRWF 11	8/1/2020	8/31/2021	\$31,538	\$0	\$770,000	100.0																	
Potable Capital	10098	WELL REHAB-DRWF 13	8/1/2020	8/31/2021	\$31,538	\$0	\$770,000	100.0																	
Potable Capital	11846	WELL REHAB-DRWF 15	1/1/2023	10/31/2023	\$0	\$396,897	\$902,000	100.0																	
Potable Capital	11137	WELL REHAB-IDP 76	4/1/2022	2/28/2023	\$90,545	\$723,455	\$814,000	100.0																	
Potable Capital	11827	WELL REHAB-WELL 51	2/1/2021	12/31/2022	\$736,491	\$20,190	\$900,000	100.0																	
Potable Capital	11828	WELLS 51/52 EQUIPPING	6/1/2023	3/31/2025	\$0	\$286	\$4,437,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Potable Capital	11829	WELLS 51/52 PIPELINES TO DRWF	6/1/2023	3/31/2025	\$0	\$2,143	\$10,874,000	35.1	4.8	3.4	46.4	7.8	0.4	1.6	0.5										
Recycled Capital	11571	WOODBIDGE RW PIPELINE REPLACEMENT (ACP)	2/1/2021	10/31/2022	\$9,029,944	\$1,253,429	\$11,018,000										100.0								
Recycled Capital	05476	ZONE A TO RATTLESNAKE RESERVOIR PUMP STATI	6/1/2017	6/30/2023	\$7,237,695	\$6,462,953	\$22,008,000										100.0								
					\$114,244,186	\$105,782,903	\$1,509,160,700																		

Irvine Ranch Water District  
Capital Budget for Fiscal Year 2021-22 and Fiscal Year 2022-23  
Section 2 - Flagged Projects

Project Number	Project Title	Flagged	Status
10854	KERN FAN GROUNDWATER STORAGE	Yes	Active
01477	LAWRP TREATMENT PROCESS MODERNIZATION	Yes	Active
11832	MWRP TRIBUTARY GRAVITY DIVERSION TO LAWRP	Yes	Board Approved



Irvine Ranch Water District  
Capital Budget for Fiscal Year 2021-22 and 2022-23  
Section 3 - Summary of Projected Expenditures by Category

Expenditure Category	FY 2021-22 w/ G&A	FY 2022-23 w/ G&A	Total w/ G&A
Baker WTP	\$173,503	\$120,497	\$294,000
Development - Lake Forest	\$854,861	\$966,789	\$2,179,000
Development - Other	\$289,571	\$135,687	\$1,356,000
Development - PA1	\$88,688	\$96,400	\$1,489,200
Development - PA40	\$125,139	\$216,233	\$447,700
Development - PA51	\$3,211,214	\$341,594	\$25,768,200
Development - PA9B	\$0	\$14,275	\$506,100
Development - SHII	\$0	\$80,405	\$7,095,600
Development - Sub Regional	\$1,238,939	\$72,727	\$1,615,000
Development - Tustin Legacy	\$183,232	\$205,096	\$718,000
Nonpotable Storage	\$8,740,946	\$6,047,187	\$149,801,600
OCSD - CORF - Solids Lease	\$9,281,125	\$13,461,750	\$239,203,000
OCWD Annexation	\$625,400	\$634,800	\$22,861,400
Operational	\$21,012,911	\$19,017,493	\$214,241,800
Planning	\$2,335,836	\$2,099,019	\$5,231,900
Property Management	\$4,977,652	\$28,125	\$5,350,000
Replacement - Facilities	\$28,118,225	\$17,959,668	\$113,288,350
Replacement - FY System	\$10,559,000	\$10,309,000	\$20,868,000
Replacement-Business Software	\$2,348,559	\$0	\$3,374,000
Sewage Treatment	\$2,635,357	\$5,442,696	\$299,852,250
Solids Handling	\$66,604	\$8,571	\$267,123,100
Water Banking	\$14,368,269	\$25,052,600	\$116,112,000
Water Resources	\$1,597,635	\$1,264,302	\$3,748,500
Well Rehabilitation	\$1,411,520	\$2,207,992	\$6,636,000
	<b>\$114,244,186</b>	<b>\$105,782,903</b>	<b>\$1,509,160,700</b>

Irvine Ranch Water District  
Capital Budget for Fiscal Year 2021-22 and Fiscal Year 2022-23  
Section 4 - FY 2021-22 Details of Projected Expenditures by Category

FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
<b>Baker WTP</b>					
11864 BAKER WTP DIESEL FUEL STORAGE	\$173,503	\$294,000	\$0	\$141,405	\$32,098
	<b>\$173,503</b>	<b>\$294,000</b>	<b>\$0</b>	<b>\$141,405</b>	<b>\$32,098</b>
<b>Development - Lake Forest</b>					
10096 LAKE FOREST NAKASE DW IMPROVEMENTS	\$105,475	\$437,000	\$0	\$105,475	\$0
11582 LAKE FOREST NAKASE 24 ZB RW	\$680,053	\$1,365,000	\$0	\$492,358	\$187,695
11749 LAKE FOREST NAKASE 12 INCH SANITARY SEWER	\$69,333	\$377,000	\$0	\$69,333	\$0
	<b>\$854,861</b>	<b>\$2,179,000</b>	<b>\$0</b>	<b>\$667,166</b>	<b>\$187,695</b>
<b>Development - Other</b>					
11395 PA 12 INNOVATION PARK 12DW	\$230,346	\$410,000	\$0	\$0	\$230,346
11815 SR 55 WIDENING DW RELOCATION	\$59,225	\$132,000	\$59,225	\$0	\$0
	<b>\$289,571</b>	<b>\$542,000</b>	<b>\$59,225</b>	<b>\$0</b>	<b>\$230,346</b>
<b>Development - PA1</b>					
01722 PA1 NHB4 ORCHARD HILLS RW	\$27,915	\$566,500	\$0	\$0	\$27,915
11500 PA 1 JEFFREY RD EXT 6RW & 12RW	\$60,773	\$163,000	\$0	\$0	\$60,773
	<b>\$88,688</b>	<b>\$729,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$88,688</b>
<b>Development - PA40</b>					
03734 PA12 INNOVATION PARK RW	\$125,139	\$447,700	\$0	\$0	\$125,139
	<b>\$125,139</b>	<b>\$447,700</b>	<b>\$0</b>	<b>\$0</b>	<b>\$125,139</b>
<b>Development - PA51</b>					
10022 PA51 D5 CHINON FROM SOUTH CADENCE TO CADENCE, 12 D	\$134,196	\$392,000	\$0	\$0	\$134,196

FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
10734 PA51 MARINE WY (BARRANCA TO OCTA) 16 RW	\$6,904	\$512,000	\$0	\$0	\$6,904
10576 PA51 REACH B EAST 18 SS	\$786,293	\$2,580,000	\$0	\$0	\$786,293
10574 PA51 MARINE WAY AT OCTA 18 SS	\$356,434	\$970,000	\$0	\$0	\$356,434
10447 PA51 MARINE WAY AND BAKE 16RW	\$10,047	\$273,000	\$0	\$0	\$10,047
10344 PA51 D5 A ST 12_10 RW	\$406,751	\$1,059,000	\$0	\$0	\$406,751
10343 PA51 D5 A ST 12 DW	\$300,311	\$989,000	\$0	\$0	\$300,311
10254 PA51 D5 CADENCE S 12DW	\$31,630	\$138,000	\$0	\$0	\$31,630
10796 PA51 D5 "P" ST & CHINON 12DW	\$34,762	\$147,000	\$0	\$0	\$34,762
10023 PA51 D5 CHINON FROM SOUTH CADENCE TO CADENCE 12 SS	\$22,090	\$502,000	\$0	\$0	\$22,090
10863 PA51 D5 ASTOR 12DW	\$51,329	\$147,000	\$0	\$0	\$51,329
10024 PA51 D5 CHINON 16 RW, 12 RW and 10 RW ZONE C	\$19,565	\$457,000	\$0	\$0	\$19,565
10804 PA51 P ST & CADENCE 12_10RW	\$141,369	\$497,000	\$0	\$0	\$141,369
10860 PA51 D5 MERIT 12_DW	\$25,759	\$72,000	\$0	\$0	\$25,759
07022 PA51 GP-2 ST (FROM GP-3 TO BOSQUE) 12 RWZC	\$3,587	\$180,400	\$0	\$0	\$3,587
10862 PA51 D5 BB ST 12 RW	\$83,755	\$297,000	\$0	\$0	\$83,755
10117 PA51 D5 CADENCE S FROM O TO CHINON 12SS	\$16,921	\$487,000	\$0	\$0	\$16,921
10864 PA51 D5 ASTOR 10RW	\$98,929	\$342,000	\$0	\$0	\$98,929
10865 PA51 D5 E ST 12RW	\$47,048	\$181,000	\$0	\$0	\$47,048
10868 PA51 D6 P ST 18SS	\$151,185	\$542,000	\$0	\$0	\$151,185
10875 PA51 D5 F ST N ST 12DW	\$57,430	\$157,000	\$0	\$0	\$57,430
10878 PA51 D5 F ST N ST 12_10RW	\$85,447	\$317,000	\$0	\$0	\$85,447
11176 PA51 D6 MARINE AND ALTON 12DW	\$5,079	\$488,000	\$0	\$0	\$5,079
11177 PA51 D6 MARINE AND ALTON 16RW	\$8,925	\$813,000	\$0	\$0	\$8,925
10861 PA51 D5 MERIT 12_10_RW	\$85,183	\$312,000	\$0	\$0	\$85,183
05536 PA51 LQ ST FROM BOSQUE TO Z ST 12 RW	\$6,432	\$416,900	\$0	\$0	\$6,432
04153 PA51 MARINE WAY ZN3 DW	\$6,772	\$420,200	\$0	\$0	\$6,772

FY Exp Category		FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
04268	PA51 RIDGE VALLEY-MARINE WAY TO TRABUCO DW	\$6,836	\$486,200	\$0	\$0	\$6,836
10255	PA51 D5 CADENCE S 10RW	\$3,966	\$138,000	\$0	\$0	\$3,966
05535	PA51 LQ ST FROM BOSQUE TO Z ST 12 -SS	\$18,981	\$1,075,300	\$0	\$0	\$18,981
06732	PA51 GP MAGNET (FROM RIDGE V. TO BOSQUE) 6 RW ZB	\$3,796	\$206,800	\$0	\$0	\$3,796
05756	PA51 B ST FROM SOCIABLE TO IRVINE BLV 12 ZN 4	\$4,020	\$243,100	\$0	\$0	\$4,020
05757	PA51 B ST FROM SOCIABLE TO IRVINE BLV 16 ZN C	\$3,993	\$240,900	\$0	\$0	\$3,993
05758	PA51 CADENCE-PUSAN TO CHINON 12_16RW	\$4,154	\$271,700	\$0	\$0	\$4,154
05788	PA51 ALTON PKWY SS RELOCATION 12 AND 18	\$20,771	\$1,232,300	\$0	\$0	\$20,771
05816	PA51 ALTON-TECHNOLOGY TO MUIRLANDS 12 DW	\$2,948	\$177,100	\$0	\$0	\$2,948
05817	PA51 ALTON-TECHNOLOGY TO MUIRLANDS SS RELOCATION	\$27,204	\$1,326,300	\$0	\$0	\$27,204
06048	PA51 MARINE WAY-ALTON TO BARRANCA 18 SS	\$13,975	\$874,500	\$0	\$0	\$13,975
06514	PA51 GP GP-1 ST (MARINE TO GP-2 ST) 10 RW	\$9,783	\$536,800	\$0	\$0	\$9,783
06595	PA51 GP TERRAPIN (TRABUCO TO CADENCE) 6 RW ZB	\$3,212	\$180,400	\$0	\$0	\$3,212
06538	PA51 GP-2 ST (BOSQUE TO GP1 ST) 10 RW	\$21,070	\$1,169,400	\$0	\$0	\$21,070
06537	PA51 GP-2 ST (BOSQUE TO GP1 ST) 12 SS	\$5,117	\$333,300	\$0	\$0	\$5,117
06086	PA51 MARINE WAY FROM ALTON TO BARRANCA 12 DW ZN 3	\$8,845	\$438,700	\$0	\$0	\$8,845
06536	PA51 GP-2 ST (BOSQUE TO GP1 ST) 12 DW	\$8,428	\$531,300	\$0	\$0	\$8,428
06513	PA51 GP-1 ST (MARINE TO GP-2 ST) 12 SS	\$14,448	\$753,300	\$0	\$0	\$14,448
06512	PA51 GP-1 ST (MARINE TO GP-2 ST) 12 DW	\$6,622	\$355,300	\$0	\$0	\$6,622
06476	PA51 MARINE WAY. RIDGE VALLEY TO 3000 FT EAST	\$7,592	\$426,800	\$0	\$0	\$7,592
06209	PA51 MARINE WAY: SR133 TO RIDGE VALLEY 6 ZONE B	\$13,126	\$53,900	\$0	\$0	\$13,126
06208	PA51 MARINE WAY: SR133 TO RIDGE VALLEY 12 ZONE 3	\$1,604	\$82,500	\$0	\$0	\$1,604
06087	PA51 MARINE WAY-ALTON TO BARRANCA 16 RW ZN B	\$9,515	\$481,600	\$0	\$0	\$9,515
04278	PA51 RIDGE VALLEY-MARINE WAY TO TRABUCO RW	\$7,072	\$464,200	\$0	\$0	\$7,072
		<b>\$3,211,214</b>	<b>\$25,768,200</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,211,214</b>

Development - Sub Regional

FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
11584 PA 12 REGIONAL ZONE A RW IMPROVEMENTS	\$1,238,939	\$1,615,000	\$0	\$896,992	\$341,947
	<b>\$1,238,939</b>	<b>\$1,615,000</b>	<b>\$0</b>	<b>\$896,992</b>	<b>\$341,947</b>
<b>Development - Tustin Legacy</b>					
11359 TL NH D SOUTH 12SS	\$178,341	\$448,000	\$0	\$0	\$178,341
07535 TUSTIN LEGACY FLIGHT DR 6 RW	\$4,891	\$270,000	\$0	\$0	\$4,891
	<b>\$183,232</b>	<b>\$718,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$183,232</b>
<b>Nonpotable Storage</b>					
03808 SYPHON RESERVOIR IMPROVEMENTS	\$5,921,513	\$146,000,000	\$0	\$4,287,176	\$1,634,338
11168 LAKE FOREST ZONE C RECYCLED WATER PUMP STATION	\$2,819,433	\$3,801,600	\$1,691,660	\$0	\$1,127,773
	<b>\$8,740,946</b>	<b>\$149,801,600</b>	<b>\$1,691,660</b>	<b>\$4,287,176</b>	<b>\$2,762,111</b>
<b>OCSD - CORF - Solids Lease</b>					
10502 OCSD CORF LONG TERM CAPITAL PROGRAM 2018 TO 2050	\$8,781,125	\$210,379,000	\$6,383,878	\$1,958,191	\$439,056
10594 OCSD SOLIDS LEASE LONG TERM CAPITAL PROGRAM 2018 to 2	\$500,000	\$12,082,000	\$0	\$402,000	\$98,000
	<b>\$9,281,125</b>	<b>\$222,461,000</b>	<b>\$6,383,878</b>	<b>\$2,360,191</b>	<b>\$537,056</b>
<b>OCWD Annexation</b>					
10503 OCWD ANNEXATION LONG TERM CAPITAL PROGRAM 2018 TO	\$625,400	\$22,861,400	\$0	\$509,701	\$115,699
	<b>\$625,400</b>	<b>\$22,861,400</b>	<b>\$0</b>	<b>\$509,701</b>	<b>\$115,699</b>
<b>Operational</b>					
06160 OPERATIONS CENTER FACILITY REFRESH-DW	\$42,500	\$370,000	\$42,500	\$0	\$0
10559 BAKER WTP OUTFALL STRUCTURE, FENCING & ACCESS IMPRO	\$1,122	\$1,422,500	\$0	\$915	\$208
10379 SAN JOAQUIN RESERVOIR FILTRATION FACILITY	\$2,484,533	\$3,654,000	\$0	\$1,798,802	\$685,731
10101 SANTIAGO CANYON FLEMING STORAGE AND PUMP STATION I	\$1,658,502	\$9,001,000	\$174,143	\$1,484,359	\$0
07882 CNG AND DIESEL/GASOLINE FILLING STATION-SS	\$2,666,573	\$5,257,000	\$621,312	\$1,559,945	\$485,316
07881 CNG AND DIESEL/GASOLINE FILLING STATION-DW	\$1,333,843	\$2,630,000	\$310,785	\$833,652	\$189,406
06161 OPERATIONS CENTER FACILITY REFRESH-SS	\$79,864	\$740,000	\$79,864	\$0	\$0

FY Exp Category		FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
01813	SANTIAGO DAM OUTLET AND SPILLWAY	\$2,804,367	\$139,307,000	\$2,658,540	\$114,979	\$30,848
01398	SANTIAGO CYN AREA PS IMPROVEMENTS	\$1,721,214	\$6,613,000	\$0	\$1,721,214	\$0
11156	RADIO TOWER IMP-SS	\$33,667	\$236,000	\$33,667	\$0	\$0
06214	PDF SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM	\$3,188,124	\$8,026,900	\$682,259	\$2,043,588	\$462,278
11586	AUTOMATION CYBERSECURITY - DW	\$449,750	\$1,350,000	\$0	\$366,546	\$83,204
11123	LAKE FOREST WOODS SEWER ACCESS IMPROVEMENTS	\$49,691	\$353,000	\$49,691	\$0	\$0
11855	PURCHASING WAREHOUSE-SS	\$174,000	\$797,000	\$0	\$139,896	\$34,104
11854	PURCHASING WAREHOUSE-DW	\$174,000	\$797,000	\$0	\$141,810	\$32,190
11840	TURTLE ROCK ZONE 3 RESERVOIR CHLORAMINE BOOSTER STA	\$316,250	\$1,705,000	\$0	\$257,744	\$58,506
11602	GENERAL SECURITY SYSTEM MODIFICATIONS - DW	\$40,541	\$125,000	\$0	\$33,041	\$7,500
11537	EMERGENCY GENERATOR FUEL STORAGE - SS	\$201,293	\$522,000	\$0	\$161,840	\$39,453
11536	EMERGENCY GENERATOR FUEL STORAGE - DW	\$288,142	\$819,000	\$0	\$234,835	\$53,306
11194	SAFETY- MWRP MBR FALL PROTECTION IMP	\$179,164	\$262,000	\$0	\$144,048	\$35,116
11192	GENERAL SECURITY SYSTEM MODIFICATIONS - SS	\$40,541	\$125,000	\$0	\$33,122	\$7,419
11171	WELL ET-1 PFAS TREATMENT	\$2,718,960	\$5,167,450	\$0	\$1,968,527	\$750,433
11157	RADIO TOWER IMP-RW	\$33,667	\$236,000	\$33,667	\$0	\$0
11154	RADIO TOWER IMP-DW	\$32,667	\$228,000	\$32,667	\$0	\$0
11720	WELL OPA 1 PFAS TREATMENT	\$299,939	\$363,000	\$0	\$244,450	\$55,489
		<b>\$21,012,911</b>	<b>\$190,106,850</b>	<b>\$4,719,093</b>	<b>\$13,283,311</b>	<b>\$3,010,507</b>
Planning						
11688	ASSET MANAGEMENT CAPITAL IMPROVEMENT PLAN SS	\$182	\$225,500	\$182	\$0	\$0
11781	CAPITAL PLANNING SUPPORT DW 21/22-22/23	\$675,900	\$1,351,800	\$0	\$550,859	\$125,042
11791	NON-POTABLE WATER STUDIES 21/22-22/23	\$50,000	\$100,000	\$0	\$36,200	\$13,800
11785	CAPITAL PLANNING SUPPORT SS 21/22-22/23	\$675,900	\$1,351,800	\$0	\$543,424	\$132,476
11687	ASSET MANAGEMENT CAPITAL IMPROVEMENT PLAN RW	\$182	\$225,500	\$182	\$0	\$0
11686	ASSET MANAGEMENT CAPITAL IMPROVEMENT PLAN DW	\$182	\$225,500	\$182	\$0	\$0

FY Exp Category		FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
07895	NTS MASTER PLAN UPDATE	\$257,591	\$400,000	\$257,591	\$0	\$0
11783	CAPITAL PLANNING SUPPORT RW 21/22-22/23	\$675,900	\$1,351,800	\$0	\$489,352	\$186,548
		<b>\$2,335,836</b>	<b>\$5,231,900</b>	<b>\$258,136</b>	<b>\$1,619,834</b>	<b>\$457,866</b>
<b>Property Management</b>						
11869	SAND CANYON PROFESSIONAL CENTER - GENERAL OFFICE (155	\$4,977,652	\$5,350,000	\$4,977,652	\$0	\$0
		<b>\$4,977,652</b>	<b>\$5,350,000</b>	<b>\$4,977,652</b>	<b>\$0</b>	<b>\$0</b>
<b>Replacement - Facilities</b>						
11599	MWRP PRIMARY CLARIFIERS 1-5 COVERS REPLACEMENT	\$416,243	\$1,419,000	\$416,243	\$0	\$0
11570	DRWF WELLSITE REHAB	\$267,312	\$1,588,000	\$267,312	\$0	\$0
11912	COASTAL ZONE 1-2 PS AND ZONE 2-4 PS REHABILITATION	\$200,495	\$1,392,000	\$200,495	\$0	\$0
11583	SR 55 WIDENING SEWER RELOCATION	\$67,398	\$262,000	\$67,398	\$0	\$0
11587	SILVERADO CANYON RD BRIDGE 175 AT LADD CANYON DW IM	\$15,527	\$674,900	\$15,527	\$0	\$0
11588	SILVERADO CANYON RD BRIDGE 174 AT SILVERADO COMMUNI	\$107,572	\$504,900	\$107,572	\$0	\$0
11589	SILVERADO CANYON RD BRIDGE 177 AT READ RESERVOIR DW I	\$16,470	\$564,900	\$16,470	\$0	\$0
11597	SEAWATCH RW PRV	\$925,385	\$1,095,000	\$0	\$669,979	\$255,406
11571	WOODBIDGE RW PIPELINE REPLACEMENT (ACP)	\$9,029,944	\$11,018,000	\$9,029,944	\$0	\$0
11615	BAKER PIPELINE RELOCATION IN SANTIAGO CREEK	\$809,620	\$1,005,400	\$809,620	\$0	\$0
11899	MWRP PAVING	\$70,623	\$243,000	\$70,623	\$0	\$0
11906	SOCWA ETM REACH B/C REPLACEMENT	\$75,000	\$3,800,000	\$75,000	\$0	\$0
11568	COASTAL ZNS B&D BPS ELECRICAL REPLACEMENT	\$30,772	\$1,737,000	\$30,772	\$0	\$0
11593	MODJESKA RD BRIDGE 172 AT MARKUSON RD DW IMPROVEM	\$16,470	\$564,900	\$16,470	\$0	\$0
07886	SEWER SIPHON REHABILITATION	\$2,156,218	\$9,746,000	\$2,156,218	\$0	\$0
11567	MORSE/GILLETTE DW REPLACEMENT	\$463,392	\$674,000	\$463,392	\$0	\$0
03750	SOCWA ETM PROTECTION-TRAIL BRIDGE CROSSING (PC 21)	\$44,285	\$1,215,000	\$44,285	\$0	\$0
11585	PUBLIC OUTREACH CAMPAIGN REPLACEMENTS	\$97,676	\$500,000	\$97,676	\$0	\$0
05761	15 MG ZONE 1 RESERVOIR INTERIOR COATING	\$2,642,973	\$2,748,500	\$2,642,973	\$0	\$0

FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
07892 MWRP TERTIARY FILTER REHABILITATION	\$717,508	\$9,875,600	\$717,508	\$0	\$0
07898 PLC REPLACEMENT-DW	\$102,389	\$670,000	\$102,389	\$0	\$0
07899 PLC REPLACEMENT-RW	\$32,111	\$210,000	\$32,111	\$0	\$0
10542 VAULT LID REPLACEMENT-IRV BLVD	\$20,000	\$1,078,350	\$20,000	\$0	\$0
11122 HATS DIVERSION STRUCTURE REHABILITATION	\$445,580	\$707,000	\$445,580	\$0	\$0
11142 NTS-WOODBRIDGE NTS RELOCATION	\$57,600	\$120,000	\$57,600	\$0	\$0
11174 PLC REPLACEMENT-SS	\$70,909	\$220,000	\$70,909	\$0	\$0
11189 SOCWA ETM AVAC VALVE REPLACEMENT REACHES D AND E (P	\$24,278	\$1,000,000	\$24,278	\$0	\$0
11483 DATS MISCELLANEOUS REHABILITATION	\$1,956,779	\$2,278,500	\$1,956,779	\$0	\$0
05476 ZONE A TO RATTLESNAKE RESERVOIR PUMP STATION	\$7,237,695	\$22,008,000	\$7,237,695	\$0	\$0
	<b>\$28,118,225</b>	<b>\$78,919,950</b>	<b>\$27,192,840</b>	<b>\$669,979</b>	<b>\$255,406</b>

#### Replacement - FY System

11081 LAW RP SYSTEM REPLACEMENTS 21/22	\$138,000	\$138,000	\$138,000	\$0	\$0
11772 GENERAL SYSTEM REPLACEMENTS AND MODIFICATIONS DW 2	\$6,283,000	\$6,283,000	\$6,283,000	\$0	\$0
11775 GENERAL SYSTEM REPLACEMENTS AND MODIFICATIONS RW 2	\$2,103,000	\$2,103,000	\$2,103,000	\$0	\$0
11778 GENERAL SYSTEM REPLACEMENTS AND MODIFICATIONS SS 21	\$2,035,000	\$2,035,000	\$2,035,000	\$0	\$0
	<b>\$10,559,000</b>	<b>\$10,559,000</b>	<b>\$10,559,000</b>	<b>\$0</b>	<b>\$0</b>

