

**AGENDA
IRVINE RANCH WATER DISTRICT
BOARD OF DIRECTORS
REGULAR MEETING**

September 27, 2021

CALL TO ORDER 5:00 p.m.

ROLL CALL Directors LaMar, McLaughlin, Swan, and Withers, and President Reinhart

This meeting will be held in-person at the District’s headquarters located at 15600 Sand Canyon Avenue, Irvine, California, but participation may be virtual from remote locations. Members of the public may attend in-person or remotely.

Webex attendees may submit comments via the “Chat” function. To virtually attend this meeting, please join online using the link and information below:

Via Web:

<https://irwd.webex.com/irwd/j.php?MTID=mc51610a04c5fdff65cfe8a7c74175508>

Meeting Number (Access Code): 146 495 0905

Meeting Password: JcHGMg7TN62

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: Webex observers of the meeting will be placed into the Webex lobby when the Board enters closed session. Participants who remain in the “lobby” will automatically be returned to the open session of the Board once the closed session has concluded. Observers joining the meeting while the Board is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

PUBLIC COMMENT NOTICE

Public comments are limited to three minutes per speaker on each subject. If you wish to address the Board of Directors on any item, you may attend the meeting in person and submit a “speaker slip” to the Secretary. Forms are provided outside of IRWD’s Board Room. If attending via Webex, please submit your comment via the “chat” feature and your remarks will be read into the record at the meeting. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 12:00 p.m. on Monday, September 27, 2021.

All votes shall be taken by a roll call vote if one or more Board members participates remotely.

COMMUNICATIONS TO THE BOARD

1. A. Written:
2. B. Oral:
3. ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Recommendation: Determine the need to discuss and/or take immediate action on item(s).

CONSENT CALENDAR, ITEMS 4-13 (Next Resolution No. 2021-21)

4. BOARD MEETING MINUTES

Recommendation: That the minutes of the September 13, 2021, Regular Board meeting be approved as presented.

5. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Steven LaMar, Karen McLaughlin, Douglas Reinhart, John Withers and Peer Swan as described.

6. AUGUST 2021 TREASURY REPORT

Recommendation: That the Board receive and file the Treasurer's Investment Summary Report, the Summary of Fixed and Variable Rate Debt, and Disclosure Report of Reimbursements to Board members and staff, approve the August 2021 Summary of Payroll ACH payments in the total amount of \$2,216,023, and approve the August 2021 accounts payable Disbursement Summary of warrants 420280 through 420950, Workers' Compensation distributions, wire transfers, payroll withholding distributions and voided checks in the total amount of \$20,643,668.

7. RATTLESNAKE RESERVOIR VALVE ACTUATOR AND VALVE STEM REPLACEMENTS BID REJECTION

Recommendation: That the Board reject the bid received for the Rattlesnake Reservoir Valve Actuator and Valve Stem Replacements, Project 11566, and authorize staff to revise the bid documents and request bids for the replacement of the two currently non-functioning valve actuators.

CONSENT CALENDAR, ITEMS 4-13 – Continued (Next Resolution No. 2021-21)

8. MICHELSON WATER RECYCLING PLANT PRIMARY CLARIFIERS 1-5
COVERS REPLACEMENT FINAL ACCEPTANCE

Recommendation: That the Board accept construction of the Michelson Water Recycling Plant Primary Clarifiers 1-5 Covers Replacement, Project 11599, authorize the General Manager to file a Notice of Completion, and authorize the payment of the retention 35 days after the date of recording the Notice of Completion.

9. ADDENDUM NO. 1 TO THE INITIAL STUDY/MITIGATED NEGATIVE
DECLARATION FOR ORANGE PARK ACRES WELL REPLACEMENT
PROJECT

Recommendation: That the Board approve the proposed Addendum No. 1 to the Orange Park Acres Well Replacement Project Mitigated Negative Declaration, including the Determinations set forth in Addendum No. 1, approve the proposed project modifications and authorize staff to post and file a Notice of Determination.

10. VERIFICATION OF SUFFICIENT WATER SUPPLIES FOR CITY OF IRVINE
PLANNING AREA 1 ORCHARD HILLS NEIGHBORHOOD 4

Recommendation: That the Board approve the Verification of Sufficient Water Supplies for Planning Area 1 Orchard Hills Neighborhood 4 (Vesting Tentative Tract Map 19020).

11. ADOPTION OF REVISED IRWD SCHEDULE OF POSITIONS AND
SALARY RATE RANGES

Recommendation: That the Board adopt a resolution rescinding Resolution No. 2021-18 and adopting a revised Schedule of Positions and Salary Rate Ranges.

Reso. No. 2021-21

12. SEWER SIPHON IMPROVEMENTS BUDGET INCREASE AND CONTRACT
CHANGE ORDER

Recommendation: That the Board authorize a budget increase for Project 07886 in the amount of \$800,000, from \$9,746,000 to \$10,546,000, and authorize the General Manager to execute Contract Change Order No. 3 in the amount of \$513,924.26 to Vido Artukovich & Son, Inc. for the Sewer Siphon Improvements, Project 07886.

13. ORANGE COUNTY OPERATIONAL AREA AGREEMENT

Recommendation: That the Board authorize the General Manager to execute the Orange County Operational Area Agreement and any subsequent updates.

ACTION CALENDAR

14. STATEWIDE DROUGHT AND LEVEL TWO WATER SHORTAGE DECLARATION

Recommendation: That the Board adopt a resolution declaring water shortage Level Two (Significant Shortage Condition).

Reso. No. 2021-22

15. CONSULTANT SELECTION TO UPDATE THE IRWD ENERGY AND GREENHOUSE GAS MASTER PLAN

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with NV5 Global, Inc. in the amount of \$307,995 to prepare an update to IRWD's Energy and Greenhouse Gas Master Plan.

16. THIRD AMENDED AGREEMENT BETWEEN IRWD AND CITY OF ORANGE TO FACILITATE PFAS REMOVAL FROM GROUNDWATER

Recommendation: That the Board authorize the General Manager to execute the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service between IRWD and the City of Orange, subject to non-substantive changes.

OTHER BUSINESS

Pursuant to Government Code Section 54954.2, members of the Board of Directors or staff may ask questions for clarification, make brief announcements, and make brief reports on his/her own activities. The Board or a Board member may provide a reference to staff or other resources for factual information, request staff to report back at a subsequent meeting concerning any matter, or direct staff to place a matter of business on a future agenda. Such matters may be brought up under the General Manager's Report or Directors' Comments.

17. General Manager's Report

18. Receive oral update(s) from District liaison(s) regarding communities within IRWD's service area and provide information on relevant community events.

19. Directors' Comments

20. Adjourn.

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 Board in connection with a matter subject to discussion or consideration at an open meeting of the Board 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 Board 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 Board 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. 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.

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September 27, 2021
Prepared and
submitted by: L. Bonkowski
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

BOARD MEETING MINUTES

SUMMARY:

Provided are the minutes of the September 13, 2021 Regular Board meeting for approval.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

Not applicable.

RECOMMENDATION:

THAT THE MINUTES OF THE SEPTEMBER 13, 2021, REGULAR BOARD MEETING BE APPROVED AS PRESENTED.

LIST OF EXHIBITS:

Exhibit "A" – September 13, 2021 Minutes

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EXHIBIT "A"

MINUTES OF REGULAR MEETING – SEPTEMBER 13, 2021

The regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 5:00 p.m. by President Reinhart on September 13, 2021 in person at the District's headquarters located at 15600 Sand Canyon Avenue, Irvine, California and via teleconference pursuant to the provisions of the Governor's Executive Order N-08-21 due to COVID-19.

Directors Present: LaMar, Withers (arrived at 5:17 p.m.), Swan, McLaughlin, and Reinhart

Directors Absent: None.

Also Present: General Manager Cook, Executive Director of Technical Services Burton, Executive Director of Operations Chambers, Executive Director of Finance and Administration Clary, Director of Treasury and Risk Management Jacobson, Executive Director of Water Policy, Director of Water Quality and Regulatory Compliance Colston, Director of Recycling Operations Zepeda, Director of Information Services Malone, Director of Water Resources Sanchez, Director of Maintenance Mykitta, Director of Human Resources Mitcham, Director of Strategic Communications and Advocacy/Deputy General Counsel Compton, Secretary Bonkowski, General Counsel Collins, Special Legal Counsel Robinson, Consultant Newell, and other staff.

WRITTEN COMMUNICATIONS: None.

ORAL COMMUNICATIONS:

Ms. Marianna Marysheva, the City of Irvine's Interim City Manager, introduced herself and also thanked the Board for the continued good relationships with District staff and the City.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED: None.

PRESENTATION

General Manager Cook presented a proclamation of service to retiree Henry Solis to commend him for 25 years of dedicated and loyal service to IRWD.

CONSENT CALENDAR

Director Swan asked that Item No. 10 be moved to the Action Calendar for discussion. There being no objection, this item was moved accordingly. There being no further comments, on MOTION by LaMar, seconded by McLaughlin and carried by the following vote (LaMar, Reinhart, Swan and McLaughlin voting aye and Withers absent (4-0 vote), CONSENT CALENDAR ITEMS 4 through 9 and 11 through 14 WERE APPROVED AS FOLLOWS:

4. BOARD MEETING MINUTES

Recommendation: That the minutes of the August 9, 2021, Regular Board meeting be approved as presented.

CONSENT CALENDAR (Continued)

5. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Steven LaMar, Karen McLaughlin, Douglas Reinhart, Peer Swan, and John Withers, as described.

6. 2021 LEGISLATIVE AND REGULATORY UPDATE

Recommendation: The Board adopt a "WATCH" position on SB 222 (Dodd).

7. ACWA COMMITTEE NOMINATIONS AND REGION 10 ELECTION FOR THE 2022-2023 TERM

Recommendation: That the Board authorize the District to submit the Association of California Water Agencies Committee Consideration Form for Board and staff committee appointment nominees for the 2022-2023 term, and that the Board support the candidates as selected by the ACWA Region 10 Nominating Committee and authorize the General Manager to sign and submit the Region 10 Board ballot for the 2022-2023 term.

8. JULY 2021 TREASURY REPORT

Recommendation: That the Board receive and file the Treasurer's Investment Summary Report, the Summary of Fixed and Variable Rate Debt, and Disclosure Report of Reimbursements to Board Members and staff, approve the July 2021 Summary of Payroll ACH payments in the total amount of \$3,263,522, and approve the July 2021 Accounts Payable Disbursement Summary of Warrants 419654 through 420279, Workers' Compensation Distributions, wire transfers, payroll withholding distributions and voided checks in the total amount of \$39,173,495.

9. ASSISTANT TREASURER APPOINTMENT

Recommendation: That the Board appoint Jennifer Davis as an Irvine Ranch Water District Assistant Treasurer effective September 13, 2021.

11. CONSTRUCTION INSPECTION SERVICES AGREEMENTS

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with NV5 in the amount of \$664,080 and execute a Professional Services Agreement with Ardurra in the amount of \$717,444 for construction inspection services, both for a two-year term.

12. FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR THE FLEMING ZONE 8 RESERVOIR AND PUMP STATION IMPROVEMENT PROJECT

Recommendation: That the Board find on the basis of the whole record before it, including the Final Initial Study/Mitigated Negative Declaration and the comments received, that there is no substantial evidence that the Fleming Zone 8 Reservoir and

CONSENT CALENDAR (Continued)

Pump Station Improvement Project will have a significant effect on the environment and that the Final Mitigated Negative Declaration reflects IRWD's independent judgment and analysis, adopt the proposed Final Mitigated Negative Declaration for the project and the associated Mitigation Monitoring and Reporting Program, approve the project, and authorize staff to post and file a Notice of Determination.

13. 2020 VAULT REHABILITATIONS FINAL ACCEPTANCE

Recommendation: That the Board accept construction of the 2020 Vault Rehabilitations, authorize the General Manager to file a Notice of Completion, and authorize the payment of the retention 35 days after the date of recording the Notice of Completion for Project 10542.

14. MORSE / GILLETTE DOMESTIC WATER PIPELINE REPLACEMENT CONSTRUCTION CONTRACT AWARD

Recommendation: That the Board authorize the General Manager to execute a construction contract with GCI Construction, Inc. in the amount of \$272,130 for the Morse / Gillette Domestic Water Pipeline replacement, Project 11567.

ACTION CALENDAR

RENEWAL OF GROUP MEDICAL, DENTAL, VISION AND ANCILLARY PLAN SERVICES FOR CALENDAR YEAR 2022

Following Director Swan's comments on the proposed PPO medical plans, he said he would be voting no on this item. Director Withers arrived at the Board meeting at 5:17 p.m. Following discussion with the Board and staff, Director Swan retracted his comment to oppose the item, and said he would instead abstain from voting. On MOTION by LaMar, seconded by McLaughlin and carried, by the following vote (LaMar, Reinhart, Withers and McLaughlin voting aye and Swan abstaining (4-0-1 vote), THE BOARD AUTHORIZED THE CONTINUATION OF IRWD'S HEALTH INSURANCE COVERAGE WITH CALPERS WITH CHANGES IN DISTRICT AND EMPLOYEE CONTRIBUTION RATES AS OUTLINED IN EXHIBIT "A", AUTHORIZED THE CONTINUATION OF THE DISTRICT'S DENTAL INSURANCE COVERAGE WITH ACWA/JPIA WITH NO CHANGE IN PREMIUM RATES, AUTHORIZED THE CONTINUATION OF THE DISTRICT'S VISION INSURANCE COVERAGE WITH EYEMED WITH NO CHANGE IN PREMIUM RATES, AUTHORIZED THE CONTINUATION OF VOLUNTARY DELTA DENTAL AND EYEMED BUY-UP PLANS FOR EMPLOYEE PURCHASE WITH NO CHANGE IN PREMIUM RATES, AUTHORIZED THE RENEWAL OF THE DISTRICT'S TERM LIFE, ACCIDENTAL DEATH AND DISMEMBERMENT, LONG-TERM DISABILITY AND EMPLOYEE ASSISTANCE PROGRAM COVERAGE WITH RELIANCE STANDARD, AND AUTHORIZED THE CONTINUATION OF THE FLEXIBLE SPENDING ACCOUNT, HEALTH REIMBURSEMENT ARRANGEMENT, COBRA AND COMMUTER BENEFITS ADMINISTRATOR CHARD SNYDER.

WAREHOUSE BUILDINGS AT MICHELSON OPERATIONS CENTER CONSULTANT SELECTION

Executive Director of Technical Services Burton reported that Whitman Requardt & Associates completed a study that evaluated the District's warehousing needs and recommended options for increasing storage at the Michelson Operations Center. Mr. Burton said that the study was reviewed with the Engineering and Operations Committee, and a preferred alternative was selected based on the District's current and future storage needs, site geotechnical considerations, and best value. The selected alternative includes a pre-engineered metal and concrete masonry block storage building of approximately 4,500 square feet sited adjacent to the existing Michelson Operations Center warehouse, and a canopy structure of approximately 1,200 square feet to provide shade over storage racks in the existing fenced material storage yard. A site map of the existing Purchasing Department material storage yard is provided as Exhibit "A".

Mr. Burton said that staff issued a request for proposal for the design to five consultants: AECOM, DCDB Consultants, MWA Architects, Stantec, and Tetra Tech. DCDB Consultants, Stantec, and Tetra Tech were responsive and submitted proposals that reflected a good understanding of the scope of work. Mr. Burton said that Stantec's proposal reflected the most thorough understanding of the project. He said that Stantec also proposed to conduct workshops during the preliminary design to ascertain the District's needs and requirements for material storage, materials handling, and determine the area of storage needed if different from the proposed 4,500 square feet. These workshops would also assist with selecting a storage racking system from alternatives, determining the configuration of storage, confirming the canopy's square footage and the materials requiring canopy shade, and determining the design criteria for warehouse layouts, equipment requirements, and site layout. Stantec proposed to develop a comparative analysis of pre-engineered and traditional constructed building which will include a bridge crane analysis, noting that a pre-engineered metal building with an independent crane could be cost competitive to a traditional building with a crane. Stantec's team is highly qualified and experienced, based on a recent warehouse design for the Orange County Sanitation District, and for these reasons, Mr. Burton said that staff recommended Stantec for this project.

Director Withers reported that this item was reviewed by the Engineering and Operations Committee on August 17, 2021, and on MOTION by Withers, seconded by Swan and unanimously carried (5-0 vote), THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH STANTEC IN THE AMOUNT OF \$475,632 FOR DESIGN SERVICES FOR THE WAREHOUSE BUILDINGS AT MICHELSON OPERATIONS CENTER, PROJECTS 11854 AND 11855.

LAKE FOREST ZONE B TO C RECYCLED WATER PUMP STATION BUDGET INCREASE AND CONSTRUCTION AWARD

Executive Director of Technical Services Burton reported that staff completed an evaluation to identify ways to increase operational flexibility and improve water quality in the Lake Forest Zone C recycled water system, which receives its water supply from the Los Alisos Water Recycling Plant (LAWRP) and Santa Margarita Water District's (SMWD) Upper Oso Reservoir. Mr. Burton said that the evaluation resulted in a recommendation to cover the existing Zone B East Reservoir, establish a closed-loop Zone C distribution system with water supplied primarily from LAWRP, and construct a bi-directional metered interconnection with SMWD that can be used to transfer recycled water between IRWD and SMWD as needed. He said that the installation of the cover is complete, and staff is now proceeding with the construction of a new

interconnection with SMWD and a new pump station to establish the closed-loop Zone C distribution system. The proposed pump station will be located at the site of the recently demolished Lake Forest Well No. 5, and the proposed interconnection will be located near the intersection of Portola Parkway and El Toro Road. The existing Lake Forest Zone B to C recycled water pump station, located adjacent to the Zone B East Reservoir, is an outdoor pump station constructed in 1998; it will be demolished as part of the project.

Mr. Burton said that staff advertised the project for construction bids to a select list of 17 general contractors and that one bid was received from Pacific Hydrotech Corporation in the amount of \$6,148,600. He said that the engineer's estimate, prepared by Stantec, was \$5,150,000. He also said that the bid amount is higher than the engineer's estimate due to overall market conditions and due to recent increases in materials and labor costs associated with COVID-19.

Mr. Burton said that although only one bid was received for this project, Pacific Hydrotech Corporation has a track record of providing the low bid to IRWD on several recent projects where multiple bids were received. He said that in the past four years, Pacific Hydrotech Corporation has bid on 10 IRWD projects and has submitted the low bid on seven of those projects including the 15 MG Zone 1 Reservoir Interior Coating and Improvements (2021), Zone A to Rattlesnake Reservoir Pump Station (2020), Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System (2020), Eastwood Zone A to B and Zone A to C Recycled Water Pump Stations (2018), and 3.7 MG Zone 1 Reservoir (2018).

Mr. Burton said that staff contacted other contractors who were invited to submit bids on the project to discuss the reasons why they did not submit a bid, and that the contractors indicated that the current bidding environment is extremely busy and that they either did not have available staff to prepare a bid or did not have available construction crews to begin the project in the coming months. The contractors also confirmed that the construction plans were clear and that they would have bid the project if they had the available staff. Staff also contacted Pacific Hydrotech Corporation who also confirmed that the construction plans were clear and that the project design is straightforward and buildable.

Mr. Burton further said that staff reviewed Pacific Hydrotech Corporation's bid and has determined that it is responsive. On MOTION by Swan, seconded by LaMar and unanimously carried (5-0 vote), THE BOARD AUTHORIZED A BUDGET INCREASE FOR PROJECT 11168 IN THE AMOUNT OF \$4,705,500, FROM \$3,801,600 TO \$8,507,100, AND AUTHORIZED THE GENERAL MANAGER TO EXECUTE A CONSTRUCTION CONTRACT WITH PACIFIC HYDROTECH CORPORATION IN THE AMOUNT OF \$6,148,600 FOR THE LAKE FOREST ZONE B TO C RECYCLED WATER PUMP STATION, PROJECT 11168.

SAND CANYON PROFESSIONAL CENTER PHASE II OFFICE BUILDING LEASE APPROVAL

Director of Treasury and Risk Management Jacobson reported that staff and the District's real estate legal counsel Jackson-Titus have been working with Bandai representatives to finalize lease details, and that the documents were completed today. Mr. Jacobson said that the terms of the final lease agreement are consistent with the approved Letter of Intent price and terms and include a Work Letter to provide for periodic funding of the tenant improvement allowance during construction. A copy of the AIR Single-Tenant Lease Agreement, including an AIR Addendum and Work Letter, is on file with the District Secretary.

Mr. Jacobson said that the leasing commissions for the procuring brokers and listing brokers, Cushman & Wakefield / Colliers International total \$1,141,000 and are payable 50% at lease execution and 50% upon lease commencement (and occupancy). The commencement date of the lease is April 1, 2021, following Bandai's completion of tenant improvements. The initial lease term is seven years and includes two five-year options to extend. Total lease revenue during the initial seven-year term is \$16.5 million.

Director Swan said that this item was reviewed previously by the Finance and Personnel Committee. On MOTION by Withers, seconded by Swan and unanimously carried, THE BOARD AUTHORIZED A BUDGET INCREASE IN THE AMOUNT OF \$684,000, FROM \$5,350,000 TO \$6,034,000, FOR PROJECT 11869, APPROVED THE PAYMENT OF REAL ESTATE COMMISSIONS FOR \$1,141,000, AND AUTHORIZED THE GENERAL MANAGER TO EXECUTE ALL REQUIRED DOCUMENTS TO COMPLETE A LEASE AGREEMENT FOR THE SAND CANYON PROFESSIONAL CENTER PHASE II OFFICE PROPERTY WITH BANDAI NAMCO HOLDINGS USA, INC. AT THE PRICE AND TERMS DESCRIBED IN THE LETTER OF INTENT DATED JUNE 28, 2021.

OTHER BUSINESS

GENERAL MANAGER'S REPORT

General Manager Cook reported that there were three COVID cases at the Sand Canyon facility within a 13 ½-day period which triggered the Cal-OSHA requirements for staff to mask and social distance. He said that testing was performed on two occasions at Sand Canyon and all tests were negative.

Mr. Cook reported that about 4,000 customer accounts have overdue balances with a current outstanding debt of \$2.7 million.

Mr. Cook said that arrearages were submitted to the State Water Resources Control Board and that staff submitted \$1.8 million which covered approximately 8,400 accounts.

Mr. Cook said that he wanted to report the good news that Moody's approved the District's rating as Aa1.

He further said that SB 323 passed both floors and is currently on the Governor's desk for approval.

COMMUNITY UPDATES

Consultant Newell updated the Board on SCE rebuilding the entire energy system and met its August 31 deadline. He said that the Tucker Wildlife Sanctuary is planning to reopen to the public. He further said that it is the beginning of the fire season.

DIRECTORS' COMMENTS

Director LaMar reported on his attendance at the Southern California Water Coalition Legislative Task force meeting, BIA's Southern California Water Conference, OCWD's Communications and Legislative Liaison Committee meeting, an Urban Water Institute conference, and a WACO meeting.

Director McLaughlin said she attended the meetings presented on the list as well as a San Joaquin Marsh Virtual tour.

Director Swan reported on his attendance at two MWDOC administration and Finance Committee meetings, a MWDOC Planning and Operations Committee Meeting, a Southern California Water Dialogue Steering Committee meeting, an Urban Water Institute conference, a WACO meeting, an OCBC Government Affairs meeting, and a meeting with Director Gibson of SMWD.

Director Withers reported said he attended the meetings listed, and noted his upcoming meetings including an OCBC Infrastructure Committee meeting, an NWRI meeting, and a SAC quarterly meeting.

Director Reinhart reported on his attendance at a monthly discussion of District activities with the General Manager, two OCWD Water Issues Committee meeting, two OCWD Administration and Finance Issues Committee meetings, an Urban Water Institute conference, and a WACO meeting.

CLOSED SESSION

Legal Counsel Collins said that the following Closed Session would be held:

CONFERENCE WITH LEGAL COUNSEL — ANTICIPATED LITIGATION –
Pursuant to Government Code Section 54956.9(d)(2): *Significant exposure to litigation:*
One matter.

OPEN SESSION

The meeting was reconvened with Directors Swan, LaMar, Withers, McLaughlin, and Reinhart present. Legal Counsel Collins said that there was no action to report.

ADJOURNMENT

There being no further business, President Reinhart adjourned the meeting.

APPROVED and SIGNED this 27th day of September 2021.

President, IRVINE RANCH WATER DISTRICT

Secretary IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

Claire Hervey Collins, General Counsel
Hanson Bridgett LLP

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September 27, 2021
Prepared and
submitted by: K. Swan
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

RATIFY/APPROVE BOARD OF DIRECTORS’
ATTENDANCE AT MEETINGS AND EVENTS

SUMMARY:

Pursuant to Resolution 2006-29 adopted on August 28, 2006, the following events and meetings require approval by the Board of Directors:

Steven LaMar

September 28	OCWD Federal & Legislative Briefing – Ratepayers at Risk from Pending PFAS Legislation
September 29	OCWD Webinar – Tackling Groundwater Contamination in the Northern Part of the Basin through a Collaborative Effort
November 10	IRWD Business Outreach Biosolids Tour

Karen McLaughlin

September 28	OCWD Federal & Legislative Briefing – Ratepayers at Risk from Pending PFAS Legislation
September 29	OCWD Webinar – Tackling Groundwater Contamination in the Northern Part of the Basin through a Collaborative Effort

Douglas Reinhart

November 10	IRWD Business Outreach Biosolids Tour
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Peer Swan

September 30	MWDOC Water Policy Forum and Dinner, Costa Mesa
October 5	Newport Beach Chamber of Commerce 2022 Economic Forecast

John Withers


October 21	Southern California Water Collation Annual Meeting and Dinner
November 10	IRWD Business Outreach Biosolids Tour

RECOMMENDATION:

THAT THE BOARD RATIFY/APPROVE THE MEETINGS AND EVENTS FOR STEVEN LAMAR, KAREN MCLAUGHLIN, DOUGLAS REINHART, PEER SWAN, AND JOHN WITHERS AS DESCRIBED HEREIN.

LIST OF EXHIBITS:

None.

September 27, 2021
Prepared by: O. Mendoza / J. Davis
Submitted by: R. Jacobson / C. Clary
Approved by: Paul A. Cook 

CONSENT CALENDAR

AUGUST 2021 TREASURY REPORT

SUMMARY:

The following is submitted for the Board's information and approval:

- A. The August 2021 Investment Summary Report, which conforms with the 2021 Investment Policy and provides sufficient liquidity to meet estimated expenditures during the next six months, as outlined in Exhibit "A";
- B. The Summary of Fixed and Variable Rate Debt as of August 31, 2021, as outlined in Exhibit "B";
- C. The Monthly Interest Rate Swap Summary as of August 31, 2021, as outlined in Exhibit "C";
- D. The August 31, 2021 Disbursement Summary of warrants 420280 through 420950, wire transfers, Workers' Compensation distributions, payroll withholding distributions, and voided checks in the total amount of \$20,643,668, as outlined in Exhibit "D";
- E. The Summary of Payroll ACH payments in the total amount of \$2,216,023 as outlined in Exhibit "E"; and
- F. The Disclosure Report of Reimbursements to Board members and staff for August 2021, detailing payments or reimbursements for individual charges of \$100 or more per transaction, as outlined in Exhibit "F".

FISCAL IMPACTS:

As of August 31, 2021, the book value of the investment portfolio was \$380,892,718, with a 0.45% rate of return and a market value of \$381,362,189. Based on IRWD's August 31, 2021, quarterly real estate investment rate of return of 11.53%, the weighted average return for the fixed income and real estate investments was 2.71%.

As of August 31, 2021, the outstanding principal amount of fixed and variable rate debt was \$639,025,000. The monthly weighted average all-in variable rate was 0.34%. Including IRWD's weighted average fixed rate bond issues of 3.70% and the negative cash accruals from fixed payer interest rate swaps, which hedge a portion of the District's variable rate debt, the total average debt rate was 2.94%.

Payroll ACH payments totaled \$2,216,023 and wire transfers, all other ACH payments, and checks issued for debt service, accounts payable, payroll, and water purchases for August totaled \$20,643,668.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378.

COMMITTEE STATUS:

This item was not submitted to a Committee; the investment and debt reports are submitted to the Finance and Personnel Committee monthly.

RECOMMENDATION:

THAT THE BOARD RECEIVE AND FILE THE TREASURER'S INVESTMENT SUMMARY REPORT, THE SUMMARY OF FIXED AND VARIABLE RATE DEBT, AND DISCLOSURE REPORT OF REIMBURSEMENTS TO BOARD MEMBERS AND STAFF, APPROVE THE AUGUST 2021 SUMMARY OF PAYROLL ACH PAYMENTS IN THE TOTAL AMOUNT OF \$2,216,023, AND APPROVE THE AUGUST 2021 ACCOUNTS PAYABLE DISBURSEMENT SUMMARY OF WARRANTS 420280 THROUGH 420950, WORKERS' COMPENSATION DISTRIBUTIONS, WIRE TRANSFERS, PAYROLL WITHHOLDING DISTRIBUTIONS AND VOIDED CHECKS IN THE TOTAL AMOUNT OF \$20,643,668.

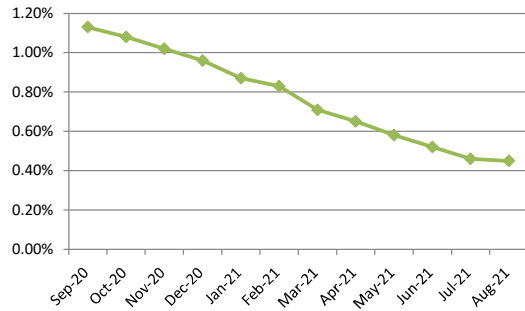
LIST OF EXHIBITS:

- Exhibit "A" – Investment Summary Report
- Exhibit "B" – Summary of Fixed and Variable Debt
- Exhibit "C" – Monthly Interest Rate Swap Summary
- Exhibit "D" – Monthly Summary of District Disbursements
- Exhibit "E" – Monthly Payroll ACH Summary
- Exhibit "F" – Disclosure of Reimbursements to Board Members and Staff

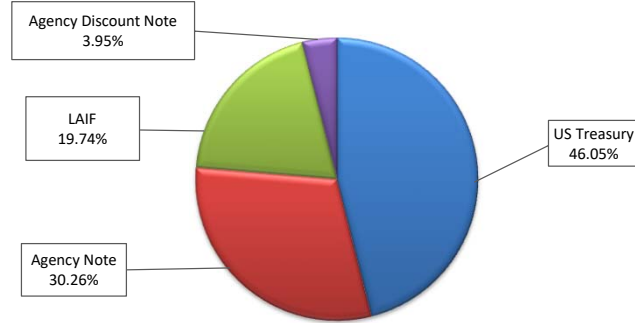
Exhibit "A"

Irvine Ranch Water District Investment Portfolio Summary August 2021

Monthly Fixed Income Yield



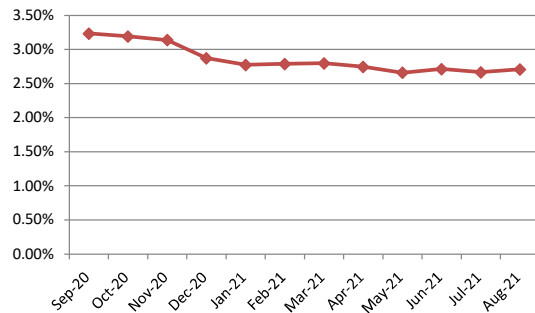
Portfolio Distribution



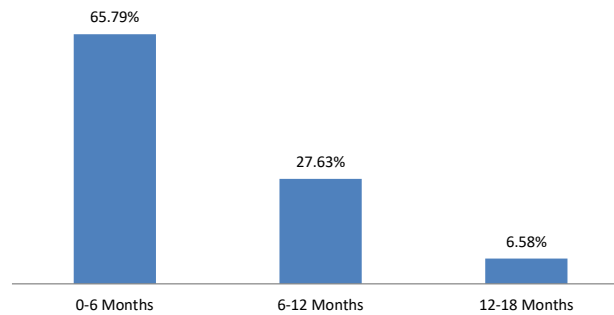
Investment Summary

Type	PAR	Book Value	Market Value
US Treasury	175,000,000	175,557,458	175,746,200
Agency Note	115,000,000	115,337,170	115,611,000
LAIF	75,000,000	75,000,000	75,006,223
Agency Discount Note	15,000,000	14,998,090	14,998,767
Grand Total	380,000,000	380,892,718	381,362,189

**Weighted Average Return
Including Real Estate Portfolio**



Maturity Distribution



Top Issuers

Issuer	PAR	% Portfolio
US Treasury	175,000,000	46.05%
State of California Tsy.	75,000,000	19.74%
Fed Farm Credit Bank	55,000,000	14.47%
Fed Home Loan Bank	50,000,000	13.16%
Fed Natl Mortgage Assoc	15,000,000	3.95%
Fed Home Loan Mortgage Corp	10,000,000	2.63%
Grand Total	380,000,000	100.00%

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

08/31/21

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE ⁽¹⁾ 8/31/2021	UNREALIZED ⁽²⁾ GAIN/(LOSS)
07/24/20			09/01/21		LAIF	State of California Tsy.	\$75,000,000		0.270%	\$75,000,000.00	\$75,000,000.00	75,006,222.75	6,222.75
03/10/21	NA	NA	09/09/21	NR	Treasury - Bill	US Treasury	10,000,000	0.045%	0.046%	9,997,712.50	9,999,625.00	9,999,900.00	275.00
09/17/20	NA	NA	09/17/21	NA	FHLB - Note	Fed Home Loan Bank	5,000,000	0.125%	0.132%	4,999,660.00	4,999,985.10	5,000,200.00	214.90
08/13/20	NA	NA	09/30/21	Aaa/AA+/NR	Treasury - Note	US Treasury	10,000,000	1.125%	0.133%	10,112,109.38	10,007,872.09	10,008,500.00	627.91
09/30/20	NA	NA	09/30/21	NA	FHLB - Note	Fed Home Loan Bank	10,000,000	0.125%	0.122%	10,000,336.80	10,000,026.76	10,000,700.00	673.24
07/19/21	NA	NA	10/05/21	NR	FHLB - Discount Note	Fed Home Loan Bank	5,000,000	0.040%	0.041%	4,999,566.67	4,999,811.11	4,999,800.00	(11.11)
08/13/20	NA	NA	10/07/21	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	10,000,000	1.375%	0.143%	10,141,500.00	10,012,128.57	10,013,200.00	1,071.43
10/11/19	NA	NA	10/15/21	Aaa/AA+/NR	Treasury - Note	US Treasury	5,000,000	2.875%	1.540%	5,131,640.63	5,007,880.53	5,017,000.00	9,119.47
10/22/19	NA	NA	10/15/21	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.400%	1.642%	4,976,500.00	4,998,571.82	5,008,050.00	9,478.18
10/29/20	NA	NA	10/19/21	Aaa/NR/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	0.125%	0.127%	9,999,800.00	9,999,972.96	10,000,700.00	727.04
10/27/20	NA	NA	10/26/21	NR	FFCB - Discount Note	Fed Farm Credit Bank	5,000,000	0.130%	0.132%	4,993,427.78	4,999,006.94	4,999,700.00	693.06
11/05/19	NA	NA	11/15/21	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	2.875%	1.610%	5,125,585.94	5,012,711.13	5,028,800.00	16,088.87
07/15/21	NA	NA	11/18/21	Aaa/NR/AAA	Treasury - Bill	US Treasury	10,000,000	0.040%	0.041%	9,998,600.00	9,999,133.33	9,999,000.00	(133.33)
06/11/21	NA	NA	11/26/21	Aaa/NR/AAA	Treasury - Bill	US Treasury	5,000,000	0.030%	0.030%	4,999,300.00	4,999,641.67	4,999,450.00	(191.67)
11/08/19	NA	NA	11/30/21	Treasury - Bill	Treasury - Note	US Treasury	5,000,000	1.750%	1.680%	5,007,031.25	5,000,840.39	5,020,950.00	20,109.61
03/17/21	NA	NA	11/30/21	Aaa/AA+/NR	Treasury - Note	US Treasury	5,000,000	1.875%	0.057%	5,064,120.00	5,026,095.35	5,022,450.00	(3,645.35)
09/28/20	NA	NA	12/03/21	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.150%	0.120%	5,001,765.00	5,000,380.85	5,001,300.00	919.15
10/30/20	NA	NA	12/15/21	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	2.625%	0.127%	5,140,429.69	5,035,876.20	5,036,950.00	1,073.80
04/23/20	NA	NA	12/20/21	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	1.625%	0.309%	10,217,480.00	10,053,472.81	10,047,000.00	(6,472.81)
06/30/21	NA	NA	12/30/21	Aaa/AA+/NR	Treasury - Bill	US Treasury	5,000,000	0.040%	0.041%	4,998,983.33	4,999,333.33	4,999,150.00	(183.33)
11/25/19	NA	NA	12/31/21	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	2.000%	1.619%	5,039,062.50	5,006,162.40	5,032,100.00	25,937.60
06/02/21	NA	NA	12/31/21	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	2.125%	0.027%	10,121,093.75	10,069,114.83	10,068,300.00	(814.83)
08/31/21	NA	NA	01/10/22	NR	FFCB - Discount Note	Fed Farm Credit Bank	5,000,000	0.040%	0.041%	4,999,266.67	4,999,272.23	4,999,266.67	(5.56)
05/26/21	NA	NA	01/11/22	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	2.625%	0.031%	5,081,057.95	5,046,520.21	5,046,350.00	(170.21)
11/25/19	NA	NA	01/13/22	Aaa/NA/NR	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	2.375%	1.635%	5,077,250.00	5,013,271.15	5,042,250.00	28,978.85
08/14/20	NA	NA	01/13/22	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	2.375%	0.147%	5,157,297.23	5,040,769.49	5,042,250.00	1,480.51
03/08/19	NA	NA	01/15/22	Aaa/AA+/NR	Treasury - Note	US Treasury	5,000,000	2.500%	2.460%	5,005,468.75	5,000,712.40	5,044,550.00	43,837.60
12/19/19	NA	NA	01/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.875%	1.641%	5,024,218.75	5,004,756.14	5,036,700.00	31,943.86
03/21/19	NA	NA	02/03/22	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	2.030%	2.361%	4,954,350.00	4,993,261.19	5,041,750.00	48,488.81
12/19/19	NA	NA	02/15/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	2.500%	1.652%	5,089,453.13	5,018,933.68	5,054,700.00	35,766.32
11/13/20	NA	NA	02/28/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.875%	0.139%	5,112,304.69	5,042,828.06	5,044,900.00	2,071.94
11/19/20	NA	NA	02/28/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.750%	0.126%	5,103,710.94	5,040,060.02	5,041,400.00	1,339.98
06/09/21	NA	NA	02/28/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.125%	0.051%	5,038,964.84	5,026,566.94	5,025,800.00	(766.94)
03/08/19	NA	NA	03/11/22	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	2.500%	2.549%	5,002,750.00	5,000,477.93	5,064,050.00	63,572.07
12/23/20	NA	NA	03/22/22	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.090%	0.090%	10,000,000.00	10,000,000.00	10,002,100.00	2,100.00
12/19/19	NA	NA	03/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.875%	1.645%	5,025,585.94	5,006,480.95	5,051,950.00	45,469.05
04/30/21	NA	NA	03/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.375%	0.056%	5,014,648.44	5,009,226.33	5,008,600.00	(626.33)
02/21/20	NA	NA	04/14/22	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.400%	1.414%	4,998,500.00	4,999,434.87	5,041,550.00	42,115.13
04/23/20	NA	NA	04/21/22	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	10,000,000	1.580%	0.320%	10,250,200.00	10,082,483.52	10,094,000.00	11,516.48
08/12/21	NA	NA	05/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	1.750%	0.061%	10,135,156.25	10,158,995.03	10,124,200.00	(34,795.03)
04/22/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.082%	10,005,078.13	10,003,533.63	10,003,100.00	(433.63)
04/30/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.082%	5,002,539.06	5,001,799.99	5,001,550.00	(249.99)
05/28/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.064%	5,003,320.31	5,002,519.43	5,001,550.00	(969.43)
05/20/21	NA	NA	06/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	1.750%	0.065%	5,093,750.00	5,069,735.22	5,069,150.00	(585.22)
01/15/20	NA	NA	07/15/22	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.600%	1.594%	5,000,750.00	5,000,260.69	5,067,400.00	67,139.31
04/28/21	NA	NA	08/31/22	Aaa/NR/NR	Treasury - Note	US Treasury	5,000,000	0.125%	0.102%	5,001,562.50	5,001,160.71	5,002,350.00	1,189.29
04/28/21	NA	NA	09/09/22	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	2.000%	0.112%	5,128,632.30	5,096,152.00	5,098,150.00	1,998.00
04/22/21	NA	NA	10/31/22	Aaa/NR/AAA	Treasury - Note	US Treasury	10,000,000	0.125%	0.110%	10,002,343.75	10,004,522.70	10,002,000.00	(2,522.70)
05/20/21	NA	NA	11/30/22	Aaa/NR/AAA	Treasury - Note	US Treasury	5,000,000	0.125%	0.103%	5,001,647.15	5,001,340.70	5,001,150.00	(190.70)

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

08/31/21

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE ⁽¹⁾ 8/31/2021	UNREALIZED ⁽²⁾ GAIN/(LOSS)
SUB-TOTAL							<u>\$380,000,000</u>			<u>\$382,375,512.00</u>	<u>\$380,892,718.39</u>	<u>\$381,362,189.42</u>	<u>\$469,471.03</u>
TOTAL INVESTMENTS							<u>\$380,000,000</u>			<u>\$382,375,512.00</u>	<u>\$380,892,718.39</u>	<u>\$381,362,189.42</u>	<u>\$469,471.03</u>
					Petty Cash					3,400.00			
					Ck Balance	Bank of America		ECR	0.19%	<u>14,075,431.87</u>			
										<u>\$396,454,343.87</u>			

⁽¹⁾ LAIF market value is as of the most recent quarter-end as reported by LAIF. Security market values are determined using Bank of New York ("Trading Prices"), Bloomberg and/or broker dealer pricing.

⁽²⁾ Gain (loss) calculated against carry value using the trading value provided by Bank of New York/or Brokers

⁽³⁾ Real estate rate of return is based on most recent quarter end return

Outstanding Variable Rate Debt	\$247,300,000
Net Outstanding Variable Rate Debt (Less \$60 million fixed-payer swaps)	\$187,300,000
Investment Balance:	\$396,454,344
Investment to Variable Rate Debt Ratio:	212%
Portfolio - Average Number of Days To Maturity	129

	Investment Portfolio	Real Estate ⁽³⁾ Portfolio	Weighted Avg. Return
August	0.45%	11.53%	2.71%
July	0.46%	11.53%	2.67%
Change	-0.01%		0.04%

This Investment Summary Report is in conformity with the 2021 Investment Policy and provides sufficient liquidity to meet the next six months estimated expenditures.
*S - Step up

IRVINE RANCH WATER DISTRICT
SUMMARY OF MATURITIES

08/31/21

DATE	TOTAL	%	LAIF	Agency Notes	Agency Discount Notes	Municipal Bonds	US Treasury
08/21	75,000,000	19.74%	\$75,000,000				
09/21	35,000,000	9.21%		15,000,000			20,000,000
10/21	40,000,000	10.53%		25,000,000	10,000,000		5,000,000
11/21	30,000,000	7.89%					30,000,000
12/21	40,000,000	10.53%		15,000,000			25,000,000
01/22	30,000,000	7.89%		15,000,000	5,000,000		10,000,000
02/22	25,000,000	6.58%		5,000,000			20,000,000
03/22	25,000,000	6.58%		15,000,000			10,000,000
04/22	15,000,000	3.95%		15,000,000			
05/22	10,000,000	2.63%					10,000,000
06/22	25,000,000	6.58%					25,000,000
07/22	5,000,000	1.32%		5,000,000			
SUB-TOTAL	\$355,000,000	93.42%	\$75,000,000	110,000,000	15,000,000		155,000,000
13 Months - 3 YEARS							
8/01/2022 - 10/31/2022	\$20,000,000	5.26%		5,000,000			15,000,000
11/01/2022 - 01/31/2023	\$5,000,000	1.32%					5,000,000
02/01/2023 +	-						
	-						
	-						
	-						
	-						
	-						
	-						
TOTALS	\$380,000,000	100.00%	\$75,000,000	115,000,000	15,000,000		175,000,000

% OF PORTFOLIO

19.74%

30.26%

3.95%

46.05%

Irvine Ranch Water District
Summary of Real Estate - Income Producing Investments
6/30/2021

	ACQUISITION DATE	PROPERTY TYPE	OWNERSHIP INTEREST	ORIGINAL COST	MARKET VALUE 6/30/2021	ANNUALIZED RATE OF RETURN QUARTER ENDED 6/30/2021
Sycamore Canyon	Dec-92	Apartments	Fee Simple	\$ 43,550,810	\$ 170,000,000	20.85%
Wood Canyon Villas	Jun-91	Apartments	Limited Partner	\$ 6,000,000	\$ 32,258,924	8.53%
ITC (230 Commerce)	Jul-03	Office Building	Fee Simple	\$ 5,739,845	\$ 12,000,000	10.62%
Waterworks Business Pk.	Nov-08	Research & Dev.	Fee Simple	\$ 8,630,577	\$ 11,600,000	7.27%
Sand Canyon Professional Center - Medical Office	Jul-12	Medical Office	Fee Simple	\$ 8,648,594	\$ 11,900,000	8.90%
Sand Canyon Professional Center - General Office	Sep-20	Office Building	Fee Simple	\$ 25,985,968	\$ 33,250,000	-0.90%
Total - Income Properties				\$ 98,555,794	\$ 271,008,924	11.53%

IRVINE RANCH WATER DISTRICT INVESTMENT SUMMARY REPORT
INVESTMENT ACTIVITY
Aug-21

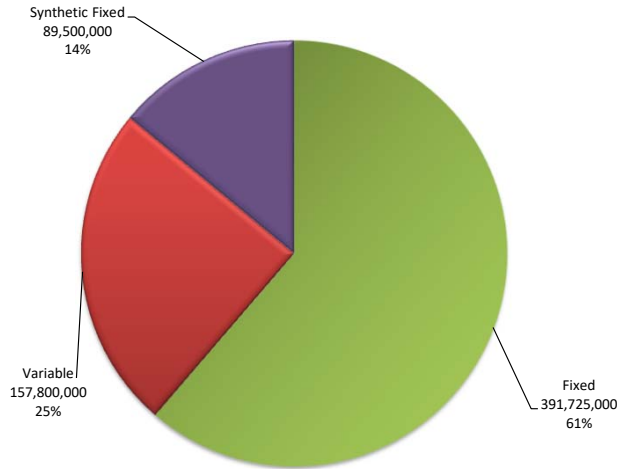
MATURITIES/SALES/CALLS

PURCHASES

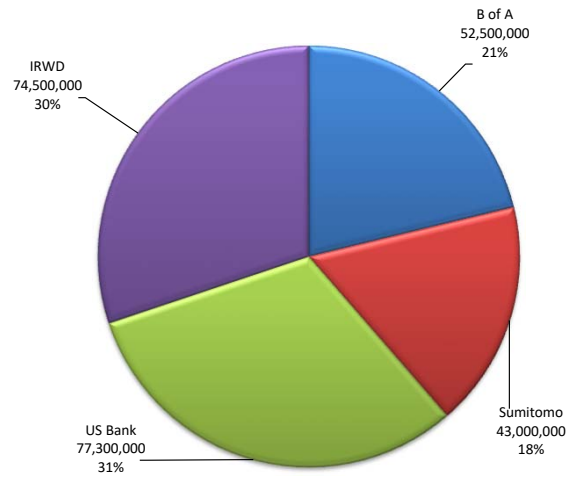
DATE	SECURITY TYPE	PAR	YIELD	Settlement Date	Maturity Date	SECURITY TYPE	PAR	YIELD TO MATURITY
8/12/2021	FFCB - Discount Note	\$10,000,000	0.14%	8/12/2021	5/31/2022	Treasury - Note	\$10,000,000	0.06%
8/13/2021	FHLB - Note	\$10,000,000	0.13%	8/31/2021	1/10/2022	FFCB - Discount Note	\$5,000,000	0.04%
8/31/2021	Treasury - Note	\$5,000,000	1.82%					

Exhibit "B"
Irvine Ranch Water District
Summary of Fixed and Variable Rate Debt
August 2021

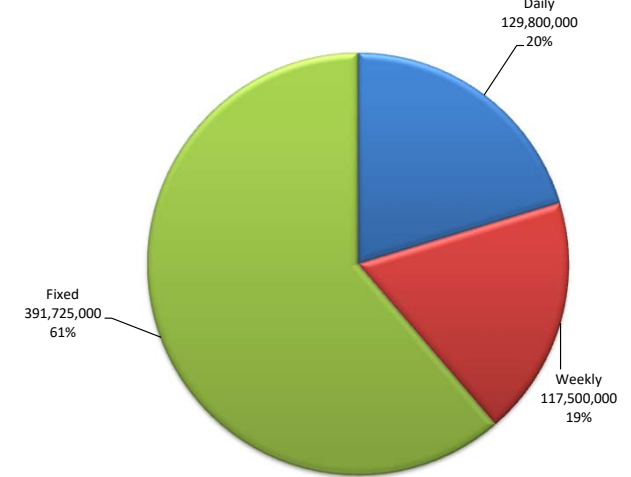
Current Debt Mix By Type



Letters of Credit / Support



Current Debt Rate Reset



Outstanding Par by Series

Series	Issue Date	Maturity Date	Remaining Principal	Percent	Letter of Credit/Support	Rmkt Agent	Mode	Reset
Series 1993	05/19/93	04/01/33	\$24,800,000	3.88%	US Bank	BAML	Variable	Daily
Series 2008-A Refunding	04/24/08	07/01/35	\$43,000,000	6.73%	Sumitomo	BAML	Variable	Weekly
Series 2011-A-1 Refunding	04/15/11	10/01/37	\$44,700,000	7.00%	IRWD	Goldman	Variable	Weekly
Series 2011-A-2 Refunding	04/15/11	10/01/37	\$29,800,000	4.66%	IRWD	Goldman	Variable	Weekly
Series 2009 - A	06/04/09	10/01/41	\$52,500,000	8.22%	US Bank	US Bank	Variable	Daily
Series 2009 - B	06/04/09	10/01/41	\$52,500,000	8.22%	B of A	Goldman	Variable	Daily
2016 COPS	09/01/16	03/01/46	\$113,325,000	17.73%	N/A	N/A	Fixed	Fixed
2010 Build America Taxable Bond	12/16/10	05/01/40	\$175,000,000	27.39%	N/A	N/A	Fixed	Fixed
Series 2016	10/12/16	02/01/46	\$103,400,000	16.18%	N/A	N/A	Fixed	Fixed
Total			\$639,025,000	100.00%				

IRVINE RANCH WATER DISTRICT
SUMMARY OF FIXED & VARIABLE RATE DEBT

August-21

ITN
Daily
Weekly

GENERAL BOND INFORMATION							LETTER OF CREDIT INFORMATION										TRUSTEE INFORMATION											
VARIABLE RATE ISSUES	Issue Date	Maturity Date	Principal Payment Date	Payment Date	Original Par Amount	Remaining Principal	Letter of Credit	Reimbursement Agreement Date	L/C Exp. Date	MOODYS	S&P	FITCH	LOC Stated Amount	LOC Fee	Annual LOC Cost	Rmkt Agent	Reset	Rmkt Fees	Annual Cost	Trustee								
SERIES 1993	05/19/93	04/01/33	Apr 1	5th Bus. Day	\$38,300,000	\$24,800,000	US BANK	05/07/15	12/15/21	Aa3/VMIG1	AA-/A-1+	N/R	\$25,134,290	0.3300%	\$82,943	BAML	DAILY	0.10%	\$24,800	BANK OF NY								
SERIES 2008-A Refunding	04/24/08	07/01/35	Jul 1	5th Bus. Day	\$60,215,000	\$43,000,000	SUMITOMO	04/01/11	05/28/25	A1/P-1	A/A-1	A/F1	\$43,636,164	0.3150%	\$137,454	BAML	WED	0.07%	\$30,100	BANK OF NY								
SERIES 2011-A-1 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$60,545,000	\$44,700,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Goldman	WED	0.13%	\$55,875	BANK OF NY								
SERIES 2011-A-2 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$40,370,000	\$29,800,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Goldman	WED	0.13%	\$37,250	BANK OF NY								
SERIES 2009 - A	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$52,500,000	US BANK	04/01/11	12/15/21	Aa2/VMIG 1	AA-/A-1+	AA/F1+	\$53,086,849	0.3300%	\$175,187	US Bank	DAILY	0.07%	\$36,750	US BANK								
SERIES 2009 - B	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$52,500,000	B of A	04/01/11	05/16/22	Aa2/VMIG 1	A/A-1	A1/F1+	\$53,086,849	0.3000%	\$159,261	Goldman	DAILY	0.10%	\$52,500	US BANK								
\$349,430,000							\$247,300,000							SUB-TOTAL VARIABLE RATE DEBT					\$174,944,153		0.3172%		\$554,844		0.10%		\$237,275	
																			(Wt. Avg)				(Wt. Avg)					
FIXED RATE ISSUES																												
2010 GO Build America Taxable Bonds	12/16/10	05/01/40	May (2025)	May/Nov	\$175,000,000	\$175,000,000	N/A	N/A	N/A	Aa1	AAA	NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK								
2016 COPS	09/01/16	03/01/46	Mar 1	Mar/Sept	\$116,745,000	\$113,325,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK								
SERIES 2016	10/12/16	02/01/46	Feb (2022)	Feb/Aug	\$103,400,000	\$103,400,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	BANK OF NY								
\$395,145,000							\$391,725,000							SUB-TOTAL FIXED RATE DEBT														
\$744,575,000							\$639,025,000							TOTAL- FIXED & VARIABLE RATE DEBT														

Remarketing Agents			GO VS COP's		
Goldman	127,000,000	51%	GO:	525,700,000	82%
BAML	67,800,000	27%	COPS:	113,325,000	18%
US Bank	52,500,000	21%	Total	<u>639,025,000</u>	
	<u>247,300,000</u>				

LOC Banks		Breakdown Between Variable & Fixed Rate Mode	
SUMITOMO	43,000,000	Daily Issues	129,800,000 20%
BANK OF AMERICA	52,500,000	Weekly Issues	43,000,000 7%
US BANK	77,300,000	ITN Issues	74,500,000 12%
	<u>172,800,000</u>	Sub-Total	<u>247,300,000</u>
		Fixed Rate Issues	\$391,725,000 61%
		Sub-Total - Fixed	<u>391,725,000</u>
		TOTAL DEBT	
		FIXED & VAR.	<u>639,025,000</u> 100%

SUMMARY OF DEBT RATES

Aug-21

Rmkt Agent Mode	GOLDMAN DAILY	GOLDMAN WEEKLY	GOLDMAN WEEKLY	MERRILL LYNCH DAILY	MERRILL LYNCH WEEKLY	US BANK DAILY
Bond Issue	2009 - B	2011 A-1	2011 A-2	1993	2008-A	2009-A
Par Amount	52,500,000	44,700,000	29,800,000	24,800,000	43,000,000	52,500,000
LOC Bank	BOFA	(SIFMA + 3)	(SIFMA + 3)	US BANK	Sumitomo	US BANK
Reset		Wednesday	Wednesday	Wednesday	Wednesday	
8/1/2021	0.01%	0.05%	0.05%	0.02%	0.02%	0.02%
8/2/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/3/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/4/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/5/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/6/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/7/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/8/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/9/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/10/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/11/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/12/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/13/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/14/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/15/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/16/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/17/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/18/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/19/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/20/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/21/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/22/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/23/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/24/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/25/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/26/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/27/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/28/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/29/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/30/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
8/31/2021	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
Avg Interest Rates	0.01%	0.05%	0.05%	0.01%	0.02%	0.01%
Rmkt Fee	0.10%	0.13%	0.13%	0.10%	0.07%	0.07%
LOC Fee	0.30%			0.33%	0.32%	0.33%
All-In Rate	0.41%	0.18%	0.18%	0.44%	0.41%	0.41%
Par Amount	97,200,000		29,800,000	67,800,000		52,500,000

Interest Rate Mode	Percent of Total Variable Rate Debt	Par Outstanding	Weighted All-In Average Rate	Base Rate Average
Daily	52.49%	129,800,000	0.42%	0.01%
Weekly	47.51%	117,500,000	0.26%	0.04%
	100.00%	\$ 247,300,000	0.34%	0.02%
Fixed				
COPS 2016	28.93%	113,325,000	2.90%	
BABS 2010	44.67%	175,000,000	4.44%	(1)
SERIES 2016	26.40%	103,400,000	3.32%	
	100.00%	\$ 391,725,000	3.70%	
All-In Debt Rate Including \$60 Million Notional Amount of Swaps				2.94%

(1) Rate adjusted up from 4.35% as a result of sequestration reducing BAB's subsidy by 5.7%

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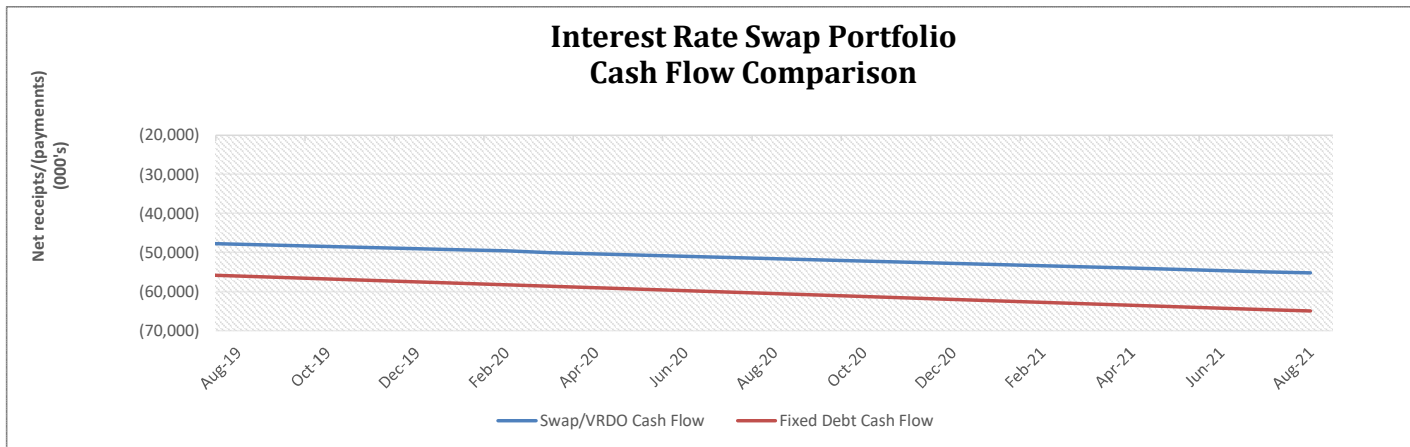
Exhibit "C"
Irvine Ranch Water District
Interest Rate Swap Summary
August 2021

	Prior Mo.	Current Mo.	12-Mo Avg
LIBOR Avg %	0.09%	0.09%	0.12%

Current Fiscal Year Active Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date	Years to Maturity	Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference
Fixed Payer Swaps - By Effective Date													
3/10/2007	3/10/2029	7.5	ML	30,000,000	FXP	LIBOR	5.687%	(139,860)	(144,329)	(284,189)	(20,043,456)	19,750,345	(10,249,655)
3/10/2007	3/10/2029	7.5	CG	30,000,000	FXP	LIBOR	5.687%	(139,860)	(144,329)	(284,189)	(20,043,456)	19,731,930	(10,268,070)
Totals/Weighted Avgs				7.5	\$ 60,000,000		5.687%	\$ (279,720)	\$ (288,658)	\$ (568,378)	\$ (40,086,911)	\$ 39,482,275	\$ (20,517,725)
Total Current Year Active Swaps				\$ 60,000,000				\$ (279,720)	\$ (288,658)	\$ (568,378)	\$ (40,086,911)	\$ 39,482,275	\$ (20,517,725)

Current Fiscal Year Terminated Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date		Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference
Total Current Year Terminated Swaps								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Current Fiscal Year - Total Swaps								Cash Flow				Mark to Market	
Prior Month	Current Month	Fiscal YTD	Cumulative Net Accrual	Current Mark to Market	Notional Difference								
\$ (279,720)	\$ (288,658)	\$ (568,378)	\$ (40,086,911)	\$ 39,482,275	\$ (20,517,725)								



Cash Flow Comparison Synthetic Fixed vs. Fixed Rate Debt	
<u>Cash Flow to Date</u>	
Synthetic Fixed =	\$55,241,565
Fixed Rate =	\$64,972,985
<u>Assumptions:</u>	
- Fixed rate debt issued at 4.93% in Mar-07 (estimated TE rate - Bloomberg)	
- 'Synthetic' includes swap cash flow + interest + fees to date	

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Exhibit "D"

IRVINE RANCH WATER DISTRICT AP DISBURSEMENTS AND VOIDS FOR AUG 2021

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420280	5-Aug-21	Ho, Connie	4.03	IRWD Check	Reconciled
420281	5-Aug-21	Justice, Jack L (Jack)	96	IRWD Check	Reconciled
420282	5-Aug-21	McElroy, Dorien	91	IRWD Check	Reconciled
420283	5-Aug-21	Perez, Cesar (Cesar)	293	IRWD Check	Reconciled
420284	5-Aug-21	A&A WIPING CLOTH CO	1,443.85	IRWD Check	Reconciled
420285	5-Aug-21	AAF INTERNATIONAL	1,150.89	IRWD Check	Reconciled
420286	5-Aug-21	ABC ICE, INC	1,050.70	IRWD Check	Reconciled
420287	5-Aug-21	ABM INDUSTRY GROUPS, LLC	34,442.09	IRWD Check	Reconciled
420288	5-Aug-21	ACCUSOURCE, INC.	285.18	IRWD Check	Reconciled
420289	5-Aug-21	AECOM TECHNICAL SERVICES, INC.	33,050.00	IRWD Check	Reconciled
420290	5-Aug-21	AFLAC	3,268.65	IRWD Check	Reconciled
420291	5-Aug-21	AGILENT TECHNOLOGIES, INC.	788.98	IRWD Check	Reconciled
420292	5-Aug-21	AIRGAS, INC.	944.59	IRWD Check	Reconciled
420293	5-Aug-21	ALLIANCE APPRAISAL, LLC	3,000.00	IRWD Check	Reconciled
420294	5-Aug-21	AMAZON CAPITAL SERVICES, INC.	666.32	IRWD Check	Reconciled
420295	5-Aug-21	AMERICAN ASPHALT SOUTH INC	913.93	IRWD Check	Reconciled
420296	5-Aug-21	AMERICAN WATER CHEMICALS, INC.	5,122.44	IRWD Check	Reconciled
420297	5-Aug-21	AMWINS GROUP BENEFITS INC.	5,715.69	IRWD Check	Reconciled
420298	5-Aug-21	ARCADIS U.S., INC.	1,375.00	IRWD Check	Reconciled
420299	5-Aug-21	ARIZONA PIPELINE CO.	327.37	IRWD Check	Reconciled
420300	5-Aug-21	ASSOCIATION OF CALIFORNIA WATER AGENCIES	500	IRWD Check	Reconciled
420301	5-Aug-21	AT&T	4,513.92	IRWD Check	Reconciled
420302	5-Aug-21	AUTOZONE PARTS, INC.	596.73	IRWD Check	Reconciled
420303	5-Aug-21	BARTEL ASSOCIATES, LLC	11,510.00	IRWD Check	Reconciled
420304	5-Aug-21	BILL'S SWEEPING SERVICE INC	1,149.50	IRWD Check	Reconciled
420305	5-Aug-21	BIRAJ BISTA AND KUMKUM VADEHRA	112.18	IRWD Check	Negotiable
420306	5-Aug-21	BLACK & VEATCH CORPORATION	32,589.50	IRWD Check	Reconciled
420307	5-Aug-21	BROWN AND CALDWELL	23,593.77	IRWD Check	Reconciled
420308	5-Aug-21	BURLINGTON SAFETY LABORATORY OF CALIFORNIA INC	957.63	IRWD Check	Reconciled
420309	5-Aug-21	C WELLS PIPELINE MATERIALS INC	3,690.70	IRWD Check	Reconciled
420310	5-Aug-21	CALIFORNIA ASSOCIATION OF LOCAL AGENCY FORMATION COMMISSIONS (CALAFCO)	500	IRWD Check	Negotiable
420311	5-Aug-21	CALIFORNIA PACIFIC HOMES	376.01	IRWD Check	Reconciled
420312	5-Aug-21	CARTER, JACQUELYN	2,489.43	IRWD Check	Negotiable
420313	5-Aug-21	CDW GOVERNMENT LLC	15,515.32	IRWD Check	Reconciled
420314	5-Aug-21	CHEM SERVICE INC.	80.2	IRWD Check	Reconciled
420315	5-Aug-21	CITY CIRCUIT BREAKERS	5,656.88	IRWD Check	Reconciled
420316	5-Aug-21	CITY OF IRVINE	3,960.25	IRWD Check	Reconciled
420317	5-Aug-21	CITY OF LAKE FOREST	128,458.72	IRWD Check	Reconciled
420318	5-Aug-21	CITY OF TUSTIN	769.86	IRWD Check	Reconciled
420319	5-Aug-21	CLA-VAL COMPANY	23,076.35	IRWD Check	Reconciled
420320	5-Aug-21	CLARIS STRATEGY INC.	375	IRWD Check	Reconciled
420321	5-Aug-21	CLEAN ENERGY	6,366.66	IRWD Check	Reconciled
420322	5-Aug-21	COHEN, ADAM	4,077.41	IRWD Check	Reconciled
420323	5-Aug-21	COLONIAL LIFE & ACCIDENT INSURANCE CO.	1,525.71	IRWD Check	Reconciled
420324	5-Aug-21	CONSTELLATION NEWENERGY, INC.	297,847.02	IRWD Check	Reconciled
420325	5-Aug-21	COUNTY OF ORANGE	250	IRWD Check	Reconciled
420326	5-Aug-21	COUNTY OF ORANGE	4,106.50	IRWD Check	Reconciled
420327	5-Aug-21	COX COMMUNICATIONS, INC.	275.37	IRWD Check	Reconciled
420328	5-Aug-21	COXCO LLC	25,651.60	IRWD Check	Reconciled
420329	5-Aug-21	DELL MARKETING LP	226.24	IRWD Check	Reconciled
420330	5-Aug-21	DICK R. MONOD DE FROIDEVILLE	9,975.00	IRWD Check	Reconciled
420331	5-Aug-21	ENTERPRISE INFORMATION SYSTEMS, INC.	3,360.00	IRWD Check	Reconciled
420332	5-Aug-21	ENVIRONMENTAL RESOURCE ASSOCIATES	155.84	IRWD Check	Reconciled
420333	5-Aug-21	ENVIRONMENTAL SCIENCE ASSOCIATES	10,095.30	IRWD Check	Reconciled
420334	5-Aug-21	EUROFINS CALSCIENCE, LLC	2,651.25	IRWD Check	Reconciled
420335	5-Aug-21	FARWEST CORROSION CONTROL COMPANY	7,005.34	IRWD Check	Reconciled
420336	5-Aug-21	FASTBLUE COMMUNICATIONS INC.	1,917.00	IRWD Check	Reconciled
420337	5-Aug-21	FERGUSON ENTERPRISES, LLC	25,680.91	IRWD Check	Reconciled
420338	5-Aug-21	FIRE EXTINGUISHING SAFETY & SERVICE	14,184.49	IRWD Check	Reconciled
420339	5-Aug-21	FIREHOSEDIRECT.COM	2,630.90	IRWD Check	Reconciled
420340	5-Aug-21	FISHER SCIENTIFIC COMPANY LLC	1,617.84	IRWD Check	Reconciled
420341	5-Aug-21	FLEET SOLUTIONS LLC	5,552.62	IRWD Check	Reconciled
420342	5-Aug-21	FLEXIBLE LIFELINE SYSTEMS	3,845.00	IRWD Check	Reconciled
420343	5-Aug-21	FRONTIER CALIFORNIA INC.	292.61	IRWD Check	Reconciled
420344	5-Aug-21	GANAHL LUMBER CO.	2,093.04	IRWD Check	Reconciled
420345	5-Aug-21	GARY BALE REDI-MIX CONCRETE, INC.	2,565.75	IRWD Check	Reconciled
420346	5-Aug-21	GEORGE T. HALL CO., INC.	20,203.94	IRWD Check	Reconciled
420347	5-Aug-21	GEORGE YARDLEY CO., INC.	1,500.00	IRWD Check	Reconciled
420348	5-Aug-21	GRAD, ROGER	575.4	IRWD Check	Reconciled
420349	5-Aug-21	GRAINGER	5,030.41	IRWD Check	Reconciled
420350	5-Aug-21	GRAYBAR ELECTRIC COMPANY	898.36	IRWD Check	Reconciled
420351	5-Aug-21	GSRP ST SOLAR I LLC	15,958.37	IRWD Check	Reconciled
420352	5-Aug-21	HACH COMPANY	9,111.64	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
AP DISBURSEMENTS AND VOIDS FOR AUG 2021**