#### Replacement-Business Software

10547 CC&B & OUBI SOFTWARE UPGRADE-SS	\$1,005,529	\$1,424,500	\$1,005,529	\$0	\$0
11889 MAXIMO SCHEDULER REPLACEMENT-SS	\$150,000	\$150,000	\$150,000	\$0	\$0
11888 MAXIMO SCHEDULER REPLACEMENT-DW	\$75,000	\$75,000	\$75,000	\$0	\$0
10546 CC&B & OUBI SOFTWARE UPGRADE-DW	\$1,005,529	\$1,424,500	\$1,005,529	\$0	\$0
11808 ORACLE BI UPGRADE 2021 - DW	\$56,250	\$150,000	\$56,250	\$0	\$0
11810 ORACLE BI UPGRADE 2021 - SS	\$56,250	\$150,000	\$56,250	\$0	\$0
	<b>\$2,348,559</b>	<b>\$3,374,000</b>	<b>\$2,348,559</b>	<b>\$0</b>	<b>\$0</b>

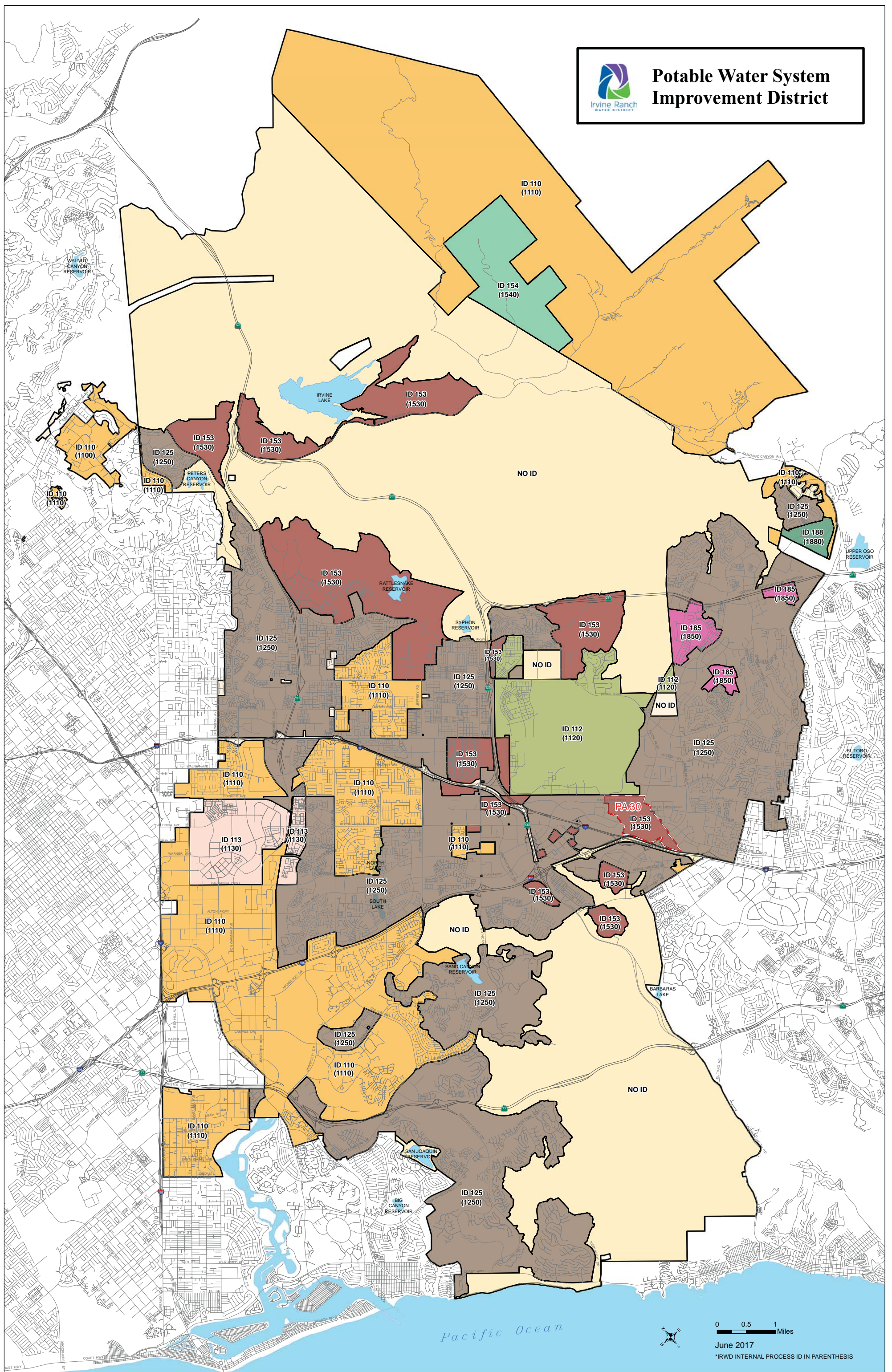


FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
<b>Sewage Treatment</b>					
01477 LAWRP TREATMENT PROCESS MODERNIZATION	\$2,632,500	\$202,434,250	\$2,632,500	\$0	\$0
11878 LAWRP DIVERSION TO MWRP DURING CONSTRUCTION	\$2,857	\$11,671,000	\$0	\$2,297	\$560
	<b>\$2,635,357</b>	<b>\$214,105,250</b>	<b>\$2,632,500</b>	<b>\$2,297</b>	<b>\$560</b>
<b>Solids Handling</b>					
04286 MWRP BIOSOLIDS AND ENERGY RECOVERY FACILITIES	\$65,175	\$265,542,100	\$29,655	\$30,372	\$5,149
11879 MWRP SLUDGE RECEIVING STATION FACILITY	\$1,429	\$1,581,000	\$0	\$1,149	\$280
	<b>\$66,604</b>	<b>\$267,123,100</b>	<b>\$29,655</b>	<b>\$31,520</b>	<b>\$5,429</b>
<b>Water Banking</b>					
10854 KERN FAN GROUNDWATER STORAGE	\$14,044,500	\$115,410,500	\$0	\$11,446,268	\$2,598,233
11746 SITES RESERVOIR PLANNING AND ENVIRONMENTAL REVIEW	\$323,769	\$701,500	\$0	\$263,872	\$59,897
	<b>\$14,368,269</b>	<b>\$116,112,000</b>	<b>\$0</b>	<b>\$11,710,139</b>	<b>\$2,658,130</b>
<b>Water Resources</b>					
07682 PILOT SOUTH BASIN GROUNDWATER CLEANUP	\$333,333	\$1,127,500	\$0	\$271,667	\$61,667
11799 WATER STUDIES 21/22-22/23	\$735,000	\$1,470,000	\$0	\$599,025	\$135,975
11187 RW CONVERSION IMPROVEMENTS FOR OFF-SITE 21/22	\$444,000	\$444,000	\$444,000	\$0	\$0
11747 DELTA CONVEYANCE PROJECT PLANNING AND ENVIRONMENT	\$85,302	\$263,000	\$0	\$69,521	\$15,781
	<b>\$1,597,635</b>	<b>\$3,304,500</b>	<b>\$444,000</b>	<b>\$940,212</b>	<b>\$213,422</b>
<b>Well Rehabilitation</b>					
11827 WELL REHAB-WELL 51	\$736,491	\$900,000	\$736,491	\$0	\$0
07087 WELL REHAB-DRWF 10	\$40,692	\$810,000	\$40,692	\$0	\$0
07088 WELL REHAB-DRWF 11	\$31,538	\$770,000	\$31,538	\$0	\$0
07092 WELL REHAB-DRWF 01	\$30,714	\$770,000	\$30,714	\$0	\$0
10098 WELL REHAB-DRWF 13	\$31,538	\$770,000	\$31,538	\$0	\$0
11050 WELL MAINTENANCE AND REHABILITATION 21/22-DW	\$360,000	\$360,000	\$360,000	\$0	\$0

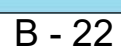
FY Exp Category	FY 21-22 w/ G&A	Total w/ G&A	FY Replacement	FY Developed	FY Developing
11127 WELL MAINTENANCE AND REHABILITATION 21/22-RW	\$90,000	\$90,000	\$90,000	\$0	\$0
11137 WELL REHAB-IDP 76	\$90,545	\$814,000	\$90,545	\$0	\$0
	<b>\$1,411,520</b>	<b>\$5,284,000</b>	<b>\$1,411,520</b>	<b>\$0</b>	<b>\$0</b>
	<b>\$114,244,186</b>	<b>\$1,326,887,950</b>	<b>\$62,707,717</b>	<b>\$37,119,923</b>	<b>\$14,416,546</b>

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# EXHIBIT "C"

## RESOLUTION NO. 2021 - XX

### RESOLUTION OF THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT, ORANGE COUNTY, CALIFORNIA, APPROVING DISTRICT'S CAPITAL BUDGET FOR FISCAL YEARS 2021-22 AND 2022-23

WHEREAS, the Board of Directors of the Irvine Ranch Water District (IRWD) has considered the capital project needs of IRWD for Fiscal Years 2021-22 and 2022-23; and

WHEREAS, a Capital Budget, which includes both the capital expenditures projected for Fiscal Year 2021-22 and 2022-23 and entire project budgets for the listed projects, as set forth in the attached Exhibit "A" has been prepared and reviewed by this Board of Directors; and

WHEREAS, during the review of the Capital Budget by the Board of Directors, the Board "flagged" certain capital expenditures for projects for further review by the Board; and

WHEREAS, Article XIII B of the Constitution of the State of California provides that the appropriations of local agencies will be limited each year to those of the previous year, adjusted for changes in population, cost of living and transfers in sources of funding; and

WHEREAS, Section 8 of Article XIII B excludes from its limitations user charges and fees and regulatory fees, to the extent such fees and charges do not produce revenue exceeding the costs reasonably borne in providing the regulation, product or service, and Section 9 of Article XIII B excludes from the appropriations subject to limitation an appropriation for a qualified capital outlay project, defined by statute as an appropriation for a fixed asset (including land and construction) with a useful life of 10 or more years and a value which equals or exceeds one hundred thousand dollars (\$100,000); and

WHEREAS, the expenditures identified in the Capital Budget are to be funded entirely from user fees and charges excluded by Article XIII B, Section 8, and other monies that are not proceeds of taxes, such as proceeds of bonds or other indebtedness, and/or are expenditures for debt service or qualified capital outlay projects pursuant to Article XIII B, Section 9.

NOW, THEREFORE, the Board of Directors of IRWD DOES HEREBY RESOLVE, DETERMINE AND ORDER as follows:

Section 1. The revenues which have been collected from connection fees and have been deposited in the capital funds of the Improvement Districts, to the extent not previously or hereafter committed or appropriated to pay reimbursement, bonding and other financing or fund-management related costs for capital facilities, are hereby appropriated to pay costs of the projects shown in the Capital Budget.

Section 2. That relative to appropriations subject to limitation under Article XIII B of the Constitution of the State of California, it is hereby determined that IRWD's Capital Budget for Fiscal Years 2021-22 and 2022-23 is to be funded totally by revenues other than the proceeds of taxes, and/or that the expenditures identified in such Capital Budget are for debt service or qualified capital outlay projects, and that the documentation used in making such determination has been on file in the offices of IRWD for not less than 15 days prior to the date hereof, pursuant to Section 7910 of the Government Code of the State of California.

Section 3. Subject in all respects to prior pledges for debt service requirements, including those contained in Resolution No. 2002-10, the Treasurer is hereby authorized and directed to allocate to the Replacement Fund, 32% of the general 1% ad valorem property tax revenues for the 2021-22 and 2022-23 fiscal years, to be expended for qualified capital outlay projects.

Section 4. That IRWD's Capital Budget for Fiscal Years 2021-22 and 2022-23 is in compliance with the provisions of Article XIII B of the Constitution of the State of California.

Section 5. That IRWD's Capital Budget for Fiscal Years 2021-22 and 2022-23, shown in the attached Exhibit "A" and by this reference incorporated herein, be and the same is hereby approved.

Section 6. That the capital expenditures for projects set forth in the attached Exhibit "A" identified with "Yes" in the Flagged report section are "flagged" for further review by the Board of Directors prior to implementation, pursuant to the Policy Regarding Authorization of Expenditures.

ADOPTED, SIGNED and APPROVED this 26th day of April, 2021.

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President, IRVINE RANCH WATER DISTRICT  
and of the Board of Directors thereof

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Assistant Secretary, IRVINE RANCH WATER DISTRICT  
and of the Board of Directors thereof

APPROVED AS TO FORM:  
Lewis Brisbois Bisgaard & Smith, LLP  
Legal Counsel - IRWD

By \_\_\_\_\_



April 20, 2021

Prepared by: R. Bennett / K. Welch

Submitted by: F. Sanchez / P. Weghorst

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### UPDATE ON WATER INDUSTRY ENERGY TARIFF RESEARCH

#### SUMMARY:

California is implementing a legislated requirement to secure 60% of its energy from renewable sources by the year 2030. The state is further requiring that all the state's electricity come from carbon-free resources by 2045. These requirements will likely lead to increased energy costs and transmission grid challenges. In coordination with Southern California Edison (SCE), staff has conducted research into enhancing tariffs, incentives programs, and flexible demand response programs that could reduce water energy costs and that assist SCE with its efforts to address future transmission grid challenges. At the Committee meeting, staff will present an update on the research conducted.

#### BACKGROUND:

California's electric industry is undergoing a significant transformation with a Renewable Portfolio Standard (RPS) targeting a statewide resource mix of 60% renewable energy by the year 2030. The state is further requiring that all the state's electricity come from carbon-free resources by 2045. To facilitate the transformation, a substantial portion of the state's renewables portfolio is expected to be provided by intermittent resources, such as solar photovoltaics and wind. Through the transition periods, all of California's energy providers will continue to experience changes in electric markets, with increased needs for distributed energy resources and additional flexibility.

SCE has published its Clean Power and Electrification Pathway to define its plan for achieving the RPS goals while addressing changes in the energy sector, distribution system requirements and operational approaches. These changes are expected to provide new opportunities for the water, sewage collection and treatment industry (Water Industry) if agencies can adapt their current use of electricity and take advantage of SCE's programs to help achieve statewide goals. To encourage adaptation by the Water Industry, there is a need for changes to Water Industry tariff design, available incentives, and current demand response programs.

#### 2019 Time-of-Use Rate Changes:

In 2019, the California Public Utility Commission (CPUC) approved new time-of-use (TOU) billing rates for SCE that included a shift in on-peak weekday charges to five hours in the evening (4:00 p.m. to 9:00 p.m.) from the previous long-standing on-peak period of six hours in the afternoon (12:00 p.m. to 6:00 p.m.). This rate change provides an economic incentive to shift flexible operational load away from the evening on-peak period to the cheaper off-peak periods when energy supplies from renewables often meet or exceed user demand. Fortunately, this rate change has been a benefit to the Water Industry because much of water agency infrastructure has already been constructed to minimize dispatchable energy use for up to a six-hour period.

Unfortunately, the TOU rate change has not been beneficial for non-dispatchable, continuous energy use that is often required by the Water Industry to accommodate supply and treatment processes that must operate continuously.

Water Industry Tariff Research:

To address the challenge of shifting non-dispatchable, continuous energy use from SCE's on-peak period to off-peak period, staff has been working with SCE on researching the potential cost and energy saving opportunities related to making changes to the existing tariff designs, program incentives and demand response programs that would be specific to the needs of the Water Industry. IRWD, with the assistance of SCE, has prepared the draft paper on Water Industry Energy Tariff Design that is provided as Exhibit "A". At the Committee meeting, staff will present the findings of this research and related considerations.

Next Steps:

Based on the research described in Exhibit "A", staff will continue to coordinate with SCE and other water agencies to develop new tariffs, incentives, or flexible demand response programs that reduce water energy costs and that assist SCE with its efforts to address future transmission grid challenges.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

The described Energy Tariff Research is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262, which provides an exemption for planning studies.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Draft Water Industry Tariff Research Paper

# Exhibit “A”

## DRAFT

Water Industry Energy Tariff Research Paper  
Prepared by Irvine Ranch Water District in Cooperation with  
Southern California Edison

April 2021

California’s electric industry is undergoing transformation with a Renewable Portfolio Standard (RPS) targeting a statewide resource mix of 60% renewable energy by the year 2030. With a substantial portion of the state’s renewables portfolio expected to be provided by intermittent resources, such as solar photovoltaics and wind, all of California’s energy providers will continue to experience changes in their electric markets, the need for new distributed energy resources and increasing demand for flexibility.

In 2019, the California Public Utility Commission (CPUC) approved new time-of-use (TOU) billing rates for Southern California Edison (SCE) that included a shift in on-peak weekday charges to five hours in the evening (4:00 p.m. to 9:00 p.m.) from the previous long-standing on-peak period of six hours in the afternoon (12:00 p.m. to 6:00 p.m.). This rate change provides an economic incentive to shift flexible operational load away from the evening on-peak period to the cheaper off-peak periods when energy supplies from renewables often meet or exceed user demand. Fortunately, this rate change has been a benefit to the water, sewage collection and treatment industry (Water Industry) because much of industry’s infrastructure had already been constructed to minimize dispatchable energy use for up to a six-hour period. Unfortunately, the rate change has not been beneficial for non-dispatchable, continuous energy use that is often required by the Water Industry to accommodate supply and treatment processes that must operate continuously.

To address the challenge of shifting non-dispatchable, continuous energy use from SCE’s on-peak period to off-peak period, IRWD has been coordinating with SCE to research opportunities such as potential changes to Water Industry tariff design, available incentives, and current demand response programs. The research is described in general terms and applied to an example water storage project, as summarized below.

### Example Water Storage Project:

SCE’s current billing structure for the Water Industry includes rate factors which vary with TOU and that are broken into two major billing categories; delivery charges (includes a demand portion) and generation charges. In 2019, IRWD and SCE, along with consultants at Pace Engineers, investigated the feasibility of developing a recycled water storage reservoir that would allow existing continuously pumped recycled water to be stored locally for five hours per day during the peak TOU and discharged for 19 hours during the mid-peak and off-peak time periods (Pace, March 2019). This evaluation of this project provides an example from which to analyze tariff design enhancements that could reduce Water Industry energy costs and assist SCE with its efforts to address future transmission grid challenges.

*Savings from Example Storage Project:*

As shown in **Table 1**, the example water storage project would have resulted in an 11% net reduction in IRWD annual 2019 energy costs of about \$114,000 with a significant savings in delivery charges (based on kilowatt-hours (kWh)) of about \$181,000 being offset by an increase in delivery demand charges (based on kilowatt (kW)) of about \$67,000. This increase in demand charges penalizes the shifting of non-dispatchable energy use to off-peak TOU periods and impairs the financial feasibility of the example water storage project. The overall reduction in costs from this example project presumes a Water Industry customer like IRWD with developed battery storage and other energy efficiency programs will be able to shift electric load without significantly impacting the economics of those developments.

**Table 1**  
**Estimated Energy Savings with Existing Tariff Structure**  
**From Example Water Storage Project**

Item	Existing (No Project)	Proposed (With Project)	Change (Existing - Proposed)	% Change (Existing - Proposed)
Annual Generation (kWh) Cost	\$652,686	\$651,694	\$992	0%
Annual Delivery Demand (kW) Cost	\$163,033	\$230,447	-\$67,414	-41%
Annual Delivery (kWh) Cost	\$199,542	\$18,871	\$180,671	91%
<b>Total Generation and Delivery Cost</b>	<b>\$1,015,261</b>	<b>\$901,012</b>	<b>\$114,249</b>	<b>11%</b>

Tariff Design Enhancement:

Based on this analysis of the water storage project described above, a potential enhancement to the Water Industry tariff structure, which could increase the net savings of shifting non-dispatchable energy use to off-peak TOU periods through the use of water storage, would be to reduce the delivery demand charges. As shown in **Table 2**, this approach would eliminate the penalty associated with delivery demand charges. This could result in a total net reduction in energy costs of about \$182,000, which would improve the financial feasibility of using water storage as method of shifting non-dispatchable energy use to off-peak TOU periods.

**Table 2**  
**Estimated Energy Savings from an Example Water Storage Project**  
**With Proposed Tariff Enhancements**

Item	Existing (No Project)	Proposed (With Project)	Change (Existing - Proposed)	% Change (Existing - Proposed)
Annual Generation (kWh) Cost	\$652,686	\$651,694	\$992	0%
Annual Delivery Demand (kW) Cost	\$163,033	\$163,033	\$0	0%
Annual Delivery (kWh) Cost	\$199,542	\$18,871	\$180,671	91%
<b>Total Generation and Delivery Cost</b>	<b>\$1,015,261</b>	<b>\$833,598</b>	<b>\$181,663</b>	<b>18%</b>

#### Water Storage Incentives:

A substantial investment in water storage facilities, technology, and/or financing will be required for Water Industry customers to shift non-dispatchable continuous electrical use away from on-peak TOU periods, when energy supplies are relatively low. While the proposed tariff enhancement described above could provide benefits to the Water Industry, the projected savings are not likely to be sufficient to justify the significant cost of developing a new water storage facility. Expanding SCE incentive programs for water storage would improve the feasibility of such projects.

As part of the Pace study, the cost of constructing, operating, and maintaining a new recycled water storage facility was estimated to be approximately \$4.4 million in capital costs with annual operations and maintenance (O&M) costs of approximately \$80,000. This storage project is considered a relatively inexpensive example of a Water Industry storage facility constructed for energy savings because the purchase of land is not required, and the existing conveyance system was estimated to be adequate to accommodate 19 hours of recycled water delivery with the project versus 24 hours without the project. A financial analysis was performed to determine how water storage incentive programs could improve the feasibility of the example water storage project.

#### *Financial Analysis:*

**Table 3** presents a financial analysis of the 20-year and 30-year net present value (NPV) of the example storage project with four combinations of the current tariff, enhanced tariff and a \$2.0 million storage program incentive. As shown, with the specified economic parameters, the 20-year NPV ranges from a \$3.3 million expense with the current tariff and no incentive to a 30-year \$2.1 million benefit with the enhanced tariff and incentive. Based on the analysis, the example recycled water storage facility is not economically feasible with the current tariff and only becomes economically feasible with various combinations of an enhanced tariff and financial incentives when evaluated on a 30-year NPV basis.

**Table 3**  
**Economic Analysis from an Example Water Storage Project**  
**With and Without Enhanced Tariff and Incentives**

Item	Current Tariff and No Incentive	Current Tariff with Incentive	Revised Tariff and No Incentive	Revised Tariff With Incentive
Capital Cost	-\$4,386,000	-\$4,386,000	-\$4,386,000	-\$4,386,000
O&M	-\$80,000	-\$80,000	-\$80,000	-\$80,000
Discount Rate	3%	3%	3%	3%
O&M Increase	4%	4%	4%	4%
SCE Increase	5%	5%	5%	5%
Energy Savings	\$114,000	\$114,000	\$181,500	\$181,500
Incentive	\$0	\$2,000,000	\$0	\$2,000,000
NPV (20 yr)	-\$3,289,947	-\$1,348,199	-\$1,706,847	\$234,901
NPV (30 yrs)	-\$2,498,824	-\$557,076	\$135,644	\$2,077,392

#### Flexible Demand Response Programs:

Demand Response (DR) programs offer customers bill credits for reducing electricity use when the demand for electricity or market prices are high and a “DR Event” is declared. During these events, electric customers reduce their energy usage and, in return, receive bill credits. SCE offers a variety of DR program options to fit the needs of different business types. Some programs are on a voluntary basis without penalty for non-participation, while other programs require commitment levels and incorporate penalties if a participant does not reduce its electric load.

#### *Challenges for Non-Dispatchable Continuous Use:*

DR programs can be financially beneficial if a non-dispatchable continuous electrical use can reduce energy load during a program event. However, these programs are often difficult to implement for the Water Industry because the DR event periods may extend over multiple hours and participation may require a substantial investment in facilities, technology, and/or financing. Another potential challenge for the Water Industry is the staff training required to accommodate a reduction in energy use that may only be needed a few times per year.

#### *Opportunities for Flexibility:*

Based on the review of current programs, a flexible DR program could be implemented where the period of time required to reduce energy use is in minutes rather than in multiple hours. For

example, a non-dispatchable continuous energy use may have enough flexibility to reduce energy use for 15 minutes but cannot provide reductions over two hours. The implementation of a reduced time period for DR may provide significant benefits to both the electrical grid and Water Industry users and should be researched further.

#### Other Considerations:

In addition to the challenges associated with implementing tariff enhancements, incentives and flexible demand response programs, there are other considerations that may limit the Water Industry's ability to limit energy use during peak TOU periods, which include:

##### *Air Quality:*

Many Water Industry users have generators available for emergency use that could be used to offset energy use during a critical energy supply event. Recognizing an energy shortage as a water supply emergency that accommodates generator use without violating an air quality limit should be considered.

##### *Existing Programs:*

Many Water Industry users have existing programs that may limit their ability to implement a change in energy use. For example, Water Industry users often have solar photovoltaic and battery storage projects which have financing based on historic energy use. Similarly, SCE has a long history of using tariffs to encourage certain types of responses for some customers and incentives for others. Therefore, the ability to seamlessly accommodate one or more energy programs should be considered.

#### Next Steps:

It is recommended that IRWD continue to coordinate with SCE and other Water Industry users to enhance existing and develop new programs to enhance tariffs, incentives, and demand response programs that could benefit Water Industry agencies by reducing energy costs and assisting SCE with future transmission grid challenges.