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420353	5-Aug-21	HARTFORD LIFE AND ACCIDENT INSURANCE COMPANY	100.41	IRWD Check	Reconciled
420354	5-Aug-21	HELPMATES STAFFING SERVICES	1,789.00	IRWD Check	Reconciled
420355	5-Aug-21	HI-LINE INC	395.59	IRWD Check	Reconciled
420356	5-Aug-21	HILL BROTHERS CHEMICAL COMPANY	7,835.40	IRWD Check	Reconciled
420357	5-Aug-21	HIRA, VIJAY	531.76	IRWD Check	Reconciled
420358	5-Aug-21	HOME DEPOT USA INC	327.57	IRWD Check	Reconciled
420359	5-Aug-21	HOMISCO, INC. AND SUBSIDIARY	988.75	IRWD Check	Reconciled
420360	5-Aug-21	IDEXX DISTRIBUTION, INC	351.32	IRWD Check	Reconciled
420361	5-Aug-21	IRVINE PIPE & SUPPLY INC	1,263.35	IRWD Check	Reconciled
420362	5-Aug-21	JAMES MCMINN, INC	1,317.43	IRWD Check	Reconciled
420363	5-Aug-21	JANG, GAIL	37.41	IRWD Check	Reconciled
420364	5-Aug-21	JWC ENVIRONMENTAL INC.	35,258.32	IRWD Check	Reconciled
420365	5-Aug-21	KIMBALL MIDWEST	828.97	IRWD Check	Reconciled
420366	5-Aug-21	KURZ INSTRUMENTS INC	1,200.00	IRWD Check	Reconciled
420367	5-Aug-21	LANDCARE HOLDINGS, INC.	50,518.88	IRWD Check	Reconciled
420368	5-Aug-21	LENNAR HOMES OF CALIFORNIA, INC.	440.66	IRWD Check	Reconciled
420369	5-Aug-21	LIEBERT CASSIDY WHITMORE	671.5	IRWD Check	Reconciled
420370	5-Aug-21	LIN, THERINA	30.56	IRWD Check	Reconciled
420371	5-Aug-21	LINDSAY POLIC CONSULTING, INC.	7,100.00	IRWD Check	Reconciled
420372	5-Aug-21	LOTUS FLOWER, INC.	10,050.00	IRWD Check	Reconciled
420373	5-Aug-21	LUBRICATION ENGINEERS, INC.	9,036.05	IRWD Check	Reconciled
420374	5-Aug-21	MBF CONSULTING, INC.	11,712.24	IRWD Check	Reconciled
420375	5-Aug-21	MC MASTER CARR SUPPLY CO	179.1	IRWD Check	Reconciled
420376	5-Aug-21	MERITAGE HOMES OF CALIFORNIA, INC.	43.72	IRWD Check	Reconciled
420377	5-Aug-21	MERRIMAC PETROLEUM, INC.	30,046.74	IRWD Check	Reconciled
420378	5-Aug-21	MICRO FOCUS SOFTWARE INC.	38,620.73	IRWD Check	Reconciled
420379	5-Aug-21	MR CRANE INC	3,327.50	IRWD Check	Reconciled
420380	5-Aug-21	MUNICIPAL UNDERGROUND SERVICES INC	5,250.00	IRWD Check	Reconciled
420381	5-Aug-21	NALCO US 2 INC	1,034.41	IRWD Check	Reconciled
420382	5-Aug-21	O'REILLY AUTO ENTERPRISES, LLC	876.13	IRWD Check	Reconciled
420383	5-Aug-21	O.C. SUPERIOR CUSTOM CLEANING	4,312.00	IRWD Check	Reconciled
420384	5-Aug-21	OLIN CORPORATION	9,876.60	IRWD Check	Reconciled
420385	5-Aug-21	ORACLE AMERICA, INC.	33.64	IRWD Check	Reconciled
420386	5-Aug-21	ORANGE COAST PLUMBING	4,600.00	IRWD Check	Reconciled
420387	5-Aug-21	ORANGE COUNTY AUTO PARTS CO	1,025.58	IRWD Check	Reconciled
420388	5-Aug-21	ORANGE COUNTY WATER DISTRICT	7,600.00	IRWD Check	Reconciled
420389	5-Aug-21	PACIFIC PARTS & CONTROLS INC	1,427.90	IRWD Check	Reconciled
420390	5-Aug-21	PARKHOUSE TIRE INC	5,081.20	IRWD Check	Reconciled
420391	5-Aug-21	PELLETIER & ASSOCIATES, INC.	394	IRWD Check	Reconciled
420392	5-Aug-21	PRAXAIR DISTRIBUTION INC	80	IRWD Check	Reconciled
420393	5-Aug-21	PRE-PAID LEGAL SERVICES, INC.	1,383.52	IRWD Check	Reconciled
420394	5-Aug-21	PRIME CONTROLS COMPANY INC	1,828.00	IRWD Check	Reconciled
420395	5-Aug-21	PRONTO GYM SERVICES, INC.	357.5	IRWD Check	Reconciled
420396	5-Aug-21	PRUDENTIAL OVERALL SUPPLY	493.07	IRWD Check	Reconciled
420397	5-Aug-21	RAM AIR ENGINEERING INC	13,234.30	IRWD Check	Reconciled
420398	5-Aug-21	RANCHO MADERAS APTS	22.38	IRWD Check	Reconciled
420399	5-Aug-21	RAYMOND HANDLING SOLUTIONS, INC.	650	IRWD Check	Reconciled
420400	5-Aug-21	REACH EMPLOYEE ASSISTANCE INC	1,080.80	IRWD Check	Reconciled
420401	5-Aug-21	RED WING SHOE STORE	764.96	IRWD Check	Reconciled
420402	5-Aug-21	REFRIGERATION SUPPLIES DISTRIBUTOR	2,086.38	IRWD Check	Reconciled
420403	5-Aug-21	RELIANCE STANDARD LIFE INSURANCE COMPANY	30,395.37	IRWD Check	Reconciled
420404	5-Aug-21	RICHARD C. SLADE & ASSOCIATES LLC	16,697.25	IRWD Check	Reconciled
420405	5-Aug-21	RINCON TRUCK CENTER INC.	1,232.42	IRWD Check	Reconciled
420406	5-Aug-21	ROME, ADRIANA	25	IRWD Check	Negotiable
420407	5-Aug-21	ROSEDALE - RIO BRAVO WATER STORAGE DISTRICT	607,558.31	IRWD Check	Reconciled
420408	5-Aug-21	SAN CARLO APARTMENTS	70.98	IRWD Check	Reconciled
420409	5-Aug-21	SAN LEON APTS	26.73	IRWD Check	Reconciled
420410	5-Aug-21	SAN REMO APTS	34.02	IRWD Check	Reconciled
420411	5-Aug-21	SANTA ANA WATERSHED PROJECT AUTHORITY	20,158.00	IRWD Check	Reconciled
420412	5-Aug-21	SANTA MARGARITA FORD	255.49	IRWD Check	Reconciled
420413	5-Aug-21	SCHINDLER ELEVATOR CORPORATION	473.24	IRWD Check	Reconciled
420414	5-Aug-21	SEAL ANALYTICAL INC	13,764.96	IRWD Check	Reconciled
420415	5-Aug-21	SHAMROCK SUPPLY CO INC	1,282.52	IRWD Check	Reconciled
420416	5-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	7,550.00	IRWD Check	Reconciled
420417	5-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	225,692.99	IRWD Check	Reconciled
420418	5-Aug-21	STANTEC CONSULTING SERVICES INC.	55,410.91	IRWD Check	Reconciled
420419	5-Aug-21	STETSON ENGINEERS INC.	717.5	IRWD Check	Reconciled
420420	5-Aug-21	TELEDYNE INSTRUMENTS, INC.	7,756.00	IRWD Check	Reconciled
420421	5-Aug-21	TETRA TECH, INC	4,117.50	IRWD Check	Reconciled
420422	5-Aug-21	THOMPSON & PHIPPS INC	708.94	IRWD Check	Reconciled
420423	5-Aug-21	TK ELEVATOR CORPORATION	634.34	IRWD Check	Reconciled
420424	5-Aug-21	UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA	5,350.27	IRWD Check	Reconciled
420425	5-Aug-21	UNITED PARCEL SERVICE INC	48.53	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
AP DISBURSEMENTS AND VOIDS FOR AUG 2021**

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420426	5-Aug-21	VAUGHAN'S INDUSTRIAL REPAIR CO INC	736	IRWD Check	Reconciled
420427	5-Aug-21	VERIZON WIRELESS SERVICES LLC	7,903.08	IRWD Check	Reconciled
420428	5-Aug-21	VERTECH INDUSTRIAL SYSTEMS, LLC	7,368.75	IRWD Check	Reconciled
420429	5-Aug-21	VULCAN MATERIALS COMPANY	1,511.31	IRWD Check	Reconciled
420430	5-Aug-21	WAMSLEY, PAMELA	65.44	IRWD Check	Negotiable
420431	5-Aug-21	WASTE MANAGEMENT COLLECTIONS AND RECYCLING, INC.	5,358.87	IRWD Check	Reconciled
420432	5-Aug-21	WAXIE'S ENTERPRISES, INC	1,879.71	IRWD Check	Reconciled
420433	5-Aug-21	WEBER WATER RESOURCES CA, LLC	18,281.56	IRWD Check	Reconciled
420434	5-Aug-21	WECK LABORATORIES INC	120	IRWD Check	Reconciled
420435	5-Aug-21	WEST COAST SAFETY SUPPLY INC	3,590.18	IRWD Check	Reconciled
420436	5-Aug-21	WEST COAST SAND & GRAVEL INC.	73,000.00	IRWD Check	Reconciled
420437	5-Aug-21	WEST YOST & ASSOCIATES, INC.	760.5	IRWD Check	Reconciled
420438	5-Aug-21	WIRELESS WATCHDOGS, LLC	1,936.00	IRWD Check	Reconciled
420439	5-Aug-21	IRWD-PETTY CASH CUSTODIAN	1,007.09	IRWD Check	Reconciled
420440	12-Aug-21	Jackson, Bradley E (Brad)	105	IRWD Check	Reconciled
420441	12-Aug-21	8X8 INC	9,575.16	IRWD Check	Reconciled
420442	12-Aug-21	A&Y ASPHALT CONTRACTORS, INC.	15,522.00	IRWD Check	Reconciled
420443	12-Aug-21	ABC ICE, INC	297.82	IRWD Check	Reconciled
420444	12-Aug-21	ACE INDUSTRIES, INC.	1,240.00	IRWD Check	Reconciled
420445	12-Aug-21	ADS CORP.	2,325.00	IRWD Check	Reconciled
420446	12-Aug-21	ALEXANDER'S CONTRACT SERVICES, INC.	127,691.27	IRWD Check	Reconciled
420447	12-Aug-21	AM CONSERVATION GROUP, INC.	500.5	IRWD Check	Reconciled
420448	12-Aug-21	AMAYA SOLUTIONS INC.	5,725.84	IRWD Check	Reconciled
420449	12-Aug-21	AMAZON CAPITAL SERVICES, INC.	633.59	IRWD Check	Reconciled
420450	12-Aug-21	AMETEK BROOKFIELD	1,800.09	IRWD Check	Reconciled
420451	12-Aug-21	ANDERSONPENNA PARTNERS, INC.	25,479.00	IRWD Check	Reconciled
420452	12-Aug-21	APD CONSULTANTS, INC.	6,370.00	IRWD Check	Reconciled
420453	12-Aug-21	AQUA BEN CORPORATION	36,271.00	IRWD Check	Reconciled
420454	12-Aug-21	ASSOCIATION OF CALIFORNIA WATER AGENCIES/JPIA	38,434.81	IRWD Check	Reconciled
420455	12-Aug-21	AT&T	1,681.43	IRWD Check	Reconciled
420456	12-Aug-21	AT&T	1,106.82	IRWD Check	Reconciled
420457	12-Aug-21	ATHENS SERVICES	10,758.62	IRWD Check	Reconciled
420458	12-Aug-21	AUTOZONE PARTS, INC.	371.39	IRWD Check	Reconciled
420459	12-Aug-21	BANK OF NEW YORK MELLON TRUST COMPANY NA	6,244.10	IRWD Check	Reconciled
420460	12-Aug-21	BERK, SUSAN	20,000.00	IRWD Check	Voided
420461	12-Aug-21	BEST DRILLING AND PUMP, INC.	222,252.50	IRWD Check	Reconciled
420462	12-Aug-21	BIOMAGIC INC	6,013.67	IRWD Check	Reconciled
420463	12-Aug-21	BRENNTAG PACIFIC INC	5,971.29	IRWD Check	Reconciled
420464	12-Aug-21	BROWN AND CALDWELL	5,471.67	IRWD Check	Reconciled
420465	12-Aug-21	C WELLS PIPELINE MATERIALS INC	20,746.73	IRWD Check	Reconciled
420466	12-Aug-21	CALDESAL	5,000.00	IRWD Check	Reconciled
420467	12-Aug-21	CALIFORNIA BARRICADE RENTAL, INC.	14,271.30	IRWD Check	Reconciled
420468	12-Aug-21	CALIFORNIA NEWSPAPERS PARTNERSHIP	1,280.28	IRWD Check	Reconciled
420469	12-Aug-21	CANNON CORPORATION	2,662.50	IRWD Check	Reconciled
420470	12-Aug-21	CANON SOLUTIONS AMERICA, INC.	154.86	IRWD Check	Reconciled
420471	12-Aug-21	CDW GOVERNMENT LLC	2,559.28	IRWD Check	Reconciled
420472	12-Aug-21	CHIANG, KWAN	24.52	IRWD Check	Reconciled
420473	12-Aug-21	CHIPOTLE MEXICAN GRILL	2,327.79	IRWD Check	Negotiable
420474	12-Aug-21	CIMARRON ENERGY, INC	4,253.04	IRWD Check	Reconciled
420475	12-Aug-21	CLA-VAL COMPANY	7,983.86	IRWD Check	Reconciled
420476	12-Aug-21	CLARKSTON-POTOMAC GROUP, INC.	29,760.00	IRWD Check	Reconciled
420477	12-Aug-21	CLIFFORD MORIYAMA	4,000.00	IRWD Check	Reconciled
420478	12-Aug-21	CONSOLIDATED ELECTRICAL DISTRIBUTORS, INC	1,994.09	IRWD Check	Reconciled
420479	12-Aug-21	COTTONS POINT DESIGN, INC.	6,372.66	IRWD Check	Reconciled
420480	12-Aug-21	CR & R INCORPORATED	427.3	IRWD Check	Reconciled
420481	12-Aug-21	CULLIGAN OF SANTA ANA	22,000.00	IRWD Check	Reconciled
420482	12-Aug-21	DARCI, CHRISTINE	10.92	IRWD Check	Negotiable
420483	12-Aug-21	DCS MANAGEMENT LLC	64.29	IRWD Check	Reconciled
420484	12-Aug-21	DEMARIA ELECTRIC MOTOR SERVICES, INC.	2,179.96	IRWD Check	Reconciled
420485	12-Aug-21	DENALI WATER SOLUTIONS LLC	8,265.90	IRWD Check	Reconciled
420486	12-Aug-21	DENOON, MARC	44.81	IRWD Check	Negotiable
420487	12-Aug-21	DOPUDJA & WELLS CONSULTING INC.	2,900.00	IRWD Check	Reconciled
420488	12-Aug-21	EISEL ENTERPRISES INC	5,236.65	IRWD Check	Reconciled
420489	12-Aug-21	ELITE EQUIPMENT, INC.	292.47	IRWD Check	Negotiable
420490	12-Aug-21	EMD MILLIPORE CORP.	3,064.28	IRWD Check	Reconciled
420491	12-Aug-21	ENDRESS AND HAUSER INC	2,550.56	IRWD Check	Reconciled
420492	12-Aug-21	ENVIRONMENTAL RESOURCE ASSOCIATES	917.55	IRWD Check	Reconciled
420493	12-Aug-21	ESPINOZA ENGINEERING	1,640.77	IRWD Check	Reconciled
420494	12-Aug-21	EUROFINS CALSCIENCE, LLC	2,005.50	IRWD Check	Reconciled
420495	12-Aug-21	EVERETT DOREY LLP	1,418.25	IRWD Check	Reconciled
420496	12-Aug-21	EXECUTIVE LIGHTING & ELECTRIC	422.9	IRWD Check	Reconciled
420497	12-Aug-21	FARRELL & ASSOCIATES	103.43	IRWD Check	Reconciled
420498	12-Aug-21	FEDEX	310.72	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
AP DISBURSEMENTS AND VOIDS FOR AUG 2021**

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420499	12-Aug-21	FERGUSON ENTERPRISES, LLC	3,276.12	IRWD Check	Reconciled
420500	12-Aug-21	FISHER SCIENTIFIC COMPANY LLC	502.79	IRWD Check	Reconciled
420501	12-Aug-21	FOUGHT, CYNTHIA J.	2,593.70	IRWD Check	Reconciled
420502	12-Aug-21	FRANCHISE TAX BOARD	850	IRWD Check	Negotiable
420503	12-Aug-21	FRONTIER CALIFORNIA INC.	58.92	IRWD Check	Reconciled
420504	12-Aug-21	FUSCOE ENGINEERING, INC.	7,100.00	IRWD Check	Reconciled
420505	12-Aug-21	GENOOT, EFRAM	92.73	IRWD Check	Reconciled
420506	12-Aug-21	GEORGE HILLS COMPANY, INC.	162	IRWD Check	Reconciled
420507	12-Aug-21	GI ENDURANT LLC	32,083.00	IRWD Check	Reconciled
420508	12-Aug-21	GOLD, LYNNETTE	52.87	IRWD Check	Reconciled
420509	12-Aug-21	GRAINGER	620.43	IRWD Check	Reconciled
420510	12-Aug-21	GRANICUS, LLC	1,818.70	IRWD Check	Reconciled
420511	12-Aug-21	HAAKER EQUIPMENT COMPANY	3,935.55	IRWD Check	Reconciled
420512	12-Aug-21	HACH COMPANY	8,742.16	IRWD Check	Reconciled
420513	12-Aug-21	HARRINGTON INDUSTRIAL PLASTICS LLC	21,788.65	IRWD Check	Reconciled
420514	12-Aug-21	HDR ENGINEERING INC	50,387.75	IRWD Check	Reconciled
420515	12-Aug-21	HILL BROTHERS CHEMICAL COMPANY	9,197.80	IRWD Check	Reconciled
420516	12-Aug-21	HUNSAKER & ASSOCIATES IRVINE	3,000.00	IRWD Check	Reconciled
420517	12-Aug-21	INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 47	3,188.09	IRWD Check	Reconciled
420518	12-Aug-21	IRON MOUNTAIN INFORMATION MANAGEMENT INC	676.61	IRWD Check	Reconciled
420519	12-Aug-21	IRVINE PACIFIC	188.82	IRWD Check	Reconciled
420520	12-Aug-21	IRVINE PIPE & SUPPLY INC	1,457.11	IRWD Check	Reconciled
420521	12-Aug-21	IRWD-PETTY CASH CUSTODIAN	756.56	IRWD Check	Reconciled
420522	12-Aug-21	IXOM WATERCARE INC	23,990.00	IRWD Check	Reconciled
420523	12-Aug-21	JAMBOREE SMOG	107.75	IRWD Check	Reconciled
420524	12-Aug-21	JCI JONES CHEMICALS INC	3,453.05	IRWD Check	Reconciled
420525	12-Aug-21	JIG CONSULTANTS	5,659.64	IRWD Check	Reconciled
420526	12-Aug-21	KAESER COMPRESSORS, INC.	829.3	IRWD Check	Reconciled
420527	12-Aug-21	KAN VENTURES, INC	6,500.00	IRWD Check	Reconciled
420528	12-Aug-21	KIM, YOUNG AE	52.72	IRWD Check	Negotiable
420529	12-Aug-21	KRONICK MOSKOVITZ TIEDEMANN & GIRARD	112,016.61	IRWD Check	Reconciled
420530	12-Aug-21	LABWORKS, LLC	37,383.00	IRWD Check	Reconciled
420531	12-Aug-21	LCS TECHNOLOGIES, INC.	3,240.00	IRWD Check	Reconciled
420532	12-Aug-21	LILLESTRAND LEADERSHIP CONSULTING, INC.	5,880.00	IRWD Check	Negotiable
420533	12-Aug-21	MAP COMMUNICATIONS, INC.	3,312.79	IRWD Check	Reconciled
420534	12-Aug-21	MARK KADESH	10,200.00	IRWD Check	Reconciled
420535	12-Aug-21	MC MASTER CARR SUPPLY CO	1,600.48	IRWD Check	Reconciled
420536	12-Aug-21	MEIER PLUMBING INC	1,706.19	IRWD Check	Negotiable
420537	12-Aug-21	MICHAEL BAKER INTERNATIONAL, INC.	7,442.00	IRWD Check	Reconciled
420538	12-Aug-21	MICROSOFT CORPORATION	20	IRWD Check	Reconciled
420539	12-Aug-21	MILES AND KELLEY CONSTRUCTION	1,900.00	IRWD Check	Reconciled
420540	12-Aug-21	MILNE, SHANE	23.65	IRWD Check	Reconciled
420541	12-Aug-21	MISSION COMMUNICATIONS, LLC	1,474.20	IRWD Check	Reconciled
420542	12-Aug-21	MSC INDUSTRIAL SUPPLY CO	792.59	IRWD Check	Reconciled
420543	12-Aug-21	NCH CORPORATION	398.35	IRWD Check	Reconciled
420544	12-Aug-21	NIXON-EGLI EQUIPMENT COMPANY INC.	2,308.52	IRWD Check	Reconciled
420545	12-Aug-21	OLIN CORPORATION	43,040.55	IRWD Check	Reconciled
420546	12-Aug-21	ONESOURCE DISTRIBUTORS LLC	219.67	IRWD Check	Reconciled
420547	12-Aug-21	ORANGE COUNTY AUTO PARTS CO	305.5	IRWD Check	Reconciled
420548	12-Aug-21	ORANGE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT	97.87	IRWD Check	Reconciled
420549	12-Aug-21	ORANGE COUNTY SANITATION DISTRICT	43,958.78	IRWD Check	Reconciled
420550	12-Aug-21	ORIGIN CONSULTING LLC	218,752.33	IRWD Check	Reconciled
420551	12-Aug-21	PACIFIC AUTO WASH PARTNERS	17.99	IRWD Check	Reconciled
420552	12-Aug-21	PACIFIC HYDROTECH CORPORATION	548,395.89	IRWD Check	Reconciled
420553	12-Aug-21	PACIFIC HYDROTECH CORPORATION	14,313.80	IRWD Check	Reconciled
420554	12-Aug-21	PACIFIC HYDROTECH CORPORATION	14,549.14	IRWD Check	Reconciled
420555	12-Aug-21	PACIFIC SURVEYS, LLC	1,350.00	IRWD Check	Reconciled
420556	12-Aug-21	PAPER DEPOT DOCUMENT DESTRUCTION LLC	1,018.00	IRWD Check	Reconciled
420557	12-Aug-21	PARKHOUSE TIRE INC	455.5	IRWD Check	Reconciled
420558	12-Aug-21	PASCAL & LUDWIG CONSTRUCTORS	6,715.70	IRWD Check	Reconciled
420559	12-Aug-21	PASCAL & LUDWIG CONSTRUCTORS	127,598.40	IRWD Check	Reconciled
420560	12-Aug-21	PAULUS ENGINEERING INC	173,171.45	IRWD Check	Negotiable
420561	12-Aug-21	PENN ARCHIVE SERVICES	67.82	IRWD Check	Reconciled
420562	12-Aug-21	PERS LONG TERM CARE	447.62	IRWD Check	Reconciled
420563	12-Aug-21	PILLSBURY WINTHROP SHAW PITTMAN LLP	13,024.00	IRWD Check	Reconciled
420564	12-Aug-21	PLUMBERS DEPOT INC.	5,327.42	IRWD Check	Reconciled
420565	12-Aug-21	PMC ENGINEERING LLC.	3,117.46	IRWD Check	Reconciled
420566	12-Aug-21	POLLARDWATER.COM	3,548.12	IRWD Check	Reconciled
420567	12-Aug-21	PREMIER PAVING INC.	1,472.89	IRWD Check	Reconciled
420568	12-Aug-21	PUBLIC RISK, INNOVATION, SOLUTIONS, AND MANAGEMENT	17,332.00	IRWD Check	Reconciled
420569	12-Aug-21	PYRO-COMM SYSTEMS INC	955	IRWD Check	Reconciled
420570	12-Aug-21	QUINN COMPANY	1,441.15	IRWD Check	Reconciled
420571	12-Aug-21	RAM AIR ENGINEERING INC	1,531.23	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
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CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420572	12-Aug-21	REFRIGERATION SUPPLIES DISTRIBUTOR	331.79	IRWD Check	Reconciled
420573	12-Aug-21	RODNEY HARMSWORTH ASSOCIATES, INC.	3,466.00	IRWD Check	Reconciled
420574	12-Aug-21	SAFETY-KLEEN SYSTEMS, INC	245	IRWD Check	Reconciled
420575	12-Aug-21	SAN CARLO APARTMENTS	34.28	IRWD Check	Reconciled
420576	12-Aug-21	SANTA ANA BLUE PRINT	3,721.01	IRWD Check	Reconciled
420577	12-Aug-21	SECURITAS SECURITY SERVICES USA, INC.	56,587.06	IRWD Check	Reconciled
420578	12-Aug-21	SERRANO WATER DISTRICT	9,065.33	IRWD Check	Reconciled
420579	12-Aug-21	SHAMROCK SUPPLY CO INC	316.11	IRWD Check	Reconciled
420580	12-Aug-21	SI TESTING	695	IRWD Check	Reconciled
420581	12-Aug-21	SIGMA-ALDRICH INC	317.73	IRWD Check	Reconciled
420582	12-Aug-21	SIGNPOST HOMES INC	27.93	IRWD Check	Negotiable
420583	12-Aug-21	SKIBA, SUSAN	37.23	IRWD Check	Negotiable
420584	12-Aug-21	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	6,544.05	IRWD Check	Reconciled
420585	12-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	860,498.69	IRWD Check	Reconciled
420586	12-Aug-21	SOUTHERN CALIFORNIA GAS COMPANY	1,458.21	IRWD Check	Reconciled
420587	12-Aug-21	SOUTHLAND WATER TECHNOLOGIES LLC	4,655.42	IRWD Check	Reconciled
420588	12-Aug-21	SOUTHWEST VALVE & EQUIPMENT INC	266.13	IRWD Check	Reconciled
420589	12-Aug-21	SPATIAL WAVE, INC.	58,745.00	IRWD Check	Reconciled
420590	12-Aug-21	STETSON ENGINEERS INC.	1,268.00	IRWD Check	Negotiable
420591	12-Aug-21	SUSAN A. SIROTA	4,755.00	IRWD Check	Reconciled
420592	12-Aug-21	T.E. ROBERTS, INC.	137,888.70	IRWD Check	Reconciled
420593	12-Aug-21	TAIT ENVIRONMENTAL SERVICES, INC.	420	IRWD Check	Reconciled
420594	12-Aug-21	TALLEY INC	2,138.32	IRWD Check	Reconciled
420595	12-Aug-21	TANKVISIONS, INC	30	IRWD Check	Reconciled
420596	12-Aug-21	TAYLOR MORRISON OF CALIFORNIA, LLC	150.7	IRWD Check	Voided
420597	12-Aug-21	TETRA TECH, INC	32,666.92	IRWD Check	Reconciled
420598	12-Aug-21	THE PAPE' GROUP INC.	4,376.90	IRWD Check	Reconciled
420599	12-Aug-21	THERMO ELECTRON NORTH AMERICA LLC	23,320.00	IRWD Check	Reconciled
420600	12-Aug-21	THOMPSON & PHIPPS INC	1,822.43	IRWD Check	Reconciled
420601	12-Aug-21	THOMPSON, DAVID	60.84	IRWD Check	Negotiable
420602	12-Aug-21	TITUS INDUSTRIAL GROUP, INC.	2,859.90	IRWD Check	Reconciled
420603	12-Aug-21	TRILOGY GARDENS, LLC	569.41	IRWD Check	Reconciled
420604	12-Aug-21	TRUKSPECT, INC	905.88	IRWD Check	Reconciled
420605	12-Aug-21	UNITED PARCEL SERVICE INC	281.58	IRWD Check	Reconciled
420606	12-Aug-21	UNITED SITE SERVICES OF CALIFORNIA INC	219.61	IRWD Check	Reconciled
420607	12-Aug-21	UNITED STATES POSTAL SERVICE	245	IRWD Check	Reconciled
420608	12-Aug-21	UNIVAR SOLUTIONS USA INC.	5,743.40	IRWD Check	Reconciled
420609	12-Aug-21	USA BLUEBOOK	1,517.17	IRWD Check	Reconciled
420610	12-Aug-21	USA WASTE OF CALIFORNIA, INC.	542.5	IRWD Check	Reconciled
420611	12-Aug-21	VIDO ARTUKOVICH & SON, INC./VIDMAR, INC. A JV	666,253.81	IRWD Check	Reconciled
420612	12-Aug-21	VIDO ARTUKOVICH & SON, INC./VIDMAR, INC. A JV	35,065.99	IRWD Check	Reconciled
420613	12-Aug-21	VULCAN MATERIALS COMPANY	1,517.80	IRWD Check	Reconciled
420614	12-Aug-21	WARD, WILLIAM P JR.	1,351.80	IRWD Check	Reconciled
420615	12-Aug-21	WASTE MANAGEMENT COLLECTIONS AND RECYCLING, INC.	3,699.44	IRWD Check	Reconciled
420616	12-Aug-21	WATERLINE TECHNOLOGIES INC	2,733.60	IRWD Check	Reconciled
420617	12-Aug-21	WATERSMART SOFTWARE INC	15,174.99	IRWD Check	Reconciled
420618	12-Aug-21	WECK LABORATORIES INC	1,659.00	IRWD Check	Reconciled
420619	12-Aug-21	WEN, KEVIN	19.44	IRWD Check	Negotiable
420620	12-Aug-21	WEST YOST & ASSOCIATES, INC.	1,955.00	IRWD Check	Reconciled
420621	12-Aug-21	ZARIN-AFSAR, SOURENA	57.37	IRWD Check	Reconciled
420622	19-Aug-21	GOVERNMENTJOBS.COM, INC.	24,461.98	IRWD Check	Reconciled
420623	19-Aug-21	AAF INTERNATIONAL	1,384.16	IRWD Check	Reconciled
420624	19-Aug-21	ACCUSTANDARD INC	773.96	IRWD Check	Reconciled
420625	19-Aug-21	ACE INDUSTRIES, INC.	6,486.47	IRWD Check	Reconciled
420626	19-Aug-21	AECOM TECHNICAL SERVICES, INC.	215,284.06	IRWD Check	Reconciled
420627	19-Aug-21	AGILENT TECHNOLOGIES, INC.	1,417.99	IRWD Check	Reconciled
420628	19-Aug-21	AIRGAS, INC.	3,504.62	IRWD Check	Reconciled
420629	19-Aug-21	ALSTON & BIRD LLP	60,560.03	IRWD Check	Reconciled
420630	19-Aug-21	AMAZON CAPITAL SERVICES, INC.	952.27	IRWD Check	Reconciled
420631	19-Aug-21	ANTHEM BLUE CROSS	283.41	IRWD Check	Reconciled
420632	19-Aug-21	APPLIED ENGINEERING CONCEPTS	3,650.00	IRWD Check	Reconciled
420633	19-Aug-21	ASSURED FLOW SALES INC	183.39	IRWD Check	Negotiable
420634	19-Aug-21	AT&T	3,600.09	IRWD Check	Reconciled
420635	19-Aug-21	AT&T	175.14	IRWD Check	Reconciled
420636	19-Aug-21	AT&T	103.08	IRWD Check	Reconciled
420637	19-Aug-21	AUTOZONE PARTS, INC.	1,039.33	IRWD Check	Reconciled
420638	19-Aug-21	BANK OF AMERICA	18,582.81	IRWD Check	Reconciled
420639	19-Aug-21	BELL TOWER FLORIST & GIFTS	761.7	IRWD Check	Negotiable
420640	19-Aug-21	BLACK & VEATCH CORPORATION	257,299.39	IRWD Check	Reconciled
420641	19-Aug-21	BSI SERVICES AND SOLUTIONS (WEST) INC.	38,545.00	IRWD Check	Reconciled
420642	19-Aug-21	C WELLS PIPELINE MATERIALS INC	19,848.89	IRWD Check	Reconciled
420643	19-Aug-21	CANON FINANCIAL SERVICES, INC	8,343.52	IRWD Check	Reconciled
420644	19-Aug-21	CANON SOLUTIONS AMERICA, INC.	767.64	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
AP DISBURSEMENTS AND VOIDS FOR AUG 2021**