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April 20, 2021

Prepared by: R. Bennett / K. Welch

Submitted by: F. Sanchez / P. Weghorst

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### SALT MANAGEMENT MODEL PHASE 1 UPDATE BUDGET INCREASE

#### SUMMARY:

The Salt Management Model Phase 1 Update and Validation Project will update IRWD's existing Recycled Water Salt Management Model by incorporating additional historic data and new facilities, as well as analyzing and validating a selected alternative proposed in IRWD's Sewage Treatment Master Plan (STMP). In May 2020, consulting engineers at HDR initiated work on the Project. To date, HDR has completed the incorporation of the additional data and new facilities into the model. Additional budget to complete the model validation portion of the work is needed because the STMP alternative to be modeled is significantly more complex than envisioned in the consultant's original scope of work. Staff recommends the Board authorize a budget increase in the amount of \$65,000 for Project 11135, from \$187,500 to \$252,500, to complete the Salt Management Model Phase 1 Update and Validation Project.

#### BACKGROUND:

In 2013, HDR developed IRWD's Recycled Water Salt Management Model as part of the District's Salt Management Plan. Since the development of this model, IRWD has used it to help analyze and manage the District's salt loading, as well as to evaluate future projects that may impact IRWD's ability to provide good quality recycled water to its customers and to meet Regional Water Quality Control Board permit levels for total dissolved solids (TDS) in recycled water discharged into IRWD's storage reservoirs. As part of these uses, the model has been enhanced to simulate chloride and boron, to accept flow and quality data generated by a groundwater model, and to analyze complex alternatives like the proposed Huntington Beach Seawater Desalination Project. The historic data in the current version of model had not been updated since 2013 and does not include the ability to simulate new IRWD projects such as Baker Water Treatment Plant and the Biosolids Project. The Salt Management Model Phase 1 Update and Validation Project is being implemented to update the Salt Management Model by incorporating additional historic data and new facilities, as well as analyzing and validating a selected alternative proposed in IRWD's STMP.

#### Model Phase 1 Update and Validation Project:

In May 2020, HDR was retained to perform Phase 1 of the model update work that includes incorporating additional historic data and the ability to simulate the new project facilities put into operation after 2013. In addition, the Phase 1 work includes verifying the update by analyzing a selected alternative from IRWD's draft STMP. Proposed work for Phase 2 of the model update, which is expected to analyze additional alternatives and to include structural enhancements to simplify the use of the model and long-term maintenance, is expected to occur in the next fiscal year.

*Phase 1 Work Completed:*

HDR has completed the Phase 1 data collection and facility update components of the Project that included the following tasks:

- A complete refresh of historic data from January 2008 to December 2019,
- The addition and/or assessment of new facilities such as the Michelson Water Recycling Plant (MWRP) Phase 2 Expansion, the Biosolids Project, the Baker Water Treatment Plant, sodium hypochlorite conversions, Sand Canyon Reservoir returns to MWRP, the Irvine Lake Pipeline Conversion Project, Green Acres Project diversions and the Peters Canyon Diversion Project, and
- Recalibration of the model.

Additional budget is required to complete the model validation component of the Phase 1 work because the STMP alternative to be modeled is significantly more complex than the analysis envisioned in the original scope of work. The additional budget will facilitate implementation of work under Variance No. 2 of the Professional Services Agreement with HDR.

*Variance No. 2 for SMTP Alternative Modeling:*

In January 2021, IRWD completed the STMP, which provides a framework for implementation of future capital improvement projects that directly affect IRWD's sewage collection system and treatment plants. The STMP provides an evaluation of several system-wide alternatives. In the plan, an alternative was selected as the system-wide alternative to serve as the basis for the planning of future capital improvement projects. The analysis and validation of the selected alternative is significantly more complex than originally scoped by HDR. HDR has prepared and submitted a scope of work, cost estimate and schedule for Variance No. 2 to its Professional Services Agreement to complete modeling validation work in analyzing the selected alternative. HDR's scope of work, cost and schedule is provided as Exhibit "A".

The additional work to be performed on the Salt Management Model under Variance No. 2 includes the following:

- The ability to divert sewage from several sewer sheds that currently discharge to the Los Alisos Water Recycling Plant (LAWRP) to MWRP and/or El Toro Water District (ETWD);
- The ability to divert a portion of the sewage from the Irvine Business Center (IBC) that currently discharges to OC SAN would discharge to MWRP;
- Expand the LAWRP (secondary/tertiary) treatment capacity from 7.5/5.5 million gallons per day (MGD) to 12.5/10 MGD;
- Incorporate an advanced water purification facility at LAWRP that can process 10 MGD of tertiary treated water and delivery of 8.5 MGD of advanced treated water to the Baker Water Treatment Plant;
- Simulation of a side-stream reverse osmosis (RO) process at MWRP and LAWRP;

- Incorporate a new pipeline and pump station to deliver brine from the new MWRP RO system to the South Orange County Wastewater Authority outfall; and
- The ability to report alternative results at various stages of implementation such as LAWRP diverted to MWRP, LAWRP diverted to MWRP and ETWD, IBC diversion to MWRP, and MWRP and LAWRP, with and without a RO system.

The cost of Variance No. 2 to HDR's Professional Services Agreement is \$45,500 and execution of the variance is within staff's authority. To complete the work, a budget increase is needed.

FISCAL IMPACTS:

The cost to complete the Salt Management Model Phase 1 Update and Validation is funded by Project 11135 and is included in the FY 2019 - 2021 Capital Budget. A budget increase in the amount of \$65,000 is required to fund the completion of the Project through Variance No. 2, which includes \$45,500 for HDR's work and \$19,500 for a 20% contingency and additional staff time, as shown in the table below:

Project No.	Current Budget	Budget Addition	Total Budget
11135	\$187,500	\$65,000	\$252,500

ENVIRONMENTAL COMPLIANCE:

The Salt Management Model – Phase 1 Update and Validation Project is exempt from the California Environmental Quality Act as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262 which provides an exemption for planning studies.

RECOMMENDATION:

That the Board authorize a budget increase in the amount of \$65,000, from \$187,500 to \$252,500, for Project 11135 to complete the Salt Management Model Phase 1 Update and Validation Project.

LIST OF EXHIBITS:

Exhibit "A" – Proposal for Salt Management Model Update (Phase 1– System Refresh) – Variance No. 2

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April 7, 2021

Mr. Ray R. Bennett, PE  
Engineer  
Irvine Ranch Water District  
15600 Sand Canyon Avenue  
Irvine, California 92618-3100

Subject: **Proposal for Salt Management Model Update (Phase 1 – System Refresh) - Variance No. 2**

Dear Mr. Bennett:

HDR appreciates the opportunity to work with the Irvine Ranch Water District (IRWD or District) to perform the Phase 1 - System Refresh of IRWD's Salt Balance Model. Our proposed request for Variance No. 2 is in response to several meetings held in December 2020 and January 2021, your email on January 28, 2021 and the follow-up discussion on January 29, 2021. Variance No. 2 is intended to perform the modeling for the Sewage Treatment Master Plan (STMP) Preferred Alternative at various stages and approaches to implementation, develop the alternative write-up, and develop the Final Technical Memorandum (TM) as was previously noted in Variance No. 1 to require an increased level of effort.

The scope and associated fee described herein reflect the anticipated level of effort for each task identified below for Phase 1. The following project tasks are included in this scope and fee:

- Task 1 – Project Management
- Task 2 – Meetings
- Task 8 – Evaluate One Alternative
- Task 9 – Technical Memorandum

## **Scope of Services**

**TASK 1 | PROJECT MANAGEMENT** Project management, coordination, and administration is a continuous task executed throughout the project and includes monthly monitoring of the scope, budget, invoicing and schedule for an additional 2.5 months for the project schedule. Fee includes additional time to manage the added scope with extended schedule, PM coordination, and invoicing.

*Deliverables: Monthly progress summary of activities and corresponding invoices.*

**TASK 2 | MEETINGS** HDR will conduct two additional meetings to provide a technical progress update for the modeling and to present the results of the STMP Preferred Alternative. These meetings are assumed to be 1 hour in duration to be attended by HDR's Project Manager and one additional staff member. The level of effort includes meeting attendance. Additional HDR staff may attend as needed.

*Assumptions: Meetings will be virtual meetings.*

**TASK 8 | Evaluate One (1) Alternative** The original scope of work estimated the alternative development would require a "level of effort and complexity is similar to previous scenario development performed for the original Salt Balance Model." This task includes the additional time to complete the work beyond initial assumptions to evaluate the STMP Preferred Alternative identified at IRWD's 2020 Strategic Planning Workshop (STMP System-Wide Alternative 12 – Raw Water Augmentation at Baker Water Treatment Plant) at various stages and approaches to implementation. The additional scope includes the following items where the time period selected for each enhancement may be different than the STMP construction schedule to accommodate the Salt Balance Model's forecast period that ends in 2035:

- **8.1 Model RO at treatment plants.** The STMP Preferred Alternative includes a reverse osmosis (RO) treatment facility at both MWRP and LAWRP. In this subtask HDR will:
  - Determine the appropriate parameters to use for RO; to be consistent with STMP.
  - Utilize previously developed RO functionality developed from the original 2015 Salt Model for Alternative 1 to model RO at MWRP. Modification will be required to account for influent to RO that changes with each time step.
  - Create a copy of RO tab calculation and apply to LAWRP.
  - Update macros as needed to complete calculations and record results.
- **8.2 Model interim implementation phase of the STMP Preferred Alternative.** The STMP Preferred Alternative requires all sewage currently delivered to LAWRP to be diverted to other treatment facilities during construction for the LAWRP Modernization project. Once LAWRP Modernization is completed, then sewage flows will be returned to LAWRP, and the Preferred Alternative includes additional diversions to be implemented.

On March 2, 2021, IRWD indicated a recent study determined that most of LAWRP flow will be diverted to MWRP and a portion of LAWRP flow will be diverted to El Toro Water District (ETWD) while LAWRP site improvements are completed. IRWD requested that the modeling effort for this interim phase be accelerated to provide early results and accommodate IRWD's internal schedule to aid in decision making. HDR completed the modeling and delivered these interim results on March 30, 2021. HDR performed the following effort for this subtask:

- Relate the identified diversion points to the sewersheds that will be diverted.
  - Update source water sewersheds (Areas 09/10/11) that currently discharge to LAWRP to discharge to MWRP and ETWD from 2022-2024.
  - Return sewage discharges from Areas 09/10/11 back to LAWRP from 2024-2035.
- While the STMP Preferred Alternative includes additional diversions, these were not captured for the initial results in order to meet IRWD's timeline.

After LAWRP is modernized, additional diversions will be implemented as part of the STMP Preferred Alternative. The time period selected for these diversions are different than the STMP construction schedule to accommodate the Salt Balance Model's forecast period that ends in 2035 (as described below). The following effort will be performed for this subtask:

- After LAWRP Modernization is completed, return sewage discharges from Areas 09/10/11 back to LAWRP from 2024-2028 and model LAWRP with/without RO.
- Implement the gravity diversion (Area 08) from MWRP to LAWRP in 2028 and model LAWRP with/without RO.
- Implement a pumped diversion from the IBC (Area 13) to MWRP from 2028-2035, the pumped diversions from MWRP (Areas 06/07) to LAWRP from 2028-2035 and model MWRP and LAWRP with/without RO.
- **8.3 Calibrate IBC sewershed concentrations based on 2018 sampling event from STMP.**  
The STMP included a 2-week data sampling of residential, commercial, and industrial sewer discharge flow and water quality in the IBC sewershed. In this subtask, HDR will:
  - Analyze the IBC sampling data 2-week sampling effort and other commercial and industrial data and to identify groupings of data (if applicable) in consideration of grab vs. composite samples, time of sample and potential source (i.e. base flow vs. water softener regeneration)
  - Adjust engineering estimates for commercial, commercial water softeners, industrial, and industrial water softeners to calibrate IBC sewershed to the collected IBC sampling effort.
  - Extend the results of the IBC calibration to other sewersheds as appropriate. Recalibrate the model using the calibrated values for Result Area 13 Tab (IBC) and adjusted values for the other sewersheds to include their associated impacts at MWRP.
- **8.4 Run 3 different scenarios (2 additional scenario) and develop write-up.** The original scope of work included one scenario. In this subtask, HDR will:
  - Analyze Alternative 12-1 that includes:
    - Interim flows from LAWRP to MWRP (2022-2024)
    - Sewershed diversions for Area (06/07/08/13)
    - Include Calibrated IBC concentration
    - Do NOT include RO treatment at MWRP and LAWRP
  - Analyze Alternative 12-2 that includes:
    - Interim flows from LAWRP to MWRP and El Toro (2020-2024)
    - Sewershed diversions for Area (06/07/08/13)
    - Include Calibrated IBC concentration
    - Do NOT include RO treatment at MWRP and LAWRP
  - Analyze Alternative 12-3 that includes:
    - Interim flows from LAWRP to MWRP and El Toro (2020-2024)
    - Sewershed diversions for Area (06/07/08/13)
    - Include Calibrated IBC concentration
    - Includes RO treatment at MWRP and LAWRP

*Assumptions:*

- *Review comments on the draft alternative analysis write-up will be addressed under Task 9 in the Final Technical Memorandum.*
- *Flow diversions will be implemented as entire sewersheds established using the current Salt Balance Model methodology based on a preliminary analysis that indicates simulating the entire sewershed is no more than 8% greater in flow (0.5 mgd) at buildout (6.4 mgd) than the actual diversion point. Any model enhancements required to split flows from a sewershed to multiple treatment facilities and/or add new sewersheds will be considered in Phase 2.*
- *Under the STMP Preferred Alternative, the gravity and pumped diversions from the MWRP tributary area to LAWRP and the pumped diversion from IBC area to MWRP occur within*

*the same year; this is reflected as sewershed diversions for Area (06/07/08/13).*

- *Under the STMP Preferred Alternative, advanced treated water produced at LAWRP would be conveyed for raw water augmentation at Baker Water Treatment Plant. This additional influent supply source at Baker would offset the usage of untreated imported water supply. A minimum TDS level of advanced treated water will be established based on best engineering judgment for the conceptual advanced treatment process.*

*Deliverables:*

- *Draft write-up of the analysis and results for the STMP Preferred Alternative (electronic copy in .docx and .pdf format) will be expanded to include discussion on the new scope items.*

**TASK 9 | TECHNICAL MEMORANDUM** This task includes the effort required to address IRWD review comments on the Draft TM, Executive Summary, Data Collection Memo, and Alternative write-up. The development of the Final TM, Executive Summary, and Data Collection Memo are included in this task as well.

*Assumptions:*

- *IRWD review comments from multiple reviewers will be provided in a single set.*
- *Draft write-ups that describe the data collection activities in Task 3 and the alternative analysis in Task 8 will be utilized.*

*Deliverables:*

- *Final TM (electronic copy in .pdf format)*
- *Final Salt Model (electronic copy in Excel format)*

**General Assumptions**

- General assumptions identified in the executed contract apply herein.

**Schedule**

Upon receipt of approval for Variance No. 2, HDR's proposed schedule is to complete the work in 2.5 months by the durations identified below.

Milestone	Duration	Anticipated Date of Completion
Variance No. 2 Approval (anticipated)	April 12, 2021	April 12, 2021
Receive IRWD Review Comments on Draft TM and Executive Summary	About 1 week from variance approval	April 19, 2021
Technical Progress Update Meeting	About 2.5 weeks from variance approval	April 28, 2021
STMP Preferred Alternative Results Meeting and Submit Draft Alternative Write-up	About 5 weeks from variance approval	May 17, 2021
Receive IRWD Review Comments on Draft Alternative Write-up	About 2 weeks from Draft Alternative Write-up	May 31, 2021
Submit Final TM, Executive Summary, Data Collection Memo, and Salt Balance Model	About 2.5 months from variance approval	June 30, 2021



### **Estimated Fee**

HDR proposes to provide our services for Tasks 1 through 9 on an hourly rate basis plus travel and expenses and assumes project completion in 2.5 months after the Variance No. 2 approval is provided. The proposed not-to-exceed fee estimate for these Tasks is detailed in the attached fee spreadsheet table. Our proposal is valid for 30 days.

Thank you for this opportunity to continue working with Irvine Ranch Water District in the refresh of IRWD's Salt Balance Model. Please contact Amy Omae (714) 730-2344 if you have any questions.

Sincerely,

HDR Engineering, Inc.



Kip D. Field, PE  
*Sr. Vice President, Authorized Signatory*



Amy Omae, PE  
*Project Manager*

cc: Joseph Nye, PE, PMP  
Gregorio Estrada, PE  
Curtis Gauthier, PE

Irvine Ranch Water District  
Salt Management Model Update - Phase 1 System Refresh and Validation - Variance 2  
Estimated Level of Effort and Fee



TASK NO. DESCRIPTION		LEVEL OF EFFORT, HOURS									FEE, DOLLARS				
		Principal	Quality Manager	Project Manager	Sr Project Engineer	Project Engineer	Staff Engineer	Document Specialist	Accountant	Project Coordinator	TOTAL LABOR	LABOR	SUBS	DIRECT COSTS	TOTAL
Client Billing Rates		\$330	\$300	\$245	\$240	\$155	\$125	\$125	\$140	\$115	\$170				
1	Project Management														
1.1	Project Management, Administration, and Coordination	2		6		2			4	4	18	3,460	0		3,460
Subtotal 1   Project Management		2	0	6	0	2	0	0	4	4	18	3,460	0	0	3,500
2	Meetings														
2.3	Technical Meeting (2)		4	4		4					12	2,800	0		2,800
Subtotal 2   Meetings		0	4	4	0	4	0	0	0	0	12	2,800	0	0	2,800
3	Data Gathering, Evaluation, and Model Refresh														
Subtotal 3   Data Gathering, Evaluation, and Model Refresh		0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Evaluate One Alternative														
8.1	Model RO at Treatment Plants		1	4	2	16	8				31	5,240	0		5,240
8.2	Model interim implementation phase (All LAWRP Flows to MWRP/ETWD)			4		8	4				16	2,720	0		2,720
8.3	Calibrate IBC sewershed to 2019 sampling data		1	6	4	40	12				63	10,430	0		10,430
8.4	Develop 2 additional scenarios run to reflect RO and IBC concentrations		1	10		30	20				61	9,900	0		9,900
Subtotal 8   Evaluate One Alternative		0	3	24	6	94	44	0	0	0	171	28,290	0	0	28,300
9	Technical Memorandum - Additional Time														
9.2	Final TM		4	10		20	28	4			66	10,750	0		10,750
Subtotal 9   Technical Memorandum - Additional Time		0	4	10	0	20	28	4	0	0	66	10,750	0	0	10,800
TOTAL, hours		2	11	44	6	120	72	4	4	4	267	45,300	0	0	45,400
TOTAL, dollars															

April 20, 2021

Prepared by: J. McGehee / R. Mori

Submitted by: K. Burton

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### EASTWOOD RECYCLED WATER PUMP STATIONS CONTRACT CHANGE ORDER

#### SUMMARY:

Pacific Hydrotech Corporation (PHC) constructed the Eastwood Zone A to B and Zone A to C Recycled Water Pump Stations project. During initial testing activities at the pump station, the existing 54-inch Zone C pipeline in Irvine Boulevard separated at the first joint outside the pipeline excavation area. At staff's request, PHC repaired the 54-inch pipe at the separation point, performed extensive interior welding of multiple pipe joints on the existing 54-inch pipeline, and constructed a concrete thrust block between the Zone B and Zone C discharge laterals from the pump station site. Staff recommends the Board approve Contract Change Order No. 12 in the amount of \$353,968.15 for work associated with the existing 54-inch diameter recycled water pipeline repairs.

#### BACKGROUND:

The Eastwood Recycled Water Pump Stations project includes construction of the Zone A to B Pump Station and the Zone A to C Pump Station. The Zone A to B Pump Station will meet the growth in demands to Zone B and will replace the existing Northwood Zone B Pump Station. The Zone A to C Pump Station will meet the growth in demands to Zone C and will replace the existing Orchard Hills Zone A to C Pump Station that was converted to Zone C+ service as part of the Irvine Lake Pipeline North Conversion. The project is located within the Eastwood Village development at the corner of Jeffrey and Irvine Boulevard as shown on the location map provided as Exhibit "A".

PHC has completed all major construction activities and is currently working on final cleanup and punch list items. Staff anticipates that the project will be complete next month.

#### Contract Change Order No. 12:

The project included construction of 54-inch by 30-inch Zone C and 54-inch by 20-inch Zone B reducing elbows located in Irvine Boulevard, just outside the pump station site. The elbows were needed to connect the pump station discharge piping to the Zone B and Zone C recycled water distribution system. To create the physical separation between the two zones, the project included the removal of a short length of existing 54-inch diameter concrete cylinder pipe, which previously served as the Irvine Lake Pipeline.

During initial testing activities at the pump station, the 54-inch Zone C pipeline in Irvine Boulevard separated at the first joint outside the pipeline excavation area. IRWD crews immediately responded to isolate the pipe, and work began on assessing the damage. PHC crews also began immediate repair activities and worked around the clock to secure the street, clear the pipe, and remove and replace the piping section that separated.

The design anticipated that the existing 54-inch concrete cylinder pipe was fully restrained with welded joints. Upon further investigation, staff determined that only a portion of the existing joints on the 54-inch pipeline were welded. As a result, when the existing 54-inch pipeline was separated into two distinct pressure zones, neither pipeline was fully restrained. To eliminate the potential for any future pipe separation events, staff directed PHC to restrain both the Zone B and Zone C pipelines through a combination of interior welding at multiple pipe joints and the construction of a concrete thrust block located between the Zone B and Zone C pipelines.

The change order includes the time, materials and equipment necessary to repair the 54-inch pipeline at the separation point, make entry into the Zone B side of the existing 54-inch pipeline and weld interior joints resulting in 120 feet of restrained length, make entry into the Zone C side of the existing 54-inch pipeline and weld interior joints resulting in 200 feet of restrained length, and construct a concrete thrust block between the Zone B and Zone C pipelines. The total cost for the additional work associated with the existing 54-inch pipeline is \$353,968.15.

Staff reviewed the change order, which is provided as Exhibit “B”, and recommends Board approval of Contract Change Order No. 12 in the amount of \$353,968.15. The construction change order summary is provided as Exhibit “C”.

#### FISCAL IMPACTS:

Projects 04400 and 04457 for the Eastwood Recycled Water Pump Stations are included in the FY 2020-21 Capital Budget. The existing budgets are sufficient to fund the recommendation presented herein.

#### ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA) and in conformance with California Code of Regulations Title 14, Chapter 3, Article 6, a Notice of Intent to adopt a Mitigated Negative Declaration was filed with the County of Orange on October 24, 2017. Pursuant to State Guideline § 15073, the Initial Study/Mitigated Negative Declaration (IS/MND) was made available for public review for a period of 30 days from October 24, 2017 through November 22, 2017. The IS/MND was adopted by IRWD Board of Directors at its January 22, 2018 meeting. A Notice of Determination was filed with the Orange County Clerk/Recorder and the CA State Clearinghouse on January 23, 2018.

#### RECOMMENDATION:

That the Board approve Contract Change Order No. 12 in the amount of \$353,968.15 with Pacific Hydrotech Corporation for work associated with the existing 54-inch diameter recycled water pipeline repairs for the Eastwood Zone A to B and Zone A to C Recycled Water Pump Stations project.

LIST OF EXHIBITS:

Exhibit “A” – Location Map

Exhibit “B” – Contract Change Order No. 12 with Pacific Hydrotech Corporation

Exhibit “C” – Construction Change Order Summary

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EXHIBIT "A"  
LOCATION MAP

EASTWOOD RECYCLED WATER PUMP STATIONS



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**EXHIBIT "B"**  
**CONTRACT CHANGE ORDER**



**Irvine Ranch Water District**

15600 Sand Canyon Avenue  
P.O. Box 57000  
Irvine, CA 92619-7000  
(949) 453-5300

C.O. No. 12

☒ Final

Project No. 04400, 04457

**Eastwood Recycled Water Pump Stations Zone A to B and Zone A to C**

Project Title

Date: 3/31/2021

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Change Request No. 23 - Repair of Existing 54" Zone B and Zone C Pipelines	353,968.15	0	0
Contract Completion Date: April 30, 2021			
<b>TOTAL</b>	\$ 353,968.15	\$ -	0

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	\$	353,968.15	0
2. ORIGINAL CONTRACT AMOUNT	=	\$	12,220,600.00	600
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$	521,185.59	466
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$	12,741,785.59	1066
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$	13,095,753.74	1066

We hereby agree to make the above change subject to the terms of this change order for the sum of:

Three Hundred Fifty Three Thousand Nine Hundred Sixty Eight and 15/100 ----- Dollars

3/31/21      Pacific Hydrotech Corporation      Sean Harms  
Date      Contractor      By:

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
<u></u>	<u>3/31/2021</u>	Department Director Approval Required <input type="checkbox"/>
IRWD Engineer or Consulting Engineer	Date	Executive Director Approval Required <input type="checkbox"/>
<u></u>	<u>03/31/2021</u>	General Manager Approval Required <input type="checkbox"/>
Engineering Manager	Date	Board Approval Required <input checked="" type="checkbox"/>
<u></u>	<u>3/31/2021</u>	
Executive Director of Technical Services	Date	
		610787
General Manager	Date	Purchase Order No.