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420645	19-Aug-21	CONSTELLATION NEWENERGY, INC.	128,855.10	IRWD Check	Reconciled
420646	19-Aug-21	CORPORATE HEALTH EDUCATION SOLUTIONS LLC	5,450.00	IRWD Check	Negotiable
420647	19-Aug-21	CR & R INCORPORATED	134.54	IRWD Check	Reconciled
420648	19-Aug-21	DATA CLEAN CORPORATION	840	IRWD Check	Reconciled
420649	19-Aug-21	DEPARTMENT OF INDUSTRIAL RELATIONS STATE OF CALIFORNIA	1,600.00	IRWD Check	Reconciled
420650	19-Aug-21	DG INVESTMENT INTERMEDIATE HOLDINGS 2, INC.	4,797.00	IRWD Check	Reconciled
420651	19-Aug-21	DICK R. MONOD DE FROIDEVILLE	700	IRWD Check	Reconciled
420652	19-Aug-21	DUDEK	3,211.25	IRWD Check	Reconciled
420653	19-Aug-21	DXP ENTERPRISES, INC.	407.27	IRWD Check	Reconciled
420654	19-Aug-21	E&M ELECTRIC AND MACHINERY, INC.	1,378.45	IRWD Check	Reconciled
420655	19-Aug-21	EI&C ENGINEERING INC.	22,490.00	IRWD Check	Reconciled
420656	19-Aug-21	EMD MILLIPORE CORP.	1,997.86	IRWD Check	Reconciled
420657	19-Aug-21	ENVIRONMENTAL ENGINEERING AND CONTRACTING, INC.	14,171.25	IRWD Check	Reconciled
420658	19-Aug-21	ENVIRONMENTAL SCIENCE ASSOCIATES	1,073.00	IRWD Check	Reconciled
420659	19-Aug-21	EUROFINS CALSCIENCE, LLC	2,236.50	IRWD Check	Reconciled
420660	19-Aug-21	EVOQUA WATER TECHNOLOGIES LLC	229.68	IRWD Check	Reconciled
420661	19-Aug-21	FIDELITY SECURITY LIFE INSURANCE COMPANY	85.52	IRWD Check	Reconciled
420662	19-Aug-21	FIDELITY SECURITY LIFE INSURANCE COMPANY	746.26	IRWD Check	Reconciled
420663	19-Aug-21	FIDELITY SECURITY LIFE INSURANCE COMPANY	6,790.86	IRWD Check	Reconciled
420664	19-Aug-21	FIDELITY SECURITY LIFE INSURANCE COMPANY	136.46	IRWD Check	Reconciled
420665	19-Aug-21	FIONA HUTTON & ASSOCIATES, INC.	9,523.75	IRWD Check	Reconciled
420666	19-Aug-21	FISHER SCIENTIFIC COMPANY LLC	7,349.68	IRWD Check	Reconciled
420667	19-Aug-21	FOUGHT, CYNTHIA J.	565.81	IRWD Check	Reconciled
420668	19-Aug-21	FRONTIER CALIFORNIA INC.	295.3	IRWD Check	Reconciled
420669	19-Aug-21	FULLER TRUCK ACCESSORIES	1,290.85	IRWD Check	Reconciled
420670	19-Aug-21	FUSCOE ENGINEERING, INC.	619	IRWD Check	Reconciled
420671	19-Aug-21	GANAHL LUMBER CO.	1,395.36	IRWD Check	Reconciled
420672	19-Aug-21	GARRETT MILES	102.83	IRWD Check	Reconciled
420673	19-Aug-21	GRAINGER	4,939.96	IRWD Check	Reconciled
420674	19-Aug-21	GRAYBAR ELECTRIC COMPANY	1,769.38	IRWD Check	Reconciled
420675	19-Aug-21	GSRP ST SOLAR I LLC	14,921.29	IRWD Check	Reconciled
420676	19-Aug-21	HAAKER EQUIPMENT COMPANY	446.57	IRWD Check	Reconciled
420677	19-Aug-21	HADRONEX, INC.	636.92	IRWD Check	Reconciled
420678	19-Aug-21	HANSON BRIDGETT LLP	82,765.97	IRWD Check	Reconciled
420679	19-Aug-21	HARPER & ASSOCIATES ENGINEERING INC	3,325.00	IRWD Check	Reconciled
420680	19-Aug-21	HARRIS & ASSOCIATES, INC.	2,602.50	IRWD Check	Reconciled
420681	19-Aug-21	HDR ENGINEERING INC	28,905.25	IRWD Check	Reconciled
420682	19-Aug-21	HI-LINE INC	797.89	IRWD Check	Reconciled
420683	19-Aug-21	HILL BROTHERS CHEMICAL COMPANY	8,065.60	IRWD Check	Negotiable
420684	19-Aug-21	HOME DEPOT USA INC	2,210.28	IRWD Check	Reconciled
420685	19-Aug-21	HOMISCO, INC. AND SUBSIDIARY	1,087.63	IRWD Check	Reconciled
420686	19-Aug-21	HUMANA INSURANCE COMPANY	65.3	IRWD Check	Reconciled
420687	19-Aug-21	IMPERIAL SPRINKLER SUPPLY, INC.	976.83	IRWD Check	Reconciled
420688	19-Aug-21	INDUSTRIAL METAL SUPPLY CO	285.39	IRWD Check	Reconciled
420689	19-Aug-21	INNOVATIVE MACHINE TOOL REPAIR LLC	1,781.55	IRWD Check	Reconciled
420690	19-Aug-21	INNOVYZE INC	25,816.00	IRWD Check	Reconciled
420691	19-Aug-21	INSITE TELECOM, LLC	18,077.00	IRWD Check	Reconciled
420692	19-Aug-21	INTEGRITY MUNICIPAL SERVICES LLC	2,575.00	IRWD Check	Reconciled
420693	19-Aug-21	IRVINE PIPE & SUPPLY INC	3,232.41	IRWD Check	Reconciled
420694	19-Aug-21	JAMBOREE SMOG	209	IRWD Check	Negotiable
420695	19-Aug-21	JCI JONES CHEMICALS INC	10,089.97	IRWD Check	Reconciled
420696	19-Aug-21	JOHN MICHAEL COVAS	198.6	IRWD Check	Reconciled
420697	19-Aug-21	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES	6,275.00	IRWD Check	Reconciled
420698	19-Aug-21	KIMBALL MIDWEST	4,569.33	IRWD Check	Reconciled
420699	19-Aug-21	LA HABRA FENCE COMPANY INC	2,388.00	IRWD Check	Reconciled
420700	19-Aug-21	LANDCARE HOLDINGS, INC.	140,875.97	IRWD Check	Reconciled
420701	19-Aug-21	LENNAR HOMES OF CALIFORNIA, INC.	1,503.58	IRWD Check	Reconciled
420702	19-Aug-21	LU'S LIGHTHOUSE, INC.	322.22	IRWD Check	Reconciled
420703	19-Aug-21	MARLIN, STACY	249.88	IRWD Check	Reconciled
420704	19-Aug-21	MATHESON TRI GAS, INC	25.72	IRWD Check	Reconciled
420705	19-Aug-21	MBF CONSULTING, INC.	13,210.00	IRWD Check	Reconciled
420706	19-Aug-21	MC FADDEN-DALE INDUSTRIAL	25.01	IRWD Check	Reconciled
420707	19-Aug-21	MC MASTER CARR SUPPLY CO	50.82	IRWD Check	Reconciled
420708	19-Aug-21	MCCLAINS FURNITURE	1,237.50	IRWD Check	Reconciled
420709	19-Aug-21	MICROSOFT CORPORATION	534.25	IRWD Check	Reconciled
420710	19-Aug-21	MSC INDUSTRIAL SUPPLY CO	11,445.70	IRWD Check	Reconciled
420711	19-Aug-21	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	41,338.08	IRWD Check	Reconciled
420712	19-Aug-21	MUTUAL PROPANE	131.84	IRWD Check	Reconciled
420713	19-Aug-21	NATURES IMAGE INC	12,420.00	IRWD Check	Reconciled
420714	19-Aug-21	NINYO & MOORE	173	IRWD Check	Reconciled
420715	19-Aug-21	O'REILLY AUTO ENTERPRISES, LLC	66	IRWD Check	Negotiable
420716	19-Aug-21	OLIN CORPORATION	23,272.06	IRWD Check	Reconciled
420717	19-Aug-21	ORANGE COUNTY AUTO PARTS CO	255.77	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
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CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420718	19-Aug-21	ORANGE COUNTY FIRE PROTECTION	2,968.00	IRWD Check	Reconciled
420719	19-Aug-21	ORANGE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT	2,661.77	IRWD Check	Reconciled
420720	19-Aug-21	PACIFIC COAST BOLT CORP	284.25	IRWD Check	Reconciled
420721	19-Aug-21	PARKHOUSE TIRE INC	237	IRWD Check	Reconciled
420722	19-Aug-21	PARMA	150	IRWD Check	Reconciled
420723	19-Aug-21	PAYNE & FEARS LLP	13,733.50	IRWD Check	Reconciled
420724	19-Aug-21	PELLETIER & ASSOCIATES, INC.	315	IRWD Check	Reconciled
420725	19-Aug-21	PRO MOBILE AUTO DETAILING	350	IRWD Check	Reconciled
420726	19-Aug-21	PSOMAS	24,993.25	IRWD Check	Reconciled
420727	19-Aug-21	PURE EFFECT INC	8,156.90	IRWD Check	Reconciled
420728	19-Aug-21	PYRO-COMM SYSTEMS INC	595	IRWD Check	Reconciled
420729	19-Aug-21	QUALITY ENVIRONMENTAL CONTAINERS	18,686.83	IRWD Check	Reconciled
420730	19-Aug-21	QUINN COMPANY	1,137.31	IRWD Check	Reconciled
420731	19-Aug-21	QUINTANA, WATTS & HARTMANN, LLC	5,150.00	IRWD Check	Reconciled
420732	19-Aug-21	RAM AIR ENGINEERING INC	3,000.00	IRWD Check	Reconciled
420733	19-Aug-21	RED WING SHOE STORE	36.63	IRWD Check	Reconciled
420734	19-Aug-21	REFRIGERATION SUPPLIES DISTRIBUTOR	128.78	IRWD Check	Reconciled
420735	19-Aug-21	RESA POWER SOLUTIONS - TRANSFORMER SERVICES, LLC	5,662.00	IRWD Check	Reconciled
420736	19-Aug-21	RESILIENT COMMUNICATIONS INC.	1,299.92	IRWD Check	Negotiable
420737	19-Aug-21	RESTEK CORPORATION	1,504.71	IRWD Check	Reconciled
420738	19-Aug-21	RINCON TRUCK CENTER INC.	1,312.58	IRWD Check	Reconciled
420739	19-Aug-21	RLG ENTERPRISES, INC	522.46	IRWD Check	Reconciled
420740	19-Aug-21	ROTORK CONTROLS INC.	396.24	IRWD Check	Reconciled
420741	19-Aug-21	SAN DIEGO FLUID SYSTEM TECH	542.36	IRWD Check	Reconciled
420742	19-Aug-21	SANTA ANA BLUE PRINT	96.02	IRWD Check	Reconciled
420743	19-Aug-21	SANTA MARGARITA FORD	3,643.58	IRWD Check	Reconciled
420744	19-Aug-21	SECURITAS SECURITY SERVICES USA, INC.	4,399.00	IRWD Check	Reconciled
420745	19-Aug-21	SHAMROCK SUPPLY CO INC	781.69	IRWD Check	Reconciled
420746	19-Aug-21	SI TESTING	1,850.00	IRWD Check	Reconciled
420747	19-Aug-21	SMT AUTOMOTIVE LLC	642.62	IRWD Check	Reconciled
420748	19-Aug-21	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	1,748.22	IRWD Check	Reconciled
420749	19-Aug-21	SOUTH COAST WATER CO.	95	IRWD Check	Reconciled
420750	19-Aug-21	SOUTH COAST WATER DISTRICT	937.17	IRWD Check	Reconciled
420751	19-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	67.38	IRWD Check	Reconciled
420752	19-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	113,634.87	IRWD Check	Reconciled
420753	19-Aug-21	SOUTHERN CALIFORNIA GAS COMPANY	8,184.84	IRWD Check	Reconciled
420754	19-Aug-21	SPARKLETTES	127.29	IRWD Check	Reconciled
420755	19-Aug-21	STANTEC CONSULTING SERVICES INC.	2,550.00	IRWD Check	Reconciled
420756	19-Aug-21	SYNAGRO-WWT, INC.	55,353.27	IRWD Check	Reconciled
420757	19-Aug-21	THOMAS SCIENTIFIC HOLDINGS, LLC	24.58	IRWD Check	Reconciled
420758	19-Aug-21	THOMPSON & PHIPPS INC	8,036.17	IRWD Check	Reconciled
420759	19-Aug-21	TOTAL RESOURCE MANAGEMENT, INC	2,862.50	IRWD Check	Reconciled
420760	19-Aug-21	TRIPAC MARKETING INC	713.19	IRWD Check	Reconciled
420761	19-Aug-21	UNITED HEALTHCARE INSURANCE COMPANY	324.22	IRWD Check	Reconciled
420762	19-Aug-21	UNITED SITE SERVICES OF CALIFORNIA INC	632.91	IRWD Check	Reconciled
420763	19-Aug-21	USA BLUEBOOK	64.09	IRWD Check	Reconciled
420764	19-Aug-21	VWR INTERNATIONAL, LLC	477.96	IRWD Check	Reconciled
420765	19-Aug-21	WALTERS WHOLESALE ELECTRIC	77.39	IRWD Check	Reconciled
420766	19-Aug-21	WATER MANAGEMENT GROUP	981.5	IRWD Check	Reconciled
420767	19-Aug-21	WAXIE'S ENTERPRISES, INC	241.65	IRWD Check	Reconciled
420768	19-Aug-21	WEEKS & FALCONE CONSTRUCTION INC	1,196.35	IRWD Check	Negotiable
420769	19-Aug-21	WEST YOST & ASSOCIATES, INC.	81,935.65	IRWD Check	Reconciled
420770	19-Aug-21	YORK INSURANCE SERVICES GROUP INC - CA	8,584.25	IRWD Check	Voided
420771	19-Aug-21	Karpan, Casey L (Casey)	235	IRWD Check	Reconciled
420772	19-Aug-21	Leonard, Joshua (Josh)	80	IRWD Check	Reconciled
420773	19-Aug-21	Mitchem, Dennis	70	IRWD Check	Reconciled
420774	19-Aug-21	Moeder, Jacob J (Jacob)	332	IRWD Check	Reconciled
420775	19-Aug-21	Nash, Joel	180	IRWD Check	Reconciled
420776	19-Aug-21	CALIFORNIA DEPARTMENT OF TAX AND FEE ADMINISTRATION	1,097.00	IRWD Check	Reconciled
420777	19-Aug-21	FEDEX	384.45	IRWD Check	Reconciled
420778	26-Aug-21	Beltran, Benjamin Vega	283	IRWD Check	Reconciled
420779	26-Aug-21	Corey, Jo Ann K (Jo Ann)	189.62	IRWD Check	Reconciled
420780	26-Aug-21	Haney, Lisa	21.99	IRWD Check	Negotiable
420781	26-Aug-21	LaMar, Steven E	497.94	IRWD Check	Reconciled
420782	26-Aug-21	Reynoso, Pio (Pio)	101	IRWD Check	Negotiable
420783	26-Aug-21	Ruiz, Ricky (Ricky)	150	IRWD Check	Negotiable
420784	26-Aug-21	Thatcher, Forrest R (Ray)	91	IRWD Check	Reconciled
420785	26-Aug-21	A&A WIPING CLOTH CO	1,659.35	IRWD Check	Reconciled
420786	26-Aug-21	A&Y ASPHALT CONTRACTORS, INC.	4,680.00	IRWD Check	Reconciled
420787	26-Aug-21	AECOM TECHNICAL SERVICES, INC.	118,572.50	IRWD Check	Reconciled
420788	26-Aug-21	AFLAC	2,179.10	IRWD Check	Negotiable
420789	26-Aug-21	AGILENT TECHNOLOGIES, INC.	423.64	IRWD Check	Reconciled
420790	26-Aug-21	AIR TECHNOLOGY LABORATORIES	503	IRWD Check	Reconciled

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CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420791	26-Aug-21	AIRGAS, INC.	1,749.33	IRWD Check	Reconciled
420792	26-Aug-21	ALLIANT INSURANCE SERVICES, INC	1,000.00	IRWD Check	Reconciled
420793	26-Aug-21	AM CONSERVATION GROUP, INC.	145.4	IRWD Check	Reconciled
420794	26-Aug-21	AMAZON CAPITAL SERVICES, INC.	697.17	IRWD Check	Reconciled
420795	26-Aug-21	AMPCO CONTRACTING INC	104.58	IRWD Check	Reconciled
420796	26-Aug-21	AMWINS GROUP BENEFITS INC.	3,736.12	IRWD Check	Negotiable
420797	26-Aug-21	ANTHEM BLUE CROSS	486.46	IRWD Check	Reconciled
420798	26-Aug-21	ANTHEM BLUE CROSS	486.46	IRWD Check	Reconciled
420799	26-Aug-21	ASSEMBLED PRODUCTS CORPORATION	829.55	IRWD Check	Reconciled
420800	26-Aug-21	ASSOCIATION OF CALIFORNIA WATER AGENCIES	5,500.00	IRWD Check	Reconciled
420801	26-Aug-21	ASTRUP, KEVIN J	9.72	IRWD Check	Negotiable
420802	26-Aug-21	AT&T	7,131.60	IRWD Check	Reconciled
420803	26-Aug-21	AUTOZONE PARTS, INC.	41.14	IRWD Check	Negotiable
420804	26-Aug-21	AVIAT U.S., INC	4,734.00	IRWD Check	Negotiable
420805	26-Aug-21	AVISTA TECHNOLOGIES, INC	4,955.26	IRWD Check	Negotiable
420806	26-Aug-21	BATTERIES PLUS AND BATTERIES PLUS BULBS	5,239.29	IRWD Check	Reconciled
420807	26-Aug-21	BBK PALM TERRACE, LLC	77.38	IRWD Check	Negotiable
420808	26-Aug-21	BERK, SUSAN	20,000.00	IRWD Check	Negotiable
420809	26-Aug-21	BIOENERGY ASSOCIATION OF CALIFORNIA	2,750.00	IRWD Check	Reconciled
420810	26-Aug-21	BRUCE HADLEY NEWELL	1,250.00	IRWD Check	Negotiable
420811	26-Aug-21	BSI SERVICES AND SOLUTIONS (WEST) INC.	13,300.00	IRWD Check	Negotiable
420812	26-Aug-21	C WELLS PIPELINE MATERIALS INC	98,342.43	IRWD Check	Negotiable
420813	26-Aug-21	CAL MICROTURBINE, INC.	875	IRWD Check	Reconciled
420814	26-Aug-21	CALIFORNIA BARRICADE RENTAL, INC.	41,066.04	IRWD Check	Reconciled
420815	26-Aug-21	CANNON CORPORATION	7,747.25	IRWD Check	Reconciled
420816	26-Aug-21	CAROLLO ENGINEERS, INC	2,004.00	IRWD Check	Negotiable
420817	26-Aug-21	CDW GOVERNMENT LLC	99,302.86	IRWD Check	Negotiable
420818	26-Aug-21	CHEM SERVICE INC.	104.3	IRWD Check	Reconciled
420819	26-Aug-21	CHEM TECH INTERNATIONAL INC	18,328.88	IRWD Check	Reconciled
420820	26-Aug-21	CIMARRON ENERGY, INC	3,259.01	IRWD Check	Negotiable
420821	26-Aug-21	CITY OF IRVINE	2,000.00	IRWD Check	Negotiable
420822	26-Aug-21	CITY OF NEWPORT BEACH	87.45	IRWD Check	Reconciled
420823	26-Aug-21	CITY OF SANTA ANA	200.28	IRWD Check	Reconciled
420824	26-Aug-21	CONSTELLATION NEWENERGY, INC.	91,571.96	IRWD Check	Negotiable
420825	26-Aug-21	COTTONE, LEE	54.98	IRWD Check	Negotiable
420826	26-Aug-21	COUNTY OF ORANGE	149.63	IRWD Check	Negotiable
420827	26-Aug-21	COX COMMUNICATIONS, INC.	3,441.38	IRWD Check	Reconciled
420828	26-Aug-21	CROWN CASTLE INTERNATIONAL CORP.	810.35	IRWD Check	Reconciled
420829	26-Aug-21	D & H WATER SYSTEMS INC.	834.99	IRWD Check	Negotiable
420830	26-Aug-21	DAO, JACKIE	337.66	IRWD Check	Reconciled
420831	26-Aug-21	DELL MARKETING LP	8,782.47	IRWD Check	Reconciled
420832	26-Aug-21	DENALI WATER SOLUTIONS LLC	7,459.64	IRWD Check	Negotiable
420833	26-Aug-21	DILYTICS INC	2,800.00	IRWD Check	Reconciled
420834	26-Aug-21	DIRECTV INC	146.99	IRWD Check	Negotiable
420835	26-Aug-21	DUDDRIDGE, JULIE	15.8	IRWD Check	Negotiable
420836	26-Aug-21	DUDEK	5,525.94	IRWD Check	Reconciled
420837	26-Aug-21	EMD MILLIPORE CORP.	2,238.57	IRWD Check	Reconciled
420838	26-Aug-21	ENVIRONMENTAL SCIENCE ASSOCIATES	17,803.52	IRWD Check	Negotiable
420839	26-Aug-21	EUROFINS CALSCIENCE, LLC	2,478.00	IRWD Check	Negotiable
420840	26-Aug-21	EUSTERMANN, JOE	24.01	IRWD Check	Negotiable
420841	26-Aug-21	FAZEKAS, ANDREW	33.06	IRWD Check	Reconciled
420842	26-Aug-21	FEDEX NATIONAL LTL, INC	768.78	IRWD Check	Reconciled
420843	26-Aug-21	FIRE EXTINGUISHING SAFETY & SERVICE	958.11	IRWD Check	Reconciled
420844	26-Aug-21	FIRST CHOICE SERVICES	3,459.81	IRWD Check	Reconciled
420845	26-Aug-21	FISHER SCIENTIFIC COMPANY LLC	1,601.54	IRWD Check	Reconciled
420846	26-Aug-21	FRANCHISE TAX BOARD	850	IRWD Check	Negotiable
420847	26-Aug-21	FRONTIER CALIFORNIA INC.	325.8	IRWD Check	Negotiable
420848	26-Aug-21	GANAHL LUMBER CO.	1,498.95	IRWD Check	Negotiable
420849	26-Aug-21	GARY BALE REDI-MIX CONCRETE, INC.	972.5	IRWD Check	Reconciled
420850	26-Aug-21	GEM MOBILE TREATMENT SERVICES, INC.	1,719.11	IRWD Check	Negotiable
420851	26-Aug-21	GONZALEZ, JOSE M	106.21	IRWD Check	Negotiable
420852	26-Aug-21	GRAINGER	1,332.91	IRWD Check	Negotiable
420853	26-Aug-21	HACH COMPANY	5,105.08	IRWD Check	Reconciled
420854	26-Aug-21	HANSON BRIDGETT LLP	77,022.10	IRWD Check	Negotiable
420855	26-Aug-21	HAO, WEI	972.25	IRWD Check	Negotiable
420856	26-Aug-21	HARBINGER HOMES, INC.	40.52	IRWD Check	Reconciled
420857	26-Aug-21	HEDLUND, LARRY	191.61	IRWD Check	Reconciled
420858	26-Aug-21	HELPMATES STAFFING SERVICES	2,835.92	IRWD Check	Reconciled
420859	26-Aug-21	HELPMATES STAFFING SERVICES LLC	10,655.69	IRWD Check	Reconciled
420860	26-Aug-21	HI-LINE INC	201.75	IRWD Check	Reconciled
420861	26-Aug-21	HILL BROTHERS CHEMICAL COMPANY	2,245.36	IRWD Check	Negotiable
420862	26-Aug-21	HOME DEPOT USA INC	108.34	IRWD Check	Negotiable
420863	26-Aug-21	HOWDEN USA COMPANY	2,420.07	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
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CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420864	26-Aug-21	INDUSTRIAL METAL SUPPLY CO	94.24	IRWD Check	Reconciled
420865	26-Aug-21	INDUSTRIAL NETWORKING SOLUTIONS	1,017.28	IRWD Check	Reconciled
420866	26-Aug-21	INFOSEND, INC.	31,258.17	IRWD Check	Reconciled
420867	26-Aug-21	INNOVATIVE MACHINE TOOL REPAIR LLC	1,599.70	IRWD Check	Reconciled
420868	26-Aug-21	INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 47	3,207.91	IRWD Check	Reconciled
420869	26-Aug-21	IRVINE PIPE & SUPPLY INC	4,363.91	IRWD Check	Reconciled
420870	26-Aug-21	IRVINE UNIFIED SCHOOL DISTRICT	47,914.78	IRWD Check	Negotiable
420871	26-Aug-21	IRWD-PETTY CASH CUSTODIAN	715.6	IRWD Check	Reconciled
420872	26-Aug-21	JENIFER L. KIENLE	4,167.00	IRWD Check	Reconciled
420873	26-Aug-21	JUST ENERGY SOLUTIONS INC.	602.15	IRWD Check	Reconciled
420874	26-Aug-21	KUTAK ROCK LLP	4,276.50	IRWD Check	Negotiable
420875	26-Aug-21	LAM, JULIA	17.81	IRWD Check	Negotiable
420876	26-Aug-21	LANDCARE HOLDINGS, INC.	2,915.96	IRWD Check	Reconciled
420877	26-Aug-21	LANDSEA HOLDINGS CORPORATION	293.63	IRWD Check	Negotiable
420878	26-Aug-21	LEE & RO, INC.	30,309.09	IRWD Check	Reconciled
420879	26-Aug-21	LEE, MELISSA	8.53	IRWD Check	Negotiable
420880	26-Aug-21	LEE, ROBERT	11.45	IRWD Check	Reconciled
420881	26-Aug-21	LILLESTRAND LEADERSHIP CONSULTING, INC.	5,550.01	IRWD Check	Negotiable
420882	26-Aug-21	LSA ASSOCIATES INC	5,424.83	IRWD Check	Negotiable
420883	26-Aug-21	MC FADDEN-DALE INDUSTRIAL	174.09	IRWD Check	Reconciled
420884	26-Aug-21	MC MASTER CARR SUPPLY CO	400.16	IRWD Check	Negotiable
420885	26-Aug-21	MERRIMAC PETROLEUM, INC.	29,073.29	IRWD Check	Reconciled
420886	26-Aug-21	MICHAEL BAKER INTERNATIONAL, INC.	1,260.00	IRWD Check	Reconciled
420887	26-Aug-21	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	3,937.92	IRWD Check	Reconciled
420888	26-Aug-21	NAPOLI, JAMES	25.19	IRWD Check	Reconciled
420889	26-Aug-21	NVS, INC.	17,920.00	IRWD Check	Reconciled
420890	26-Aug-21	O'REILLY AUTO ENTERPRISES, LLC	376.82	IRWD Check	Reconciled
420891	26-Aug-21	OCTA	3,434.00	IRWD Check	Reconciled
420892	26-Aug-21	OLIN CORPORATION	33,100.03	IRWD Check	Reconciled
420893	26-Aug-21	OLSON REMCHO LLP	5,280.00	IRWD Check	Reconciled
420894	26-Aug-21	ONESOURCE DISTRIBUTORS LLC	67.46	IRWD Check	Reconciled
420895	26-Aug-21	ORACLE AMERICA, INC.	20,042.60	IRWD Check	Reconciled
420896	26-Aug-21	ORANGE COUNTY AUTO PARTS CO	948.53	IRWD Check	Reconciled
420897	26-Aug-21	ORANGE COUNTY FIRE PROTECTION	3,943.00	IRWD Check	Reconciled
420898	26-Aug-21	ORTIZ & SON INC	1,755.33	IRWD Check	Negotiable
420899	26-Aug-21	OSTS, INC	12,330.00	IRWD Check	Reconciled
420900	26-Aug-21	PACIFIC STAR CHEMICAL, LLC	3,122.60	IRWD Check	Reconciled
420901	26-Aug-21	PARKHOUSE TIRE INC	2,728.78	IRWD Check	Reconciled
420902	26-Aug-21	PAYMENTUS GROUP INC.	134,277.02	IRWD Check	Negotiable
420903	26-Aug-21	PELLETIER & ASSOCIATES, INC.	675	IRWD Check	Reconciled
420904	26-Aug-21	PERS LONG TERM CARE	447.62	IRWD Check	Reconciled
420905	26-Aug-21	PMC ENGINEERING LLC.	1,560.19	IRWD Check	Reconciled
420906	26-Aug-21	PRAXAIR DISTRIBUTION INC	3,097.88	IRWD Check	Reconciled
420907	26-Aug-21	PRUDENTIAL OVERALL SUPPLY	68.96	IRWD Check	Reconciled
420908	26-Aug-21	QUINTANA, WATTS & HARTMANN, LLC	5,150.00	IRWD Check	Negotiable
420909	26-Aug-21	RAM AIR ENGINEERING INC	3,678.92	IRWD Check	Reconciled
420910	26-Aug-21	RED WING SHOE STORE	193.94	IRWD Check	Reconciled
420911	26-Aug-21	RENTOKIL NORTH AMERICA, INC	2,800.00	IRWD Check	Negotiable
420912	26-Aug-21	RICHARD C. SLADE & ASSOCIATES LLC	29,732.53	IRWD Check	Negotiable
420913	26-Aug-21	RLG ENTERPRISES, INC	655.81	IRWD Check	Reconciled
420914	26-Aug-21	ROCKWELL SOLUTIONS, INC.	18,900.26	IRWD Check	Negotiable
420915	26-Aug-21	RUBY CANYON ENVIRONMENTAL, INC.	4,545.72	IRWD Check	Negotiable
420916	26-Aug-21	SADDLEBACK CHURCH	3,417.55	IRWD Check	Negotiable
420917	26-Aug-21	SANTA ANA BLUE PRINT	1,216.03	IRWD Check	Reconciled
420918	26-Aug-21	SANTA MARGARITA FORD	204.47	IRWD Check	Reconciled
420919	26-Aug-21	SAUCEDA, KAYLA	7.57	IRWD Check	Negotiable
420920	26-Aug-21	SCHINDLER ELEVATOR CORPORATION	1,354.91	IRWD Check	Reconciled
420921	26-Aug-21	SERVERSUPPLY.COM INC	237.59	IRWD Check	Reconciled
420922	26-Aug-21	SHAMROCK SUPPLY CO INC	313.13	IRWD Check	Reconciled
420923	26-Aug-21	SOCAL HOSPITALITY LLC	1,048.77	IRWD Check	Negotiable
420924	26-Aug-21	SOHN, JINSUN	232.15	IRWD Check	Negotiable
420925	26-Aug-21	SOUTH COAST WATER DISTRICT	16,794.45	IRWD Check	Negotiable
420926	26-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	383,875.85	IRWD Check	Reconciled
420927	26-Aug-21	SOUTHERN CALIFORNIA EDISON COMPANY	11,350.00	IRWD Check	Negotiable
420928	26-Aug-21	SOUTHERN CALIFORNIA WATER COALITION	25,000.00	IRWD Check	Negotiable
420929	26-Aug-21	SOUTHSIDE TOWING	125	IRWD Check	Negotiable
420930	26-Aug-21	SPARKLETTES	131.59	IRWD Check	Negotiable
420931	26-Aug-21	STANTEC CONSULTING SERVICES INC.	4,627.00	IRWD Check	Reconciled
420932	26-Aug-21	STETSON ENGINEERS INC.	1,062.00	IRWD Check	Negotiable
420933	26-Aug-21	STOKES, DALTON	469.84	IRWD Check	Negotiable
420934	26-Aug-21	TAIT ENVIRONMENTAL SERVICES, INC.	1,095.00	IRWD Check	Reconciled
420935	26-Aug-21	THE CONVERSE PROFESSIONAL GROUP	1,542.50	IRWD Check	Reconciled
420936	26-Aug-21	THOMPSON & PHIPPS INC	6,229.39	IRWD Check	Reconciled

**IRVINE RANCH WATER DISTRICT
AP DISBURSEMENTS AND VOIDS FOR AUG 2021**

CHECK OR ELECTRONIC #	PAYMENT DATE	SUPPLIERS	PAYMENT AMOUNT	PAYMENT METHOD	STATUS
420937	26-Aug-21	TOTAL RESOURCE MANAGEMENT, INC	340	IRWD Check	Reconciled
420938	26-Aug-21	TOWNSEND, JULIE	26.88	IRWD Check	Negotiable
420939	26-Aug-21	TRUCPARCO	76.39	IRWD Check	Negotiable
420940	26-Aug-21	TUSTIN TOYOTA	12.31	IRWD Check	Reconciled
420941	26-Aug-21	UNIVAR SOLUTIONS USA INC.	7,440.00	IRWD Check	Reconciled
420942	26-Aug-21	US BANK NAT'L ASSOCIATION NORTH DAKOTA	38,484.98	IRWD Check	Reconciled
420943	26-Aug-21	VERIZON WIRELESS SERVICES LLC	2,609.48	IRWD Check	Reconciled
420944	26-Aug-21	VHG LABS, INC	122.85	IRWD Check	Reconciled
420945	26-Aug-21	WATER MANAGEMENT GROUP	480	IRWD Check	Negotiable
420946	26-Aug-21	WAXIE'S ENTERPRISES, INC	1,523.46	IRWD Check	Reconciled
420947	26-Aug-21	WECK LABORATORIES INC	136	IRWD Check	Negotiable
420948	26-Aug-21	WEST COAST SAFETY SUPPLY INC	18,333.69	IRWD Check	Reconciled
420949	26-Aug-21	WORKFORCE SAFETY LLC	3,000.00	IRWD Check	Negotiable
420950	26-Aug-21	ZEBRON CONTRACTING INC	2,900.00	IRWD Check	Reconciled
SUB-TOTAL CHECK DISBURSEMENTS			10,056,290.28		
14478	2-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	21,300.35	IRWD Wire	Negotiable
14479	2-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	2,853.57	IRWD Wire	Negotiable
14480	3-Aug-21	YORK INSURANCE SERVICES GROUP INC - CA	3,844.54	IRWD Wire	Negotiable
14481	4-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	1,509.60	IRWD Wire	Negotiable
14482	9-Aug-21	CALPERS	3,140.59	IRWD Wire	Negotiable
14483	9-Aug-21	CALPERS	557,682.21	IRWD Wire	Negotiable
14484	9-Aug-21	CALPERS	256,643.92	IRWD Wire	Negotiable
14485	9-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	2,663.89	IRWD Wire	Negotiable
14486	9-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	3,271.50	IRWD Wire	Negotiable
14487	10-Aug-21	YORK INSURANCE SERVICES GROUP INC - CA	10,723.45	IRWD Wire	Negotiable
14488	11-Aug-21	CALPERS	1,278.73	IRWD Wire	Negotiable
14489	12-Aug-21	WELLS FARGO BANK, N.A.	5,867.28	IRWD Wire	Negotiable
14490	12-Aug-21	GREAT-WEST LIFE & ANNUITY INSURANCE COMPANY	187,784.26	IRWD Wire	Negotiable
14491	12-Aug-21	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	2,227.47	IRWD Wire	Negotiable
14492	12-Aug-21	INTERNAL REVENUE SERVICE	246,501.76	IRWD Wire	Negotiable
14493	12-Aug-21	FRANCHISE TAX BOARD	77,775.33	IRWD Wire	Negotiable
14494	12-Aug-21	EMPLOYMENT DEVELOPMENT DEPARTMENT	19,326.95	IRWD Wire	Negotiable
14495	12-Aug-21	ZHOU, HUASSAN	70.29	IRWD Wire	Negotiable
14496	12-Aug-21	BANK OF NEW YORK MELLON TRUST COMPANY NA	3,408.62	IRWD Wire	Negotiable
14497	12-Aug-21	BANK OF AMERICA	1,330.78	IRWD Wire	Negotiable
14498	12-Aug-21	U.S. BANK NATIONAL ASSOCIATION	488.95	IRWD Wire	Negotiable
14499	12-Aug-21	U.S. BANK NATIONAL ASSOCIATION	224.14	IRWD Wire	Negotiable
14500	12-Aug-21	SUMITOMO MITSUI BANKING CORPORATION	400.56	IRWD Wire	Negotiable
14501	16-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	3,716.33	IRWD Wire	Negotiable
14502	16-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	2,247.07	IRWD Wire	Negotiable
14503	16-Aug-21	CALPERS	256,764.16	IRWD Wire	Negotiable
14504	16-Aug-21	CALPERS	468.72	IRWD Wire	Negotiable
14505	16-Aug-21	CALPERS	0.53	IRWD Wire	Negotiable
14506	17-Aug-21	YORK INSURANCE SERVICES GROUP INC - CA	4,429.50	IRWD Wire	Negotiable
14507	23-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	1,509.95	IRWD Wire	Negotiable
14508	23-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	2,932.28	IRWD Wire	Negotiable
14509	24-Aug-21	YORK INSURANCE SERVICES GROUP INC - CA	8,893.30	IRWD Wire	Negotiable
14510	25-Aug-21	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	1,897,831.66	IRWD Wire	Negotiable
14511	25-Aug-21	ORANGE COUNTY SANITATION DISTRICT	3,377,405.41	IRWD Wire	Negotiable
14512	26-Aug-21	INTERNAL REVENUE SERVICE	232,675.87	IRWD Wire	Negotiable
14513	26-Aug-21	FRANCHISE TAX BOARD	72,859.16	IRWD Wire	Negotiable
14514	26-Aug-21	EMPLOYMENT DEVELOPMENT DEPARTMENT	3,944.60	IRWD Wire	Negotiable
14515	26-Aug-21	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	2,227.47	IRWD Wire	Negotiable
14516	26-Aug-21	GREAT-WEST LIFE & ANNUITY INSURANCE COMPANY	175,300.91	IRWD Wire	Negotiable
14517	26-Aug-21	EMPLOYMENT DEVELOPMENT DEPARTMENT	18,727.37	IRWD Wire	Negotiable
14518	30-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	3,052.95	IRWD Wire	Negotiable
14519	30-Aug-21	CHARD SNYDER & ASSOCIATES, INC.	2,824.87	IRWD Wire	Negotiable
14520	30-Aug-21	CALPERS	255,972.58	IRWD Wire	Negotiable
14521	31-Aug-21	U.S. BANK NATIONAL ASSOCIATION	2,833,125.00	IRWD Wire	Negotiable
14522	31-Aug-21	YORK RISK SERVICES GROUP, INC.	13,979.41	IRWD Wire	Negotiable
14523	31-Aug-21	BANK OF NEW YORK MELLON TRUST COMPANY NA	34,904.37	IRWD Wire	Negotiable
SUB-TOTAL ELECTRONIC DISBURSEMENTS			10,616,112.21		
SUB-TOTAL AP CHECK AND ELECTRONIC DISBURSEMENTS			20,672,402.49		
SUB-TOTAL CHECK AND ELECTRONIC ISSUED AND VOIDED IN AUG 2021			28,734.95		
SUB-TOTAL CHECK AND ELECTRONIC ISSUED AND VOIDED IN AUG 2021			28,734.95		
TOTAL AP DISBURSEMENTS AND VOIDS FOR AUG 2021			20,643,667.54		

Exhibit "E"

MONTHLY SUMMARY OF PAYROLL ACH PAYMENTS

**August
2021**

	AMOUNT	VENDOR	PURPOSE
8/13/2021	1,122,481.61	BANK OF AMERICA	ACH Payments for Payroll
8/27/2021	1,093,541.09	BANK OF AMERICA	ACH Payments for Payroll
	<u><u>\$2,216,022.70</u></u>		

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Exhibit "F"

IRWD Gov Code 53065.5 Disclosure Report

Payment or Reimbursements for Individual charges of \$100 or more per transaction for services or product received
01-AUG-21 to 31-AUG-21

NAME	CHECK NO.	CHECK DATE	AMOUNT	ITEM DESCRIPTION	EXPENSE JUSTIFICATION
Beltran, Benjamin	420778	26-Aug-21	192.00	Membership Renewal	CWEA membership
Corey, Jo Ann	420779	26-Aug-21	189.62	Other(Misc)	Work-at-Home Office Supply (Printer Ink)
Jackson, Brad	420440	12-Aug-21	105.00	Certification Renewal	SWRCB Water Distribution Operator Grade IV
Karpan, Casey	420771	19-Aug-21	130.00	Certification Renewal	SWRCB Water Distribution Operator Grade IV Exam Fee
Karpan, Casey	420771	19-Aug-21	105.00	Certification Renewal	SWRCB Water Distribution Operator Grade IV
LaMar, Steven	420781	26-Aug-21	354.72	Lodging	Calif. Environmental Dialogue, Sacramento, CA - February 4, 2021.
Moeder, Jacob	420774	19-Aug-21	332.00	Membership Renewal	WEF Renewal
Nash, Joel	420775	19-Aug-21	180.00	Membership Renewal	Professional Engineer's license renewal
Perez, Cesar	420283	5-Aug-21	192.00	Membership Renewal	CWEA membership
Perez, Cesar	420283	5-Aug-21	101.00	Certification Renewal	CWEA Mechanical Technologist Grade III
Reynoso, Pio	420782	26-Aug-21	101.00	Certification Renewal	CWEA Mechanical Technologist Grade III
Ruiz, Ricky	420783	26-Aug-21	150.00	Certification Renewal	SWRCB Wastewater Treatment Grade III
Total Amount:			\$2,132.34		

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September 27, 2021
Prepared by: W. James / M. Cortez
Submitted by: K. Burton
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

RATTLESNAKE RESERVOIR VALVE ACTUATOR AND VALVE STEM REPLACEMENTS BID REJECTION

SUMMARY:

The Rattlesnake Reservoir Valve Actuator and Valve Stem Replacements project will rehabilitate the existing valve actuation system and replace three valve actuators for Rattlesnake Reservoir's outlet system. The only bid received at the bid opening on September 8, 2021, was from T.E. Roberts, Inc. in the amount of \$821,777, which was significantly greater than the engineer's estimate of \$363,000. Staff recommends the Board reject the bid for the Rattlesnake Reservoir Valve Actuator and Valve Stem Replacements and authorize staff to revise the bid documents and request bids for the replacement of the two currently non-functioning valve actuators.

BACKGROUND:

The Rattlesnake Reservoir Valve Actuator and Valve Stem Replacements project, designed by JIG Consultants, will replace three valve actuators (two of which are not functioning), replace all valve stems, rehabilitate or replace all stem supports, rebuild the existing valve operators, and replace the staff gauges for Rattlesnake Reservoir's outlet system. The current water level in the reservoir is low and the top and middle valves are exposed; the bottom valve is under water. Since the reservoir cannot be completely drained, divers will be required to install several improvements underwater at the bottom valve. JIG Consultants consulted with Inland Potable Services, Inc. (a diving contractor) during the design, which was completed in August 2021. The project was advertised for construction bidding to a select bidders list of 24 contractors. Staff conducted two mandatory pre-bid meetings, which were attended by four contractors and two diving subcontractors including Inland Potable Services. The bid opening occurred on September 8, 2021, and only one bid was received from T.E. Roberts, which is provided as Exhibit "A".

Bid Rejection:

T.E. Roberts' bid of \$821,777 is more than double the engineer's estimate of \$363,000. The work-by-diver cost of \$305,990 was much higher than anticipated. T.E. Roberts' diving subcontractor is Global Diving & Salvage. Inland Potable Services, who has worked on several previous IRWD reservoir projects, did not provide a bid either as a prime or subcontractor. The lack of competition is the likely cause for the high subcontractor cost. The difficulty of working under water, and the uncertain amount of sediment that would need to be removed around the valve actuators under water, may have also contributed to the higher cost.

Staff recommends the Board reject T.E. Roberts' bid. Staff will revise the bid documents to reflect replacement of the two non-functioning valve actuators at this time since the work can be

performed while the water level is low. Staff will then request bids from contractors on the select bidders list to provide a construction bid to complete this work. The actuators have already been procured by IRWD. Staff will evaluate the remaining items in the original scope of work and the interest of multiple diving and prime contractors to determine if the project will be re-bid next spring.

FISCAL IMPACTS:

Project 11566 is included in the FY 2021-22 Capital Budget and is not a flagged project. The existing capital budget and Expenditure Authorization are sufficient to fund construction of the project.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Sections 15301 and 15302. Section 15301 provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination and Section 15302 provides for the replacement or reconstruction of existing structures and facilities where the new structures will be located on the same site as the structure replaced. A Notice of Exemption for the project was filed with the County of Orange on August 23, 2021.

COMMITTEE STATUS:

This item was not reviewed by a Committee.

RECOMMENDATION:

THAT THE BOARD REJECT THE BID RECEIVED FOR THE RATTLESNAKE RESERVOIR VALVE ACTUATOR AND VALVE STEM REPLACEMENTS, PROJECT 11566, AND AUTHORIZE STAFF TO REVISE THE BID DOCUMENTS AND REQUEST BIDS FOR THE REPLACEMENT OF THE TWO CURRENTLY NON-FUNCTIONING VALVE ACTUATORS.

LIST OF EXHIBITS:

Exhibit "A" – Bid Results

EXHIBIT "A"

Bid Results

Bidder Details

Vendor Name T. E. Roberts, Inc.
Address 306 W. Katella Avenue, Unit B
Orange, California 92867
United States
Respondee Steve Miller
Respondee Title Estimator
Phone 714-669-0072
Email estimating@teroberts.com
Vendor Type CADIR
License # 603008
CADIR 1000000280

Bid Detail

Bid Format Electronic
Submitted 09/08/2021 12:52 PM (PDT)
Delivery Method
Bid Responsive
Bid Status Submitted
Confirmation # 265879

Respondee Comment

Buyer Comment

Attachments

File Title	File Name	File Type
TER Bid IRWD Rattlesnake Reservoir Valve Actuator and Valve Stem.pdf	TER Bid IRWD Rattlesnake Reservoir Valve Actuator and Valve Stem.pdf	Bid Form

Subcontractors

Showing 1 Subcontractor

Name & Address	Desc	License Num	CADIR	Amount	Type
Global Diving & Salvage 2880 Walnut Ave Signal Hill, California 90755	Diving Crew	806939	1000010707	\$305,990.00	

Line Items

Discount Terms No Discount

Item #	Item Code	Type	Item Description	UOM	QTY	Unit Price	Line Total	Response	Comment
BASE BID ITEMS							\$821,784.00		
1			Mobilization(s) and Demobilization(s)	LS	1	\$68,832.00	\$68,832.00	Yes	
2			Miscellaneous Site Demolition and Dewatering	LS	1	\$172,247.00	\$172,247.00	Yes	
3			Construction of Valve Stem Extensions and Appurtenances	LS	1	\$214,553.00	\$214,553.00	Yes	
4			Removal of Existing Valve Actuator and Installation of Owner Supplied Valve Actuator	EA	3	\$22,549.00	\$67,647.00	Yes	
5			Replacement of Existing 30-inch Blind Flange with 4-inch Air Vent Pipe Outlet	LS	1	\$15,214.00	\$15,214.00	Yes	
6			Modification or Replacement of Existing Pipe Supports and Stem Guides	LS	1	\$185,376.00	\$185,376.00	Yes	
7			Final Record Drawings	LS	1	\$3,000.00	\$3,000.00	Yes	
8			Alternative Bid - Replace Existing Steel Channels with Stainless Steel Channels	LS	1	\$94,915.00	\$94,915.00	Yes	
ADDITIVE AND DEDUCTIVE BID ITEMS							\$0.00		
9			ADDITION (+) OR DEDUCTION (-)	LS	1	\$0.00	\$0.00	Yes	

Line Item Subtotals

Section Title	Line Total
BASE BID ITEMS	\$821,784.00
ADDITIVE AND DEDUCTIVE BID ITEMS	\$0.00
Grand Total	\$821,784.00

September 27, 2021
Prepared by: R. Burk / M. Cortez
Submitted by: K. Burton
Approved by: Paul A. Cook *PAC*

CONSENT CALENDAR

MICHELSON WATER RECYCLING PLANT PRIMARY CLARIFIERS 1-5 COVERS
REPLACEMENT FINAL ACCEPTANCE

SUMMARY:

The Michelson Water Recycling Plant (MWRP) Primary Clarifiers 1-5 Covers Replacement project is complete. IRWD's contractor, GSE Construction Company, Inc., completed the required work. The project has received final inspection and acceptance of construction is recommended.

BACKGROUND:

In July 2018, one of the covers for Primary Clarifier 5 failed, causing an unsafe work environment. A fall arrest system was subsequently installed at Primary Clarifiers 1 through 5 to protect staff, and in October 2019, Carollo Engineers performed an onsite condition assessment of the covers and recommended replacement of the covers within 18 months. This project replaced the existing aluminum covers for Primary Clarifiers 1-5, the influent and effluent channels, and two junction boxes. In addition, structural concrete repairs were made to the influent and effluent channels, the Primary Sludge Pumps Gallery, and the top deck area. The top deck area was recoated, and the Primary Sludge Pumps Gallery was painted.

Carollo Engineers, Inc. completed design in August 2020, and GSE was awarded the construction contract on October 28, 2020. GSE mobilized in February 2021 and completed construction of all improvements on September 9, 2021.

Project Title:	MWRP Primary Clarifiers 1-5 Covers Replacement
Project No.:	11599
Design Engineer:	Carollo Engineers, Inc.
Construction Management by:	IRWD Staff
Contractor:	GSE Construction Company, Inc.
Original Contract Cost:	\$840,300
Final Contract Cost:	\$1,090,922
Original Contract Days:	275
Final Contract Days:	303
Final Change Order Approved On:	July 15, 2021

Five change orders were issued throughout construction. The majority of the change order items were added to the project at the direction of IRWD. As construction progressed and the existing coating was removed, additional cracks were located at the Primary Sludge Pumps Gallery and

top deck area. It was beneficial to add the concrete repair and additional coating work to the current construction project while the contractor was performing work at the site. The majority of the change order work was based upon unit pricing included in the contract bid, and the cost of the changes was fair and reasonable.

FISCAL IMPACTS:

Project 11599 is included in the FY 2021-22 Capital Budget. The existing budget is sufficient to fund the final payment for the project.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301, which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. A Notice of Exemption for the project was filed with the Orange County Clerk-Recorder on October 22, 2020.

COMMITTEE STATUS:

This item was not reviewed by a Committee.

RECOMMENDATION:

THAT THE BOARD ACCEPT CONSTRUCTION OF THE MICHELSON WATER RECYCLING PLANT PRIMARY CLARIFIERS 1-5 COVERS REPLACEMENT, PROJECT 11599, AUTHORIZE THE GENERAL MANAGER TO FILE A NOTICE OF COMPLETION, AND AUTHORIZE THE PAYMENT OF THE RETENTION 35 DAYS AFTER THE DATE OF RECORDING THE NOTICE OF COMPLETION.

LIST OF EXHIBITS:

Exhibit "A" – Construction Change Order Summary

EXHIBIT "A"

Michelson Water Recycling Plant Primary Clarifiers 1-5 Covers Replacement PR 11599 Construction Change Order Summary

Date: September 16, 2021
 Contractor: GSE Construction Company, Inc.
 Design Engineer: Carollo Engineers, Inc.

			Contract Amount						Contract Days				Original Completion Date:
			Original Contract Amount: \$840,300.00						Original Days: 275				7/30/2021
Change Order No.	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. Change Order Days	Revised Total Contract Days	Revised Completion Date
1	Approved by Executive Director of Technical Services Approved on 2/22/2021 <u>CR-1</u> : Additional 154 feet of crack repair is required in the pump gallery. Crack repair is priced at \$150/LF in the contract. <u>CR-1</u> : Additional 20 feet of spall repair is required in the pump gallery. Spall repair is priced at \$105/LF in the contract. <u>CR-1</u> : Additional 7 feet of rebar repair is required in the pump gallery. Rebar repair is priced at \$320/LF in the contract.	A A A	\$ 23,100.00 2,100.00 2,240.00	\$27,440.00	\$0.00	\$27,440.00	3.27%	\$867,740.00	0 0 0	0 0 0	0 0 0	275	7/30/2021
2	Approved by Executive Director of Technical Services Approved on 3/10/2021 <u>CR-2</u> : Additional 33 LF of crack repair is required in the pump gallery. Crack repair is priced at \$150/LF per Bid Line Item #4 in the contract. <u>CR-3</u> : Removal of existing conduit from the concrete ceiling of the pump gallery and additional spall repair. Limits of demolition include the 19 LF of conduit as it is currently exposed as well as 32 LF of unexposed conduit running through ceiling of the hallway in the pump gallery. <u>CR-4</u> : Additional 483 feet of structural crack repair utilizing the specified epoxy injection product at the Primary Clarifier Covers area. Crack repair is priced at \$150/LF per Bid Line Item #4 in the contract. <u>CR-4</u> : Additional 15 LF of concrete patching/spall repair to existing concrete curbs at the Primary Clarifier Covers area. Concrete repair is priced at \$70/LF per Bid Line Item #3.	A B A B	\$ 4,950.00 9,390.00 72,450.00 1,050.00	\$87,840.00	\$27,440.00	\$115,280.00	13.72%	\$955,580.00	0 0 0 0	0 0 0 0	0 0 0 0	275	7/30/2021
3	Approved by Executive Director of Technical Services Approved on 4/5/2021 <u>CR-5</u> : Additional 30 LF of crack repair is required at the Clarifier Cover area. Crack repair is priced at \$150/LF per Bid Line Item #4 in the contract. <u>CR-5</u> : Additional 8 LF of concrete patching/spall repair to existing concrete curbs at the Primary Clarifier Covers area at \$105/LF per Bid Item #5. <u>CR-6</u> : Repair concrete at the air plenum area that has delamination and separation from the surface it was once attached to. <u>CR-7</u> : Leak Repair at Pump Gallery Stairs <u>CR-9</u> : Removal and replacement of existing support shelf for covers in the influent channel that runs adjacent to the length of the stairway. <u>CR-10</u> : Additional 3,376 SF of coating in pump gallery at \$8/SF per Bid Line Item #7 in the contract.	A B B B A D	\$ 4,500.00 840.00 4,772.00 2,361.00 3,666.00 27,008.00	\$43,147.00	\$115,280.00	\$158,427.00	18.85%	\$998,727.00	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	275	7/30/2021

**Michelson Water Recycling Plant Primary Clarifiers 1-5 Covers Replacement
PR 11599
Construction Change Order Summary**

Date: September 16, 2021
Contractor: GSE Construction Company, Inc.
Design Engineer: Carollo Engineers, Inc.

			Contract Amount						Contract Days				Original Completion Date:
			Original Contract Amount: \$840,300.00						Original Days: 275				7/30/2021
Change Order No.	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. Change Order Days	Revised Total Contract Days	Revised Completion Date
4	Approved by Executive Director of Technical Services Approved on 4/15/2021 <u>CR-8</u> : Removal of existing protective coating at the Primary Clarifiers covers area. <u>CR-11</u> : Additional 135 LF of crack repair is required at the Clarifier Cover area. Crack repair is priced at \$150/LF per Bid Line Item #4 in the contract <u>CR-11</u> : Additional 3 LF of rebar repair work at the Clarifier Cover area. Rebar repair is priced at \$320/LF per Bid Line Item #6 in the contract. <u>CR-11</u> : Additional 5 LF of concrete patching/spall repair to existing concrete curbs at the Primary Clarifier Covers area at \$105/LF per Bid Item #5. <u>CR-11</u> : Non-Compensable Time Extension <u>CR-12</u> : Additional time and materials to feather edges of existing coating prior to application of the topcoat.	A A A B A B	\$ 18,009.00 20,250.00 960.00 525.00 - 1,960.00	\$41,704.00	\$158,427.00	\$200,131.00	23.82%	\$1,040,431.00	28 0 0 0 28 0	0	28	303	8/27/2021
5	Approved by Executive Director of Technical Services Approved on 7/15/2021 <u>CR-13</u> : Replace the coating at the Primary Clarifier top deck area and pump gallery entrance walls and stairs.	A	\$ 50,491.00	\$50,491.00	\$200,131.00	\$250,622.00	29.83%	\$1,090,922.00	0 0	28	28	303	8/27/2021

Category	Total Amount	% of Original Contract
A - Owner Directed Change	\$202,716.00	24.12%
B - Differing/Unknown Condition	\$20,898.00	2.49%
C - External Agency, Regulatory, and/or Permit Required Change	\$0.00	0.00%
D - Design Oversight	\$27,008.00	3.21%
TOTAL (A + B + C + D)	\$ 250,622.00	29.83%

September 27, 2021
Prepared by: J. Corey / K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook



CONSENT CALENDAR

ADDENDUM NO. 1 TO THE INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR ORANGE PARK ACRES WELL REPLACEMENT PROJECT

SUMMARY:

In February 2020, the State Water Resources Control Board's Division of Drinking Water (DDW) established drinking water notification and response levels for certain per- and poly-fluoroalkyl substances ("PFAS") that have contaminated the Orange County Groundwater Basin (Basin). When these contaminants were detected in groundwater at IRWD's Orange Park Acres Well-1 (Well OPA-1), the well was removed from service.

IRWD is developing a project to modify the existing Orange Park Acres Well Replacement Project by constructing a water treatment system, which will remove PFAS contaminants from water recovered at Well OPA-1. The modified project will allow IRWD to increase Well OPA-1 production from 900 acre-feet per year (AFY) to approximately 3,200 AFY to meet demands in IRWD's service area. Environmental review has been completed for the treatment facilities and increased pumping. Staff recommends the Board approve Addendum No. 1 to the Orange Park Acres Well Replacement Project Mitigated Negative Declaration (MND) and approve the proposed modifications.

BACKGROUND:

In June 2012, IRWD's Board of Directors approved the Orange Park Acres (OPA) Well Replacement Project Final MND, which replaced an existing groundwater well and ancillary equipment located at the former Orange Park Acres Mutual Water Company headquarters located at 678 N. Gravier Street in the city of Orange. The OPA Well Replacement Project was constructed and placed into operation in 2013.

In early 2020, DDW revised governing drinking water notification levels and response levels pertaining to certain PFAS contaminants. While PFAS has been detected in IRWD's Well OPA-1, this well had been removed from service in September 2018 – before the new (revised) DDW standards were promulgated. Staff intends for this well to remain out of service until the PFAS removal system is operational.

PFAS compounds have been detected in significant portions of the Orange County groundwater basin. Orange County Water District (OCWD) has responded by implementing treatment systems at all affected wells. IRWD is assisting OCWD with the design of PFAS treatment facilities at Well OPA-1 that would be constructed as a modification to the OPA Well Replacement Project. The project would also be modified to allow for increased pumping at the well. A location map of the OPA Well Replacement Project and proposed treatment project is provided as Exhibit "A".

Proposed PFAS Treatment Facilities:

The proposed treatment facilities would be constructed at IRWD's current Well OPA-1 site at 678 North Gravier Street and on an adjacent IRWD-owned property at 660 North Gravier Street, both located in the city of Orange. Specifically, the proposed modification would involve the construction of a new water treatment facility to remove PFAS concentrations down to non-detect levels to ensure compliance with the state and federal requirements. The OPA Well Replacement Project would be modified to include:

- Increased production for Well OPA-1 from 900 AFY to approximately 3,200 AFY;
- Allowing IRWD to serve groundwater produced at OPA Well-1 within its service area;
- Demolishing an existing vacant IRWD-owned single family residence located at 660 North Gravier Street;
- Constructing an on-site water treatment system, such as ion exchange resins, to remove PFAS from the groundwater produced at Well OPA-1; and
- Constructing a new 30-foot-wide access driveway on the east side of the facility facing North Gravier Street. The new driveway would provide direct truck access to and from the site for ion exchange resin changeouts and other various maintenance functions.

Findings of Addendum to Final MND:

The proposed modifications to the OPA Well Replacement Project, as described above, would not change the regulatory framework, impact discussions, mitigation measures or significant conclusions as described in the OPA Well Replacement Project Final MND. Environmental review has been completed for the proposed modifications to the OPA Well Replacement Project as described above and Addendum No. 1 to the Final MND has been prepared by consultants at Psomas. Based on the information and analysis in the proposed Addendum No. 1, the Determination section of the Addendum sets forth the proposed determination by IRWD that no conditions described in the California Environmental Quality Act (CEQA) calling for the preparation of a subsequent MND have occurred. A copy of Addendum No. 1 is provided as Exhibit "B".

FISCAL IMPACTS:

The cost for the environmental review of the proposed modifications to the OPA Well Replacement Project is included in project 11720 in the FY 2021-23 Capital Budget. The existing budget and Expenditure Authorizations are sufficient at this time.

ENVIRONMENTAL COMPLIANCE:

Section 15164 of the CEQA Guidelines provides for the preparation of an Addendum to a previously approved MND by a lead agency or a responsible agency if some changes or additions to the project are necessary but none of the conditions described in CEQA calling for preparation of a subsequent MND have occurred. Based on the information and analysis in the

proposed Addendum No. 1, the Determination section of the Addendum sets forth the proposed determination by IRWD that none of such conditions have occurred.

COMMITTEE STATUS:

This item was not reviewed by a Committee.

RECOMMENDATION:

THAT THE BOARD APPROVE THE PROPOSED ADDENDUM NO. 1 TO THE ORANGE PARK ACRES WELL REPLACEMENT PROJECT MITIGATED NEGATIVE DECLARATION, INCLUDING THE DETERMINATIONS SET FORTH IN ADDENDUM NO. 1, APPROVE THE PROPOSED PROJECT MODIFICATIONS AND AUTHORIZE STAFF TO POST AND FILE A NOTICE OF DETERMINATION.

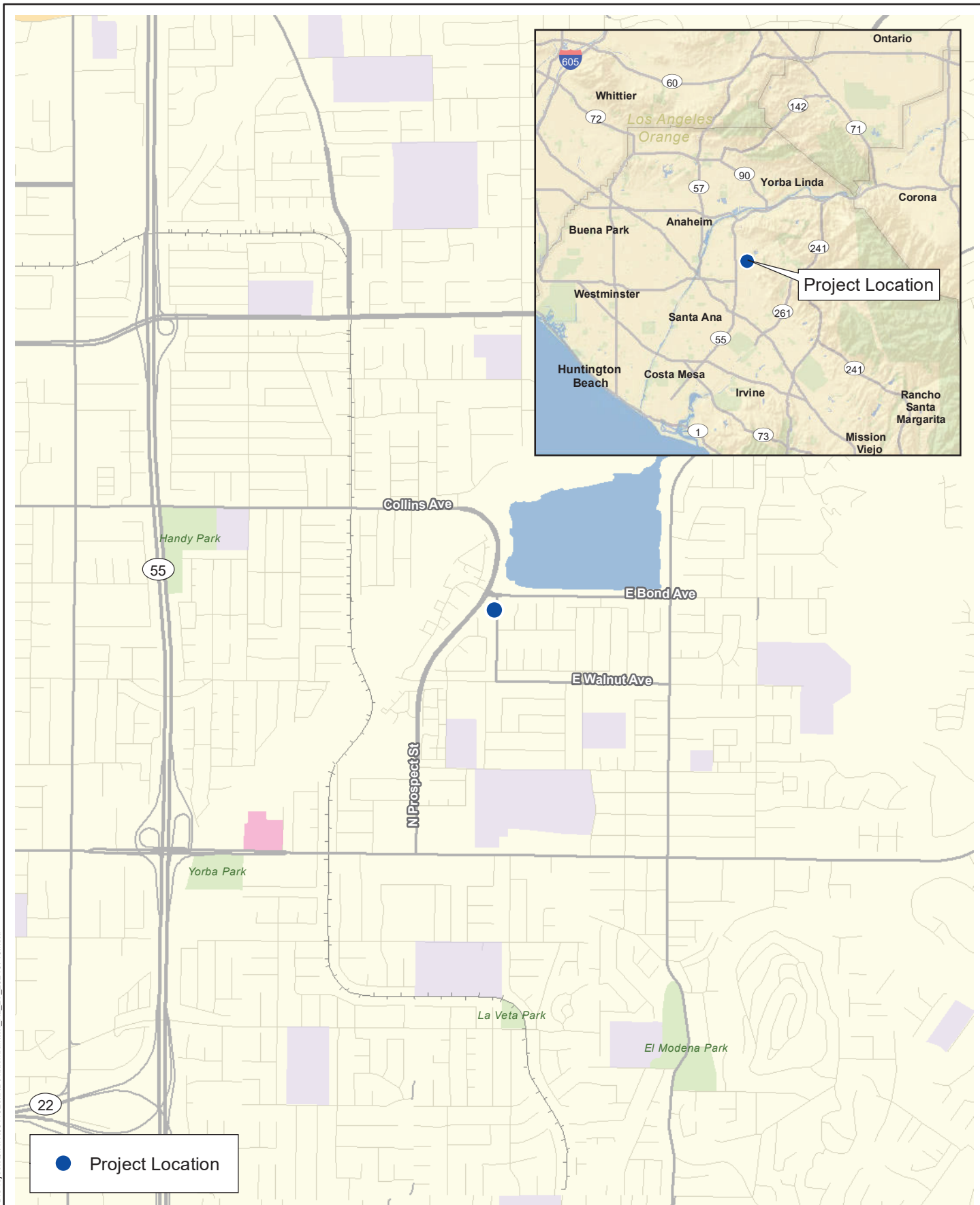
LIST OF EXHIBITS:

Exhibit "A" – Project Location Map

Exhibit "B" – Addendum No. 1 to the Orange Park Acres Well Replacement Final Initial Study/Mitigated Negative Declaration

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EXHIBIT "A"

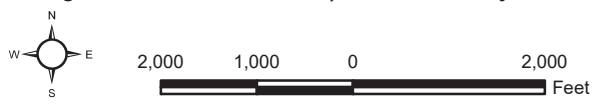


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Regional Location and Local Vicinity Map

Orange Park Acres Well Replacement Project

Exhibit 2-1



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Exhibit “B”

A copy of Exhibit “b” can be obtained from the IRWD District Secretary and is available for download at the following link:

https://www.irwd.com/images/pdf/doing-business/environmental-documents/env-documents-2021/Addendum_1_Orange_Park_Acres_Well_Replacement_FINAL.pdf

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September 27, 2021
Prepared by: K. Welch / E. Akiyoshi
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

VERIFICATION OF SUFFICIENT WATER SUPPLIES FOR CITY OF IRVINE PLANNING AREA 1 ORCHARD HILLS NEIGHBORHOOD 4

SUMMARY:

In August 2021, staff received a request from the City of Irvine to complete a Verification of Sufficient Water Supplies (WSV) for Planning Area 1 Orchard Hills Neighborhood 4. Staff has completed the WSV for the project and recommends the Board approve the verification.

BACKGROUND:

The City of Irvine proposes a project in Planning Area 1 called the Orchard Hills Neighborhood 4 (Vesting Tentative Tract Map 19020), which is located east of Portola Parkway, north of Jeffrey Road, south of State Route 261 and west of State Route 241. The proposed 257-acre development will include 520 residential units, parks, and agricultural use areas. Estimates show that approximately 224 acre-feet per year (AFY) of potable water demands and 313 AFY of non-potable demands are associated with the project. A location map of the Planning Area 1 Orchard Hills Neighborhood 4 is provided as Exhibit "A".

Previous Water Supply Assessments:

All of the demands within the proposed development have been included in a previously approved Water Supply Assessment (WSA). On August 23, 2004, the Board approved a WSA for the annexation of Planning Areas 1 and 2 and a portion of Planning Area 9 into the Northern Sphere Area. On August 15, 2017, the Board approved an Amended WSA for Planning Areas 12 and 40, which further revised development within the Northern Sphere Area. The most applicable WSA is the one approved for Planning Area 12 and Planning Area 40 which accommodates the proposed Orchard Hills Neighborhood 4 project.

Verification of Sufficient Water Supplies:

As required under SB 221, and as part of the tract map approval process for projects including 500 or more dwelling units, the City of Irvine has requested a WSV for Planning Area 1 Orchard Hills Neighborhood 4 (Vesting Tentative Tract Map 19020). Staff has prepared the WSV for the project, which is provided as Exhibit "B". The WSV for the requested tract map is based upon the previous WSAs that contain IRWD's determination that a sufficient water supply is available.

The completed WSV contains supplemental information available since the WSAs were approved, which includes current water supplies and demand projections. This supplemental information, together with the WSAs approved by IRWD, reflects IRWD's confirmation that the project water demands, together with demands from any other developments that have

previously received WSVs or will-serves, or other projects that have come to IRWD's attention either through developers or through the respective land use agency approval process are, in the aggregate, within the demands identified by those WSAs. In accordance with this procedure, the WSV is based on the respective WSAs and information contained in the WSV.

In addition to reliance on the WSAs, SB 221 requires that the WSV include several elements not covered or required in the WSAs. These elements are primarily covered in Sections 1(b)(ii), 1(b)(iii) and 1(b)(iv) of the "Detailed Verification" section of the WSV provided (Exhibit "B").

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

This study is exempt from the California Environmental Quality Act as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15262 which provides exemption for planning studies.

COMMITTEE STATUS:

Due to timing issues, this item was not reviewed by a Committee.

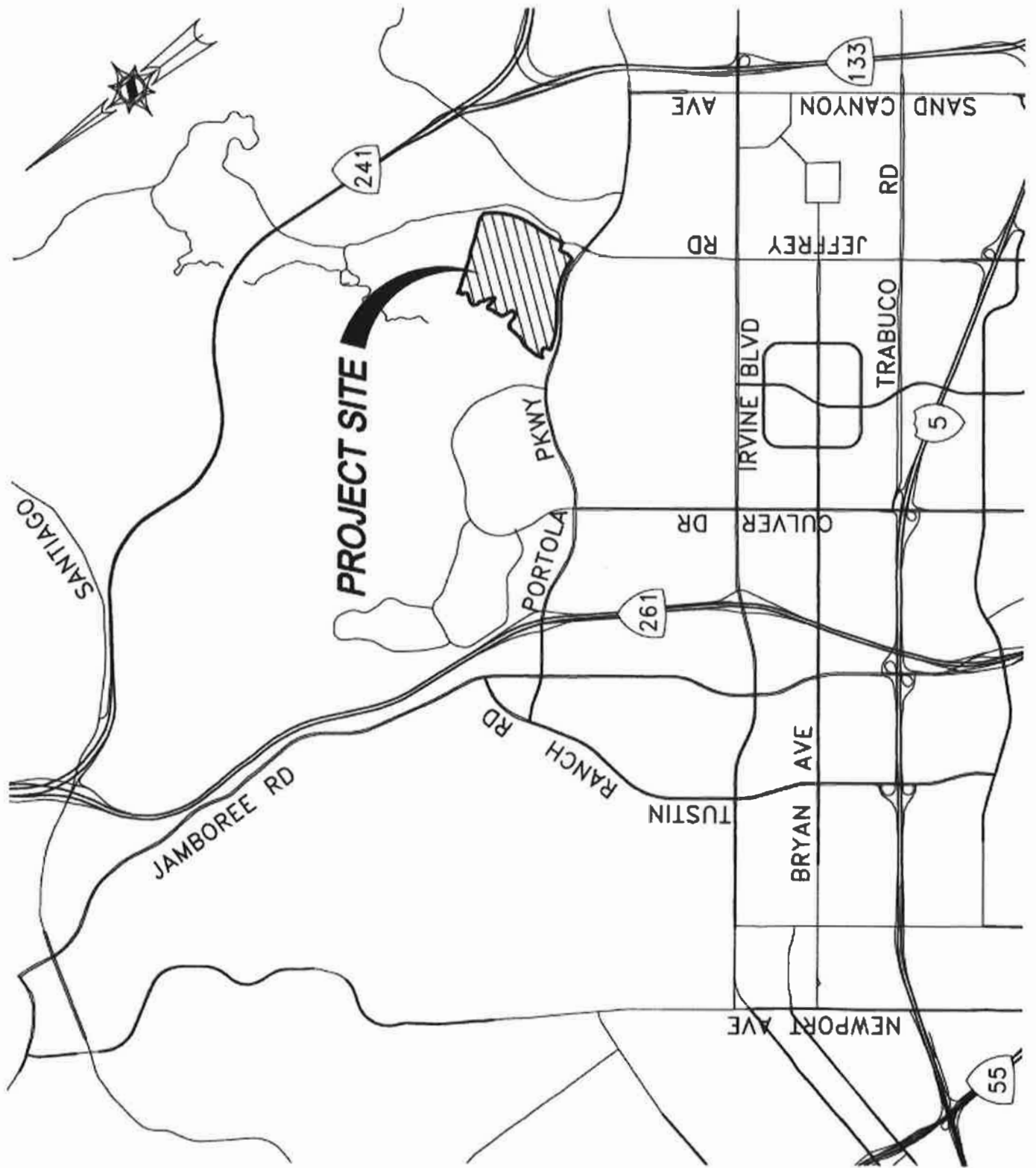
RECOMMENDATION:

THAT THE BOARD APPROVE THE VERIFICATION OF SUFFICIENT WATER SUPPLIES FOR PLANNING AREA 1 ORCHARD HILLS NEIGHBORHOOD 4 (VESTING TENTATIVE TRACT MAP 19020).

LIST OF EXHIBITS:

- Exhibit "A" – Location Map
- Exhibit "B" – Verification of Sufficient Supplies for Planning Area 1 Orchard Hills Neighborhood 4 (Vesting Tentative Tract Map 19020)

EXHIBIT "A"



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EXHIBIT "B"

IRVINE RANCH WATER DISTRICT VERIFICATION OF SUFFICIENT WATER SUPPLY Government Code §66473.7

To: (Lead Agency)
City of Irvine
One Civic Center Plaza
Irvine, CA 92623-9575

(Applicant)
The Irvine Company
550 Newport Center Drive
Newport Beach, CA 92660

Project Information

Project Title: PA 1 Orchard Hills Neighborhood 4 Vesting Tentative Tract Map 19020 (see Exhibit A)

Tentative Map Application No. 19020 Verification requested prior to tentative map application

Number of residential units in Project: 520

Uses in Project including non-residential (type, no. of employees, sq. ft. of floor space, acreage):
(see Exhibit B)

Acreage to be devoted to landscape (excluding individual residence yards): (see Exhibit B)

The projected water demand for the Project was included in IRWD's most recently adopted urban water management plan.

Water supply assessments that included the Project were adopted by IRWD on August 23, 2004: Planning Areas (PA) 1 & 2 and August 15, 2017: PA40/12 GPA, Zone Change. Copies of each assessment are attached hereto and incorporated herein by this reference (see Exhibit C).

Verification of Availability of Sufficient Water Supply

On _____, the Board of Directors of the Irvine Ranch Water District (IRWD) approved the within Verification and made the following determination regarding the above-described Project:

- A sufficient water supply is available for the Project.
The total water supplies available to IRWD during normal, single-dry and multiple-dry years within a 20-year projection will meet the projected water demand of the Project in addition to the demand of existing and other planned future uses, including, but not limited to, agricultural and manufacturing uses.
- A sufficient water supply is not available for the Project.

The foregoing determination is based on the following Water Supply Verification Information and supporting information in the records of IRWD.