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

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# EXHIBIT "C"

## Eastwood Recycled Water Pump Stations PR 04400, 04457 Construction Change Order Summary

Contractor: Pacific Hydrotech Corporation  
Design Engineer: AECOM  
Award Date: 5/30/2018

				Contract Amount					Contract Days				Original Completion Date:	
				Original Contract Amount: \$12,220,600.00					Original Days: 600				1/20/2020	
Change Order		Description	Category	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
1		Approved by Executive Director Approved on September 11, 2018  Non-compensable assignment of temporary license agreement to Pacific Hydrotech Corporation for temporary removal and replacement of a portion of the site perimeter screening wall.	B	\$ -	\$0.00	\$0.00	\$0.00	0.00%	\$12,220,600.00	0	0	0	600	1/20/2020
2		Approved by Executive Director Approved on December 12, 2018 Time Extension - Rain Days (11/29, 12/5, 12/6, and 12/7) CR No. 1 - Zone A Pipeline Repair	B B	\$ - \$ 5,844.84	\$5,844.84	\$0.00	\$5,844.84	0.05%	\$12,226,444.84	8 6 2	0	8	608	1/28/2020
3		Approved by Executive Director Approved on April 10, 2019 Time Extension - Rain Days (1/14-18, 2/1, 2/4-8, 2/13-15, 3/6, 3/21) CR No. 2 - ZC-B PRV Changes CR No. 3 - Syphon Piping Credit CR No. 4 - Landscaping	B A B A	\$ - \$ 10,649.88 \$ (10,063.42) \$ 30,682.27	\$31,268.73	\$5,844.84	\$37,113.57	0.30%	\$12,257,713.57	32 22 2 0 8	8	40	640	2/29/2020
4		Approved by Executive Director Approved on March 9, 2020 CR No. 8 - No cost time extension per Pacific Hydrotech	B	\$ -	\$0.00	\$37,113.57	\$37,113.57	0.30%	\$12,257,713.57	258 258	40	298	898	11/13/2020
5		Approved by Executive Director Approved on March 9, 2020 CR No. 5 - Additional Potholing of Electrical Line CR No. 6 - Universal Automatic Transfer Switch CR No. 7 - Control Panel Redundancy Module CR No. 9 - Diaphragm Seals CR No. 10 - Bottom Drain Changes	B A A A A	\$ 4,033.35 \$ 4,081.76 \$ 2,370.07 \$ 20,968.70 \$ 15,782.95	\$47,236.83	\$37,113.57	\$84,350.40	0.69%	\$12,304,950.40	0 0 0 0 0	298	298	898	11/13/2020
6		Approved by Executive Director Approved on July 6, 2020 CR No. 11 - Additional Conduits CR No. 12 - SCE Infrastructure Changes	D C	\$ 12,284.02 \$ 15,468.53	\$27,752.55	\$84,350.40	\$112,102.95	0.92%	\$12,332,702.95	0 0 0	298	298	898	11/13/2020
7		Approved by Executive Director Approved on September 28, 2020 CR No. 13 - SCE Infrastructure Changes CR No. 14 - P-03 and P-04 Conduits Time Extension	C D	\$ 61,263.22 \$ 7,972.18	\$69,235.40	\$112,102.95	\$181,338.35	1.48%	\$12,401,938.35	32 0 0 32	298	330	930	12/15/2020

**Eastwood Recycled Water Pump Stations  
PR 04400, 04457  
Construction Change Order Summary**

Contractor: Pacific Hydrotech Corporation  
Design Engineer: AECOM  
Award Date: 5/30/2018

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$12,220,600.00						Original Days: 600				1/20/2020
Change Order		Description	Category	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
8		Approved by Executive Director Approved on January 27, 2021 CR No. 15 - Future HVAC Conduits CR No. 17 - Surge Tank Pit Lighting CR No. 18 - MCC Breaker Lugs CR No. 19 - Antenna CR No. 20 - Thermostat Wiring CR No. 21 - Hatch Coating Time Extension	D A D D D A	\$ 5,853.54 \$ 1,390.18 \$ 2,400.26 \$ 10,507.58 \$ 3,175.53 \$ 7,114.24	\$30,441.33	\$181,338.35	\$211,779.68	1.73%	\$12,432,379.68	106 0 0 0 0 0 0 106	330	436	1,036	3/31/2021
9		Approved by Executive Director Approved on February 23, 2021 CR No. 22 - Dewatering CR No. 24 - Zone B Tie-in	B B	\$ 33,286.19 \$ 28,466.45	\$61,752.64	\$211,779.68	\$273,532.32	2.24%	\$12,494,132.32	0 0 0	436	436	1,036	3/31/2021
10		Approved by General Manager Approved on February 23, 2021 CR No. 26 - Street Repairs	B	\$ 133,278.34	\$133,278.34	\$273,532.32	\$406,810.66	3.33%	\$12,627,410.66	0 0	436	436	1,036	3/31/2021
11		Approved by Executive Director Approved on March 29, 2021 CR No. 27 - Street Repairs Time Extension	B	\$ 114,374.93	\$114,374.93	\$406,810.66	\$521,185.59	4.26%	\$12,741,785.59	30 0 30	436	466	1,066	4/30/2021
12		Approved by Board of Directors Approved on CR No. 23 - Repair of Ex. 54" Zone B and C Pipelines	B	\$ 353,968.15	\$353,968.15	\$521,185.59	\$875,153.74	7.16%	\$13,095,753.74	0 0	466	466	1,066	4/30/2021

Category	Total Amount	% of Original Contract
A - Owner Directed Change	\$ 93,040.05	0.76%
B - Differing/Unknown Condition	\$ 663,188.83	5.43%
C - External Agency, Regulatory, and/or Permit Required Change	\$ 76,731.75	0.63%
D - Design Oversight	\$ 42,193.11	0.35%
Total Change Order Amount (A + B + C + D)	\$ 875,153.74	7.16%

April 20, 2021

Prepared by: B. Rios/K. Lew

Submitted by: K. Burton

Approved by: Paul A. Cook

*P. Cook*

## ENGINEERING AND OPERATIONS COMMITTEE

### PLANNING AREA 12 INNOVATION PARK REGIONAL ZONE A RECYCLED WATER IMPROVEMENTS

#### SUMMARY:

Irvine Community Development Company, LLC (ICDC) is proceeding with development of Planning Area (PA) 12 Innovation Park, which includes the construction of streets, storm drains, domestic water, sewer, and recycled water improvements. As part of the development, ICDC will construct IRWD capital facilities under an existing Supplemental Reimbursement Agreement. Staff recommends that the Board authorize the General Manager to accept ICDC's construction contract with Paulus Engineering, Inc. in the amount of \$1,107,770.03 for the Innovation Park Regional Zone A Recycled Water Improvements.

#### BACKGROUND:

ICDC is moving forward with the first phase of commercial development of PA 12, Innovation Park. Innovation Park is bound by the I-5 freeway, Orange County Transportation Authority (OCTA) railroad, Sand Canyon Avenue and Oak Creek's golf course. The project location map is shown as Exhibit "A". As part of this development, ICDC will design and construct IRWD's Innovation Park Regional Zone A Recycled Water Improvements. The required IRWD capital facilities are documented in the January 2020 Planning Area 12 Regional Recycled Water Study and all subsequent addendums and updates prepared by Stantec Consulting Services, Inc.

The design and construction of the IRWD capital facilities will be performed under the terms of the Master Reimbursement Agreement between IRWD and ICDC approved by the Board in May 1997 and as further refined in the Supplemental Reimbursement Agreement. This agreement, which covers all capital facilities for the Innovation Park development was approved by the Board in November 2019.

The Innovation Park Regional Zone A Recycled Water Improvements consist of a connection between the Zone A pipeline in Walnut Avenue with the 24-inch Zone A pipeline in Irvine Center Drive, via a route through Valley Oak Drive and Oak Canyon. This looped connection not only provides increased reliability to the dual plumbed buildings in Innovation Park, but also provides benefits to the existing regional recycled water system. The project consists of approximately 5,500 feet of 8-inch recycled water pipeline and 300 feet of 6-inch recycled pipeline. The project also includes 200 feet of bore and jack installation under the OCTA railroad. ICDC retained Stantec to prepare the plans and received bids from four contractors. The bids ranged from \$1,107,770.03 to \$1,603,643.70. ICDC recommends awarding the construction contract to the low bidder, Paulus Engineering, for a bid amount of \$1,107,770.03 as shown in Exhibit "B". In addition, ICDC has received consultant proposals for construction support and management, geotechnical observation and testing, surveying, field archeological and paleontological monitoring, biological and botanical monitoring, and tree monitoring

services. Staff has reviewed the consultant proposals and the construction bids and found the amounts to be acceptable. A summary of the PA 12 Innovation Park Regional Zone A Recycled Water Improvements costs is shown below.

Construction (Paulus)	\$1,107,770.03
Civil Engineering (Stantec)	\$32,800.00
Construction Management (Stantec)	\$39,060.00
Geotechnical Services (NMG)	\$34,805.00
Survey and Staking (Stantec)	\$16,830.00
Archeo/Paleo Monitoring (LSA)	\$9,400.00
Biological/Botanical (Rodney Harmsworth)	\$330.00
Tree Monitoring (Dudek)	\$3,420.00
ICDC Administration Fee (1%)	<u>\$11,077.70</u>
	\$1,255,492.73

FISCAL IMPACTS:

Project 11584 for the PA 12 Innovation Park Regional Zone A Recycled Water Improvements is included in the FY 2020-21 Capital Budget and has a sufficient budget.

ENVIRONMENTAL COMPLIANCE:

Construction of capital recycled water facilities for the PA 12 Innovation Park development is subject to CEQA. In conformance with the California Code of Regulations Title 14, Chapter 3, Article 7 an Environmental Impact Report was certified by the City of Irvine, the lead agency, on August 14, 2008 (SCH# 2000071014).

RECOMMENDATION:

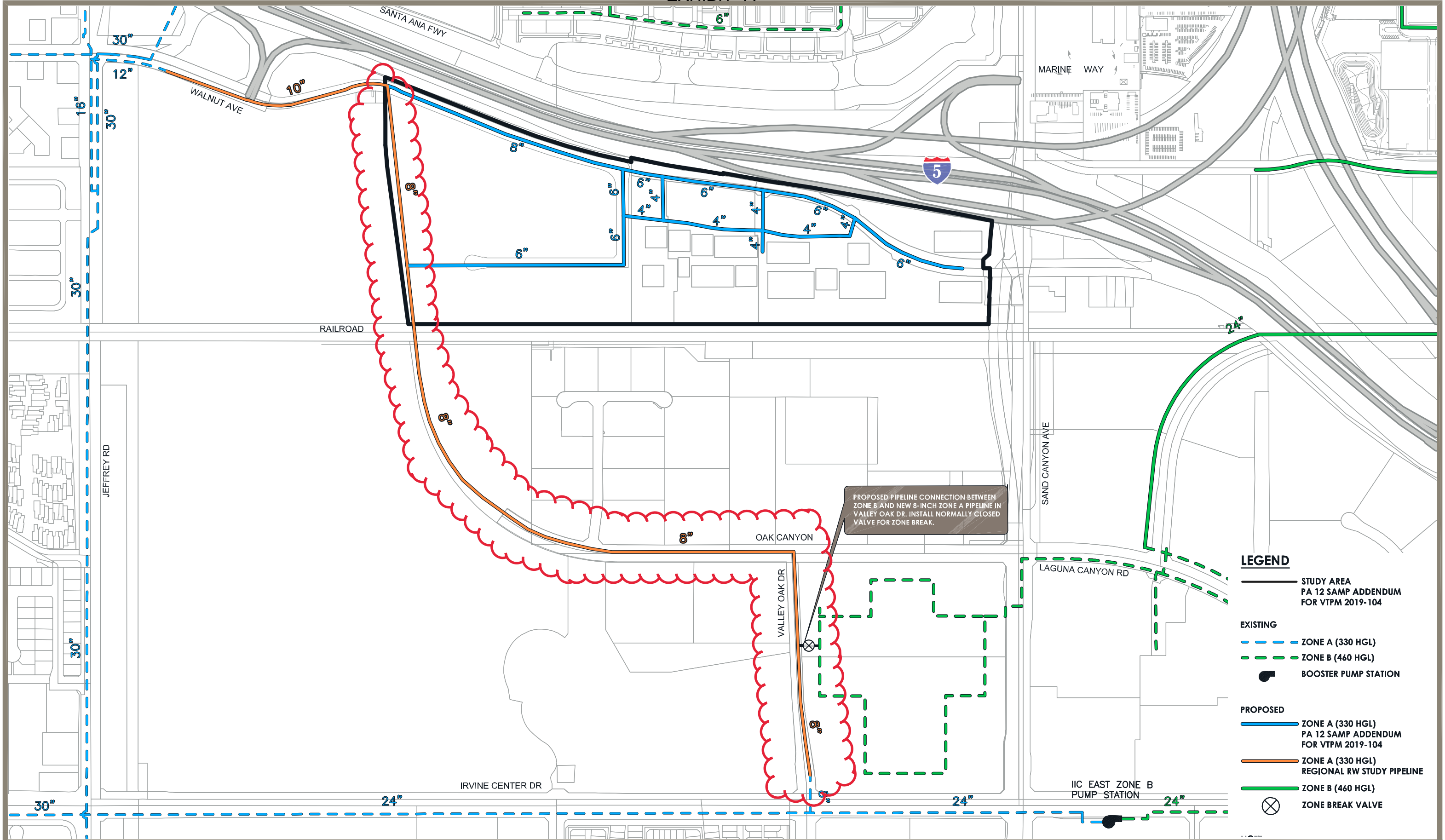
That the Board authorize the General Manager to accept Irvine Community Development Company's construction contract with Paulus Engineering, Inc. in the amount of \$1,107,770.03 for the Planning Area 12 Innovation Park Regional Zone A Recycled Water Improvements, Project 11584.

LIST OF EXHIBITS:

Exhibit "A" – Location Map

Exhibit "B" – Bid Summary, Planning Area 12 Innovation Park, Regional Zone A Recycled Water Improvements

# EXHIBIT "A"



DRAWING: v:\2042\active\2042486920\design\analysis\samp addendum\regional rw analysis\figures\cad\fig 1.dwg PLOTTED: 9/6/2019 2:03 PM BY: Lu, Michael (Irvine)

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EXHIBIT "B"

DS  
TM  
DS  
C. James Yoshida  
Mike Morse  
Trent Moss  
DS  
File with Bid Key Map  
Mary Oshima - Cost Matrix

PRE-BID MEETING DATE: November 2, 2020  
BID OPENING DATE: December 3, 2020  
WITNESSED BY: M. Morse  
M. Oshima

DECLINED PRIOR TO PRE-BID:  
NO SHOW AT PREBID:  
DID NOT SUBMIT:

BID SUMMARY  
INNOVATION PARK  
P.M. 2002-213, 97-184 & 94-200  
IRWD OFF-SITE RECYCLED WATER AND DOMESTIC WATER  
CONTRACT "B2" - WET UTILITIES (PREVAILING WAGE)  
IRWD CAPITAL IMPROVEMENTS  
CAPITAL PROJECT NUMBER 11548 / IRWD CODE 7601  
TASK/PC ID NO. LD-5070.ST.01.cn01  
BID PACKAGE NO. B00456

ENGINEER'S ESTIMATE	LOW BIDDER	2ND BIDDER	3RD BIDDER	4TH BIDDER
Stantec	Paulus	Shoffeitt Pipeline	L&S Construction	FYDAQ

CHECK LIST  
Required items to be included in bid package:

- 1. Signed Addendum 1-3
- 2. Corporate Seal (if applicable)
- 3. Correct Signatures (Page V-3)
- 4. Bid Totals Correctly
- 5. List of SubContractors
- 6. Equipment/Material Source Information
- 7. Contractors Rates/Reviewed
- 8. 10% Bid Bond
- 9. Construction Schedule
- 10. Non-Collusion Certificate
- 11. Contractor Prequalified
- 12. Fuel Letter

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Not Signed

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Not Provided

Not Required

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL
I.	BASE CONTRACT												
A.	GENERAL												
1	MOBILIZATION (NOT TO EXCEED 2% OF CONTRACT PRICE)	1	LS	\$30,000.00	\$30,000.00	\$7,178.00	\$7,178.00	\$7,500.00	\$7,500.00	\$25,000.00	\$25,000.00	\$5,000.00	\$5,000.00
2	DEVELOP CONSTRUCTION WATER	1	LS	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$4,500.00	\$4,500.00	\$2,500.00	\$2,500.00	\$1,000.00	\$1,000.00
3	PAYMENT AND PERFORMANCE BONDS	1	LS	\$10,000.00	\$10,000.00	\$14,200.00	\$14,200.00	\$19,600.00	\$19,600.00	\$18,500.00	\$18,500.00	\$16,656.80	\$16,656.80
4	INTERIM EROSION AND SEDIMENT CONTROL	1	LS	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$1,800.00	\$1,800.00	\$7,500.00	\$7,500.00	\$27,410.00	\$27,410.00
5	TRAFFIC CONTROL - CAPITAL RECYCLED WATER	1	LS	\$9,500.00	\$9,500.00	\$2,500.00	\$2,500.00	\$3,500.00	\$3,500.00	\$25,000.00	\$25,000.00	\$24,400.00	\$24,400.00
6	TRAFFIC CONTROL - SLURRY, STRIPING AND MARKINGS	1	LS	\$10,000.00	\$10,000.00	\$16,898.30	\$16,898.30	\$3,500.00	\$3,500.00	\$3,500.00	\$3,500.00	\$0.00	\$0.00
7	INSTALL 8" HIGH SQUARE WOOD POST AND ORANGE CAUTIONARY SIGN READING "OVERHEAD POWER LINES", WITH FLASHING LIGHT BEACON ON TOP OF POST	2	EA	\$600.00	\$1,200.00	\$1,420.08	\$2,840.16	\$750.00	\$1,500.00	\$1,850.00	\$3,700.00	\$750.00	\$1,500.00
B.	SITE PREPARATION												
8	SITE CLEARING AND GRUBBING	1	LS	\$9,600.00	\$9,600.00	\$14,600.00	\$14,600.00	\$2,800.00	\$2,800.00	\$4,200.00	\$4,200.00	\$3,150.00	\$3,150.00
9	REMOVE AND REPLACE EXISTING IRRIGATION SYSTEM	1	LS	\$2,500.00	\$2,500.00	\$2,412.54	\$2,412.54	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$1,575.00	\$1,575.00
C.	IRWD RECYCLED WATER (CAPITAL IMPROVEMENTS)												
	Note: All fittings, bends, tees, thrust blocks, flanges, and other incidental items are to be included in the pipe unit price.												
10	FURNISH & INSTALL 8" AWWA C-900 PVC PURPLE PIPE, (DR-14) & TRENCHING PER IRWD STD DWG W-17	5,515	LF	\$105.00	\$579,075.00	\$79.50	\$438,442.50	\$138.00	\$761,070.00	\$115.00	\$634,225.00	\$107.75	\$594,241.25
11	FURNISH & INSTALL 6" AWWA C-900 PVC PURPLE PIPE, (DR-14) & TRENCHING PER IRWD STD DWG W-17	310	LF	\$55.00	\$17,050.00	\$151.50	\$46,965.00	\$60.00	\$18,600.00	\$70.00	\$21,700.00	\$90.00	\$27,900.00
12	FURNISH & INSTALL 1" (AV) AIR RELEASE & VACUUM RELIEF ASSEMBLY PER IRWD STD DWG W-11	5	EA	\$5,000.00	\$25,000.00	\$6,724.78	\$33,623.90	\$3,700.00	\$18,500.00	\$8,300.00	\$41,500.00	\$7,898.00	\$39,490.00
13	FURNISH & INSTALL BLOWOFF/BOTTOM DRAIN ASSEMBLY PER IRWD STD DWG W-14	6	EA	\$6,500.00	\$39,000.00	\$10,825.00	\$64,950.00	\$22,800.00	\$136,800.00	\$9,800.00	\$58,800.00	\$19,419.00	\$116,514.00
14	FURNISH & CONSTRUCT 16" O.D. WITH 5/16" THICK STEEL CASING PER IRWD STD W-14	217	LF	\$1,000.00	\$217,000.00	\$460.00	\$99,820.00	\$420.00	\$91,140.00	\$475.00	\$103,075.00	\$329.90	\$71,788.30
15	FURNISH & INSTALL 8" DIP SPOOL, TRENCH & BEDDING PER IRWD STD W-17	34	LF	\$100.00	\$3,400.00	\$132.13	\$4,492.42	\$75.00	\$2,550.00	\$280.00	\$9,520.00	\$144.15	\$4,901.10
16	FURNISH & INSTALL TEMP END OF LINE FLUSH-OUT ASSEMBLY PER IRWD STD W-12	2	EA	\$2,500.00	\$5,000.00	\$3,713.34	\$7,426.68	\$650.00	\$1,300.00	\$2,050.00	\$4,100.00	\$2,935.00	\$5,870.00
17	REMOVE TEMP FLUSH OUT & JOIN	2	EA	\$1,500.00	\$3,000.00	\$4,576.23	\$9,152.46	\$2,500.00	\$5,000.00	\$2,650.00	\$5,300.00	\$1,915.00	\$3,830.00
18	FURNISH & INSTALL 8" (RWGV) RESILIENT WEDGE GATE VALVE (FE) AWWA C-509, CLASS 150 & THRUST BLOCK PER IRWD STD DWGS W-22 & W-16	11	EA	\$2,200.00	\$24,200.00	\$1,700.00	\$18,700.00	\$1,400.00	\$15,400.00	\$1,500.00	\$16,500.00	\$1,479.75	\$16,277.25
19	FURNISH & INSTALL 6" (RWGV) RESILIENT WEDGE GATE VALVE (FE) AWWA C-509, CLASS 150 & THRUST BLOCK PER IRWD STD DWGS W-22 & W-16	4	EA	\$1,600.00	\$6,400.00	\$1,363.59	\$5,454.36	\$975.00	\$3,900.00	\$1,100.00	\$4,400.00	\$1,105.75	\$4,423.00
20	REMOVE EXISTING END CAP, THRUST BLOCK OR TEMPORARY FLUSH OUT & JOIN WITH 8"x6" REDUCER (POxPO)	1	EA	\$1,500.00	\$1,500.00	\$3,459.12	\$3,459.12	\$2,600.00	\$2,600.00	\$2,600.00	\$2,600.00	\$2,524.00	\$2,524.00
21	FURNISH & INSTALL CATHODIC PROTECTION CASING TEST STATION PER IRWD STD. DWG CP-3	2	EA	\$2,500.00	\$5,000.00	\$1,631.58	\$3,263.16	\$450.00	\$900.00	\$3,400.00	\$6,800.00	\$2,984.00	\$5,968.00
22	FURNISH & INSTALL RECYCLED WATER WHARF HEAD HYDRANT PER IRWD STD DWG W-9	1	EA	\$6,500.00	\$6,500.00	\$4,532.42	\$4,532.42	\$2,000.00	\$2,000.00	\$8,000.00	\$8,000.00	\$18,290.00	\$18,290.00
23	ADJUST VALVE CAP TO BASE PAVE GRADE	26	EA	\$350.00	\$9,100.00	\$410.13	\$10,663.38	\$450.00	\$11,700.00	\$600.00	\$15,600.00	\$375.00	\$9,750.00
24	ADJUST VALVE CAP TO FINISH GRADE	26	EA	\$350.00	\$9,100.00	\$410.13	\$10,663.38	\$575.00	\$14,950.00	\$600.00	\$15,600.00	\$375.00	\$9,750.00
25	SCRRA INSURANCE - JACK AND BORE	1	LS	\$2,500.00	\$2,500.00	\$4,825.05	\$4,825.05	\$3,200.00	\$3,200.00	\$3,000.00	\$3,000.00	\$3,055.00	\$3,055.00
26	SCRRA PERFORMANCE BOND - JACK AND BORE	1	LS	\$5,000.00	\$5,000.00	\$5,211.05	\$5,211.05	\$1,200.00	\$1,200.00	\$4,000.00	\$4,000.00	\$3,780.00	\$3,780.00
27	SCRRA SITE SPECIFIC WORK PLAN (SSWP) - JACK AND BORE	1	LS	\$2,500.00	\$2,500.00	\$2,412.54	\$2,412.54	\$1,500.00	\$1,500.00	\$1,600.00	\$1,600.00	\$1,000.00	\$1,000.00
28	SCRRA FLAGGING - JACK AND BORE	1	LS	\$10,000.00	\$10,000.00	\$10,132.62	\$10,132.62	\$7,000.00	\$7,000.00	\$22,000.00	\$22,000.00	\$21,000.00	\$21,000.00
29	POT HOLE ALL EXISTING UTILITIES - JACK AND BORE	1	LS	\$4,500.00	\$4,500.00	\$8,622.26	\$8,622.26	\$3,500.00	\$3,500.00	\$8,500.00	\$8,500.00	\$6,425.00	\$6,425.00
30	SCRRA REQUIREMENTS (ALL ELSE) - JACK AND BORE	1	LS	\$10,000.00	\$10,000.00	\$4,825.04	\$4,825.04	\$1,500.00	\$1,500.00	\$7,800.00	\$7,800.00	\$5,000.00	\$5,000.00
31	SCRRA PLAN REVIEW - JACK AND BORE	1	LS	\$3,500.00	\$3,500.00	\$482.51	\$482.51	\$1,500.00	\$1,500.00	\$6,500.00	\$6,500.00	\$5,500.00	\$5,500.00
32	ADMINISTRATION AND CONTINGENCY FEES - JACK AND BORE	1	LS	\$7,500.00	\$7,500.00	\$482.50	\$482.50	\$1,500.00	\$1,500.00	\$4,500.00	\$4,500.00	\$4,000.00	\$4,000.00
D.	IRWD DOMESTIC WATER (CAPITAL IMPROVEMENTS)												
	Note: All fittings, bends, tees, thrust blocks, flanges, and other incidental items are to be included in the pipe unit price.												
33	RELOCATE EXISTING BLOW OFF/BOTTOM DRAIN ASSEMBLY PER IRWD STD DWG W-14	1	EA	\$6,500.00	\$6,500.00	\$11,125.12	\$11,125.12	\$5,900.00	\$5,900.00	\$2,800.00	\$2,800.00	\$7,999.00	\$7,999.00
34	RELOCATE EXISTING BLOW OFF OUTSIDE OF WORK AREA PRIOR TO CONSTRUCTION OF THE RECYCLED WATER PIPELINE (FURNISH & INSTALL COMPANION FLANGE WITH 2" TAP FOR TEMPORARY CONDITION)	1	EA	\$2,500.00	\$2,500.00	\$8,178.72	\$8,178.72	\$6,300.00	\$6,300.00	\$2,000.00	\$2,000.00	\$4,990.00	\$4,990.00
E.	IRWD RECYCLED WATER (NON-CAPITAL IMPROVEMENTS)												
	Note: All fittings, bends, tees, thrust blocks, flanges, and other incidental items are to be included in the pipe unit price.												
35	INSTALL 2" COPPER SERVICE & METER BOX FOR FUTURE WATER METER PER IRWD STD W-2 (METER TYPE SHOWN ON PLAN VIEW)	4	EA	\$3,500.00	\$14,000.00	\$4,733.07	\$18,932.28	\$2,900.00	\$11,600.00	\$7,200.00	\$28,800.00	\$10,824.00	\$43,296.00