Signature

Date

Title

WATER SUPPLY VERIFICATION INFORMATION

Purpose of Verification

Irvine Ranch Water District (“IRWD”) is the public water system that will supply water service (both potable and nonpotable) to the project identified on the cover page of this verification (the “Project”). As a public water system, IRWD is required by Section 66473.7 of the Government Code (the “Verification Law”) to provide the City with a verification of the availability of a sufficient water supply for non-exempt subdivisions of more than 500 residential units in conjunction with (or prior to) the City’s approval of a tentative map. The City has found the Project to include a subdivision that is subject to verification and not exempt under the Verification Law.

The Verification Law provides that a verification shall be supported by substantial evidence, which may include, but is not limited to, any of the following (i) IRWD’s most recently adopted urban water management plan; (ii) a water supply assessment previously adopted for the project under Water Code 10910, *et seq.*; or (iii) other analytical information substantially similar to the assessment of service reliability required by Water Code Section 10635 to be included in the urban water management plan. The Verification Law also specifies the elements to be contained in a verification with respect to (i) supplies relied upon that are not currently available; (ii) reasonably foreseeable impacts of the subdivision on the availability of water resources for agricultural and industrial uses within IRWD’s service area that are not currently receiving water; and (iii) rights to extract additional groundwater needed to supply the subdivision.

A verification does not entitle the Project to service or to any right, priority or allocation in any supply, capacity or facility, or affect IRWD’s obligation to provide service to its existing customers or any potential future customers. In order to receive service, the Project applicant is required to file a completed Application(s) for Service and Agreement with the Irvine Ranch Water District on IRWD’s forms, together with all fees and charges, plans and specifications, bonds and conveyance of necessary easements, and meet all other requirements as specified therein.

Methodology of Verification for Project With Prior Water Supply Assessment

As referenced on the cover page of this verification (the “Verification”), the Project was included within two previously completed assessments of water supply approved by IRWD. The Assessments contained IRWD’s determination that a sufficient water supply is available for the Project. As described in the Assessments, IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area. However, upon approval of each assessment containing a determination of a sufficient supply, IRWD attributes the demands identified by that assessment to IRWD’s existing and committed demand. Thereafter, each verification approved by IRWD for a subdivision covered by a previously approved assessment is based on the assessment, and reflects IRWD’s confirmation that the water demands of the subdivision, together with any other subdivisions or developments that have previously received verifications, will-serves or other approval by IRWD under the same assessment, are, in the aggregate, within the demand identified by that assessment. In accordance with that procedure, this Verification is based on the Assessments referenced on the cover page of this Verification. The most applicable Assessment is the one approved for Planning Area 12 and Planning Area 40 which accommodates the proposed Orchard Hills Neighborhood 4 project. The Assessments’ determination of sufficiency extends through 2025 for Planning Areas 1 & 2 and

through 2037 for Planning Area 12 and Planning Area 40 and is supplemented herein to include the full 20-year projection required in this Verification.

In addition, this Verification includes the elements required by the Verification Law that are not included within the required contents of assessments.

Supporting Documentation

As noted above, the principal supporting documentation for this Verification are the prior Assessments. Other documentation supports the Assessments and this Verification: IRWD prepares two planning documents to guide water supply decision-making. IRWD's principal planning document is IRWD's "Water Resources Master Plan" ("WRMP"). The WRMP is a comprehensive document compiling data and analyses that IRWD considers necessary for its planning needs. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute. The UWMP is based on the WRMP, but contains defined elements as listed in the statute (Water Code Section 10631, *et seq.*), and as a result, is more limited than the WRMP in the treatment of supply and demand issues. (The UWMP is required to be updated in years ending with "five" and "zero," and IRWD's most recent 2020 UWMP was adopted in June 2021.)

In addition to the Assessments, the most recent WRMP and the 2020 UWMP mentioned above, other supporting documentation referenced herein is found in Section 5 of this Verification. This includes the most recent Metropolitan Water District of Southern California's (MWD) Urban Water Management Plan (MWD 2020 UWMP) detailing an evaluation by MWD, the wholesaler of IRWD's imported water supplies, of the reliability of MWD's supplies, adopted in May 2021.

The Verification Law requires written proof of entitlement for "not currently available" (referred to herein as "under development") supplies. The Assessments include such information for both currently available and under development supplies. Due to the number of contracts, statutes and other documents comprising IRWD's written proof of entitlement to its water supplies, in lieu of attachment of such items, they are identified by title and summarized in Section 2 of the Assessments. Copies of the summarized items can be obtained from IRWD.

Sufficiency Calculation Methodology

The methodology for IRWD's comparison of its demands and supplies is set forth in the Assessments, in the section entitled "Assessment Methodology" and subsections thereof entitled "water use factors; dry-year increases;" "planning horizon;" "assessment of demands;" "assessment of supplies;" and "comparison of demand and supply."

Summary of Results of Demand-Supply Comparisons

The Assessments that include this Project contain Figures 1 through 8 comparing projected potable and nonpotable water supplies and demands which provide an overview of IRWD potable and nonpotable water supply capabilities. The Figures in the Assessment for Planning Areas 1 & 2 provide an overview of water supply capabilities through 2025, and the Figures in the Assessment for Planning Area 40 and Planning Area 12 provide an overview of water supply capabilities through 2037. Additionally, the Figures 1a, 2a and 3a in the Assessment for Planning Area 40 and Planning Area 12 compare projected potable water supplies and demands under a temporary MWD allocation scenario. All of the Figures have

been revised and supplemented in this Verification in order to reflect any updated information on supplies, as well as to update the 20-year planning horizon through 2041.

In addition, since the date of the approved Assessments that included this Project, IRWD has recalibrated and updated demand projections based on water use and development phasing.

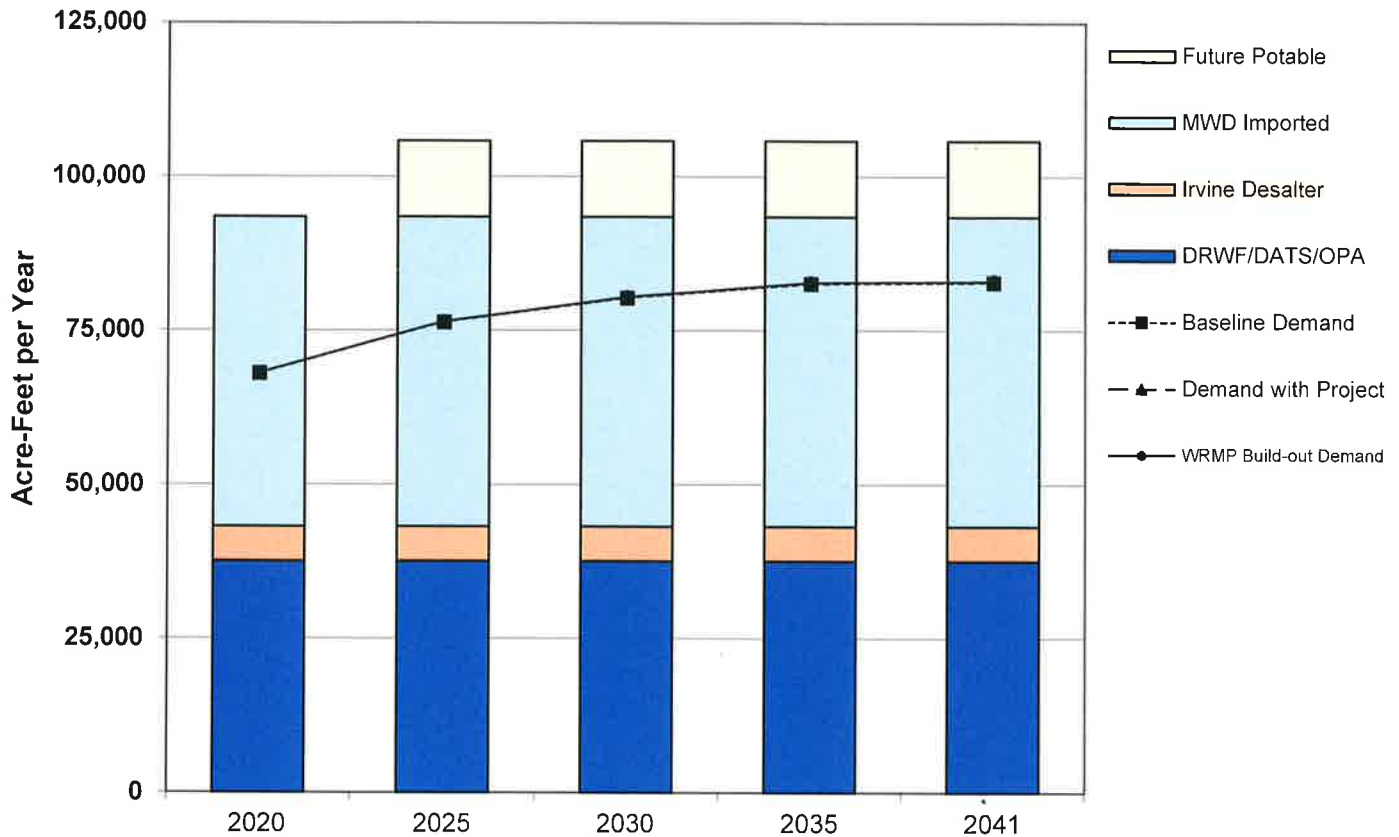
Detailed Verification

1. Determination of sufficiency of water supply

(a) Supply and demand comparison

Comparisons of IRWD's average annual and peak (maximum day) demands and supplies, under *baseline* (existing and committed demand, without the Project), *with-project* (baseline plus Project), and *full build-out* development projections, are shown in the following Figures 1-4 (potable water), Figures 5-8 (nonpotable water) and Figures 1a, 2a, and 3a (short term MWD allocation potable water).

**Figure 1
IRWD Normal-Year Supply & Demand - Potable Water**



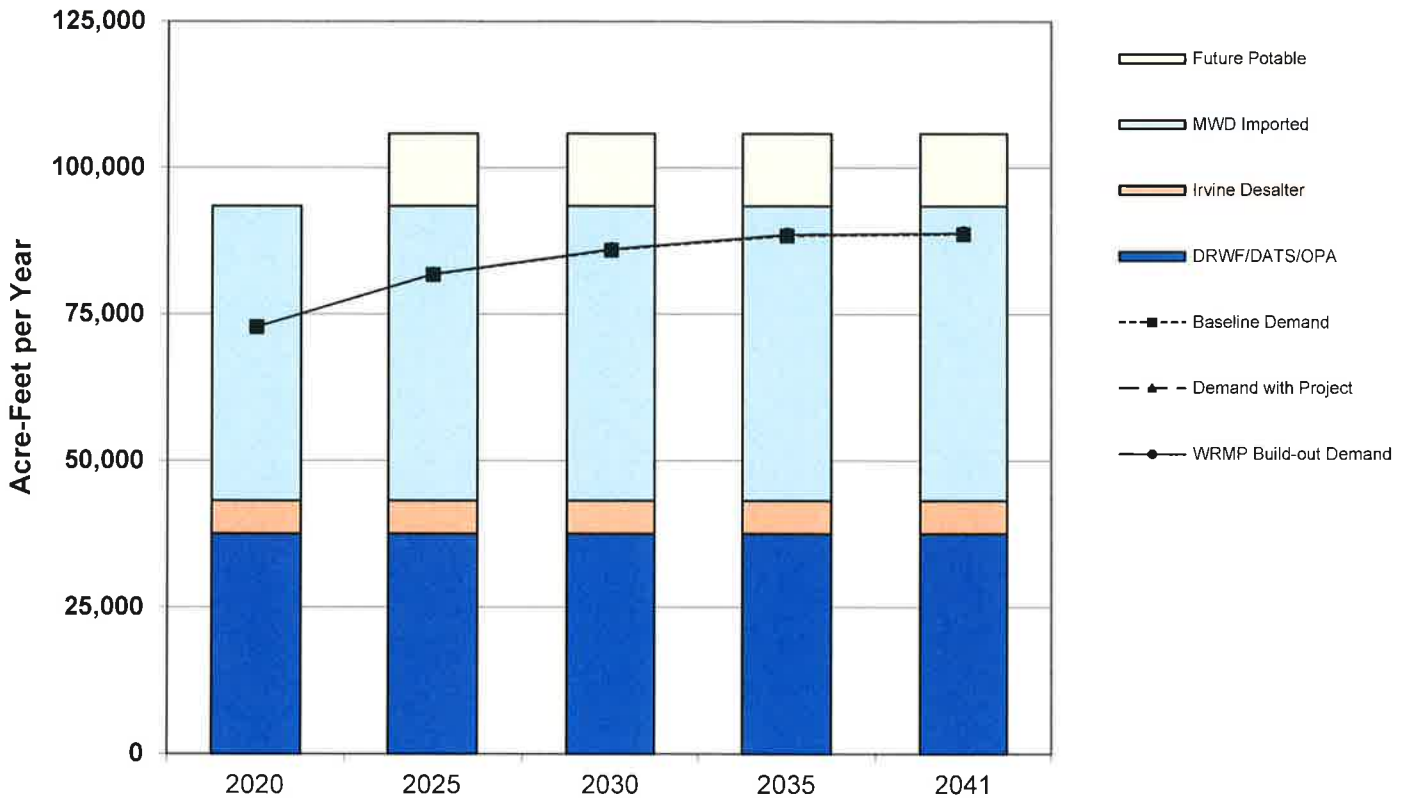
(in acre-feet per year)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	50,275	50,275	50,275	50,275	50,275
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	3,800	3,800	3,800	3,800	3,800
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	103,554	115,907	115,907	115,907	115,907
Baseline Demand	68,071	76,385	80,322	82,635	82,884
Demand with Project	68,092	76,440	80,411	82,759	83,008
WRMP Build-out Demand	68,092	76,440	80,411	82,759	83,008
Reserve Supply with Project	35,463	39,467	35,495	33,148	32,899

Notes: By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

Since 2017, Baker Water Treatment Plant is supplied untreated imported water and native water from Irvine Lake.

**Figure 2
IRWD Single Dry-Year Supply & Demand - Potable Water**



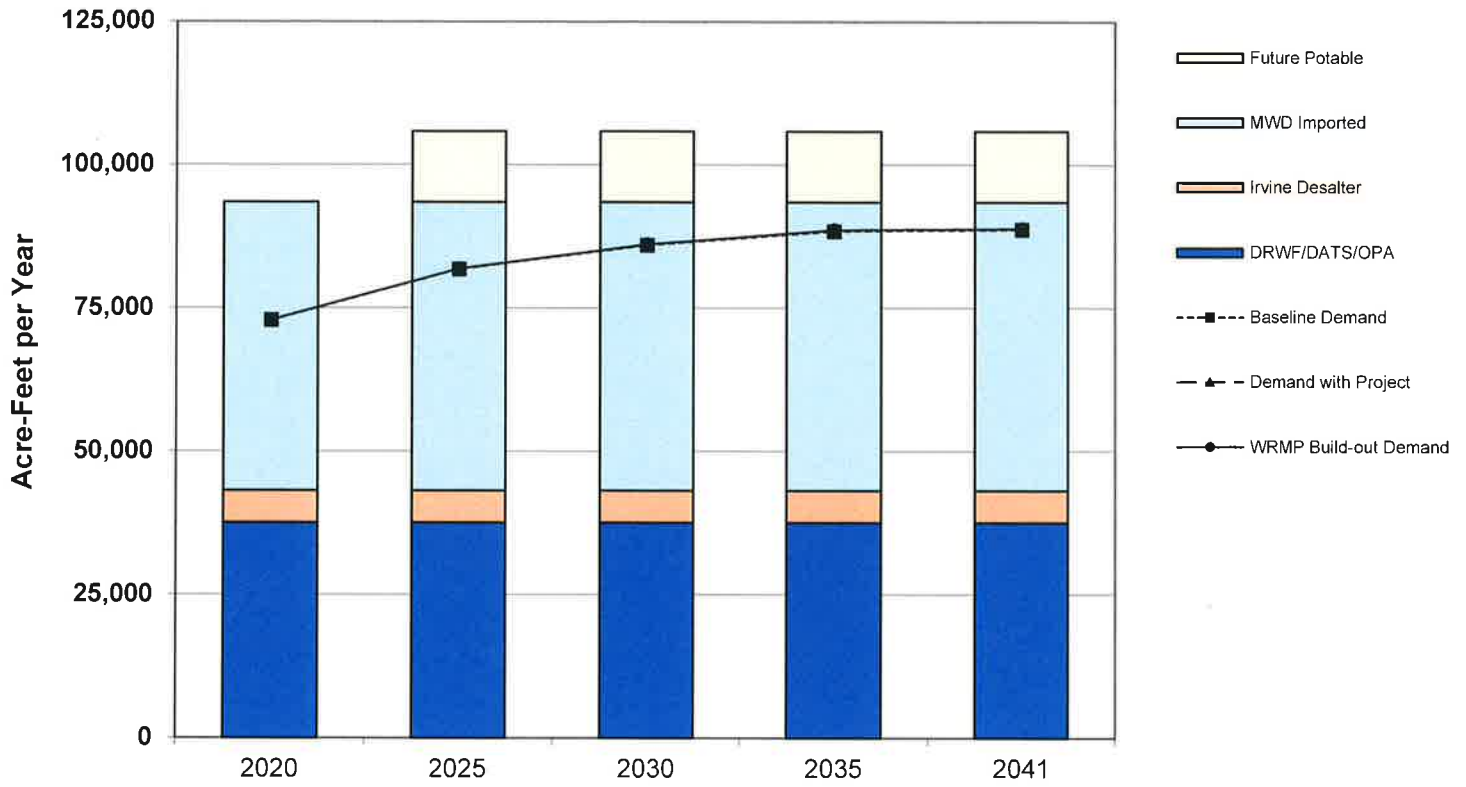
(in acre-feet per year)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	50,275	50,275	50,275	50,275	50,275
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	100,754	113,107	113,107	113,107	113,107
Baseline Demand	72,836	81,732	85,944	88,420	88,685
Demand with Project	72,858	81,791	86,040	88,552	88,818
WRMP Build-out Demand	72,858	81,791	86,040	88,552	88,818
Reserve Supply with Project	27,896	31,316	27,067	24,554	24,288

Notes: Supplies identical to Normal-Year based on Metropolitan's Urban Water Management Plan and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

Since 2017, Baker Water Treatment Plant is supplied untreated imported water and native water from Irvine Lake.

**Figure 3
IRWD Multiple Dry-Year Supply & Demand - Potable Water**



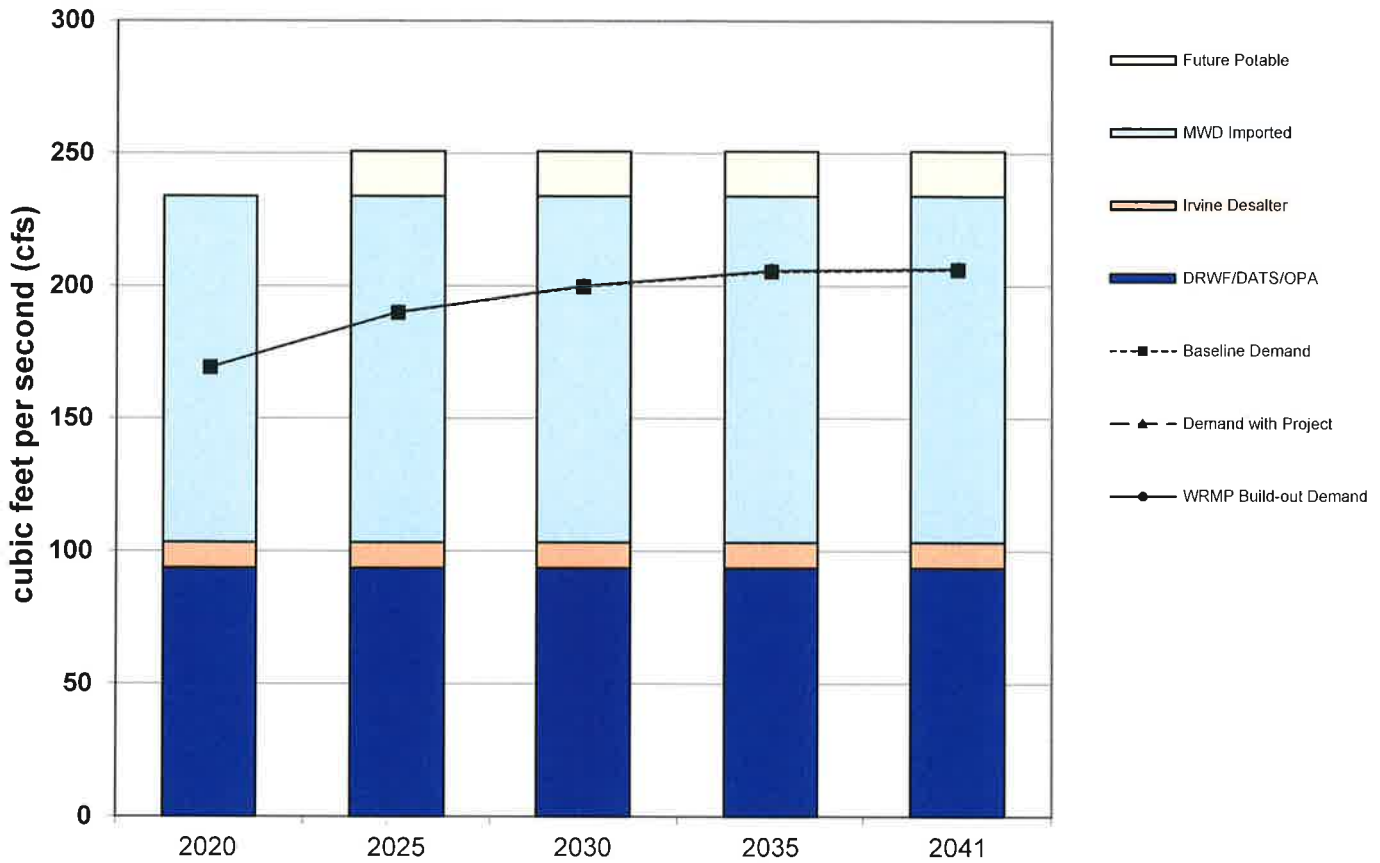
(in acre-feet per year)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Bake)	50,275	50,275	50,275	50,275	50,275
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	100,754	113,107	113,107	113,107	113,107
Baseline Demand	72,836	81,732	85,944	88,420	88,685
Demand with Project	72,858	81,791	86,040	88,552	88,818
WRMP Build-out Demand	72,858	81,791	86,040	88,552	88,818
Reserve Supply with Project	27,896	31,316	27,067	24,554	24,288

Notes: Supplies identical to Normal-Year based on Metropolitan's Urban Water Management Plan and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

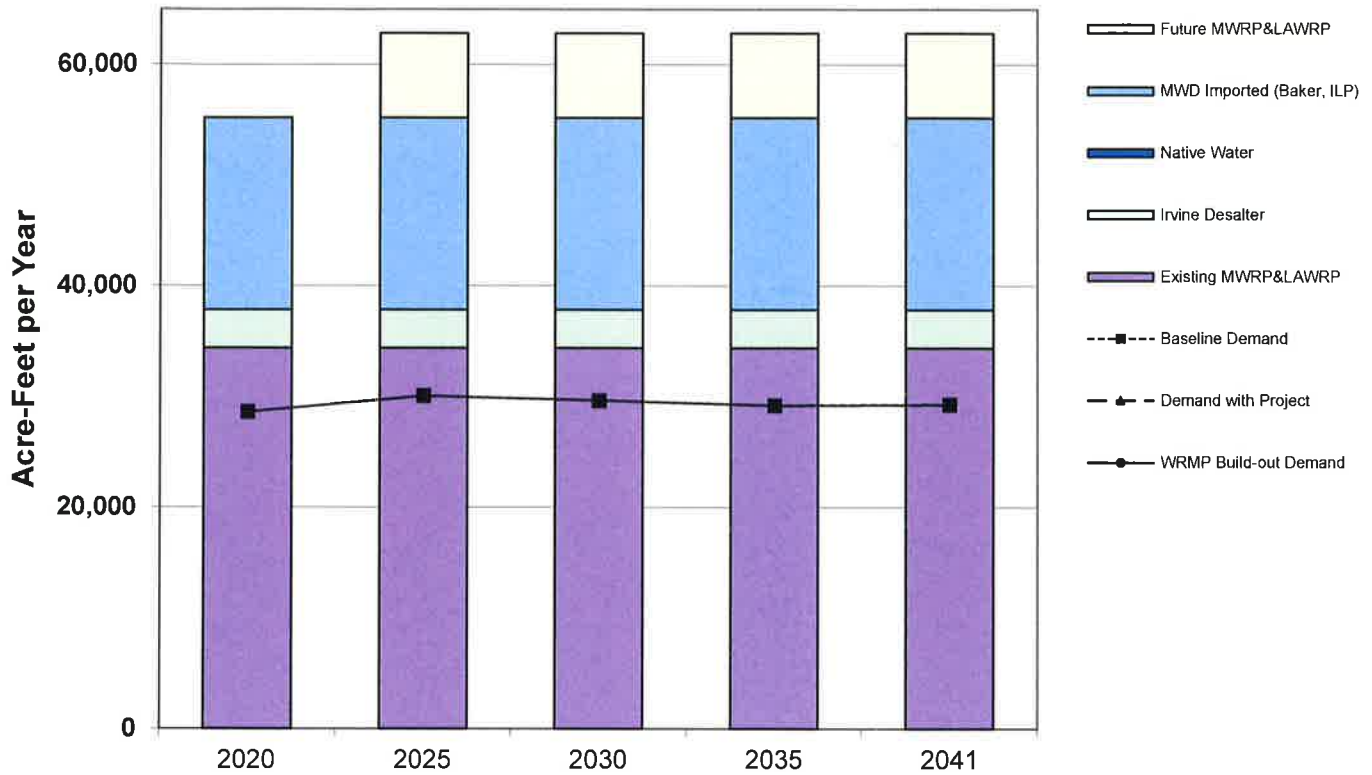
Since 2017, Baker Water Treatment Plant is supplied untreated imported water and native water from Irvine Lake.

**Figure 4
IRWD Maximum-Day Supply & Demand - Potable Water**



(in cfs)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	130.4	130.4	130.4	130.4	130.4
DRWF/DATS/OPA	93.7	93.7	93.7	93.7	93.7
Irvine Desalter	9.7	9.7	9.7	9.7	9.7
Wells 21 & 22	8.6	8.6	8.6	8.6	8.6
Baker Water Treatment Plant (native portion)	5.2	5.2	5.2	5.2	5.2
Supplies Under Development					
Future Potable	-	17.0	17.0	17.0	17.0
Maximum Supply Capability	247.6	264.6	264.6	264.6	264.6
Baseline Demand	169.2	189.9	199.7	205.4	206.1
Demand with Project	169.3	190.0	199.9	205.8	206.4
WRMP Build-out Demand	169.3	190.0	199.9	205.8	206.4
Reserve Supply with Project	78.3	74.5	64.7	58.8	58.2

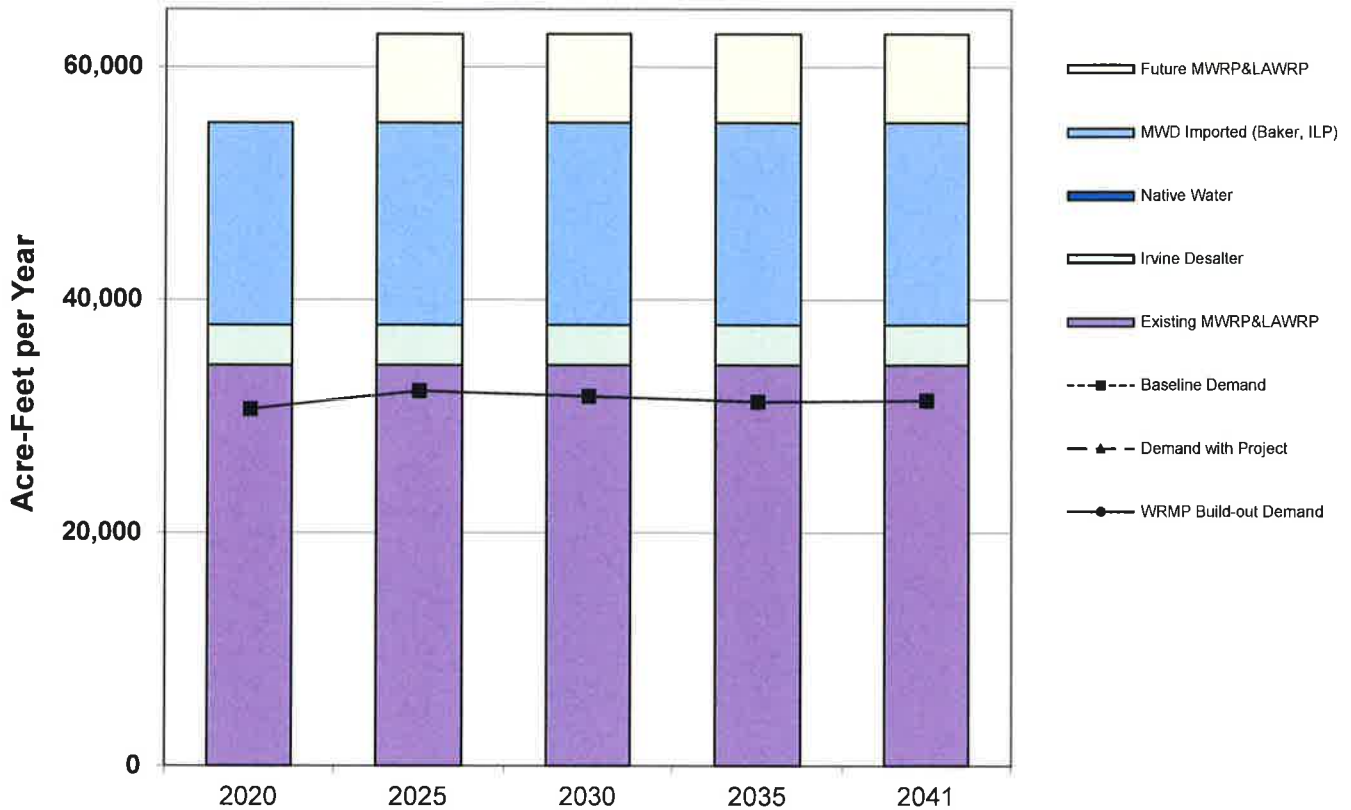
**Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2020	2025	2030	2035	2041
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	28,627	30,080	29,648	29,216	29,305
Demand with Project	28,624	30,071	29,634	29,196	29,284
WRMP Build-out Demand	28,624	30,071	29,648	29,196	29,284
Reserve Supply with Project	26,573	32,749	33,172	33,624	33,536

Note: Downward trend reflects reduction in agricultural use over time.
 After 2016, native water is treated to potable through the Baker Water Treatment Plant.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

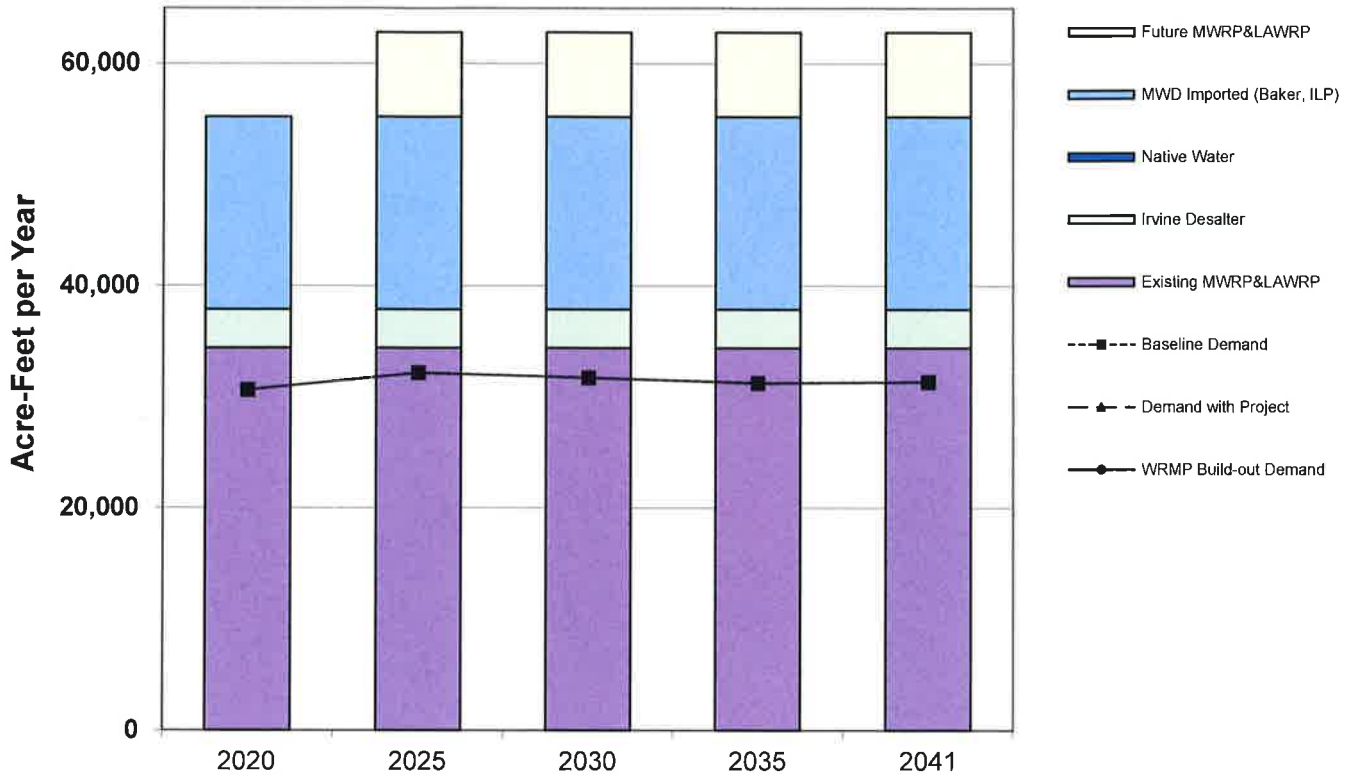
**Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2020	2025	2030	2035	2041
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	30,631	32,185	31,723	31,262	31,356
Demand with Project	30,628	32,176	31,708	31,240	31,334
WRMP Build-out Demand	30,628	32,176	31,723	31,240	31,334
Reserve Supply with Project	24,569	30,644	31,112	31,580	31,486

Note: Downward trend reflects reduction in agricultural use over time.
 After 2016, native water is treated to potable through the Baker Water Treatment Plant.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