BID SUMMARY  
INNOVATION PARK  
P.M. 2002-213, 97-184 & 94-200  
IRWD OFF-SITE RECYCLED WATER AND DOMESTIC WATER  
CONTRACT "B2" - WET UTILITIES (PREVAILING WAGE)  
IRWD CAPITAL IMPROVEMENTS  
CAPITAL PROJECT NUMBER 11548 / IRWD CODE 7601  
TASK/PC ID NO. LD-5070.ST.01.cn01  
BID PACKAGE NO. B00456

c: Jamie Yoshida  
Mike Morse  
Terri Moss  
File with Bid Key Map  
Mary Oshima - Cost Matrix

PRE-BID MEETING DATE: November 2, 2020  
BID OPENING DATE: December 3, 2020  
WITNESSED BY: M. Morse  
M. Oshima

DECLINED PRIOR TO PRE-BID:  
NO SHOW AT PREBID:  
DID NOT SUBMIT:

ENGINEER'S ESTIMATE	LOW BIDDER	2ND BIDDER	3RD BIDDER	4TH BIDDER
Stantec	Paulus	Shoffeitt Pipeline	L&S Construction	FYDAQ

F. RECYCLED WATER STREET REPAIR (CITY OF IRVINE)

36	CONSTRUCT UTILITY TRENCH REPAIR PER COI STD PLAN 223 (SEE POT HOLE LOGS IN THE PROJECT APPENDICES, SECTION H-2, FOR EXISTING PAVEMENT THICKNESSES – FULL DEPTH AC REPLACEMENT SHALL BE EXISTING PAVEMENT TICKNESS PLUS 1")	3,350 LF	\$120.00	\$402,000.00	\$17.15	\$57,452.50	\$28.75	\$96,312.50	\$46.00	\$154,100.00	\$51.00	\$170,850.00
37	GRIND EXISTING PAVEMENT 2" DEPTH & CONSTRUCT VARIABLE THICKNESS AC OVERLAY	29,500 SF	\$3.00	\$88,500.00	\$1.99	\$58,705.00	\$1.90	\$56,050.00	\$2.50	\$73,750.00	\$2.50	\$73,750.00
38	TYPE II SLURRY SEAL – PUBLIC STREETS	146,900 SF	\$1.00	\$146,900.00	\$0.45	\$66,105.00	\$0.49	\$71,981.00	\$0.52	\$76,388.00	\$0.55	\$80,795.00
39	MICRO-MILL EXISTING PAVEMENT	35,000 SF	\$1.00	\$35,000.00	\$0.35	\$12,250.00	\$0.49	\$17,150.00	\$0.41	\$14,350.00	\$0.50	\$17,500.00
40	TRAFFIC STRIPING AND MARKINGS	1 LS	\$10,000.00	\$10,000.00	\$5,790.06	\$5,790.06	\$21,280.00	\$21,280.00	\$9,000.00	\$9,000.00	\$12,495.00	\$12,495.00
GRAND TOTAL BASE CONTRACT BID PRICE (SECTIONS A-F)				\$1,842,525.00		\$1,107,770.03		\$1,327,083.50		\$1,459,208.00		\$1,603,643.70

April 20, 2021

Prepared by: I. Swift

Submitted by: J. Zepeda / W. Chambers

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### SAN JOAQUIN MARSH OPERATING GUIDELINES AND NATURAL TREATMENT SYSTEM FACILITIES THREE-YEAR LANDSCAPE MAINTENANCE SERVICES CONTRACT

#### SUMMARY:

To ensure effective operation of the San Joaquin Marsh going forward, the San Joaquin Marsh Operating Guidelines have been updated. At the Committee meeting, staff will summarize and discuss key revisions to the updated guidelines. Staff recommends the Committee provide input on the San Joaquin Marsh Operating Guidelines overview.

Staff has also received a proposal to provide landscape maintenance services throughout IRWD's Natural Treatment System (NTS). Staff also recommends the Board authorize the General Manager to execute five three-year contracts for landscape maintenance services, including a provision for a two-year extension, with LandCare and Endemic Environmental totaling \$4,560,733.

#### BACKGROUND:

##### San Joaquin Marsh Operations and Maintenance Guidelines Update:

The San Joaquin Marsh Operations and Maintenance Guidelines, first developed in 2006 and updated in 2012, are used by staff to manage water flow through the San Joaquin Marsh to ensure standards for water quality are achieved and to protect Marsh facilities and habitat. Since 2012, the regulatory environment has changed substantially, and staff recognized the need to update the key operating principles and address critical natural resource components.

In 2020, Environmental Science Associates (ESA) was retained to assist with developing a comprehensive plan that would include improved operating guidelines and reflect an adaptive resource management strategy. Completed in March 2021, the San Joaquin Marsh Operating Guidelines and Resource Management Plan includes water management, habitat protection, pest management and vector control strategies, and enhanced operating principles. The updated plan will help guide IRWD to manage the Marsh going forward. An Executive Summary of the San Joaquin Marsh Operating Guidelines and Resource Management Plan is provided as Exhibit "A". A presentation of the highlights of the new operating guidelines is provided as Exhibit "B".

##### Landscape Maintenance Services Contract Award:

Landscape maintenance, trash control, and light sediment removal are integral to the operation and maintenance of the San Joaquin Marsh and its campus, Peters Canyon Water Capture and Reuse Pipeline, and 44 Natural Treatment System (NTS) facilities, covering a total of 532 landscaped acres. The current three-year contract to perform landscape maintenance services expires in 2021.

IRWD invited five environmental consulting and landscape maintenance companies to participate in the request for proposal (RFP) process. Firms were selected based on their experience with the District and with projects involving natural habitat restoration and wetland environments. The process included an opportunity to conduct a self-walk-through at the Marsh and three NTS facilities that were representative of the system. Of the five companies invited, three did not submit bids, and two firms, LandCare and Endemic Environmental, submitted a joint proposal. LandCare is the current landscape services provider at both facilities and has performed satisfactorily. Of the three firms that did not submit bids, one sent a formal “no bid” letter and the remaining firms sent emails indicating they did not have sufficient labor to successfully bid on this unique, habitat maintenance-focused contract.

The third year of the current contract is \$1,204,716 and includes 32 NTS facilities, the San Joaquin Marsh and its campus and Peters Canyon. The first-year cost of the proposed three-year contract is \$1,453,838 and covers 532 landscaped acres that includes 44 NTS facilities, the Marsh and its campus, and Peters Canyon. The 21% increase in cost over the last year of the current contract is the result of the addition of 12 NTS facilities, increases in the minimum wage the last two years and the requirement that weed abatement be performed without the use of glyphosate-based herbicides to comply with the District’s 2019 Integrated Pest Management Plan. The contract includes an annual escalation for wage and cost-of-living adjustments (COLA), and a provision for a two-year extension at the discretion of the District. A summary of the maintenance services proposal costs is provided as Exhibit “C”.

Staff recommends the Board authorize the General Manager to execute five three-year contracts for landscape maintenance services, including a provision for a two-year extension with LandCare and Endemic Environmental totaling \$4,560,733.

#### FISCAL IMPACTS:

Funds for this contract will be requested through IRWD’s Fiscal Year 2021-2022 budget process.

#### ENVIRONMENTAL COMPLIANCE:

The landscape maintenance activities performed under this contract will be in accordance with provisions of the San Joaquin Marsh Enhancement Plan Environmental Impact Report (EIR) and the NTS Master Plan EIR.

#### RECOMMENDATION:

That the Committee provide input on the San Joaquin Marsh Operating Guidelines overview and the Board authorize the General Manager to execute five three-year contracts for landscape maintenance services, including a provision for a two-year extension with LandCare and Endemic Environmental totaling \$4,560,733.

LIST OF EXHIBITS:

- Exhibit “A” – San Joaquin Marsh Operating Guidelines and Resource Management Plan  
Executive Summary
- Exhibit “B” – San Joaquin Marsh Operating Guidelines and Resource Management Plan  
Presentation
- Exhibit “C” – IRWD Natural Treatment System Landscape Maintenance Services Contracts  
Proposal

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# **SAN JOAQUIN MARSH**

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## **Operating Guidelines and Resources Management Plan**

### **Executive Summary**

The 321-acre San Joaquin Marsh (SJM) is one of the largest inland freshwater marsh systems in Southern California, and is owned and operated by Irvine Ranch Water District (IRWD). Located on land adjacent to lower San Diego Creek that has been impacted by years of urban runoff and the construction of the San Diego Creek flood control channel, the marsh was the epicenter of a major wetland creation and water quality treatment effort that includes riparian wetlands to the north and open water and freshwater marsh treatment wetlands to the south. The treatment wetlands were designed to reduce eutrophication in Newport Bay by removing pollutants from San Diego Creek before they enter the bay, while providing habitats for a broad range of wildlife.

This Operating Guidelines and Resource Management Plan (OG&RMP) is intended to update the SJM Operating Guidelines developed in 2006 to incorporate new/current conditions and refine operations at the SJM. The following key objectives are recommended for the SJM OG&RMP:

1. Improve San Diego Creek and Upper Newport Bay water quality
  - a. Remove pollutants including nutrients from San Diego Creek inflows and SJM's local watershed
  - b. Return outflows from SJM to San Diego Creek with lower levels of pollutants and improved water quality compared to San Diego Creek inflows
2. Support functional native freshwater marsh and riparian habitats
  - a. Minimize the establishment, and control the spread of non-native, invasive weed species
  - b. In freshwater marsh habitat areas, manage creek inflows and marsh outflows to maintain water levels and residence times that support water quality improvement and marsh habitats
  - c. In riparian habitat areas, manage for seasonal hydrology that mimics and supports natural hydrologic functions
  - d. Maintain water and sediment quality conditions that support native habitats and species and meet regulatory requirements
  - e. Manage destructive pests such as African clawed frog and polyphagous shot-hole borer (PSHB)
  - f. Avoid or reduce impacts to special-status species, including least Bell's vireo, yellow warbler, yellow-breasted chat, and nesting birds and raptors (birds of prey), particularly white-tailed kite
3. Allow for vector control and, where possible, perform operations and maintenance that reduce the need for and cost of vector control

4. Reduce the risk of flooding from SJM to surrounding areas
5. Maintain a monitoring program to track the performance of SJM relative to objectives (i.e., continue the current monitoring program and refine the program as needed)
6. Establish an adaptive management plan that provides a decision framework for evaluating SJM performance against quantifiable criteria, monitoring performance, and adaptive management measures to improve performance.

This OG&RMP characterized existing habitat conditions of the SJM, including geographical setting, physical and climatic conditions (i.e., hydrogeology and soils, climate, hydrology, water management and irrigation, and water and sediment quality), and biological resources (i.e., vegetation communities, plants, wildlife, and special-status species). This OG&RMP also characterizes the permitted public access and passive recreational activities, which are consistent with the objectives of this plan, and outlines other restricted activities that could conflict with plan objectives, such as those that may disturb native wildlife or degrade water quality.

Monitoring is recommended to ensure that biological resources are conserved and protected, hydrologic functions and water quality are maintained, and the general condition of the SJM is preserved. Monitoring can determine whether invasive species, erosion, or sedimentation are becoming significant issues, and whether the public is abiding by the rules and restrictions.

This OG&RMP details the Operations and Maintenance for the SJM, and provides recommendations for improvements wherever appropriate, for water management, irrigation, water quality treatment, access control, vegetation management, wildlife protection, pest management (following IRWD's Integrated Pest Management Plan), vector control, sediment management, trail and road maintenance, and trash removal.

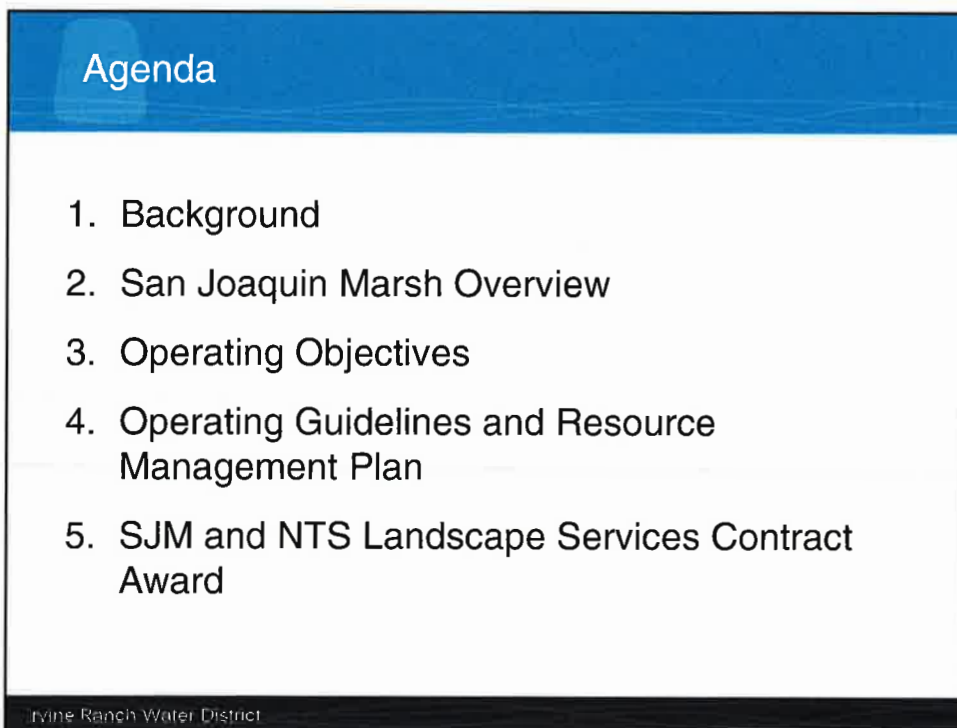
Adaptive management recommendations for the SJM are also included. Invasive plant removal is recommended if monitoring identifies an increase in invasive species, and methodology for revegetation is provided if monitoring detects dieback of vegetation (e.g., due to drought stress, disease, or herbivory). To improve habitat and water quality conditions, this plan recommends changing the current Michelson and Carlson Marsh flood irrigation regime to a reduced watering irrigation regime through an adaptive management approach. Sediment removal is not recommended at this time; however, continued monitoring of sedimentation, pond depths, and water and sediment quality is recommended. To maintain the integrity of the SJM, site protection should include a combination of patrolling and maintenance of signage and fencing.

Finally, this OG&RMP recommends a baseline survey report to document the existing conditions and, thereafter, an annual report summarizing the status of the SJM, results of the monitoring efforts, and all major actions taken since the last assessment.





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## Background

- 2006 – SJ Marsh Operations and Maintenance Plan: developed in-house (based on several earlier versions)
- 2012 – SJ Marsh Operations and Maintenance Plan: formalized and presented to E&O Committee
- 2021 – SJ Marsh Operations and Maintenance Plan: updated to Operating Guidelines and Resource Management Plan

Irvine Ranch Water District

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## Background

- The O&M Plan has guided District's overall operations and management approach for the San Joaquin Marsh.
- San Joaquin Marsh operating conditions have changed since the 2006 Operating Guidelines were developed.
- This updated Operating Guidelines & Resource Management Plan (OG&RMP):
  - Incorporates new/current conditions
  - Refines guidelines for operations and management
  - Allows for adaptive management under unique circumstances
  - Adds natural resource management components

Irvine Ranch Water District

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## Marsh Overview: SJ Marsh Flow Schematic

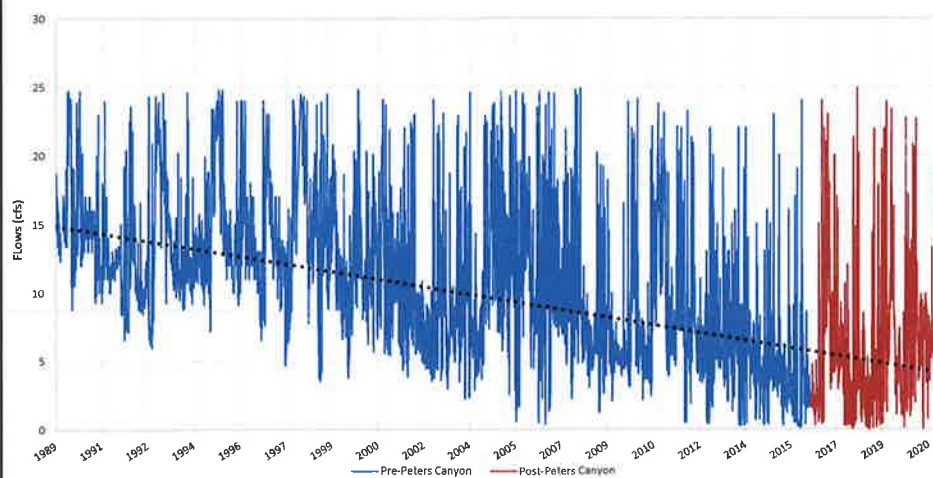


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## Marsh Overview: Non-storm Discharge to Creek



Irvine Ranch Water District

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## Operating Guidelines & Resource Management Plan

### Operation & Maintenance Programs:

- Water Management, Irrigation, and Water Quality Treatment
- Access Control
  - Site Protection (Patrolling, Signage, Fencing)
- Vegetation Management
  - Invasive Plant Removal
  - Revegetation
- Wildlife Protection
- Pest Management
- Vector Control
- Sediment Management
- Trail and Road Maintenance
- Trash Removal

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## San Joaquin Marsh Performance Summary

### Effective Planning = Successful Results

- 1) San Joaquin Marsh continues to remove nitrogen, selenium and other constituents from San Diego Creek water after 20+ years of operation
  - Nitrogen and selenium levels in San Diego Creek water from upstream sources have also reduced
  - Key component with MWRP Nitrogen and Phosphorus offset; and Selenium offset/trading programs
- 2) Marsh is performing water quality treatment well and is not in need of maintenance to improve treatment.
- 3) Multiple species are thriving in diverse wetland habitats.
- 4) Will continue to guide the District's management and operation of the San Joaquin Marsh.

Irvine Ranch Water District

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## Landscape Contract Summary

Changed Conditions:

- 44 sites now, compared with 32 in current contract
- Revised Integrated Pest Management Plan and associated costs
- Annual cost increases

Bid Process / Results:

- Five firms asked to bid; two responded with bids and partnered together
- Three firms declined due to the significant labor required for the contract
- Overall, all five contracts for Year 1 are 18% higher and 22% overall for the three year

Irvine Ranch Water District 12

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## Landscape Contract Bids

Area	Current Year Cost	Year 1 New Bid	Three Year Total New Bid w/ escalation
San Joaquin Marsh	\$503,930	\$543,203	\$1,704,041
Peters Canyon	\$14,400	\$14,971	\$46,972
SJM Campus	\$35,503	\$107,885	\$338,438
NTS Combined	\$650,883	\$787,779	\$2,471,282
<b>Grand Total</b>	<b>\$1,204,716</b>	<b>\$1,453,838</b>	<b>\$4,560,733</b>

Irvine Ranch Water District

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## Staff Recommendation

That the Committee provide input on the San Joaquin Marsh Operating Guidelines and that the Board authorize the General Manager to execute five three-year contracts for landscape maintenance services, including a provision for a two-year extension with LandCare and Endemic Environmental totaling \$4,560,733.

Irvine Ranch Water District

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## Bid Matrix

Description	Contractor	Year 1	Year 2	Year 3	Total
NTS North	LandCare	\$ 366,458.00	\$ 382,948.61	\$ 400,181.30	\$ 1,149,587.91
NTS South	LandCare	\$ 421,321.00	\$ 440,280.45	\$ 460,093.07	\$ 1,321,694.52
Peters Canyon	LandCare	\$ 14,971.00	\$ 15,644.70	\$ 16,356.00	\$ 46,971.70
San Joaquin Marsh	LandCare	\$ 543,203.00	\$ 567,647.14	\$ 593,191.26	\$ 1,704,041.40
SJM Marsh Campus	LandCare	\$ 107,885.00	\$ 112,739.83	\$ 117,813.12	\$ 338,437.95
		\$ 1,453,838.00	\$ 1,519,260.73	\$ 1,587,634.75	\$ 4,560,733.48

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April 20, 2021

Prepared by: S. Ryan / M. Cortez

Submitted by: K. Burton

Approved by: Paul A. Cook



## ENGINEERING AND OPERATIONS COMMITTEE

### WOODBIDGE RECYCLED WATER PIPELINE REPLACEMENT CONSULTANT SELECTION

#### SUMMARY:

The Woodbridge Recycled Water Pipeline Replacement will replace approximately 50,000 feet of asbestos cement pipe (ACP) distribution mains used in the recycled water system in the Woodbridge community of Irvine. Staff recommends the Board authorize the General Manager to execute a Professional Services Agreement with West Yost Associates in the amount of \$848,949 for engineering design services for the Woodbridge Recycled Water Pipeline Replacement.

#### BACKGROUND:

The Woodbridge Recycled Water Pipeline Replacement project will replace approximately 50,000 feet of ACP distribution mains used in the recycled water system in the Woodbridge community of Irvine. Consisting of primarily ACP, the recycled water system was originally constructed between 1975 and 1981 and has experienced many ACP failures in recent years. In 2020, HDR was retained to perform a forensic analysis of ACP and soil samples from representative sites within the project area to determine the underlying cause of the failures. HDR concluded that the ACP samples all displayed internal deterioration from the leaching of calcium content from the pipe wall. In past years, the recycled water from MWRP was more highly chlorinated which decreased the water pH, causing the water to be more corrosive to ACP and thus decreasing its service life. Although MWRP's recycled water is currently less corrosive (and may be the reason why failures are occurring 30 to 40 years after pipe installation), the pipelines are in a degraded state from previous damage, and are susceptible to breaks from normal peaks in daily pressure cycles.

This project will replace ACP within the project area with diameters of 10-inches and smaller and the associated service laterals emanating from the ACP mains being replaced. Although there are larger diameter recycled water ACP transmission mains within the project area, such as the 16-inch Zone A transmission main in Barranca Parkway, the thicker wall section of larger diameter ACP provides a longer life span and there have been no issues with these larger diameter ACP mains.

The location plan provided as Exhibit "A" reflects the project limits, the recycled water ACP mains to be replaced, the locations of the pipe samples examined by HDR, and historical pipe repairs.

#### Consultant Selection:

Staff issued a request for proposal for the design to six consultants: Cannon Corporation, Lockwood Andrews & Newman, Inc., MKN Associates, Psomas, Stantec and West Yost

Associates. Five of the six firms submitted proposals on March 31, 2021; Psomas declined to submit a proposal citing its current high workload. Based on the evaluation of each consultant's project approach, project team and relevant experience, staff recommends the selection of West Yost Associates.

West Yost presented a sound approach for the design of the replacement pipeline and separated itself from the other firms by showing the most thorough understanding of the design coordination that will be required with parties who will be affected by this project: Irvine Unified School District and its seven schools within the project area; Metropolitan Water District of Southern California, Laguna Beach County Water District and South Coast Water District, as the replacement pipelines will cross large transmission mains owned by these Districts (e.g., Aufdenkamp and Joint Transmission Mains); the City of Irvine regarding traffic control concepts to mitigate the effects of construction activities on vehicles, bicycles and pedestrians; and the Orange County Transportation Authority regarding the temporary closures and relocations of bus stops within the project area.

West Yost's fee is in the amount of \$848,949. Given the wide scope of the design and the work effort required, staff finds the fee fair and reasonable. For the reasons given above, along with West Yost's Project Manager's vast experience on IRWD projects and familiarity with IRWD's design standards, staff believes West Yost is the best qualified consultant to perform this work. The consultant evaluation matrix is provided as Exhibit "B", with the proposal provided as Exhibit "C".

#### FISCAL IMPACTS:

Project 11571 is included in the FY 2021-22 Capital Budget. The existing budget is sufficient to fund the recommendation presented herein.

#### ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA). In conformance with the California Code of Regulations Title 14, Chapter 3, Section 15004, the appropriate environmental document will be prepared when meaningful information becomes available.

#### RECOMMENDATION:

That the Board authorize the General Manager to execute a Professional Services Agreement with West Yost Associates in the amount of \$848,949 for engineering design services for the Woodbridge Recycled Water Pipeline Replacement, Project 11571.

#### LIST OF EXHIBITS:

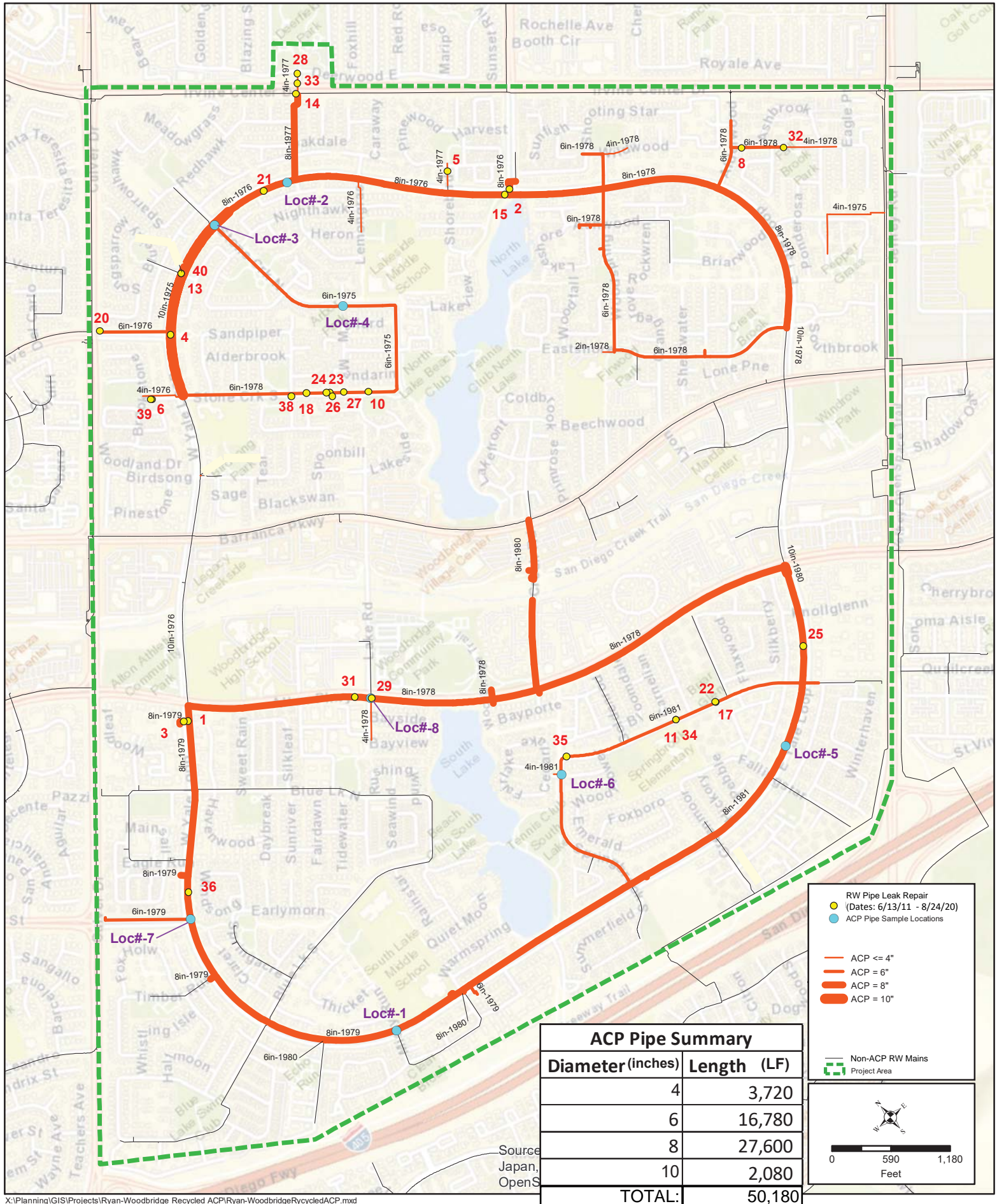
Exhibit "A" – Location Plan  
Exhibit "B" – Consultant Selection Evaluation Matrix  
Exhibit "C" – West Yost Associates' Proposal



# Woodbridge RW Pipeline Replacement

## EXHIBIT "A"

Irvine, CA



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EXHIBIT "B"

Woodbridge RW Pipeline Replacement  
Consultant Selection Matrix

	Weights	Cannon	Lockwood, Andrews & Newman	MKN	Stantec	West Yost
TECHNICAL APPROACH	50%					
*Project Approach	60%	5	4	2	3	1
*Scope of Work	40%	5	4	2	3	1
Weighted Score (Technical Approach)		5.00	4.00	2.00	3.00	1.00
EXPERIENCE	50%					
*Firm/Team	25%	5	3	1	4	2
*Project Manager	50%	5	4	2	3	1
*Project Engineer	25%	5	4	2	3	1
Weighted Score (Experience)		5.00	3.75	1.75	3.25	1.25
COMBINED WEIGHTED SCORE		5.00	3.88	1.88	3.13	1.13
Consultant Team Key Personnel						
Principle-in-Charge		Gary Ropeke, PE (LA)	Sima Vajdani, PE (LA)	Ryan Gallagher, PE (Irvine)	Tama Snow, PE	John Goodwin, PE (Sacramento)
Project Manager		J. Eric Porkert, PE (Irvine)	Cenk Yavas, PE (Orange)		Joe Long, PE	Robert Reid, PE (Lake Forest)
						Anne M. Girtz, PE (Lake Forest)
Project Engineer		Mike Kielborn, PE, LEED AP (LA)	Bob Card, PE (Houston, TX)	Keenan Bull, PE (Irvine)	Jim Cathcart, PE	Scott Greenwood, PE (Sacramento)
Structural Engineer		Marshall Pihl, SE (San Luis Obispo)				Christina Ramirez, PE (Sacramento)
QC/QA		Gary Ropeke, PE (LA)		Josh Nord, PE (Bakersfield)	Autumn Glaeser, PE	Adam Brown, PE (Sacramento)
Surveying/ Mapping		J Braley, PLS (LA)			Greg Sebourn, PLS	
Design Engineering Support Team- Civil, CADD, Horizontal Directional Drilling			Jonathan Lee, EIT (Orange)	Tanner Bennett, PE (Irvine)	Ryan Fane, PE	Scott Greenwood, PE (Sacramento)
			Mark Vargas (Orange)	Parasto Azami, PE (Irvine)	Cole Warrick, EIT	Christina Ramirez, PE (Sacramento)
			Christine Kirby, PE, ENV SP (Houston, TX)	Joseph Reichmuth, PE (Arroyo Grande)	Richard Robinson	Spencer McLintock, EIT (Sacramento)
					Devin Coyer, EIT	Joe Hepburn, EIT (Sacramento)
SubConsultants						
Traffic Control		Right of Way, Inc.	Traffic Control Engineering, Inc.	Traffic Control Engineering, Inc.		Traffic Control Engineering, Inc.
Surveying/ Mapping Investigations		Robert J. Lung & Associates, Inc.	Guida Surveying, Inc.	Fuscoe Engineering		Borchard Surveying and Mapping, Inc.
Potholing Investigation		C-Below	Boudreau Pipeline Corporation	C Below Subsurface Imaging (Chino)	T2 Utilities Engineers	Underground Solutions
Geotechnical Investigation		Converse Consultants	Ninyo and Moore	Ninyo & Moore	Kleinfelder	Converse Consultants
HOURS						
Task 1 - Project Management		238	120	150	728	128
Task 2 - Final Design		2,886	2,463	2,396	5,690	2,235
Task 3 - Bid Phase		24	238	20	N/A	20
Task 4 - Optional Task: Geotechnical		10	N/A	14	N/A	2
TOTAL HOURS		3,148	2,821	2,566	6,418	2,383
TOTAL HOURS w/ Opt. Geo.		3,158	N/A	2,580	N/A	2,385
FEE						
Task 1 - Project Management		\$ 42,588	\$ 27,320	\$ 31,380	\$ 167,440	\$ 32,712
Task 2 - Final Design		\$ 606,745	\$ 880,750	\$ 738,878	\$ 1,328,006	\$ 796,378
Task 3 - Bid Phase		\$ 3,960	\$ 39,830	\$ 3,735	\$ N/A	\$ 4,427
Task 4 - Optional Task: Geotechnical		\$ 16,706	\$ N/A	\$ 30,582	\$ N/A	\$ 15,432
TOTAL FEE		\$ 653,293	\$ 947,900	\$ 773,993	\$ 1,495,446	\$ 833,517
TOTAL FEE w/ Opt. Geo.		\$ 669,999	\$ N/A	\$ 804,575	\$ N/A	\$ 848,949
Number of Construction Drawings		76	150	152	111	156
AVERAGE COST						
Average \$/hour (w/ Opt. Geo.)		\$ 212	\$ 336	\$ 312	\$ 233	\$ 356
Average \$/drawing (w/ Opt. Geo.)		\$ 8,816	\$ 6,319	\$ 5,293	\$ 13,472	\$ 5,442
Professional Liability Insurance		YES	YES	YES	YES	YES
General Liability Insurance		YES	YES	YES	YES	YES
FORCED RANKINGS:		5	4	2	3	1
1 - Best						
2 - Second Best						
3 - Third Best						
4 - Fourth Best						
5 - Fifth Best						

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IRVINE RANCH WATER DISTRICT

# Woodbridge Recycled Water Pipeline Replacement





## Project Background and Understanding

The Irvine Ranch Water District (IRWD, District) operates and maintains backbone recycled water pipelines that serve the Woodbridge Village in the City of Irvine. Most of these pipelines were constructed between 1975 and 1981 when asbestos cement pipe (ACP) was extremely popular for its perceived chemical resistance to corrosion, availability, and cost, particularly for pipe diameters from 4-inch to 12-inch. Then in the 1980s, Polyvinyl chloride (PVC) pipelines replaced ACP as the preferred choice as later phases of the distribution pipelines were constructed. Therefore, the Woodbridge Village recycled water transmission and distribution pipelines are predominately comprised of ACP with some PVC pipe, with the majority being ACP.

In 2020, IRWD retained HDR to perform a forensic analysis of the underlying cause of recent ACP failures in the recycled water distribution system, and HDR took ACP and soil samples from several sites within the Village of Woodbridge. This analysis revealed significant internal deterioration of the ACP which was attributed to calcium loss caused by the moderately corrosive quality of IRWD's recycled water. Therefore, it is understood that the District's ACP segments are currently more susceptible to pipe breaks due to normal peaks in daily pressure cycles and are planned to be replaced before more failures can occur.

To proactively replace these approximately 40-year old pipelines before more failures occur, the Woodbridge Recycled Water Pipeline Replacement Project (Project) will replace approximately 50,000 linear feet of ACP recycled water distribution mains with diameters of 4-inch through 10-inches with either PVC or ductile iron pipe (DIP) in the Village of Woodbridge. This Project will also replace all existing services, all air release and vacuum relief valve assemblies originating from the ACP mains being replaced, and all isolation valves. For isolation valves located at the connections between the proposed pipelines and the pipeline to remain in service, West Yost will work with IRWD to determine which valves should be replaced in accordance with the Continuous Refurbishment criteria in the District's Replacement Planning Model.

West Yost will select alignments for the replacement pipelines that minimize conflicts with existing utilities and allow safe work areas while minimizing traffic impacts. The Project Plans and Project Manual will show the new services connecting to the existing customer meters.



Figure A-1. Project Challenges

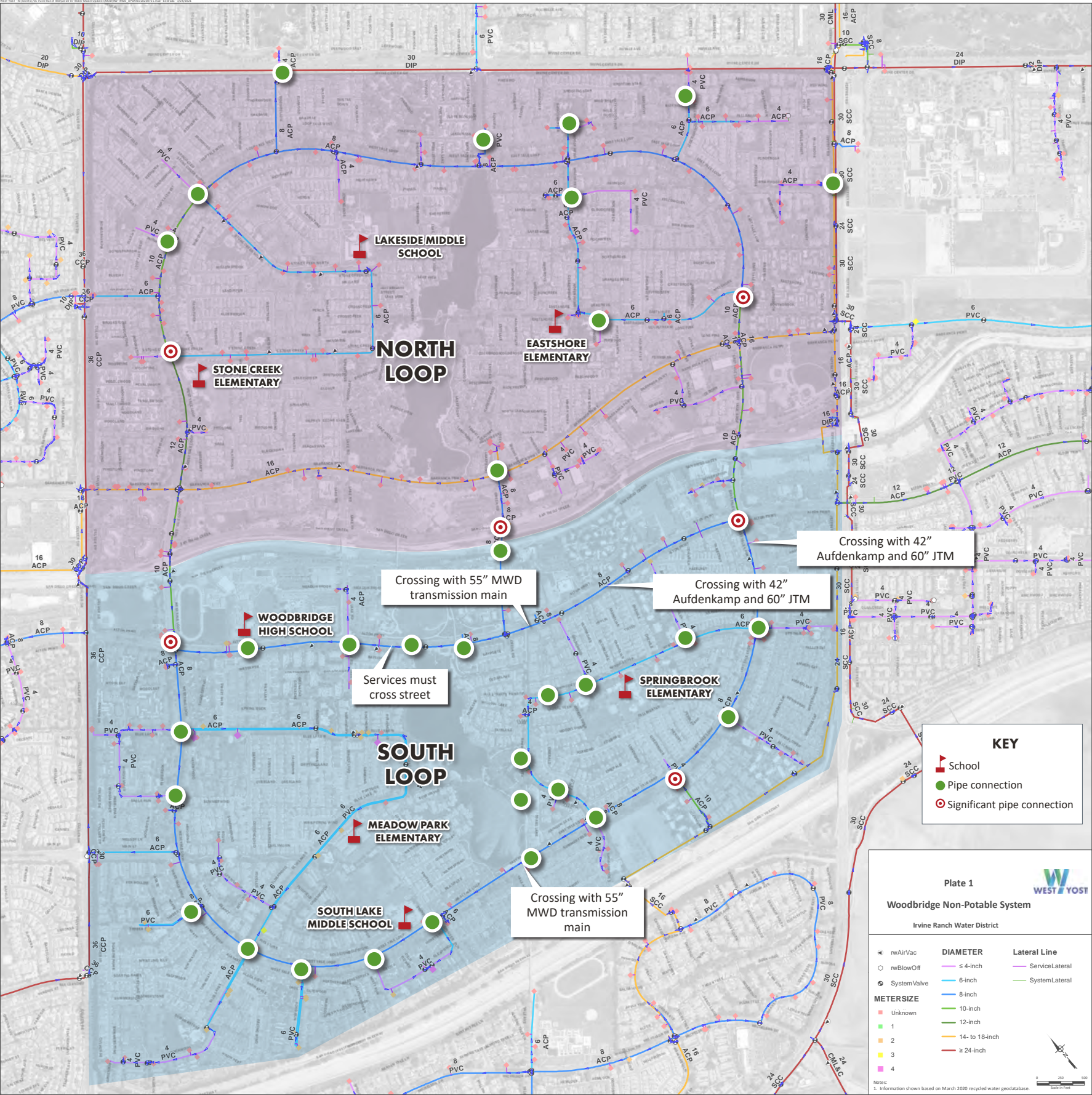


Figure A-1. West Yost has structured its team and approach to address the project’s unique challenges. One design team will focus on the north loop and a second will focus on the south loop. Each area has several significant pipe connections that will require extra and early attention before proceeding with other connections. Some work at schools will be done when classes are not in session to minimize conflicts. Coordination with the Laguna Beach County Water District (LBCWD), the Metropolitan Water District of Southern California (MWD), and South Coast Water District (SCWD) will be necessary for crossings with the Aufdenkamp Transmission Main, the MWD Transmission Main, and the Joint Transmission Main (JTM).



## Project Approach

West Yost has formed a project approach comprised of the following six key elements for the Project. By emphasizing these elements, West Yost will deliver a successful design project efficiently and effectively for IRWD.

1. Effective Project Communications
2. Complete and Accurate Utility Research
3. Thorough Alignment Evaluation
4. Clear Construction Sequencing
5. Minimizing Service Disruptions, and
6. Comprehensive Quality Control and Quality Assurance

## Effective Project Communications

### COORDINATION WITH IRWD'S PROJECT MANAGER

West Yost's Project Manager, Robert Reid, will inform IRWD about our progress, explain our approach, and receive input on all important design decisions. He will work closely with District staff to determine optimum pipeline alignments by collaborating with the entire design team regarding the positive and negative effects of each alternative so that all parties can understand all site and system constraints. Through these interactions, we can reduce unexpected changes as the design is completed and ready to bid for construction.

### COORDINATION WITH AFFECTED PARTIES

We understand that IRWD's Public Affairs will take the lead on coordinating with other affected parties about the project. To maximize the effectiveness of the District's public outreach, we believe that Robert Reid's relationships and extensive local experience makes him the ideal project manager to work with the key agencies and associations described as follows.

#### City of Irvine

We believe that obtaining encroachment permits from the City of Irvine will be challenging. The construction impacts to the Woodbridge community will be significant for a period that could range from six months to one year. In addition, the construction activities will impact major regional streets such as Alton Parkway, Culver Drive, Main Street, and Irvine Center Drive. Once the horizontal alignments have been determined, we will prepare a traffic concept plan which will be reviewed with IRWD before presenting it to the traffic engineer at the City of Irvine. We anticipate two or three meetings with the City to discuss the proposed traffic control concepts for vehicles, bicycles, and pedestrians which we believe will greatly reduce late design revisions as well as construction change orders and delays.



Wood Bridge along Alton Parkway

#### Woodbridge Village Association

In 2019, Robert coordinated with Woodbridge Village Association to construct modifications to the Joint Transmission Main Flow Control Vault in the association's office right-of-way.

#### Irvine Unified School District

Robert worked with the Irvine Unified School District to assist them with the planning of IRWD facilities. We plan to interact with the school district to obtain their schedules for days of instruction and the perceived limits of their school zones.

#### Metropolitan Water District of Southern California

A 55-inch transmission main owned by the Metropolitan Water District of Southern California (MWD) is routed through the Woodbridge community, and portions of the recycled water pipelines installed with this Project will cross MWD's transmission main at least twice. During several recent pipeline projects for local clients, Robert has had success coordinating with MWD by sending a cover letter to MWD with the Project's construction plan sheets showing the proposed crossing(s) early in the final design process.



Springbrook Pipeline Alignment with MWD Pipeline to Right

### Laguna Beach County Water District

The Project involves installing recycled water pipelines that cross the existing 42-inch Aufdenkamp Transmission Main owned and operated by Laguna Beach County Water District. Robert has worked closely with Laguna Beach County Water District for pipeline crossings and has also provided them with design services related to a transmission main relocation project. We propose to discuss the proposed crossing with them early in the final design phase to obtain any special criteria necessary for inclusion into the contract documents.

### Joint Regional Water Supply System (JRWS)

The 60-inch Joint Transmission Main (JTM), formerly the Tri-Cities Transmission Main, is managed and operated by the South Coast Water District and is routed through the Woodbridge community. It will be crossed in two locations by the recycled water mains installed with this Project. Robert has worked closely with South Coast Water District on several projects in the past five years, including two projects with the JRWS.

### Orange County Transportation Authority

The proposed recycled water pipelines will be installed near existing Orange County Transportation Authority (OCTA) bus stops. The design team must work with OCTA to approve temporary closure of these bus stops during construction and possible temporary relocations. We propose early communications with OCTA to avoid issues and delays during construction.



OCTA Bus Stop

West Yost will work closely with IRWD staff to provide exhibits, project descriptions, and estimated construction durations as necessary to proactively engage and communicate effectively with all affected parties to minimize construction impacts without significantly increasing construction costs.

### COMPLETE AND ACCURATE UTILITY RESEARCH

The preparation of an accurate and comprehensive existing utility base map will yield the best possible design and reduce contractor change orders. It involves:

1. Having a thorough set of record data,
2. Interpreting the record data correctly,
3. Correctly translating the record data onto the base map, and
4. Verifying in the field and correcting map information.

One of the most critical success factors for any pipeline project located in an existing street is the proper identification and mapping of the existing utilities and determining any potential conflicts. In preparing this proposal, West Yost has obtained a list of utility providers participating in the Underground Service Alert (USA) of Southern California's "Dig Alert" service, and has begun requesting available records, including any future planned projects in the area that may potentially impact the proposed construction schedule.



USA Mark-out

Once all the available utility information is obtained, it will be drafted into an AutoCAD drawing and will be combined with the topographic survey to serve as the basis for the new pipeline alignments. Our design engineers will then walk the entire project site comparing all obtained utility and topographic data to actual field conditions, noting all above ground utility features such as valve cans, manhole covers, and appurtenances, as well as any repaired pavement trench limits or other items that may inform our development of alignment alternatives. We will verify locations and items through the field measurements and adjust the locations in the drawings, if necessary, to show the exact locations based on the information to date.



The information will be back-checked in the AutoCAD drawings and base map information with utility and record data obtained. In the drawings, we will include a hyperlink to the as-built plan sets for verification.

## THOROUGH ALIGNMENT EVALUATION

West Yost will recommend horizontal pipeline alignments based on the relationship between the proposed pipeline trench and adjacent utilities, the anticipated soil conditions anticipated to be found during construction, the proximity to vehicular lane lanes and travel ways, and the ability to trench near existing parallel utilities without undermining them.

Using the completed base map, West Yost will study potential horizontal alignments for approximately 50,000 feet of recycled water pipelines within the Village of Woodbridge. The recommended alignments will seek to accomplish the following goals:

- Satisfy Department of Public Health horizontal and vertical separation requirements between potable water, recycled water, storm drain, and sanitary sewer.
- Provide sufficient separation from all other buried facilities to minimize potential cave-ins and conflicts.
- Minimize traffic control measures required to create a safe work area.
- Minimize asphalt removal and replacement requirements.
- Minimize community disruptions during construction, such as aligning the pipeline to minimize the blocking of driveways.



Traffic Control Challenge: Median Curb at East Yale Loop and Springbrook

Once our design team has balanced these goals, we will create potential alignments in AutoCAD and inform the District of the benefits and disadvantages of each alignment alternative during our 25% design workshop. Our goal for the workshop will be for all design team members and District staff to agree on the final design alignment.

## CLEAR CONSTRUCTION SEQUENCING

An accurate and updated schedule is critical for successful project execution. West Yost's proposed team members have extensive experience providing design services and engineering support during construction for many of IRWD's pipeline projects over the past 30 years as well as similar services for recycled water pipelines with similar diameters and lengths for other Southern California clients. From this experience, we will be able to prepare a detailed project schedule that will have realistic durations.

West Yost has studied the District's schedule provided in the RFP and has reviewed the number of labor hours required to complete the design for more than 50,000-feet of pipeline. As such, we have compiled a list of key items necessary to consider:

1. West Yost proposes to use two design teams, one to complete the design of approximately 25,000 feet of pipelines within the northern portion of the Woodbridge community, and a second team to complete the design of approximately 25,000 feet of pipelines within the southern portion. This personnel structure will improve efficiency and shorten delivery time without requiring significant additional coordination time.
2. Based on our experience with IRWD construction projects, it typically requires 16 to 18 weeks from the time the Construction Notice of Award is issued to the first day of contractor mobilization. It typically has taken four weeks from the Notice of Construction Award to Notice to Proceed and four additional weeks to prepare, review, and accept the submittals for piping, valves, and appurtenances. Once the submittals are accepted, it may require eight to ten 10 additional weeks to have the materials delivered to the site. This is not currently accounted for in the schedule included in the RFP.
3. Based on our experience in providing engineering support in south Orange County, we have noted that most pipeline contractors are able to lay approximately 200 feet of small diameter pipe in an eight-hour work day. This would take approximately 250 working days (or 50 weeks) to install all the pipe. We also estimate there to be approximately 15 service connections on the north side and approximately 20 service connections on the south side of the community. If four hours were required per connection, it would take approximately 3 to 4 additional weeks for one crew to complete those connections. The meter conversions could require another 3 weeks.

Therefore, using only one crew, it would take approximately 60 weeks to complete the construction of the project which is currently not accounted for in the schedule provided with the RFP. We are also aware that the Capital Engineering team has 19 contractors on its approved bidders list. Therefore, West Yost suggests that the District call several contractors on the list to determine if they could provide two or three crews for this project to increase the rate of installation that can be achieved per day. With the layout of the proposed pipelines, the contractor could successfully have two or three crews working simultaneously. In our experience, this can even spark friendly competitions between crews.

The schedule provided in the RFP does not appear to be adequate to construct the proposed improvements with only one crew. However, if construction began in April 2022 using two full crews, the construction could be completed in November 2022.

4. The Woodbridge community was master planned so that schools and community parks are located near each other so that the residents would have dual purpose fields. With this arrangement and as all parks in the area are irrigated with recycled water, IRWD's recycled water pipelines are located through and/or adjacent to virtually all Irvine Unified School District schools within Woodbridge. The schools that will be impacted by the construction include:

- Woodbridge High School
- South Lake Middle School
- Lakeside Middle School
- Meadow Park Elementary
- Springbrook Elementary
- Stone Creek Elementary
- Eastshore Elementary

The timing of construction should ideally be planned so that work adjacent to the schools can coincide with summer breaks to have the most flexibility related to limiting the impacts to pick-up and drop-off traffic. During construction of IRWD's pipelines for Wells 21 and 22 in Tustin, the contractor was required to install the 24-inch pipeline during non-school periods to avoid traffic and pedestrian issues. As such, the contractor installed the pipeline during summer break and on Saturdays in the fall. In order to avoid costly schedule constraints such as requiring Saturday work, we believe that it may be advantageous to construct the pipelines segments that are located in the vicinity of schools during their summer break. Although this may at first appear as if we are going

against IRWD's preference to construct the recycled water pipelines during the low irrigation water demand period, we may still be able to require that the contractor perform the actual system tie-ins during the low irrigation water demand period. The proposed schedule estimates that the tie-ins and meter conversions will occur in October and November 2022 when the daylight hours are shorter and the recycled water demands have significantly dropped from their summer peaks. This hybrid approach would reduce the impacts to schools while limiting service disruptions during high-use periods.



Summer Work: Drop Spot for Springbrook Elementary School

## MINIMIZE SERVICE DISRUPTIONS

We understand that the Woodbridge service area has a significant amount of landscaping that typically receives irrigation water on alternate nights during the spring, summer, and fall seasons. As such, the replacement pipelines will be designed to minimize the number and duration of shutdowns. To achieve this goal, the proposed pipelines will be located a safe distance from the existing ACP recycled water pipelines so that the construction does not damage the existing pipelines while they remain in service. However, we will seek to locate the proposed pipelines near enough to the existing pipelines to minimize traffic impacts and pavement replacement.