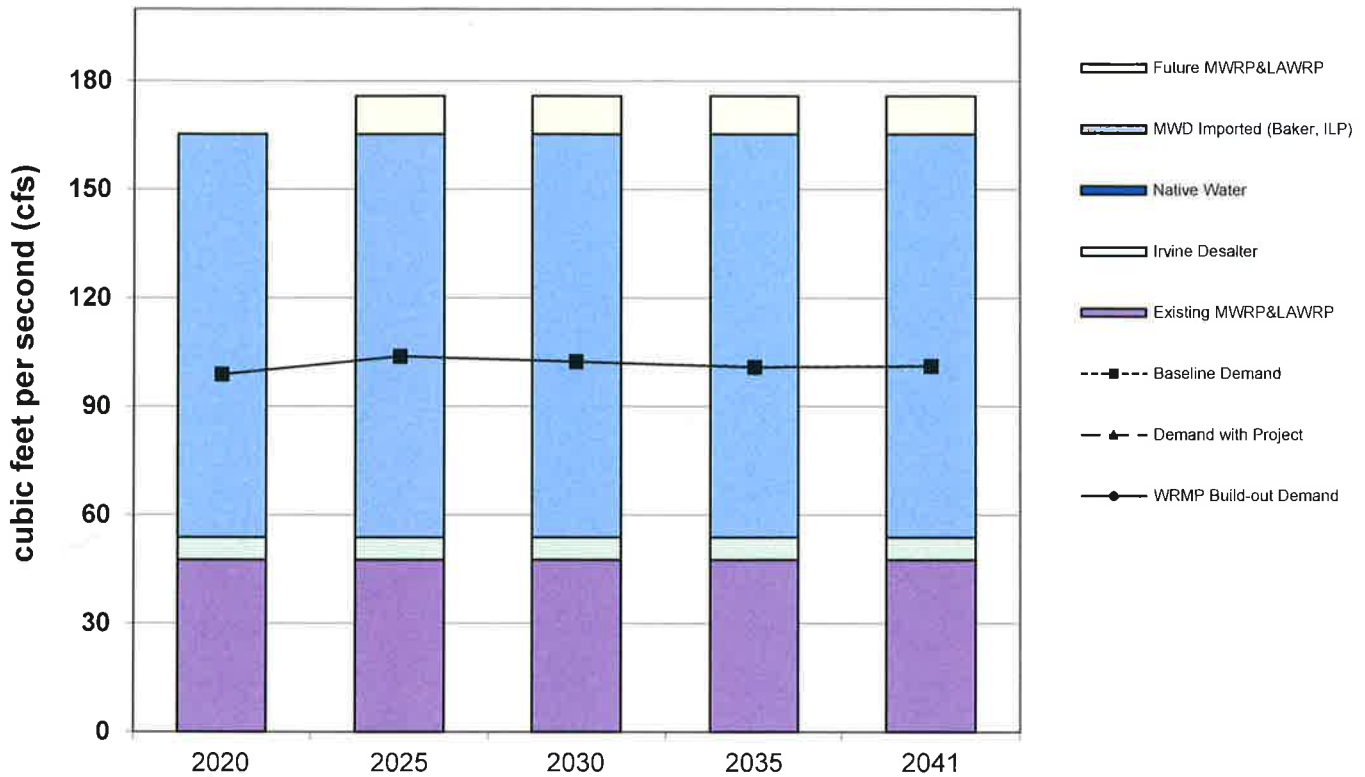
Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water



(in acre-feet per year)	2020	2025	2030	2035	2041
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	30,631	32,185	31,723	31,262	31,356
Demand with Project	30,628	32,176	31,708	31,240	31,334
WRMP Build-out Demand	30,628	32,176	31,723	31,240	31,334
Reserve Supply with Project	24,569	30,644	31,112	31,580	31,486

Note: Downward trend reflects reduction in agricultural use over time.
 After 2016, native water is treated to potable through the Baker Water Treatment Plant.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

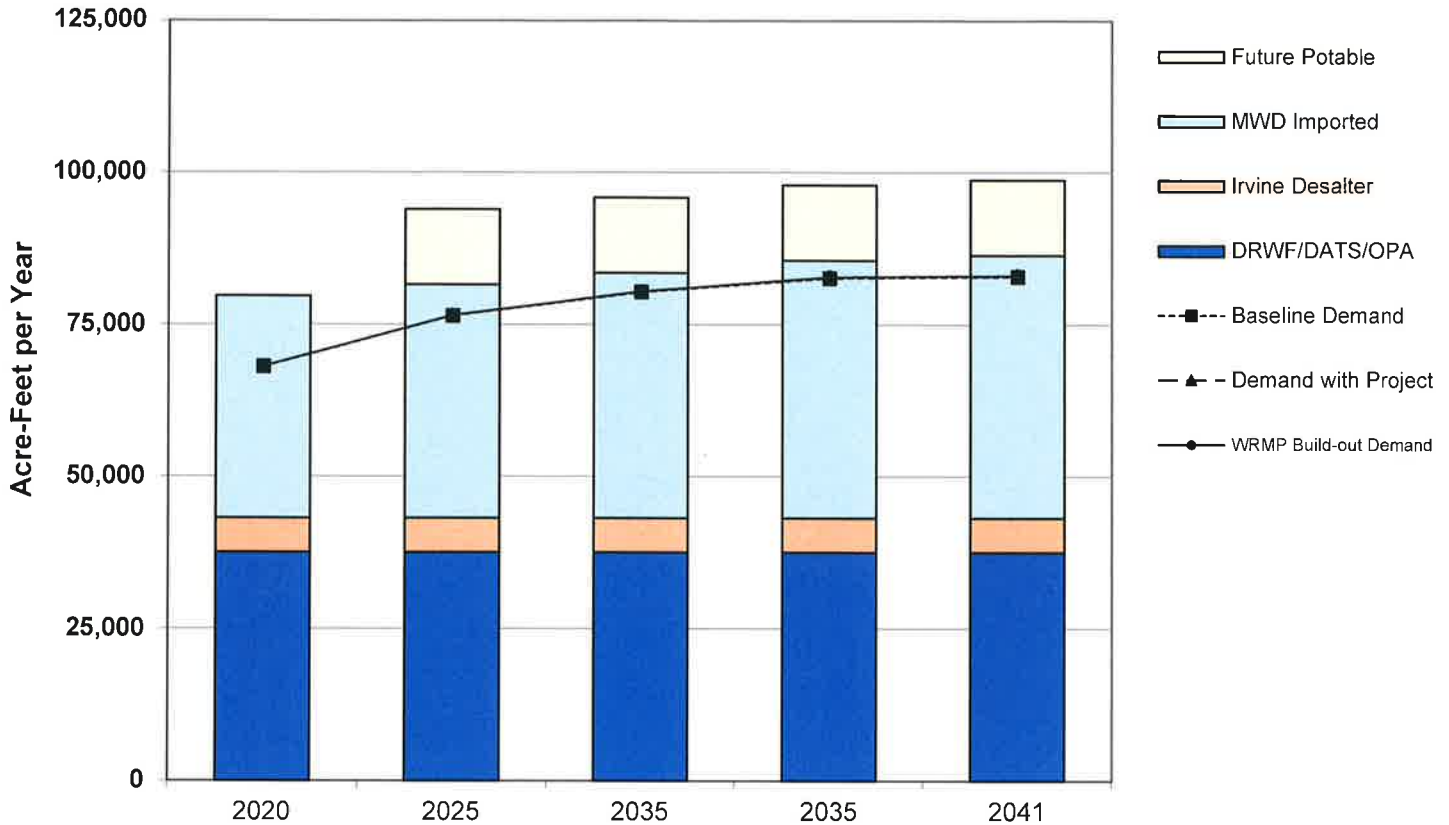
**Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water**



(in cfs)	2020	2025	2030	2035	2041
Current Nonpotable Supplies					
Existing MWRP&LAWRP	47.6	47.6	47.6	47.6	47.6
Future MWRP&LAWRP	-	10.5	10.5	10.5	10.5
MWD Imported (Baker, ILP)	111.5	111.5	111.5	111.5	111.5
Irvine Desalter	6.2	6.2	6.2	6.2	6.2
Native Water	-	-	-	-	-
Maximum Supply Capability	165.3	175.8	175.8	175.8	175.8
Baseline Demand	98.9	103.9	102.4	100.9	101.2
Demand with Project	98.8	103.8	102.3	100.8	101.1
WRMP Build-out Demand	98.8	103.8	102.4	100.8	101.1
Reserve Supply with Project	66.5	72.0	73.5	75.0	74.7

Note: Downward trend reflects reduction in agricultural use over time.
After 2016, native water is treated to potable through the Baker Water Treatment Plant.

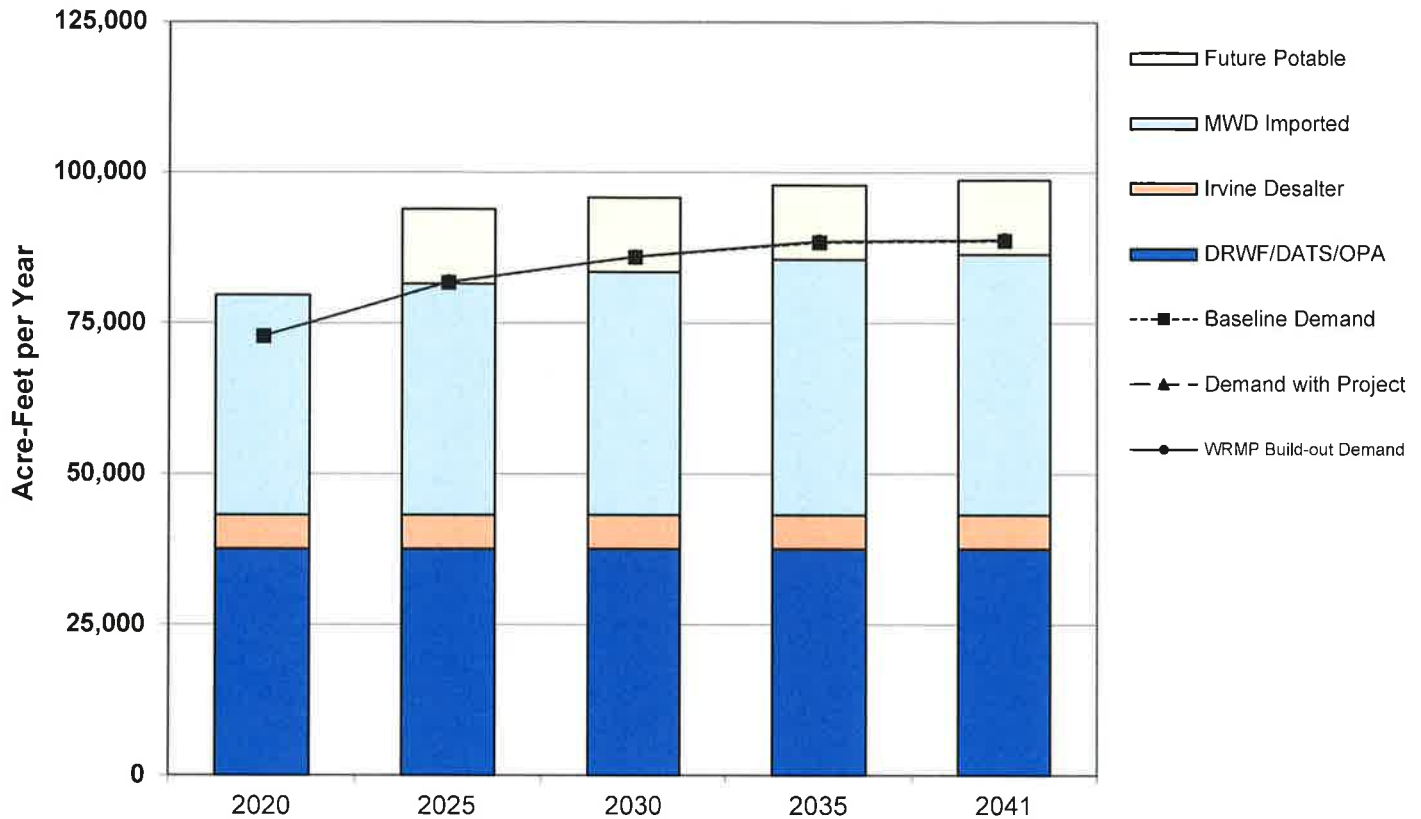
Figure 1a
IRWD Normal-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2020	2025	2035	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	36,500	38,362	40,319	42,375	43,227
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	3,800	3,800	3,800	3,800	3,800
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	89,779	103,994	105,951	108,007	108,859
Baseline Demand	68,071	76,385	80,322	82,635	82,884
Demand with Project	68,092	76,440	80,411	82,759	83,008
WRMP Build-out Demand	68,092	76,440	80,411	82,759	83,009
Reserve Supply with Project	21,688	27,554	25,540	25,248	25,851

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

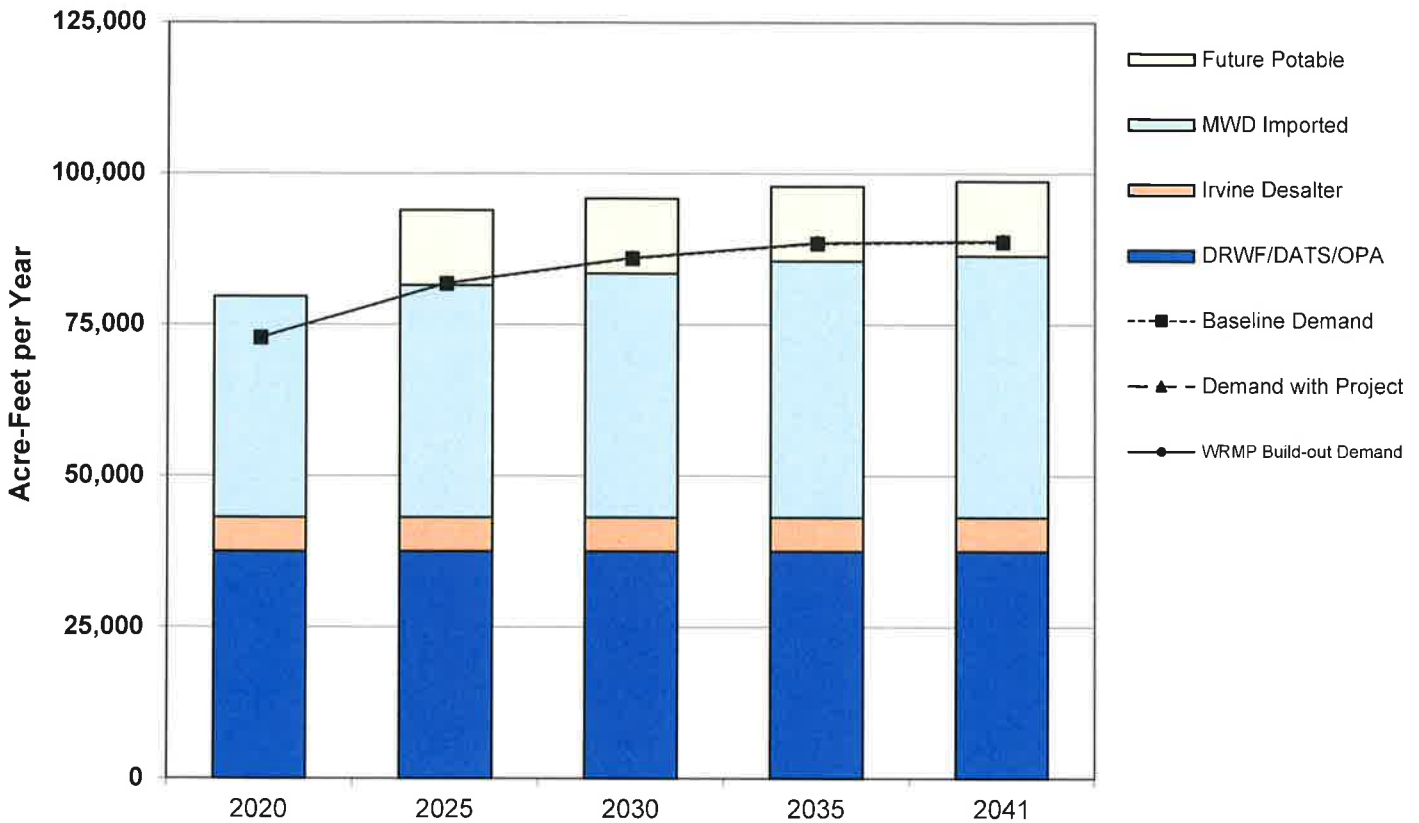
Figure 2a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	36,500	38,362	40,319	42,375	43,227
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	86,979	101,194	103,151	105,207	106,059
Baseline Demand	72,836	81,732	85,944	88,420	88,685
Demand with Project	72,858	81,791	86,040	88,552	88,818
WRMP Build-out Demand	72,858	81,791	86,040	88,552	88,819
Reserve Supply with Project	14,122	19,403	17,111	16,655	17,241

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

Figure 3a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2020	2025	2030	2035	2041
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	36,500	38,362	40,319	42,375	43,227
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	12,352	12,352	12,352	12,352
Maximum Supply Capability	86,979	101,194	103,151	105,207	106,059
Baseline Demand	72,836	81,732	85,944	88,420	88,685
Demand with Project	72,858	81,791	86,040	88,552	88,818
WRMP Build-out Demand	72,858	81,791	86,040	88,552	88,818
Reserve Supply with Project	14,122	19,403	17,111	16,655	17,241

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

Existing sources of identified water supply for the proposed project: IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area, as updated in the following table:

	Max Day (cfs)	Avg. Annual (AFY)	Annual by Category (AFY)
Current Supplies			
Potable - Imported ¹⁰			
East Orange County Feeder No. 2	41.4	18,746	1
Allen-McColloch Pipeline*	64.7	29,296	1
Orange County Feeder	18.0	8,150	1
	124.1	56,192	56,192
Potable - Treated Surface			
Baker Treatment Plant (Imported) ¹⁰	6.3	4,554	6
Baker Treatment Plant (Native)	5.2	3,800	6
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	2
OPA Well	1.4	914	
Deep Aquifer Treatment System-DATS	12.3	8,618	2
Wells 21 & 22	8.6	6,329	2
Irvine Desalter	9.7	5,618	3
Total Potable Current Supplies	247.6		114,025
Nonpotable - Recycled Water			
MWRP (25.2 mgd)	39.1	28,228	4
LAWRP (5.5 mgd)	8.5	6,161	4
Future MWRP & LAWRP	10.6	7,623	5
			42,012
Nonpotable - Imported ¹⁰			
Baker Aqueduct	40.2	11,651	6
Irvine Lake Pipeline	65.0	9,000	7
	105.2	20,651	20,651
Nonpotable - Groundwater			
Irvine Desalter-Nonpotable	6.2	3,461	8
Nonpotable Native			
Irvine Lake (see Baker Treatment Plant above)	4.2	3,048	6,9
Total Nonpotable Current Supplies (Excludes Native)	169.6		66,124
Total Combined Current Supplies	417.2		180,149
Supplies Under Development			
Potable Supplies			
Future Groundwater Production Facilities	17.0	12,352	12,352
Total Under Development	17.0	12,352	12,352
Total Supplies			
Potable Supplies	264.6		126,377
Nonpotable Supplies	169.6		66,124
Total Supplies (Current and Under Development)	434.2		192,502

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.6 (see Assessment PA 12/40 Footnote 4, page 24). Max Day is equivalent to Treatment Plant Production

2 Contract amount - See Assessments Potable Supply-Groundwater(iii).

3 Contract amount - See Assessments Potable Supply-Groundwater (iv) and (v). Maximum day well capacity is compatible with contract amount.

4 MWRP 28.0 mgd treatment capacity (28,228 AFY RW production) with 90% plant efficiency (25.2 mgd) and LAWRP permitted 5.5 mgd tertiary treatment capacity (6,161 AFY)

5 Future estimated MWRP & LAWRP recycled water production. Includes biosolids and expansion to 33 mgd

6 Since 2017, Baker Water Treatment Plant (WTP) treats imported and native water. Baker Aqueduct capacity has been allocated to Baker WTP participants and IRWD owns 46.50 cfs in Baker Aqueduct, of which, 10.5 cfs is for for potable treatment. IRWD has 36 cfs remaining capacity for non-potable uses. The nonpotable average use is based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 2.5 (see Assessment PA 12/40 Footnote 8, page 27).

7 Based on IRWD's proportion of Irvine Lake imported water storage; Actual ILP capacity would allow the use of additional imported water from MWD through the Santiago Lateral.

8 Contract amount - See Assessments Nonpotable Supply-Groundwater (i) and (ii). Maximum day well capacity (cfs) is compatible with contract amount.

9 Based on 70+ years historical average of Santiago Creek Inflow into Irvine Lake. Since 2020, native water is treated through Baker WTP.

10 Supplies in this table are total and are not adjusted to account for any reductions in imported water.

*64.7 cfs is current assigned capacity; based on increased peak flow, IRWD can purchase 10 cfs more (see page 25 (b)(1)(iii))

(b) Factors considered in determining the sufficiency of the water supply:

(i) The availability of water supplies over a historical record of at least 20 years.

Source	1990	1995	2000	2005	2010	2015	2020
Potable – imported	44,401	28,397	36,777	19,306	19,306	12,790	15,904
Potable – groundwater	10,215	20,020	20,919	37,160	37,160	46,770	42,374
Nonpotable - recycled	11,589	10,518	14,630	15,296	15,296	22,866	26,412
Nonpotable - imported	24,899	2,333	16,343	5,304	5,304	4,063	1,528
Nonpotable – groundwater	816	1,834	2,890	2,285	2,285	2,826	4,795
Nonpotable – native	2,778	5,980	4,949	7,251	7,251	89,315	1,682
Total	94,699	69,082	96,508	86,602	86,602	12,790	92,695

See also the information provided in Assessments, Section 1, incorporated herein by reference.

(ii) The applicability of a water shortage contingency analysis prepared pursuant to Water Code Section 10632 that includes actions to be undertaken by IRWD in response to water supply shortages.

The supply and demand comparisons incorporated from the Assessments into this Verification (see 1(a)) do not reflect the implementation of water shortage emergency measures. In February 2009, IRWD updated Section 15 of its Rules and Regulations – Water Conservation and Water Supply Shortage Program and also updated its Water Shortage Contingency Plan, which is a supporting document for Section 15. IRWD adopted an updated Water Shortage Contingency Plan on June 28, 2021 pursuant to Water Code Section 10632. As stated in IRWD’s Water Shortage Contingency Plan, use of local supplies, storage and other supply augmentation measures can mitigate shortages, and be used as necessary and appropriate during declared shortage levels. However, in order to be conservative, IRWD has not reduced its single-dry or multiple-dry year demand projections or increased its single-dry or multiple-dry year supply projections in the Assessments or Verification to account for any water savings that could be achieved by these measures.

(iii) Reduction by IRWD in water supply allocated to a specific water use sector, pursuant to a resolution, ordinance or contract uses.

The supply and demand comparisons incorporated from the Assessments into this Verification (see 1(a)) do not reflect any allocated reductions by IRWD. As noted under the preceding item (ii), IRWD’s water shortage contingency plan and Rules and Regulations provide for voluntary and mandatory water conservation measures that could be invoked in declared water shortage emergencies. These include reductions to certain water uses. However, in order to be conservative, IRWD has not reduced its single-dry or multiple-dry year demand projections or increased its single-dry or multiple-dry year supply projections in the Assessments or Verification to account for water savings that could be achieved by any allocated reductions.

With respect to items (ii) and (iii) above, it is noted that MWD has in effect a management plan for dealing with periodic surplus and shortage conditions, known as Metropolitan Report No. 1150, *Water Surplus and Drought Management Plan*, and as also

described in the 2020 MWD UWMP. MWD's demand projections account for the effects of long-term conservation best management practices.

(iv) The amount of water that IRWD can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state and local water initiatives such as CALFED and Colorado River tentative agreements, based on the inclusion of information with respect to such supplies in Section 2, below.

Local. IRWD directly relies (for a portion of its full build-out annual demand in single and multiple dry-year projections) on the following under development supplies (see 1(a), above): the Irvine Wells (see the Assessments, Section 2(b)(1)(vi) – “POTABLE SUPPLY – GROUNDWATER”). In addition to Orange County Water District (OCWD) reports listed in the Assessment Reference List, OCWD has also prepared a Long Term Facilities Plan (“LTFP”) which provides updated information and was received by the OCWD Board in July 2009 and updated in 2014. The LTFP Chapter 3 describes the efforts being undertaken by OCWD to eliminate long-term overdraft in the Basin. OCWD has an optimal basin management target of 100,000 acre-feet of accumulated overdraft which provides sufficient storage space to accommodate increased supplies from one wet year while also provides enough water in storage to offset decreased supplies during a two- to three year drought. (Source: “Evaluation of Orange County Groundwater Basin Storage and Operational Strategy”, as referenced in *2019-2020 Engineer’s Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District*).

With the implementation of OCWD's preferred projects, the Basin yield in the year 2030 would be up to 500,000 AF. The amount that can be produced will be a function of which projects will be implemented by OCWD and how much increased recharge capacity is created by those projects, total demands by all producers, and the resulting Basin Production Percentage (“BPP”) that OCWD sets based on these factors.

IRWD's own recycled water expansion program is also shown as currently available in addition to its currently available recycled water supply from its own existing recycling program. The recycled water supplies are discussed in Section 2 below (see the Assessments, Section 1 – Figures 5, 6, 7 and 8 (supplies denominated “MWRP” and “LAWRP”) and Section 2(a), and Section 2(b)(1) - “NONPOTABLE SUPPLY – RECLAIMED”). Under the recently completed MWRP Phase II Capacity Expansion Project, IRWD increased its tertiary treatment capacity on the existing MWRP site to produce sufficient recycled water to meet the projected demand through the year 2040. Additional recycling capacity will augment local nonpotable supplies and improve reliability.

As noted in the Assessments, IRWD's demand projections reflect the effect of IRWD's water conservation pricing and other conservation practices; in particular, IRWD's water use factors used to derive its demand projections are based on average water use and incorporate the effect of IRWD's tiered-rate conservation pricing and its other long-term water conservation programs. System losses at a rate of approximately 5% are built into the water use factors. As discussed above, IRWD's supply and demand projections do not take into account water savings that could be achieved by water shortage emergency measures.

Imported. MWD, the supplier of IRWD's imported supplies, relies upon several of the listed projects and programs. MWD supports and provides financial incentives to water

reclamation, groundwater recovery, water conservation, ocean desalination and other local resource development programs. MWD calculates its demand forecast by first estimating total retail demand for the region and then factoring in impacts of conservation. Next, it derives projections of local supplies using data on current and expected local supply programs and Integrated Resource Planning (IRP) Local Resource Program Target. The difference between the resulting local demands is the expected regional demand on MWD. These estimates of demands on MWD were developed for average years, a single dry year, and five years of consecutive drought. (2020 MWD UWMP). In the MWD 2020 UWMP, MWD states that it has supply and storage capabilities sufficient to meet projected demands from 2025 through 2045 under a normal year, a single dry year, and five consecutive drought year conditions. See MWD 2020 UWMP Section 2.3 Water Reliability Assessment.

In January 2016, MWD adopted its 2015 IRP Update. In 2021, MWD is completing an update to this planning document. In the 2015 IRP Update, MWD continued its adaptive management strategy and integrated future supply actions to improve the viability of potential contingency resources as needed, and to position the region to effectively implement these resources in a timely manner.

2. Required information concerning *under-development* supplies

(a) Written contracts or other proof of valid rights to the identified supplies

See the Assessments, Section 2(b)(1), incorporated herein by reference. See also MWD's 2020 UWMP, Appendix A.3 Justifications for Supply Projections with respect to written contracts and other proof related to MWD's supplies.

(b) Adopted capital outlay program to finance delivery of the supplies

See the Assessments, Section 2(b)(2), incorporated herein by reference. With respect to future groundwater wells (PR No. 11829, 11828), IRWD adopted its fiscal year 2021-22 and fiscal year 2022-23 capital budget on April 26, 2021 (Resolution No. 2021-5), budgeting portions of the funds for such projects. (A copy is available from IRWD on request.) IRWD has approximately \$585.5 million (water) and \$711.1 million (wastewater) of unissued, voter-approved bond authorization. See also MWD's 2020 UWMP, Section 3 and Appendix A.3 Justifications for Supply Projections with respect to capital outlay programs related to MWD's supplies.

(c) Federal, state and local permits to construct delivery infrastructure

See the Assessments, Section 2(b)(3), incorporated herein by reference. See also MWD's 2020 UWMP, Section 3 and Appendix A.3 Justifications for Supply Projections with respect to permits related to MWD's supplies.

(d) Regulatory approvals for conveyance or delivery of the supplies

See the Assessments, Section 2(b)(4), incorporated herein by reference. See also MWD's 2020 UWMP, Appendix A.3 Justifications for Supply Projections with respect to regulatory approvals related to MWD's supplies.

3. Foreseeable impacts of the Project on the availability of water for agricultural and industrial uses in IRWD’s service area not currently receiving water

Based on city planning and other information known to IRWD, there are no agricultural or industrial uses in IRWD’s service area that are not within either existing and committed demand or future demand, both of which are included within the supply and demand comparison and determination of sufficiency (see 1(a)).

4. Information concerning the right to extract additional groundwater included in the supply identified for the Project:

Where the water supply for the Project includes groundwater, the verification is required to include an evaluation of the extent to which IRWD or the landowner has the right to extract the additional groundwater needed to supply the Project. See the Assessments, Section 2(b)(1), “POTABLE SUPPLY – GROUNDWATER” and “NONPOTABLE SUPPLY – GROUNDWATER,” and Section 4, incorporated herein by reference.

The following information is added:

Sustainable Groundwater Management Act. Pursuant to the Sustainable Groundwater Management Act (“SGMA”), the California Department of Water Resources (DWR) has designated the Orange County groundwater basin, Basin 8-1 or Coastal Basin, as a medium priority basin for purposes of groundwater management. The SGMA specifically calls for OCWD, which regulates the Orange County groundwater basin, to serve as the groundwater sustainability agency or “GSA”. The SGMA allows Special Act Districts created by statute, such as OCWD, to prepare and submit an alternative to a Groundwater Sustainability Plan (“GSP”) that is “functionally equivalent” to a GSP. Basin 8-1 includes the OCWD service area and several fringe areas outside of OCWD that are within the Basin 8-1 boundary. Per the requirements of SGMA, an Alternative Plan must encompass the entire groundwater basin as defined by DWR. On January 1, 2017, OCWD and the overlying agencies within Basin 8-1, including IRWD, jointly prepared and submitted an alternative plan in compliance with SGMA (Basin 8-1 Alternative). The DWR has determined that the Alternative Plan for Basin 8-1 or Coastal Basin satisfies the objectives of the SGMA and considers it approved. The GSAs with approved Alternative Plans are required to submit annual reports and to resubmit an updated Alternative Plan every five years. OCWD and the overlying agencies, including IRWD, jointly complete and submit annual reports on the Basin 8-1 Alternative to the DWR by April 1 of each year. The first five-year update to the Basin 8-1 Alternative is currently being completed by OCWD and the overlying agencies.

5. References

Water Resources Master Plan, Irvine Ranch Water District, March, 2002 (supplemented January, 2004)

2020 Urban Water Management Plan, Irvine Ranch Water District, June, 2021

Section 15 of the Rules and Regulations – Water Conservation and Water Supply Shortage Program, Irvine Ranch Water District, February, 2009

Water Shortage Contingency Plan, Irvine Ranch Water District, June, 2021

Integrated Water Resources Plan Update, Metropolitan Water District of Southern California, July, 2004

2015 Integrated Resources Plan Update, Metropolitan Water District of Southern California, January, 2016

2020 Urban Water Management Plan, Metropolitan Water District of Southern California, May, 2021

Master Plan Report, Orange County Water District, April, 1999

Groundwater Management Plan, Orange County Water District, March, 2004

Final Draft Long-Term Facilities Plan, Orange County Water District, January, 2006

Long-Term Facilities Plan 2014 Update, Orange County Water District, November 2014

2019-2020 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District, February 2015

Basin 8-1 Alternative, Orange County Water District, City of LaHabra, Irvine Ranch Water District, January, 2017

Exhibit A

Depiction of Project Area

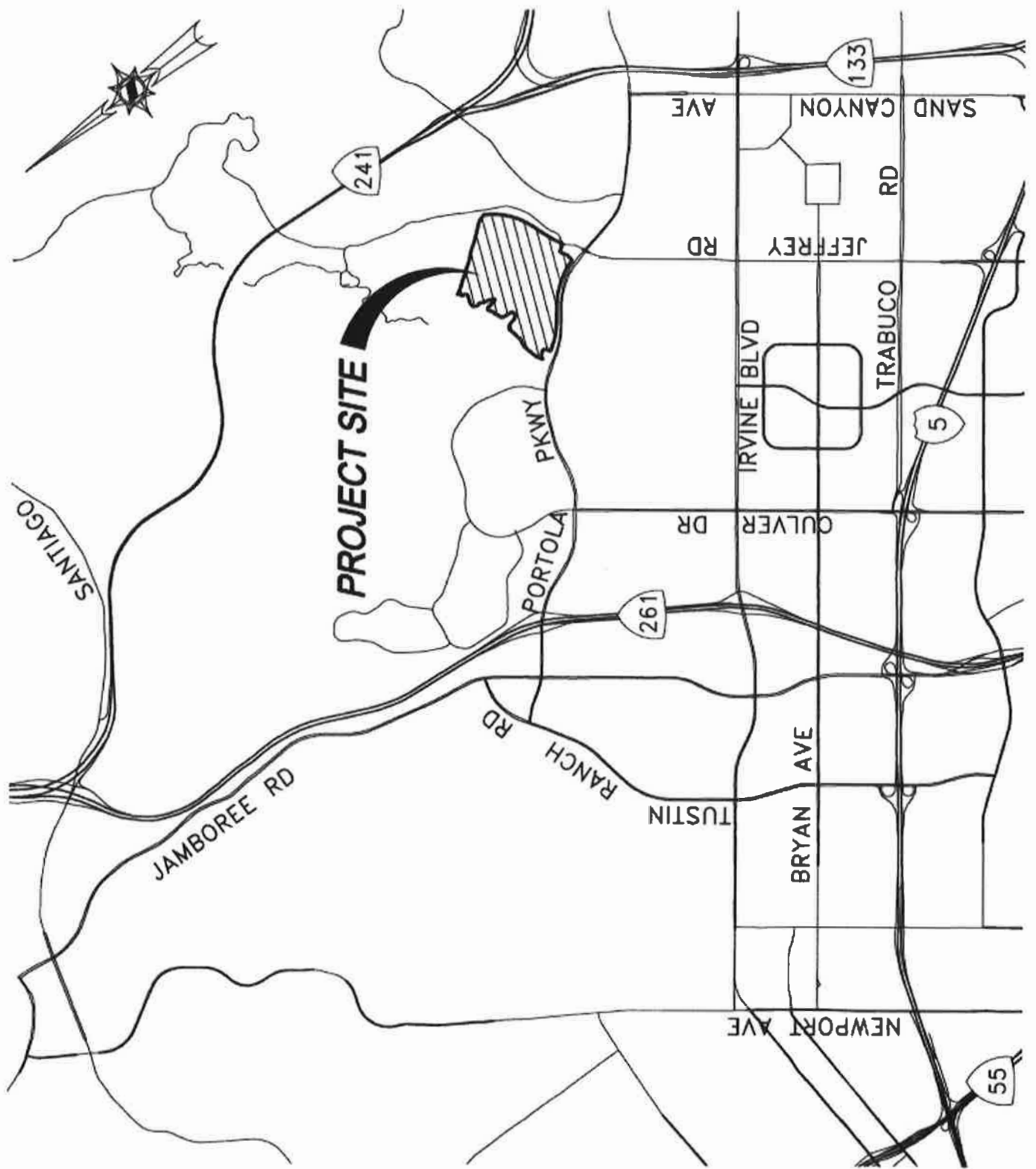


Exhibit B

Uses Included in Project



August 3, 2021

Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000

Re: Request for Verification of Sufficient Water Supplies
(Government Code §66473.7(b)(1))

The City of Irvine hereby requests verification of the availability of a sufficient water supply for the below-described project. Under Government Code §66473.7(b)(1), written verification of the availability of a sufficient water supply is required in conjunction with or prior to the approval of any tentative map that includes a residential subdivision of more than 500 dwelling units, subject to certain exemptions.

The City has determined that the subject project: (1) includes a subdivision meeting the criteria requiring verification of availability of sufficient water supply; and (2) does not fall within one of the statutory exemptions for previously developed urban sites, sites surrounded by urban use, or low-income housing sites.