The Project will consist of two major systems: the north and south distribution systems. For the north system, the most significant tie-ins are located in the intersection of West Yale Loop and Stone Creek South and in the intersection of East Yale Loop and Eastshore. For the south system, the most significant tie-ins are located in the intersection of Alton Parkway and West Yale Loop, the intersection of Alton Parkway and East Yale Loop, and in the intersection of East Yale Loop and Greenmoor. Another important supply to the south system is the 8-inch CML&C steel pipe connection on both sides of the Creek Road bridge over San Diego Creek.



East Yale Loop Pipeline Alignment

All other connections of the proposed pipelines to the existing non-ACP will then be made in an orderly manner. As the pipelines are energized, the recycled water meters will be converted from the old ACP to the proposed pipelines.



Irrigation Water Meters

As was done for IRWD's Lake Forest 16-inch Zone C Recycled Water Pipeline in Vista Terrace and Zone B to C Pump Station Piping Improvements project in 2020, each tie-in detail will be carefully shown in the Construction Plans and described in the Project Manual within the schedule of bid items, Specification Section 00200 The Work, and Section 01840 Basis of Measurement for Payment. The Contract Documents will require all shutdowns to be closely coordinated with IRWD.

## QUALITY CONTROL/QUALITY ASSURANCE

Quality is extremely important to West Yost. We were founded on, and have built a reputation for, providing high quality work products and client service. Our Quality Assurance/Quality Control (QA/QC) Policy is an integral component of company-wide policies and is included in our employee manual for each person in the company to read, understand, and acknowledge.

We believe that QA is process oriented with a focus on error prevention. West Yost's QA/QC program consists of two key principles: 1) make sure the work is done correctly the first time and 2) clearly define and communicate goals and expectations with our clients and team members.

The goal of our QA/QC policy is to ensure that project deliverables meet the firm's expected quality standards. Our QA/QC policy approach is focused on having senior staff with subject matter experience/expertise review all project deliverables prior to submission to the client. The following is a general list of company-wide QA/QC review requirements:

- Documents will not leave the office without review by another person capable of conducting a competent review of the information.
- Figures will not be released without a review to check for conformance with the figure standards.
- Spreadsheets will be reviewed, and internal formulas checked to confirm their functionality.
- Calculations will be reviewed to ensure they are correct.
- Design drawings will be checked for conformance with West Yost/IRWD standards and scope of work, and for effectively presenting the design information necessary to complete the work.
- Methodologies and preliminary results will be checked for compliance with project objectives.

Documents, such as Specifications, will be prepared in compliance with the Word Processing (WP) Manual. No project deliverable defined under this bullet will go out the door without going through WP compliance review. The QC Reviewer will initial as "REVIEWED BY" on the covers of TMs and memos. Reports have a signature line for QA/QC.



## Scope of Work

The scope of work involves providing engineering design services necessary to construct 50,000 feet of recycled water pipelines with diameters ranging from 4 inches to 10 inches. The pipelines will consist of either PVC piping or DIP. Design services will include project management, a topographic survey, a geotechnical investigation, utility coordination and mapping, a potholing investigation, design document preparation, and agency permitting and coordination. Design documents will include plans, sections, details, and traffic control plans necessary for the construction of the improvements. West Yost will also complete construction specifications and an engineer's opinion of probable construction cost. The Project will generally consist of the following tasks.

### Task 1. Project Management

West Yost will conduct project management activities to ensure adherence to scope, schedule, and budget; promote efficient communication between West Yost, IRWD, and others as required; and implement an effective quality assurance/quality control (QA/QC) program.

#### A. PREPARE PROJECT STATUS REPORTS

West Yost will prepare Bi-Weekly and Monthly Project Status Reports. Bi-Weekly Status Reports will be submitted by email or by phone call by every other Tuesday. We will also prepare Monthly Status Reports that will be submitted with the monthly billing invoices.

##### 1) Bi-Weekly Status Reports or Phone Calls

Our Bi-Weekly Status Reports will be brief, usually two to five paragraphs, or a couple minute phone conversation. Each report will summarize progress for the past two weeks, anticipated work to be accomplished the coming two weeks, and, most importantly, any decisions that need to be made or items required to stay on schedule.

##### 2) Monthly Status Reports

Each monthly status report will be submitted with the billing invoice. It will contain more information than the Bi-Weekly Status Reports, including the percent complete for each task and the progress as compared to the established budget and schedule. The Project schedule will be updated and included with the Monthly Status Reports when modifications are required.

## B. PROJECT MEETINGS

West Yost will prepare and submit meeting agendas for your review and concurrence at least three working days prior to each meeting. Based on the anticipated meeting agenda, we will propose attendees that we believe will add significant value to the discussions.

We will prepare draft and final meeting notes for all meetings and submit them to you for review within five working days of the meeting by email with a PDF attachment. The meeting notes will emphasize decisions made and action items.

Based on the social distancing requirements due to COVID-19 and the extent of the comments, these meetings could be in person, over the phone, or by using Microsoft Teams.

### 1) Design Kick-off Meeting

We believe that the kick-off meeting is an extremely important first step in delivering a successful project. One of our goals will be to understand your preferred communication methods (i.e. office calls versus cell phone calls versus emails/texts, etc.). We will also discuss lines of communications for the Project team.

The kick-off meeting will also be a time for us to present our approach, the Scope of Services, and the schedule to the entire team. We will discuss our approach to obtaining an encroachment permit with the City of Irvine and communications with other affected parties.

At this first meeting, the District will supply any District record drawings that were not provided with the RFP and discuss the design parameters with our team.

### 2) Proposed Alignments Preview Meeting (25%)

This meeting will be held to preview the proposed pipeline alignments. The 25% complete construction plans will show the proposed horizontal alignment for each street, all existing road improvements, and the existing recycled water pipelines, recycled water meters, isolation valves, and air and vacuum relief valves. The preliminary plans will also show all existing utilities.

At this alignment study meeting, we would like to discuss our preliminary concepts for traffic control measures during construction. The design team will also discuss the existing geotechnical data and the benefits of performing the optional geotechnical borings. We would also like to discuss the proposed pothole locations.

### 3) 70% Design Preview Meeting

This meeting will be used to preview the drawings and specifications at the 70% design completion stage. The plans will show all existing site improvements, the proposed pipeline horizontal and vertical alignments, and all existing utility crossings.

If the optional geotechnical investigation was authorized, we would discuss the preliminary results of those field investigations.

### 4) 100% Design Preview Meeting

This meeting will be held to review the drawings and specifications at the 100% design completion stage. Prior to this meeting, we will prepare a matrix with our responses to all the District's comments. We will either reference the plan or Project Manual revision that addresses the comment or thoroughly describe our reasoning for not revising the design. If the comment has further design ramifications, we will also address those issues.

In addition to our discussion regarding the responses to the 70% review comments, we will also walk the District through the 100% Construction Plans and Project Manual. In addition to the minimum requirements of previous plan submittals, the plans will also include all connection, meter and appurtenance details to complete the design for the Project.

## C. QUALITY CONTROL AND QUALITY ASSURANCE

West Yost will identify potential design and construction risks associated with the Project. Our risk management process will then include risk analysis and mitigation. Robert will be responsible for risk monitoring and control as described in our Project Approach. This task will minimize the potential for the project being delivered over budget, behind schedule, or without District and/or affected parties' support.

## Task 2. Final Design

The final design will result in the preparation of the Contract Documents. West Yost's proposed final design tasks will include the items discussed below:

### A. PROJECT MANUAL

West Yost will prepare a Project Manual in standard IRWD format for the Contract Documents. IRWD's most-current front-end documents will be used, and West Yost will assess IRWD's documents to determine if any supplemental special provisions should be added to comply with IRWD's General Provisions and front-end requirements. The Project Manual will describe the work, the allowable shutdown durations and sequencing associated with any connections and tie-ins to existing IRWD facilities. The Project Manual will also include the IRWD General Technical Specifications, modifications as required, and any project specific technical specifications. West Yost will prepare the Project Manual in standard IRWD format. As was done for our recent Lake Forest Zone C Recycled Water Pipeline and Baker Pipeline Relocation projects, the Project Manual template will be provided in Microsoft Word format. West Yost will complete IRWD templates and will provide a PDF file of the bidding documents in 8-1/2-inch x 11-inch format.

### B. CONSTRUCTION PLANS

West Yost will prepare detailed construction drawings in the latest version of AutoCAD and using NCS V4.0 layering standards, on 24-inch by 36-inch sheets using IRWD's standard border template. The Construction Plans will be based on the NAVD 88 datum and California State Plane Coordinates based on NAD 83. The improvement plans will include a site plan, sheet index/location map/legend, general notes, index map, plans and profiles of the pipeline improvements, new service connections to replace all existing services, abandonment of existing recycled water pipes, notes and details, general construction sequencing, traffic control plans, and all details necessary for the construction of the improvements.

West Yost has thoroughly reviewed the as-built drawings provided with the RFP. Based on the appearance and the design dates, most of these drawings were prepared before AutoCAD became the industry standard for plan preparation. Additionally, some of these pipelines were constructed before the Village of Woodbridge was built and reflect existing conditions at the time of construction that does not reflect the current street configurations as they exist today.

It is our understanding that IRWD has used as-builts similar to these as a base for somewhat recent pipeline construction projects. However, we believe that if we use a similar approach with the as-builts that we have reviewed, the resultant drawings would look messy, be difficult to read, and potentially trigger construction change orders or errors in construction. With our proposed approach, the aerial survey files would provide a sufficient base on which to create the necessary traffic control plans.

West Yost will subcontract with Borchard Surveying and Mapping, Inc. to prepare a topographic survey that will survey as a clean, accurate base for developing a detailed design, construction sequencing, shutdown, and dewatering strategy to minimize service interruptions. The index map will include sheet legend, final alignment, valve locations, surrounding streets, and significant project site locations.

West Yost will determine the replacement pipeline material (PVC or DIP where needed) and alignment based on the utility research, potholing, and geotechnical engineering evaluation. The existing ACP will be abandoned pursuant to IRWD standard specifications, which involves filling the existing pipe with concrete slurry.

West Yost will submit and process the plans for approval by the City of Irvine. Construction notes will be used (callouts on the plans are not allowed) on all construction drawings. Existing IRWD utilities will be identified on the plan view by as-built plan set number with the pipeline material. The draft and final versions of the Construction Plans will be submitted as an electronic PDF file. The following sheet list is anticipated for the project.

Drawing List	
SHEET NO.	TITLE
1	Title Sheet
2	Location Map, Vicinity Map, Drawing Index and Construction Notes
3	General Notes, Symbols, abbreviations, Recycled Water Notes, and Agency Index
4	Map with Sheet Index
5	Horizontal Control Sheet – North Pipelines
6	Horizontal Control Sheet – South Pipelines
<b>7 - 41 North Pipelines</b>	
7 – 16	10-inch/8-inch W Yale Loop/E Yale Loop (8,900 LF)
16 - 22	6-inch Stone Creek S/Stone Creek N (5,200 LF)
23 - 25	6-inch Eastshore (2,000 LF)
26 - 28	6-inch Woodspring (2,000 LF)
29	4-inch Stone Creek South (400 LF)
30	6-inch Warner Avenue (700 LF)
31	4-inch Burwood Street (400 LF)
32	8-inch Woodhollow (1,000 LF)
33	4-inch Lemongrass (500 LF)
34	4-inch Shorebird (400 LF)
35	8-inch Yale (200 LF)
36	6-inch/4-inch Wildwood (450 LF)
37	6-inch Ashwood (300 LF)
38	6-inch Alderwood (450 LF)
39	6-inch/4-inch Fallbrook (1050 LF)
40 - 41	4-inch Briarwood/Brookmont (1,000 LF)
<b>42 - 70 South Pipelines</b>	
42 - 54	8-inch W Yale Loop/E Yale Loop (11,650 LF)
55 - 61	8-inch Alton Parkway (6,400 LF)
62 - 66	6-inch Springbrook (4,300 LF)
67 - 68	8-inch Creek Road (1,400 LF)
69	6-inch Main Street (800 LF)
70	10-inch Greenmoor (700 LF)
71 - 75	Pipeline Connection Details and Applicable Construction Notes
76 - 78	Pipeline Service Conversion Details and Applicable Construction Notes
79 - 80	Civil Details – Pavement, Median, Curb & Gutter and Sidewalk Repair Details
81 - 84	Pipeline Abandonment Details
85+	Traffic Control Plan and Details

Based on our team's discussion with Stan Ng, City of Irvine Traffic Engineer, the traffic control plans will include both traffic control design for automobiles and bike lane closures and detours.

## Traffic Control Design

### STREET LOCATION

Alton Pkwy. @ W. Yale Loop  
 Alton Pkwy. W. Yale Loop - Lake Rd.  
 Alton Pkwy. @ Lake Rd.  
 Alton Pkwy. Lake Rd. - Creek Rd.  
 Alton Pkwy. @ Creek Rd.  
 Alton Pkwy. Creek Rd. - E. Yale Loop  
 Alton Pkwy. @ E. Yale Loop  
 W. Yale Loop Alton Pkwy. - Main St.  
 W. Yale Loop @ Blue Lake N.  
 W. Yale Loop @ Main St.  
 W. Yale Loop Main St. - Springbrook S.  
 W. Yale Loop @ Blue Lake S  
 W. Yale Loop @ Misty Run  
 W. Yale Loop @ Thunder Run  
 W. Yale Loop @ Yale Ave.  
 W. Yale Loop @ Springbrook S.  
 E. Yale Loop Springbrook S. - Alton Pkwy.  
 E. Yale Loop @ Greenmoor  
 E. Yale Loop @ Fallingstar  
 E. Yale Loop @ Fallcrest  
 Main St. W. Yale Loop - Culver Dr.  
 Main St. @ Culver Dr.  
 Springbrook S. W. Yale Loop - Springbrook N.  
 Springbrook S. W/o W. Yale Loop (raised median)  
 Springbrook N. Springbrook S. - E. Yale Loop  
 Springbrook N. w/o E. Yale Loop  
 Creek Rd. Alton Pkwy. - San Diego Creek  
 Creek Rd. San Diego Creek - Barranca Pkwy.  
 Creek Rd. @ Barranca Pkwy.  
 W. Yale Loop Stone Creek S. - Stone Creek N.  
 W. Yale Loop @ Stone Creek S.  
 W. Yale Loop @ Warner Ave.  
 W. Yale Loop @ Stone Creek N.  
 W. Yale Loop Stone Creek N. - Yale Ave.  
 W. Yale Loop @ Lemongrass  
 W. Yale Loop @ Yale Ave.  
 E. Yale Loop Yale Ave. - Alderwood  
 E. Yale Loop @ Alderwood

E. Yale Loop Alderwood - East Shore  
 E. Yale Loop @ East Shore  
 Warner Ave. W. Yale Loop - Culver Dr.  
 Warner Ave. @ Culver Dr.  
 Stone Creek S. W. Yale Loop - Stone Creek N.  
 Stone Creek S. e/o W. Yale Loop (raised median)  
 Stone Creek S. w/o Wetstone (raised median)  
 Stone Creek N. Stone Creek S. - W Yale Loop  
 Stone Creek N. @ elbow (raised median)  
 Stone Creek N. @ Creekwood (raised median)  
 Stone Creek N. n/o Park Vista (raised median)  
 Stone Creek N. s/o W Yale Loop (raised median)  
 Woodhollow W. Yale Loop  
 Irvine Center Dr. @ Woodhollow  
 Lemongrass W. Yale Loop - Sandstone  
 Shorebird W. Yale Loop - Pinewood  
 Yale Ave. n/o W. Yale Loop  
 Woodspring n/o E. Yale Loop  
 Woodspring s/o E. Yale Loop - Ashwood (raised median)  
 Woodspring Ashwood - Eastshore  
 Eastshore Woodspring - E. Yale Loop (school)  
 Eastshore w/o E. Yale Loop (raised median)  
 Alderwood @ E. Yale Loop  
 Fallbrook e/o Alderwood  
 Briarwood e/o E. Yale Loop  
 Jeffrey Rd. @ Briarwood (extension)

## Bike Lane Closure/Detour

### STREET LOCATION

W. Yale Loop Alton Pkwy. - Alton Pkwy.  
 E. Yale Loop Alton Pkwy. - Alton Pkwy.  
 Main St. Culver Dr. - W. Yale Loop  
 Alton Pkwy. W. Yale Loop - E. Yale Loop  
 Creek Rd. Alton Pkwy. - Barranca Pkwy.  
 W. Yale Loop Stonecreek S. - Yale Ave.  
 E. Yale Loop Yale Ave. - Eastshore

West Yost will perform the following in preparing the Construction Plans:

### **1. Review of Background Material**

West Yost will review the background material for the pipelines including but not limited to the following:

- As-built record drawings
- Geotechnical Reports

### **2. Utility Review**

West Yost will request utility maps and any information regarding planned utility projects from utility providers participating in Underground Service Alert (USA) of Southern California and will generate a utility tracking log in Microsoft Excel. We will email or use regular mail as required by the agency to send our requests. Our proposed budget includes reimbursement for our initial payments for all record request fees.

Providers understood to have facilities within the project area include:

- City of Irvine
- Southern California Edison
- Southern California Gas Company
- AT&T
- MCI (Verizon)
- Cox Communications
- Metropolitan Water District of Southern California
- Laguna Beach County Water District
- South Coast Water District

We will prepare utility request letters to each, describing our Project and the anticipated work area. We will also provide them with the estimated construction period. In the letters, we will request record drawings for their facilities and information on any of their projects planned for our project area in the next few years. We will email or use regular mail as required by the agency to send our requests. Our proposed budget includes reimbursement for our initial payments for all record request fees.

Our utility tracking log will be updated as information is provided to us. For agencies that do not respond to our request, we will follow up with additional requests. The utilities tracking log will be provided to IRWD if requested. Special emphasis will be placed on improvements that have recently been installed and those that are planned for the next two years. We have noted during past projects that some recent improvements have not been entered into the existing facilities GIS files or database when we made

our data request. Therefore, our inquiry was returned with incorrect information in that facilities were near our proposed work. We will perform a field walk to verify that all existing facilities that can be visually confirmed are shown on our drawings.

### **3. Pothole Investigation**

West Yost will coordinate with our subcontractor, Underground Solutions, to pothole existing utilities that may conflict with or affect the proposed recycled waterline facility design and construction, e.g. proximity of crossings with existing water, sewer, storm drain, and dry utilities, with the proposed alignments of the replacement pipelines, or to determine the locations and depths of existing mains at proposed points of connection. Prior to performing the field work, West Yost will propose the recycled waterline horizontal alignments and mark the location of the proposed potholes on the base construction drawings for District approval during the 25% design workshop. Our surveyor, Borchard Surveying, will survey the locations for the potholes. Underground Solutions will call Dig Alert and coordinate with the utility companies to have the utilities marked-out prior to potholing. Underground Solutions will obtain an encroachment permit from the City of Irvine for the potholing. Underground Solutions will prepare all traffic control plans required in conjunction with encroachment permit for potholing. In accordance with the RFP, we have budgeted the execution of fifty (50) potholes. If additional potholes are needed, we understand that they will be invoiced at the proposed unit price.

## **C. GEOTECHNICAL INVESTIGATION**

West Yost and our geotechnical subconsultant, Converse Consultants, will review the historical geotechnical reports for the site. These reports include:

- Blue Lake Soils, 2007
- Trench Backfill Compaction E. Yale Loop, 1978
- Report of Soil Investigation Proposed Water Pipelines Southeast Quadrant Woodbridge, 1981

Based on the review, Converse Consultants will determine if we can use the previous soils analysis for this design or determine if an additional soils investigation is required.



## Primary Consultant

**West Yost Associates (West Yost)** is a consulting engineering firm that was founded in 1990. Our focus is exclusively water, recycled water, wastewater, groundwater, and stormwater.

We provide planning, design, construction management, and program management services in these areas.

West Yost is headquartered in Davis, California, and has more than 180 staff members in 11 offices. Our staff includes certified or registered professionals in chemical, civil, control systems, electrical, environmental, and mechanical engineering; water and wastewater treatment and regulatory compliance; geology, engineering geology, and hydrogeology; architecture; GIS; cybersecurity, and risk management; asset management and condition assessment; project management; and construction management and inspection services.

Our project team has successfully performed engineering services for IRWD and other cities, districts, and agencies throughout California, Arizona, and Oregon, often for repeat clients. Our repeat, long term relationships with these and many other clients is evidence of our high level of service and quality work products. West Yost has worked for many of our clients for more than 25 years.

## West Yost's Experience with Irvine Ranch Water District

West Yost has provided or is currently providing engineering planning and design services on the following projects with IRWD:

- InfoSWMM Conversion Project
- Lake Forest Zone C Pipeline
- Potable Water Hydraulic Model Update
- Recycled Water Inspection and Testing FY 20-21
- Recycled Water Mapping of Use Sites
- Cañada Lift Station Evaluation
- Irvine Lake Pipeline Zone B Conversion
- Recycled Water Inspection and Testing 2019-20
- Replacement Planning Model - Phase 2
- Recycled Water Inspection and Testing

## Team Overview

West Yost team members have long-standing working relationships with of our consulting team members. **Table B-1** summarizes our team.

**Table B-1. Project Team Services and Location of Work**

FIRM	SERVICES	LOCATION OF WORK
<b>PRIMARY CONSULTANT</b>		
<b>West Yost Associates</b>	Project Management, QA/QC, and Design	The project will be managed and designed from West Yost's Lake Forest, CA, office and will be supported by offices in Davis and Sacramento, CA.
<b>SUBCONSULTANTS</b>		
<b>Borchard Surveying</b>	Survey	San Clemente, CA
<b>Converse Consultants</b>	Geotechnical Engineering	Costa Mesa, CA
<b>Traffic Control Engineering</b>	Traffic Control	Brea, CA
<b>Underground Solutions</b>	Potholing	Escondido, CA



## **Borchard Surveying**

### **Survey**

Borchard Surveying and Mapping, located in San Clemente, is a professional land surveying and mapping company in Orange County and surrounding areas. They employ inventive techniques using state-of-the-art instrumentation to provide their customers with the high-quality work products. They maintain a full-service, professional survey crew equipped with total stations, electronic data collectors and global positioning system instrumentation. Borchard is currently providing surveying services as part of West Yost's team for the Irvine Ranch Water District Lake Forest Zone C Pipeline Project and has been providing surveying and mapping services to Irvine Ranch Water District in an ongoing on-call basis.

## **Converse Consultants**

### **Geotechnical Engineering**

In 1946, Professor Frederick J. Converse established Converse Consultants (Converse) in Pasadena, California to provide the construction industry with geotechnical engineering and geological services. Converse is an employee-owned corporation, with nine offices and more than 150 employees throughout the United States—California (Monrovia, Redlands, Costa Mesa, Palm Desert, and Palmdale), Nevada (Las Vegas, Reno, and Elko), and Pennsylvania. Their professional and technical staff includes in-house geotechnical engineers, engineering geologists, environmental scientists, deputy inspectors, laboratory and field technicians, drafting/CAD specialists, and other specialized support personnel. Converse has provided on-call geotechnical engineering services to Irvine Ranch Water District.

## **Traffic Control Engineering**

### **Traffic Control**

Traffic Control Engineering was founded in 1989 and specializes in traffic and transportation engineering. The firm is a certified MBE with Caltrans and City of Los Angeles. They have prepared traffic control plans for Caltrans and various cities, counties, water districts, and private contractors throughout Southern California. Their experience in the traffic engineering profession and familiarity with governmental agencies allow them to coordinate contractors and governmental activities effectively. Traffic Control Engineering has on-going contracts with City of Newport Beach, Long Beach Water Department, Los Angeles County Sanitation District, and Irvine Ranch Water District for providing as-needed traffic control design.

## **Underground Solutions**

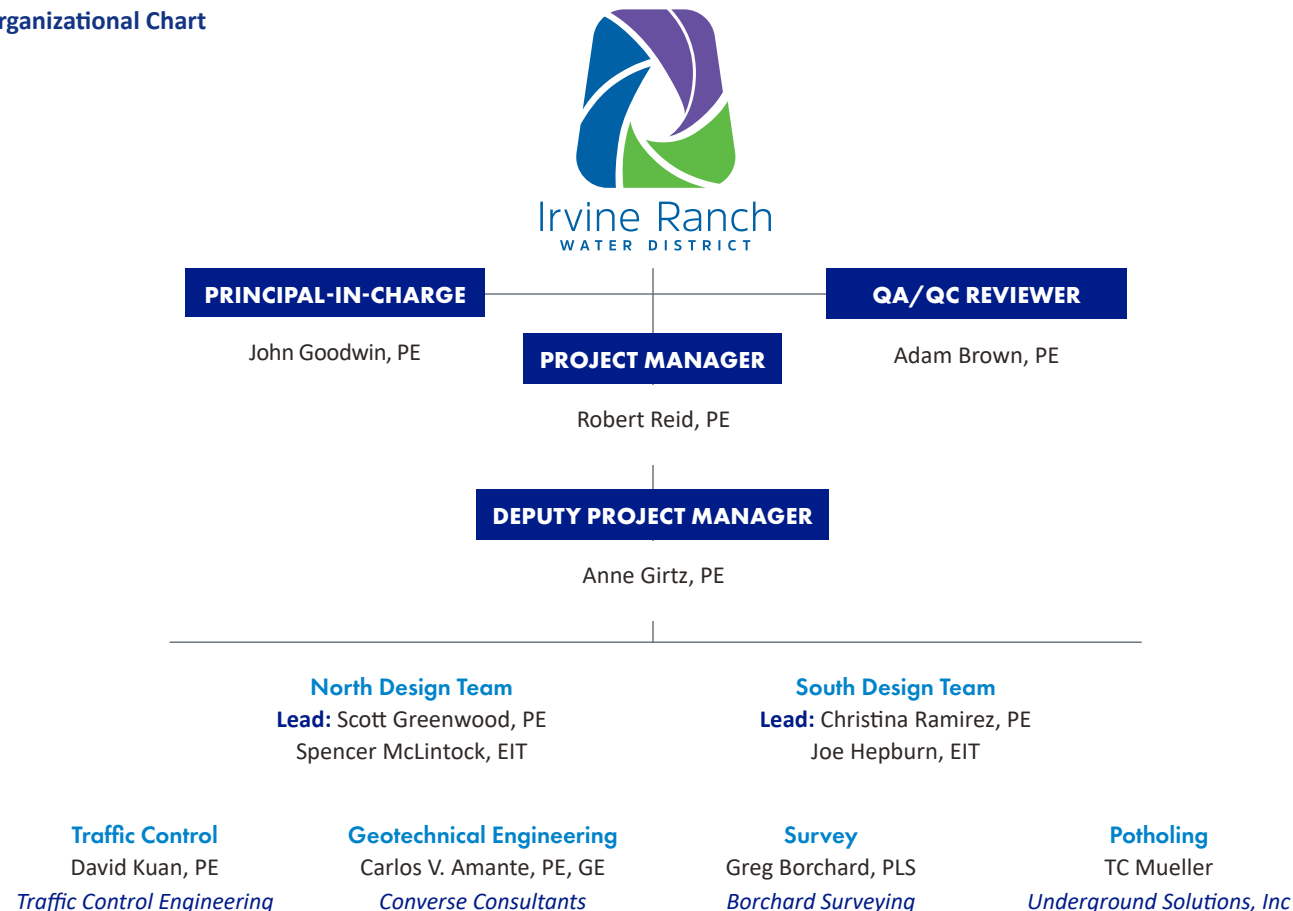
### **Potholing**

Underground Solutions, Inc. (USI) has been in the locating and vacuum excavation utility potholing service business since 2003. USI provides safe, fast and accurate underground utility locating to water and sewer districts, municipal customer, and utility contractors. Their high-velocity, air-driven excavation delivers the power to cut precise holes into the earth without damaging utilities. Their "dry" system provides an economical and environmentally-friendly method of excavation.

## Team Organization

West Yost's team of recycled water pipeline design experts for IRWD's project are shown in our organizational chart below. Our proposed project manager, **Robert Reid**, has more than 30 years of experience in infrastructure planning and design projects. All our team members will be fully available to support the needs of this project, and key personnel assigned to the project will not be reassigned without prior IRWD written approval. We have included brief bios for our key team members in the following section and resumes in [Appendix 1](#).

### Organizational Chart



## Team Member Project Contribution

Table B-2 presents the percentage of time each member will contribute to IRWD's project.

TEAM MEMBER	% OF BUDGET	% TIME AVAILABLE	% REQUIRED TIME
John Goodwin	1	5	2
Robert Reid	7	30	16
Adam Brown	3	15	6
Anne Girtz	6	35	14
Scott Greenwood	12	50	29
Spencer McLintock	30	90	69
Christina Ramirez	12	50	27
Joe Hepburn	29	90	67
<b>TOTAL</b>	<b>100</b>		





## **Robert Reid, PE** **PROJECT MANAGER**

### **West Yost**

Robert Reid will be IRWD's primary point of contact. He will lead our project team to complete the work on schedule and

within the authorized budget. He has 31 years of experience and has managed all phases of water resource projects, including conceptual planning, feasibility studies, facility design, and construction management. He has evaluated distribution systems and developed facility plans to meet projected future needs that involve major transmission infrastructure projects. His project experience includes water reservoirs, water booster pump stations, groundwater wells, pressure-reducing stations, water flow monitoring stations, flow control stations, and pipelines. Robert has designed or managed 200 miles of pipeline projects in southern California, which includes 25 pipeline design projects for the Irvine Ranch Water District over the past 30 years.

### **Robert's Related Experience**

- **Randall Street Domestic Water Improvements, Irvine Ranch Water District, City of Orange, CA:** Principal-in-Charge
- **Trabuco and Jeffrey Roads and Bryan Avenue Capital Improvements, Irvine Ranch Water District, Irvine, CA:** Project Manager
- **Wells 21 and 22 Pipelines, Irvine Ranch Water District, Tustin, CA:** Project Manager
- **Sand Canyon Avenue Capital Pipelines, City of Irvine, CA:** Project Manager
- **Lincoln Avenue 16-inch Water Main (Beach Blvd. to approx. 1,250 feet east of Dale Ave.), City of Anaheim, CA:** Project Manager
- **54-inch Baker Pipeline Realignment in Reach 1U through Santiago Creek, Santiago Aqueduct Commission, Orange, CA:** Project Manager
- **Montebello Hills Recycled Water Pump Station, Pipeline, and PRV Design, Toll Brothers and Central Basin Municipal Water District, Montebello, CA:** QA/QC
- **Lake Forest 16-inch Zone C Recycled Water Pipeline in Vista Terrace and Zone B to C Pump Station Piping Improvements, Irvine Ranch Water District, Lake Forest, CA:** Project Manager



## **Anne Girtz, PE** **DEPUTY PROJECT MANAGER**

### **West Yost**

Anne Girtz will be the deputy project manager and be a secondary point of contact for IRWD. Anne has 14 years of

experience in asset management, planning, design, contract administration, and construction inspection for municipal infrastructure projects. Anne has prepared water and sewer pipeline designs for projects ranging from a conceptual to detailed design level and understands the complexities of replacement projects. She is also familiar with IRWD infrastructure and standards through her work on previous IRWD projects. Anne is proficient in InfoMaster/InfoAsset, Autodesk Civil3D and AutoCAD, XPSWMM, EPA SWMM, and EPANET hydraulic modeling software.

### **Anne's Related Experience**

- **Lake Forest 16-inch Zone C Recycled Water Pipeline in Vista Terrace and Zone B to C Pump Station Piping Improvements, Irvine Ranch Water District, Lake Forest, CA:** Project Engineer
- **Montebello Hills Domestic Water Tanks, Pump Stations, and Pipeline Design, Toll Brothers and San Gabriel Valley Water Company, Montebello, CA:** Project Engineer
- **Replacement Planning Model – Phase 2, Irvine Ranch Water District, CA:** Project Engineer
- **InfoSWMM Conversion and San Diego Creek Interceptor Capacity Project, Irvine Ranch Water District, CA:** Project Engineer
- **Baker Pipeline Realignment, Santiago Aqueduct Commission, Irvine, CA:** Project Engineer
- **Design Services for Sanitary Sewer Lift Stations and Pipeline Rehabilitation at Oakland International Airport, Port of Oakland, CA:** Deputy Project Manager and Project Engineer for pipeline design and condition assessment



## **John Goodwin, PE** **PRINCIPAL-IN-CHARGE**

### **West Yost**

John Goodwin will oversee the project and dedicate West Yost resources to keep the project on schedule and on budget. John

has 36 years of experience leading project teams, providing QA/QC, and planning and designing water and wastewater infrastructure projects. His project experience includes pipelines, pump stations, and storage facilities. He is a leader in trenchless pipeline construction and rehabilitation.

### **John's Related Experience**

- **Recycled Water Pipelines, City of Tracy, CA:** Project Manager and QA/QC Reviewer
- **Recycled Water Storage and Distribution Project, City of Hayward, CA:** Project Engineer
- **Driscoll Main Replacement, Alameda County Water District, Fremont, CA :** Project Manager



## **Adam Brown, PE** **QA/QC REVIEWER**

### **West Yost**

Adam Brown is West Yost's Pipeline Practice Area Lead and will provide QA/QC review for the project. He has 14 years

of pipeline design experience for both public agencies and private developers. He has prepared plans, specifications, and cost estimates for a variety of projects throughout Northern California including trenchless pipeline construction and rehabilitation methods. Adam understands the importance of construction phasing, system connections, material considerations, RWQCB requirements, and limiting service interruptions related to water line improvement projects.

### **Adam's Related Experience**

- **Driscoll Main Replacement, Alameda County Water District, Fremont, CA :** Project Engineer
- **Sweeney Ridge Water Tank and Pipeline, City of San Bruno, CA:** Project Engineer
- **Wykoff Drive Water Line Replacement, City of Vacaville, CA:** Project Manager and Lead Designer



## **Scott Greenwood, PE** **NORTH DESIGN TEAM LEAD**

### **West Yost**

Scott Greenwood has five years of experience in provided planning, GIS, and design services for infrastructure projects

involving water, recycled water, sewer, and stormwater systems, including more than a dozen pipeline projects. He has expertise in AutoCAD Civil 3D and specializes in the development of construction plans, technical specifications, and construction estimates. Scott has previously worked with IRWD standards before having worked on the Baker Pipeline Realignment Project.

### **Scott's Related Experience**

- **Baker Pipeline Realignment, Santiago Aqueduct Commission, Irvine, CA:** Project Engineer
- **Recycled Water Pipelines, City of Tracy, CA:** Project Engineer
- **Recycled Water Storage and Distribution Project, City of Hayward, CA:** Project Engineer
- **Driscoll Main Replacement, Alameda County Water District, Fremont, CA :** Project Engineer



## **Christina Ramirez, PE** **SOUTH DESIGN TEAM LEAD**

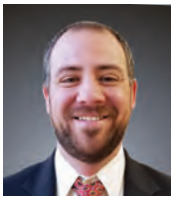
### **West Yost**

Christina Ramirez has nine years of experience specializing in the design and construction of pipeline projects.

She has designed Caltrans right-of-way crossings using trenchless design and designed pipelines requiring multiple private easements. Her experience includes the design of water pipelines, sewer mains, force mains, storm drains, utilities, site design, grading and drainage, roadways, lift stations, and proper phasing. Christina has coordinated and completed permit applications and grant applications as well as conducted plan review for development and pipeline projects. She is proficient with AutoCAD Civil 3D.

### **Christina's Related Experience**

- **Driscoll Main Renewal Project, Alameda County Water District, Fremont, CA:** Project Engineer
- **Water System Planning and Improvements Project, Markleeville Water Company, Markleeville, CA:** Project Engineer
- **Don Julio/Watt Sewer Relief Project (ARD 4 and 5), Sacramento Area Sewer District, Sacramento, CA:** Project Engineer



## **Spencer McIntock, EIT** **NORTH DESIGN TEAM**

### **West Yost**

Spencer McIntock will provide pipeline design support. He specializes in water distribution networks and water treatment.

Spencer has experience with ArcGIS, AutoCAD, HEC-RAS, and HEC-HMS on a variety of water planning projects.

### **Spencer's Related Experience**

- **Driscoll Main Replacement, Alameda County Water District, Fremont, CA:** Staff Engineer
- **Lammers Road Transmission Main, City of Tracy, CA:** Staff Engineer
- **Various Preliminary Design Reports, City of Vacaville, CA:** Staff Engineer
- **Water System Planning and Improvements Project, Markleeville Water Company, Markleeville, CA:** Staff Engineer



## **Joe Hepburn, EIT** **SOUTH DESIGN TEAM**

### **West Yost**

Joe Hepburn has participated in the design and construction management of water infrastructure projects. He has experience

with AutoCAD, Civil 3D, ArcGIS, and Microsoft Excel.

### **Joe's Related Experience**

- **Washington Park Reservoir Improvements Project, Portland Water Bureau, OR:** Engineering intern
- **2021 Water Main Design, San Jose Water Company, San Jose, CA:** Engineering Intern
- **1366 South De Anza Boulevard, San Jose Water Company, San Jose, CA:** Engineering Intern
- **Don Julio/Watt Avenue Sewer Relief Project (ARD 4 and 5), Sacramento Area Sewer District, Sacramento, CA:** Engineering Intern



## **David Kuan, PE** **TRAFFIC CONTROL**

### **Traffic Control Engineering**

David Kuan, principal of Traffic Control Engineering, has extensive traffic control

engineering experience in both public and private sectors. David has prepared traffic control plans for Caltrans as well as various cities, counties, water districts, and private contractors throughout Southern California. David's traffic control plans have included street improvements, storm drains, sewer lines, water/reclaimed water pipelines, drilling excavations, raised median landscaping, bus bays, oil pipelines, soundwalls, freeway widening, utility pipelines, and fiber optic conduits. David also serves on the Work Area Traffic Control Handbook (WATCH) committee.

### **David's Related Experience**

- **Lake Forest Zone C Pipeline Project, Irvine Ranch Water District, Lake Forest, CA:** Traffic Control
- **Wells 21 and 22 Pipelines, Irvine Ranch Water District, Tustin, CA:** Traffic Control
- **Bonita Canyon Recycled Water Zone D to B, Irvine Ranch Water District, Irvine, CA:** Traffic Control
- **Culver Drive Recycled Water Replacement, Irvine Ranch Water District, Irvine, CA:** Traffic Control
- **Emergency Waterline Repair, Bake Parkway at I-5 Truck Bypass, Irvine Ranch Water District/Caltrans, CA:** Survey
- **Water Service Repair, Santiago Canyon Road, Irvine Ranch Water District, Orange, CA:** Traffic Control
- **ILP North Conversion Project, Chapman Avenue/Jamboree Road, Irvine Ranch Water District, Orange, CA:** Traffic Control



## **Carlos V. Amante, PE, GE**

### **GEOTECHNICAL ENGINEERING**

#### **Converse Consultants**

Carlos Amante has more than 26 years of geotechnical and earthquake engineering consulting experience developing innovative and cost-effective engineering solutions for private and public sector clients. Carlos has successfully managed numerous geotechnical and seismic design investigations and testing for hundreds of bridge and highway transportation projects in Southern California. Carlos is experienced in project management and technical delivery of projects involving complex ground investigation, seismic-resilient design of earthworks and foundations, slope engineering, liquefaction assessment, construction quality assurance and material testing, and constructability/value engineering study.

#### **Carlos's Related Experience**

- **Lacy Neighborhood Water Main, Santa Ana, CA:** Geotechnical Project Engineer
- **French Park Water Main, Santa Ana, CA:** Geotechnical Project Engineer
- **Flower Street Sewer Pipeline, Santa Ana, CA:** Lead Geotechnical Engineer



## **Greg Borchard, PLS**

### **SURVEY**

#### **Borchard Surveying**

Greg Borchard has more than 25 years of experience in the civil engineering mapping field. Some of Greg's responsibilities include site investigations, project coordination and development, feasibility study and analysis, quantity and cost estimating, environmental assessment and impact evaluation, specification and construction documentation, construction observation, project close-out, and as-built certification. Greg has been the survey project manager for multiple IRWD projects over the past 14 years. His duties have included interacting with IRWD's project engineers and providing calculations, field coordination, and problem solving and contractor collaboration.

#### **Greg's Related Experience**

- **Lake Forest Zone C Pipeline Project, Irvine Ranch Water District, Lake Forest, CA:** Surveying and Mapping
- **MWRP Phase 2 Plant Upgrade, Irvine Ranch Water District, Irvine, CA:** Surveying and Mapping
- **Biosolids and Energy Recovery Project, Irvine Ranch Water District, Irvine, CA:** Surveying and Mapping
- **Zone 1 Reservoir Project, Irvine Ranch Water District, Irvine, CA:** Surveying and Mapping
- **Wells 21 & 22 Desalter Pipelines Project, Irvine Ranch Water District, Tustin, CA:** Surveying and Mapping



## **TC Mueller**

### **POTHOLING**

#### **Underground Solutions, Inc**

Thomas (T.C.) Mueller has more than 30 years of hands-on general engineering contracting experience in the counties of San Diego, Orange, LA, Riverside, and San Bernardino with an emphasis on safety and production. TC is familiar with various types of utility installation, soil conditions, excavation equipment, traffic control, and safety practices. He provides valuable experience installing utilities and determining locations and depths of existing utilities when potholing and locating.

#### **TC's Related Experience**

- **T033 Camino Capistrano, Orange County, CA:** Utility Potholing via Air Excavation Potholing
- **MNWD Pipeline I-5 & Oso Parkway Orange County, CA:** Utility Potholing via Air Excavation Potholing
- **FE 18-13 Redhill, Orange County, CA:** Utility Potholing via Air Excavation Potholing
- **Anaheim Rural Ridge Water Replacement, Orange County, CA:** Utility Potholing via Air Excavation Potholing

## **D** SCHEDULE

West Yost has put together a team structure for your project that dedicates separate design teams for the the north and south loops. This will allow each team to focus on the unique challenges of those areas. Our project manager and deputy project manager will use proven communication and workload planning tools to share knowledge between the teams and lead the project to a successful completion according to the proposed schedule and with the quality that you expect from West Yost.

### **Project Communications**

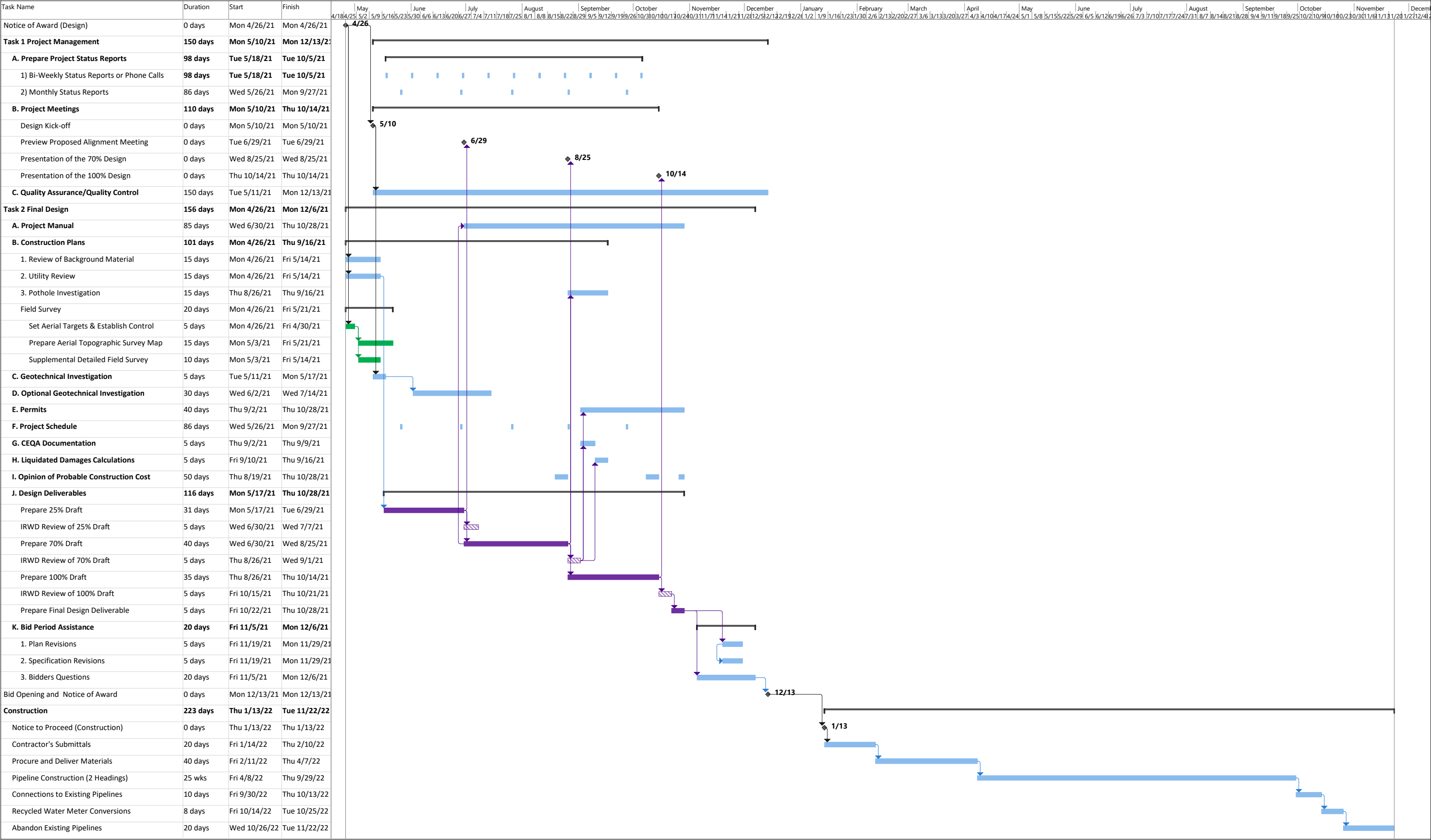
Project communications are critical to any design project's success. Biweekly communication between the IRWD project manager and West Yost project manager will be important to track the progress of the project, understand any information or decisions that could delay the progress, and share key project information among team members. Monthly status reports will help summarize these decisions and discussions, as well as the progress. In addition, communication and coordination among the entire design team will be important for project success; internal team communication will happen as needed so that the project will meet the milestones to completion.

### **Workload Planning**

West Yost's project management software will provide Robert with real-time project workload planning information. As the project manager, he will be responsible for the project's status at monthly meetings with a West Yost principal. In these meetings, the project manager and principal will review and discuss your project's budget, schedule, and any project issues including staffing. The principal has the authority to assign additional resources to projects.



Proposed Schedule



**WE SUPPORT OUR COMMUNITIES**  
**WE ARE WATER FOCUSED**  
**WE TAKE PRIDE IN WHAT WE DO**  
**WE STRIVE TO BECOME OUR BEST**  
**WE DO WHAT'S RIGHT**  
**WE BELIEVE IN QUALITY**  
**WE LISTEN**  
**WE SOLVE CHALLENGING PROBLEMS**  
**WE SEE THE BIGGER PICTURE**  
**WE TAKE OWNERSHIP**  
**WE COLLABORATE**  
**WE HAVE FUN**  
**WE ARE WEST YOST**





23692 Birtcher Drive  
Lake Forest, CA 92630

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westyost.com

March 31, 2021

**Sabrina Ryan**

Associate Engineer  
Irvine Ranch Water District  
15600 Sand Canyon Avenue  
Irvine, CA 92618

**RE: Fee Proposal in Response to Request for Proposals - Engineering Design Services for the  
Woodbridge Recycled Water Pipeline Replacement**

Dear Ms. Ryan:

West Yost has included our fee proposal for the Woodbridge Recycled Water Pipeline Replacement Project in the attached table. Our proposed fee reflects our approach and labor-hour estimate to complete your project. We recognize that our interpretation of the needs for this project may be different than IRWD's, and we are flexible to work with you to revise our scope and effort as appropriate. As noted in the RFP, compensation will be on a time and materials basis, subject to the not-to-exceed amount shown in the table.

We appreciate the opportunity to provide engineering design services to IRWD, and we look forward to starting work on this important project. Please contact either of us if you have any questions or need additional information.

Sincerely,

**WEST YOST**

Corie Moolenkamp, PE  
Infrastructure Business Sector Manager  
503.601.9520 cell  
cmoolenkamp@westyost.com

Robert S. Reid, PE  
Project Manager  
949.324.2091 cell  
rreid@westyost.com

E BUDGET

Task No.	Task Description	John Goodwin, PE Principal-in-Charge	Adam Brown, PE QA/QC	Robert Reid, PE Project Manager	Anne Girtz, PE Project Engineer	Scott Greenwood, PE North Pipeline Lead	Spencer McIntock, EIT North Designer	Christina Ramirez, PE South Design Lead	Joe Hepburn, EIT South Designer	Administrative Assistant	Total West Yost Hours	West Yost Labor Fee	Traffic Control Engineering, Inc.	Converse Consultants Geotechnical	Underground Solutions Potholing	Borchard Surveying & Mapping, Inc.	Other Direct Costs	Total Fee
		\$ 307	\$ 247	\$ 279	\$ 236	\$ 202	\$ 162	\$ 236	\$ 162	\$ 135								
1	Project Management	16		60	40					12	128	\$ 32,712.00						\$ 32,712.00
2	Design																	
	A. Project Manual	2	8	8	24					8	50	\$ 11,566.00						\$ 11,566.00
	B. Construction Plans	4	54	56	30	266	637	266	637		1950	\$ 360,166.00	\$ 236,500.00			\$ 70,092.00		\$ 666,758.00
	1. Review of Background Material			2		8					10	\$ 2,174.00						\$ 2,174.00
	2. Utility Review			2	4		16		16		38	\$ 6,686.00					\$ 500.00	\$ 7,186.00
	3. Pothole Investigation		2	8	4	4	4	4	4	2	32	\$ 6,988.00			\$ 59,972.00	\$ 2,596.00	\$ 200.00	\$ 69,756.00
	C. Geotechnical Investigation			2	4						6	\$ 1,502.00		\$ 5,445.00				\$ 6,947.00
	D. Optional Geotechnical Investigation (See Below)										0	\$ -						\$ -
	E. Permits			8	4	4	8				24	\$ 5,280.00					\$ 2,500.00	\$ 7,780.00
	F. Project Schedule			4	4					8	16	\$ 3,140.00						\$ 3,140.00
	G. CEQA Documentation			1	1	2	8				12	\$ 2,215.00						\$ 2,215.00
	H. Liquidated Damages Calculations			2	2						4	\$ 1,030.00						\$ 1,030.00
	I. Opinion of Probable Costs			4	12	8	20	8	20		72	\$ 13,932.00						\$ 13,932.00
	J. Design Deliverables			3	3		6		6	3	21	\$ 3,894.00						\$ 3,894.00
	K. Bid Period Assistance																	
	1. Plan Revisions			1	1	2	4				8	\$ 1,567.00						\$ 1,567.00
	2. Specification Revisions			1	6					1	8	\$ 1,830.00						\$ 1,830.00
	3. Bidders Questions			2	2						4	\$ 1,030.00						\$ 1,030.00
	Grand Total	22	64	164	141	294	703	278	683	34	2383	\$ 455,712.00	\$ 236,500.00	\$ 5,445.00	\$ 59,972.00	\$ 72,688.00	\$ 3,200.00	\$ 833,517.00
	D. Optional Geotechnical Investigation				2						2	\$ 472.00		\$ 14,960.00				\$ 15,432.00

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