Proposed Project Information

Project Title: ORCHARD HILLS NEIGHBORHOOD 4, VTTM 19020

Location of project: NORTHWEST CORNER OF JEFFREY ROAD AND PORTOLA PARKWAY IN THE CITY OF IRVINE

Planning Area(s): 1 (PREVIOUSLY 1 & 2) (Enclose a project map and exhibits)

Was the project included as part of a previously completed Water Supply Assessment (Water Code §10910)?
 Yes No

If yes, date and project title of Water Supply Assessment AUGUST 23, 2004: PLANNING AREAS 1 & 2; AUGUST 15, 2017: PA 40/12 GPA, ZC, AND EIR

If no, state reason: CEQA documentation not requiring a Water Supply Assessment was completed prior to January 1, 2002 Other: _____

Was a Water Supply Verification previously completed for the project? Yes No

If yes, indicate reason for reverification: Tract map expiration New Water Supply Assessment required due to project revisions, changed circumstances or new information

Tentative Map Application No.* 19020 Tentative Tract No.* _____

Verification is being requested prior to tentative map application (Government Code §66473.7(1))
(Indicate next project approval sought: _____)

(*A copy of the tentative map application including the proposed subdivision was sent to IRWD on: AUGUST 3, 2021, (Government Code §66455.3))

Type of development included in the project:

Residential: No. of dwelling units: 520

Shopping center or business: No. of employees _____ Sq. ft. of floor space _____

- Commercial office: No. of employees _____ Sq. ft. of floor space _____
- Hotel or motel: No. of rooms _____
- Industrial, manufacturing, processing or industrial park: No. of employees _____
No. of acres _____ Sq. ft. of floor space _____
- Mixed use (check and complete all above that apply)
- Other: DAYCARE (10,000 sq. ft.)

Total acreage of project: 257.2 AC

Acreage devoted to landscape:

Greenbelt: _____ Golf course: 0 Parks: 5.8 AC
Agriculture: 10.8 AC Other landscaped areas: PARKWAYS 10.7 AC / SLOPES 96 AC

Other factors or uses that would affect the quantity of water needed, such as peak flow requirements: NONE

Is the project included in the existing General Plan? YES

If no, describe the existing General Plan Designation: _____

The City acknowledges that IRWD's verification will be based on the information hereby provided to IRWD concerning the project. If it is necessary for corrected or additional information to be submitted to enable IRWD to complete the verification, the request will be considered incomplete until IRWD's receipt of the corrected or additional information. If the project changes or the tentative map approval expires after the issuance of a Water Supply Verification, the City will request a new Water Supply Verification if required. In the event of changes in the project, circumstances or conditions of the availability of new information, it will be necessary for the City to request a new Water Supply Assessment prior to completion of the new Water Supply Verification.

The City acknowledges that the Water Supply Verification shall not constitute a "will-serve" or in any way entitle the project applicant to service or to any right, priority or allocation in any supply, capacity or facility, and that the issuance of the Water Supply Verification shall not affect IRWD's obligation to provide service to its existing customers or any potential future customers including the project applicant. In order to receive service, the project applicant shall be required to file a completed Application(s) for Service and Agreement with the Irvine Ranch Water District on IRWD's forms, together with all fees and charges, plans/specifications, bonds and conveyance of necessary easements, and meet all other requirement as specified therein.

CITY OF IRVINE



By: _____

Stephanie Frady, Senior Planner

REQUEST RECEIVED:

Date: Aug 3, 2021

By: Kellie Welch
Irvine Ranch Water District

REQUEST COMPLETE:

Date: August 10, 2021

By: Kellie Welch
Irvine Ranch Water District

8/3/21

Title	Low Density Residential(0-5 DU)	Medium Density Residential (0-10 DU)	Medium High Density Residential (0-25 DU)	High Density Residential (0-40 DU)	Total
PA 1 & 2 Water Supply Assessment dated 8/23/04	4,310				
PA 9 Water Supply Assessment dated 8/23/04		5,343	4,800		10,143
PA 40/12 Water Supply Assessment dated 8/15/17 (PA 40 Units)		2,898	1,956		4,854
Sub Total	4,310	8,241	6,756	0	19,307
PA 1 per City of Irvine Zoning Code	4,088				
Unit transfer from PA 9 per 9-1-7.5 City of Irvine Zoning Code	136				
Unit transfer from PA 40 per 9-1-7.5 City of Irvine Zoning Code	144				
Sub Total (Current proposed project including VTTM 19020)	4,368	0	0	0	4,368
PA 9 per City of Irvine Zoning Code		4,222	4,610		
Unit transfer to PA 1 per City of Irvine Zoning Code 9-9-7.D		-136			
Subtotal***	0	4,086	4,610		8,696
Existing		3,854	4,610		8,464
PA 40 per City of Irvine Zoning Code**		2,904	2,323		
Unit transfer to PA 1 per City of Irvine Zoning Code 9-40-7B.		-144			
Subtotal***	0	2,760	2,323		5,083
Existing / Approved VTTM units****		2,432	2,323		4,755
Balance*	-58	1,627	-177	0	1,392

**1,392 more units were included in the PA 1 and PA 40 WSA than are currently planned in PA 1, PA 9, and PA 40 including the proposed VTTM 19060.

***1,540,000 of non-residential SF was converted to 1,309 units per City of Irvine Zoning Code 9-40-7D.

****Unused units will be transferred to PA 6 or used in PA 40.

*****Includes 94 affordable units that are bonus or additive units in the zoning code

8/3/21

Title	Low Density Residential(0-5 DU)	Medium Density Residential (0-10 DU)	Medium High Density Residential (0-25 DU)	High Density Residential (0-40 DU)	Total
PA 40/12 Water Supply Assessment dated 8/15/17 (PA 12 Units)		190	3,874	1,906	5,970
PA 12 Zoning Code		190	2,164	1,906	4,260
Balance*****	0	0	1,710	0	1,710

*****The proposed project in the 8/15/17 WSA was never approved by the City of Irvine. The existing project referenced in the WSA aligns with the current zoning.

Exhibit C

Water Supply Assessments

1. Planning Areas 1 and 2 dated August 23, 2004
2. Planning Area 40/12 General Plan Amendment/Zone Change
Dated August 14, 2017

**IRVINE RANCH WATER DISTRICT
ASSESSMENT OF WATER SUPPLY**
Water Code §10910 *et seq.*

To: (Lead Agency)
City of Irvine
P.O. Box 19575
Irvine, CA 92623-9575

(Applicant)
Irvine Community Development Company
550 Newport Center Drive
P.O. Box 6370
Newport Beach, CA 92658-6370

Project Information

Project Title: Planning Areas 1 and 2 (see Exhibit A)

- Residential: No. of dwelling units: _____
- Shopping center or business: No. of employees _____ Sq. ft. of floor space _____
- Commercial office: No. of employees _____ Sq. ft. of floor space _____
- Hotel or motel: No. of rooms _____
- Industrial, manufacturing or processing: No. of employees _____ No. of acres _____
Sq. ft. of floor space _____
- Mixed use (check and complete all above that apply) (see Exhibit B)
- Other: _____

Assessment of Availability of Water Supply

On 8/23/04 the Board of Directors of the Irvine Ranch Water District (IRWD) approved the within assessment and made the following determination regarding the above-described Project:

- The projected water demand for the Project was was not included in IRWD's most recently adopted urban water management plan.
- A sufficient water supply is available for the Project.
The total water supplies available to IRWD during normal, single-dry and multiple-dry years within a 20-year projection will meet the projected water demand of the Project in addition to the demand of existing and other planned future uses, including, but not limited to, agricultural and manufacturing uses.
- A sufficient water supply is not available for the Project. [Plan for acquiring and developing sufficient supply attached. Water Code § 10911(a)]

The foregoing determination is based on the following Water Supply Assessment Information and supporting information in the records of IRWD.

Signature *Leslie Bonkowski* Date 8/23/04 Title District Secretary

Water Supply Assessment Information

Purpose of Assessment

Irvine Ranch Water District ("IRWD") has been identified by the City as a public water system that will supply water service (both potable and nonpotable) to the project identified on the cover page of this assessment (the "Project"). As the public water system, IRWD is required by Section 10910 *et seq.* of the Water Code to provide the City with an assessment of water supply availability ("assessment") for defined types of projects. The Project has been found by the City to be a project requiring an assessment. The City is required to include this assessment in the environmental document for the Project, and, based on the record, make a determination whether projected water supplies are sufficient for the Project and existing and planned uses.

Water Code Section 10910 (the "Assessment Law") contains the requirements for the information to be set forth in the assessment.

Prior Water Supply Assessments

IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area. Because of IRWD's aggregation of demands and supplies, each assessment completed by IRWD is expected to be generally similar to the most recent assessment, with changes as needed to take into account changes, if any, in demands and supplies, and any updated and corrected information obtained by IRWD. Previously assessed projects' water demands will be included in the baseline. A newly assessed project's water demand will have been included in previous water supply assessments for other projects (as part of IRWD's "full build-out" demand) to the extent of any land use planning or other water demand information for the project that was available to IRWD.

The Project's water demand was included (as part of IRWD's "full build-out" demand) in previous water supply assessments performed by IRWD, based on land use planning information then available to IRWD. In this water supply assessment, the Project demand will be revised in accordance with updated information provided by the applicant and included in the "with project" demand.

Supporting Documentation

IRWD prepares two planning documents to guide water supply decision-making. IRWD's principal planning document is IRWD's "Water Resources Master Plan" ("WRMP"). The WRMP is a comprehensive document compiling data and analyses that IRWD considers necessary for its planning needs. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute. The UWMP is based on the WRMP, but contains defined elements as listed in the statute (Water Code Section 10631, *et seq.*), and as a result, is more limited than the WRMP in the treatment of supply and demand issues. Therefore, IRWD primarily relies on its most recent WRMP. (The UWMP is required to be updated in years ending with "five" and "zero," and IRWD's next update of that document is anticipated in 2005. With changes that have occurred in land uses since the last update of the UWMP in 2000, IRWD's year 2020 water demand, as reflected by the WRMP, is currently projected to be approximately 9% lower than the projected demand shown in the 2000 UWMP.)

The land use changes incorporated in the WRMP since the date of the 2000 UWMP include the following:

- In 2001, IRWD consolidated with the neighboring Los Alisos Water District (LAWD), thereby adding the majority of the City of Lake Forest to IRWD's service area. IRWD has now integrated the supplies and demands of the two districts.
- In late 2001, The Irvine Company announced the planned dedication of a large area as permanent open space. The majority of this land is located in the northwestern portion of IRWD (City of Orange sphere of influence), with an additional area near Laguna Canyon Road. IRWD has made appropriate reductions in its demand calculations.
- Proposed development uses have replaced agricultural uses previously used to compute demand for portions of the Project and the adjacent Northern Sphere Area project.
- The alternative proposals for reuse of the MCAS-El Toro property that preceded the current Project had different water demands. To ensure that IRWD would be able to provide a sufficient water supply capacity irrespective of which reuse proposal was implemented, the 1999 WRMP assumed the highest water-demand generating land use plan for the property. This plan, the "Millennium Plan," was subsequently replaced by a non-aviation "great park" alternative. The park proposal resulted in lower overall demand, but higher nonpotable demand (for irrigation) than the Millennium Plan. In the most recent WRMP, the updated water demand information for the park has been substituted for the previous information related to the park proposal.
- All other refinements of future land uses have been included in the WRMP, along with updated information on existing land uses.

In addition to the WRMP and the 2000 UWMP mentioned above, other supporting documentation referenced herein is found in Section 6 of this assessment.

Due to the number of contracts, statutes and other documents comprising IRWD's written proof of entitlement to its water supplies, in lieu of attachment of such items, they are identified by title and summarized in Section 2(b) of this assessment (written contracts/proof of entitlement). Copies of the summarized items have been provided to the City and can be obtained from IRWD.

Assessment Methodology

Water use factors; dry-year increases. IRWD employs water use factors to enable it to assign water demands to the various land use types and aggregate the demands. The water use factors are based on average water use and incorporate the effect of IRWD's tiered-rate conservation pricing and its other water conservation programs. The factors are derived from historical usage (billing data) and a detailed review of water use factors within the IRWD service areas conducted as a part of the WRMP. Water demands also reflect normal hydrologic conditions (precipitation). Lower levels of precipitation and higher temperatures will result in higher water demands, due primarily to the need for additional water for irrigation. To reflect this, base (normal) WRMP water demands have been increased 7% in the assessment during both "single-dry" and "multiple-dry" years. This is consistent with IRWD's 2000 UWMP and historical regional demand variation as documented in the Metropolitan Water District of

Southern California's ("MWD's") Integrated Resources Plan (1996) (Volume 1, page 2-10).

Planning horizon. For consistency with IRWD's WRMP, the assessment reviews demands and supplies through the year 2025, which is considered to represent build-out or "ultimate development". This exceeds the 20-year projection required by the statute (see Water Code Sections 10631 and 10910).

Assessment of demands. Water demands are reviewed in this assessment for three development projections (to 2025):

- Existing and committed demand (without the Project) ("baseline"). This provides a baseline condition as of the date of this assessment, consisting of demand from existing development, plus demand from development that has both approved zoning and (if required by the Assessment Law) an adopted water supply assessment.
- Existing and committed demand, plus the Project ("with-project"). This projection adds the Project water demands to the baseline demands.
- Full WRMP build-out ("full build-out"). In addition to the Project, this projection adds potential demands for all presently undeveloped areas of IRWD based on current general plan information, modified by more specific information available to IRWD, as more fully described in Chapter 2 of the WRMP.

Assessment of supplies. For comparison with demands, water supplies are classified as *currently available* or *under development*:

- *Currently available* supplies include those that are presently operational, and those that will be operational within the next several years. Supplies expected to be operational in the next several years are those having completed or substantially completed the environmental and regulatory review process, as well as having necessary contracts (if any) in place to move forward. These supplies are in various stages of planning, design, or construction.
- In general, supplies *under development* may necessitate the preparation and completion of environmental documents, regulatory approvals, and/or contracts prior to full construction and implementation.

IRWD is also evaluating the development of additional supplies that are not included in either *currently available* or *under-development* supplies for purposes of this assessment. As outlined in the WRMP, prudent water supply and financial planning dictates that development of supplies be phased over time consistent with the growth in demand.

Water supplies available to IRWD include several sources: groundwater pumped from the Orange County groundwater basin (including the Irvine Subbasin); captured local (native) surface water; reclaimed wastewater, and supplemental imported water supplied by MWD through the Municipal Water District of Orange County ("MWDOC"). The supply-demand comparisons in this assessment are broken down among the various sources, and are further separated into potable and nonpotable water sources.

Comparison of demand and supply. The three demand projections noted above (baseline, with-project and full build-out) are compared with supplies in the following ways:

- On a total *annual* quantity basis (stated in acre-feet per year (AFY)).
- On a *peak-flow* (maximum day) basis (stated in cubic feet per second (cfs)).
- Under three climate conditions: base (normal) conditions and single-dry and multiple-dry year conditions. (Note: These conditions are compared for *annual* demands and not for *peak-flow* demands. *Peak-flow* is a measure of a water delivery system's ability to meet the highest day's demand of the fluctuating demands that will be experienced in a year's time. Peak demands occur during the hot, dry season and as a result are not appreciably changed by dry-year conditions; dry-year conditions do affect *annual* demand by increasing the quantity of water needed to supplement normal wet-season precipitation.)

Summary of Results of Demand-Supply Comparisons

Listed below are Figures provided in this assessment, comparing projected potable and nonpotable water supplies and demands under the three development projections:

- Figure 1: Normal Year Supply and Demand – Potable Water
- Figure 2: Single Dry-Year Supply and Demand – Potable Water
- Figure 3: Multiple Dry-Year Supply and Demand – Potable Water
- Figure 4: Maximum-Day Supply and Demand – Potable Water
- Figure 5: Normal Year Supply and Demand – Nonpotable Water
- Figure 6: Single Dry-Year Supply and Demand – Nonpotable Water
- Figure 7: Multiple Dry-Year Supply and Demand – Nonpotable Water
- Figure 8: Maximum-Day Supply and Demand – Nonpotable Water

It can be observed in the Figures that IRWD's *supplies* remain essentially constant between normal, single-dry and multiple-dry years. This result is due to the fact that groundwater and MWD imported water account for all of IRWD's potable supply, and reclaimed water, groundwater and imported water comprise most of IRWD's nonpotable supply. Groundwater production typically remains constant or increases in cycles of dry years, even if overdraft of the basin temporarily increases, as groundwater producers reduce their demand on imported supplies to secure reliability. (See Section 4 herein.) As to imported water, MWD projects that through the continued implementation of MWD's supplies under development, it can meet 100 percent of its member agencies' supplemental water demands over the next 20 years, even in a repeat of the worst drought. (See Section 2(b)(1) "IMPORTED SUPPLY - ADDITIONAL INFORMATION," below, for a summary of information provided by MWD.) Reclaimed water production also remains constant, and is considered "drought-proof" as a result of the fact that sewage flows remain virtually unaffected by dry years. Only a small portion of IRWD's nonpotable supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years. The foregoing factors also serve to explain why there is no difference in IRWD's supplies between single-dry and multiple-dry years.

A review of the Figures indicates the following:

- *Currently available* supplies of potable water are adequate to meet projected annual demands for both the *baseline* and *with-project* demand projections under the normal and both dry-year conditions through the year 2025. (Figures 1 through 3.)

- Sufficient *currently available* potable supplies are also available to meet annual *full build-out* demands under normal conditions. (Figure 1.)
- Meeting both single- and multiple-dry-year annual demands for *full build-out* will require the completion of a small amount of the *under-development* supplies. (Figures 2 and 3.)
- Adequate *currently available* potable water supply capacity is available to meet *peak-flow* (maximum day) demands for all demand projections including full build-out. (Figure 4.)
- With respect to nonpotable water, *currently available* supplies are more than adequate to meet all demand projections including full build-out, under both annual and peak-flow (maximum day) conditions, in both normal and dry years. However, IRWD is proceeding with the implementation of *under-development* nonpotable supplies, as shown in the Figures, to improve local reliability during dry-year conditions. (Figures 5 through 8.)

The foregoing Figures provide an overview of IRWD potable and nonpotable water supply capabilities. More detailed information on the anticipated development and use of supplies, which incorporates source costs and reliability issues, is provided in the WRMP.

Margins of safety. The Figures and other information described in this assessment show that IRWD's assessment of supply availability contains several margins of safety or buffers:

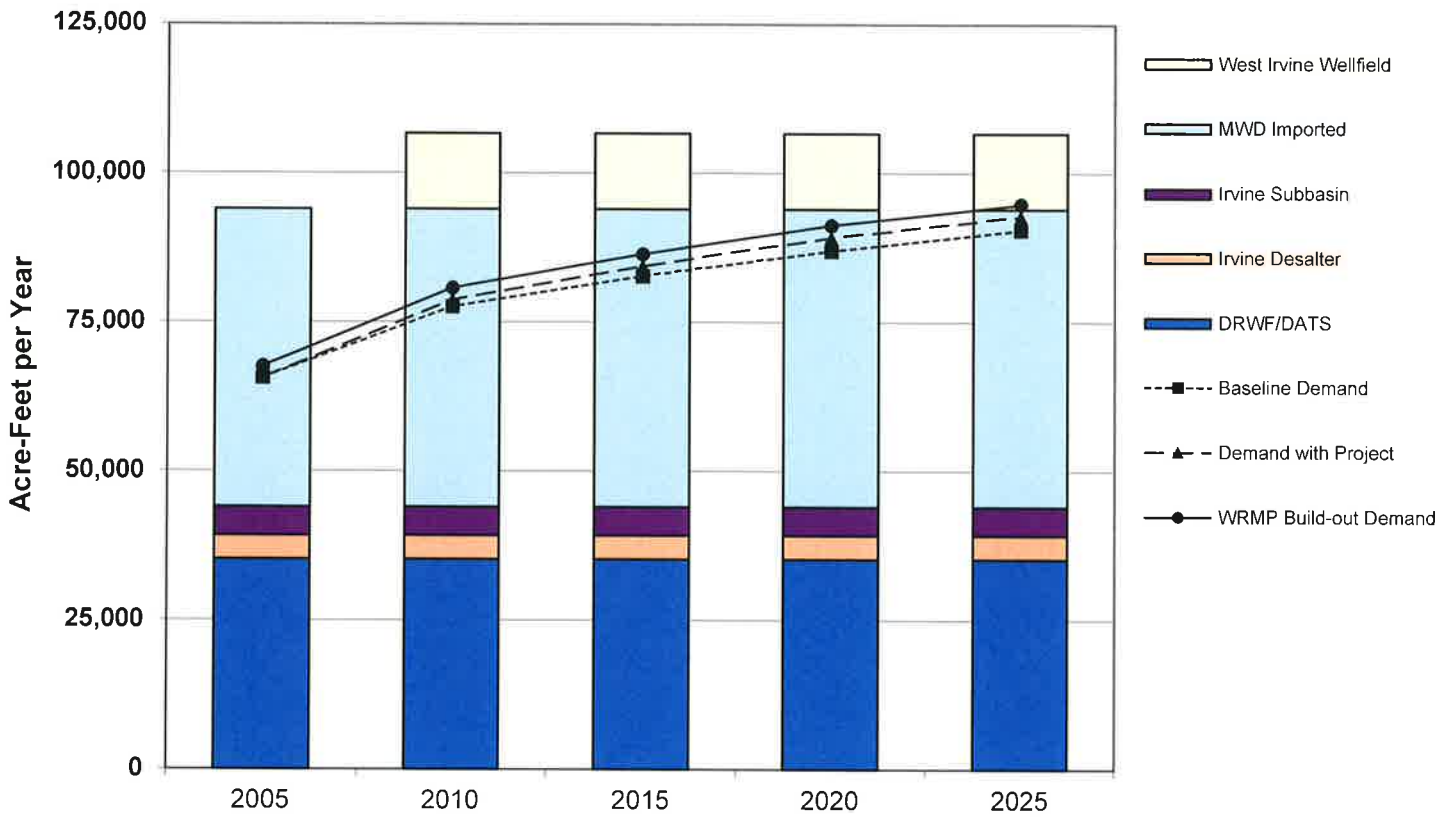
- Significant quantities of "reserve" water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projections, future changes in land use, or alterations in supply availability.
- The potential exists for the treatment and conversion of some reserve nonpotable supplies to potable water.
- Conservative estimates of annual potable and nonpotable *imported* supplies have been made based on connected delivery capacity (by application of peaking factors as described below in Section 2, footnote 1); additional supplies are expected to be available from these sources, based on legal entitlements, historical uses and information provided by MWD.
- Information provided by MWD, as the imported water supplier, concerning the adequacy of its regional supplies, summarized herein, demonstrates MWD's inclusion of margins of safety and reserves in its regional supply assessments.
- Although groundwater supply amounts shown in this assessment assume production levels within applicable basin production percentages described herein, production of groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or emergencies.

Detailed Assessment

1. **Supply and demand comparison**

Comparisons of IRWD's average annual and peak (maximum day) demands and supplies, under *baseline* (existing and committed demand, without the Project), *with-project* (baseline plus Project), and *full build-out* development projections, are shown in the following Figures 1 - 4 (potable water) and Figures 5 - 8 (nonpotable water):

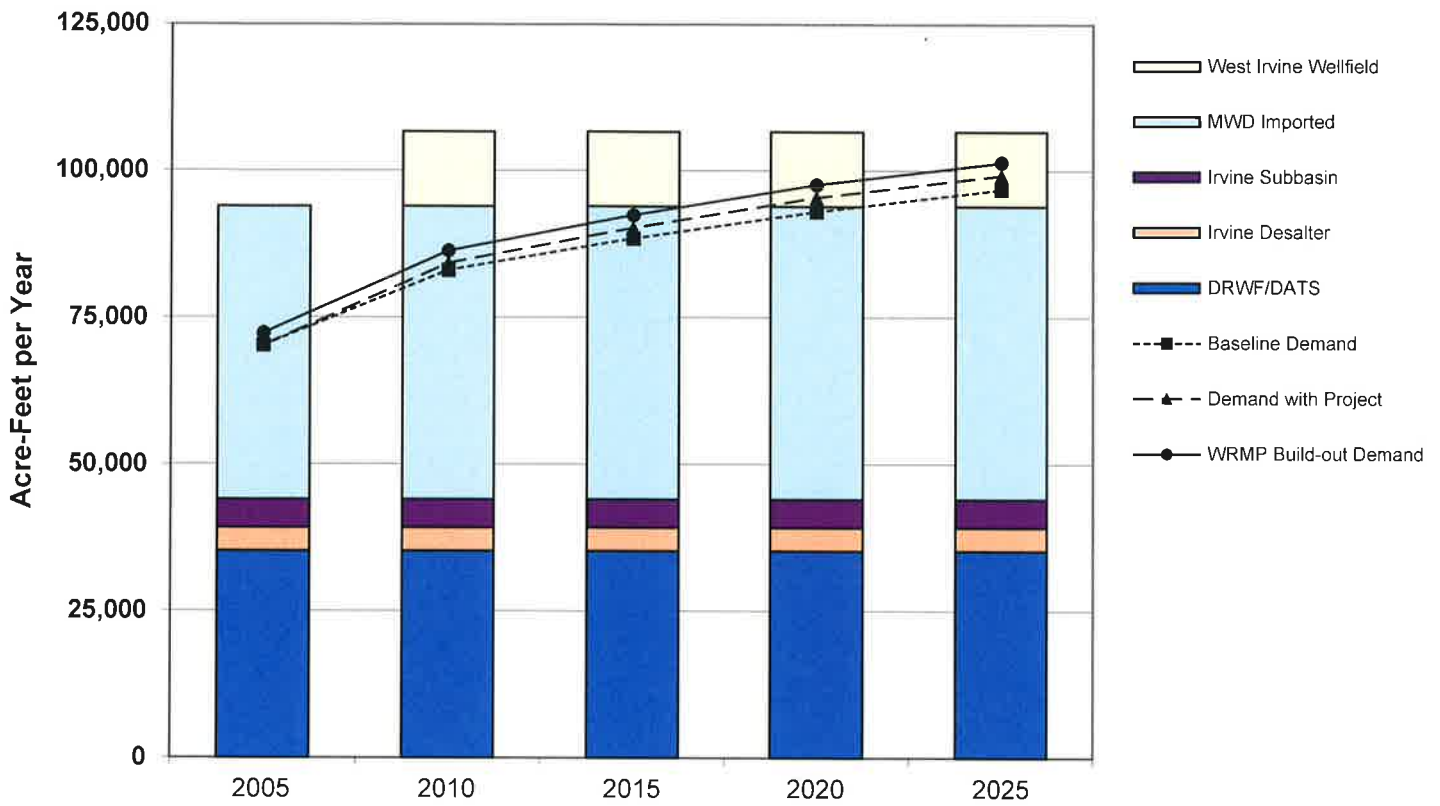
**Figure 1
IRWD Normal-Year Supply & Demand - Potable Water**



<u>Current Potable Supplies</u>					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	3,982	3,982	3,982	3,982	3,982
<u>Supplies Under Development</u>					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	93,898	106,598	106,598	106,598	106,598
Baseline Demand	65,645	77,581	82,657	86,938	90,469
Demand with Project	65,649	78,701	84,327	89,157	92,688
WRMP Build-out Demand	67,592	80,672	86,385	91,230	94,761
Reserve Supply with Project	28,248	27,897	22,271	17,441	13,910

Notes: By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

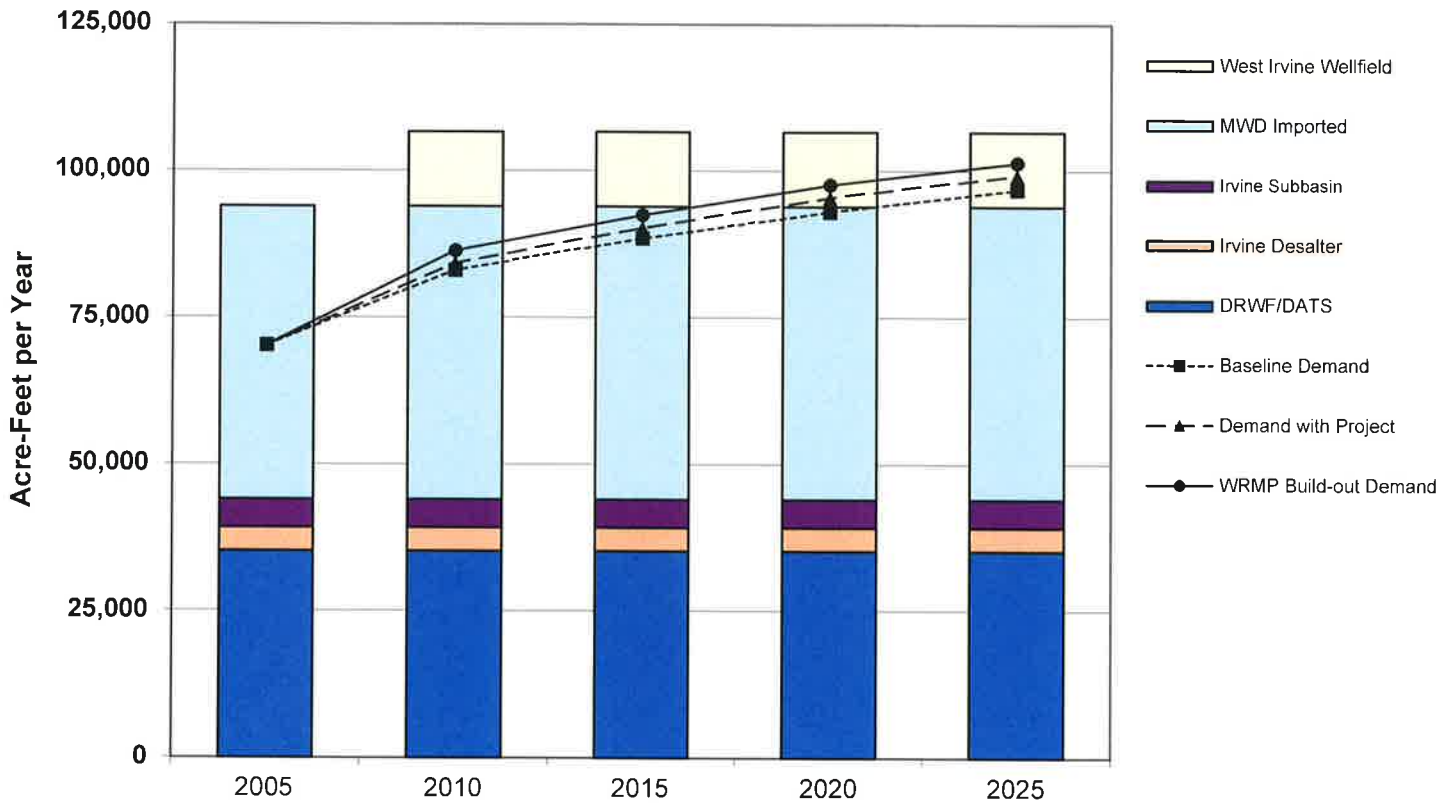
**Figure 2
IRWD Single Dry-Year Supply & Demand - Potable Water**



(in acre-feet per year)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	3,982	3,982	3,982	3,982	3,982
Supplies Under Development					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	93,898	106,598	106,598	106,598	106,598
Baseline Demand	70,241	83,012	88,444	93,024	96,802
Demand with Project	70,245	84,210	90,230	95,398	99,176
WRMP Build-out Demand	72,323	86,319	92,432	97,616	101,394
Reserve Supply with Project	23,653	22,388	16,368	11,200	7,421

Notes: Supplies identical to Normal-Year based on Report on Metropolitan's Water Supplies (3/25/03) and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

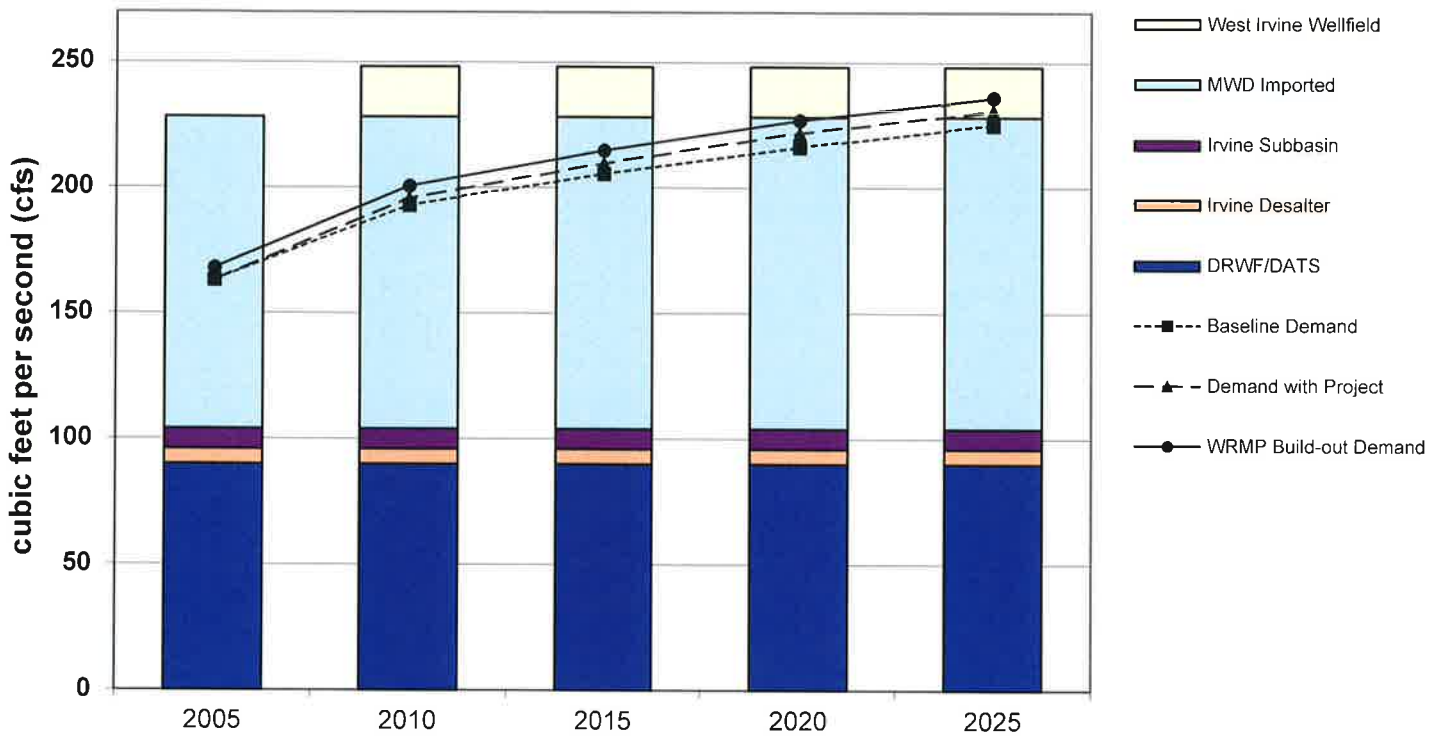
**Figure 3
IRWD Multiple Dry-Year Supply & Demand - Potable Water**



(in acre-feet per year)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	3,982	3,982	3,982	3,982	3,982
Supplies Under Development					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	93,898	106,598	106,598	106,598	106,598
Baseline Demand	70,241	83,012	88,444	93,024	96,802
Demand with Project	70,245	84,210	90,230	95,398	99,176
WRMP Build-out Demand	70,245	86,319	92,432	97,616	101,394
Reserve Supply with Project	23,653	22,388	16,368	11,200	7,421

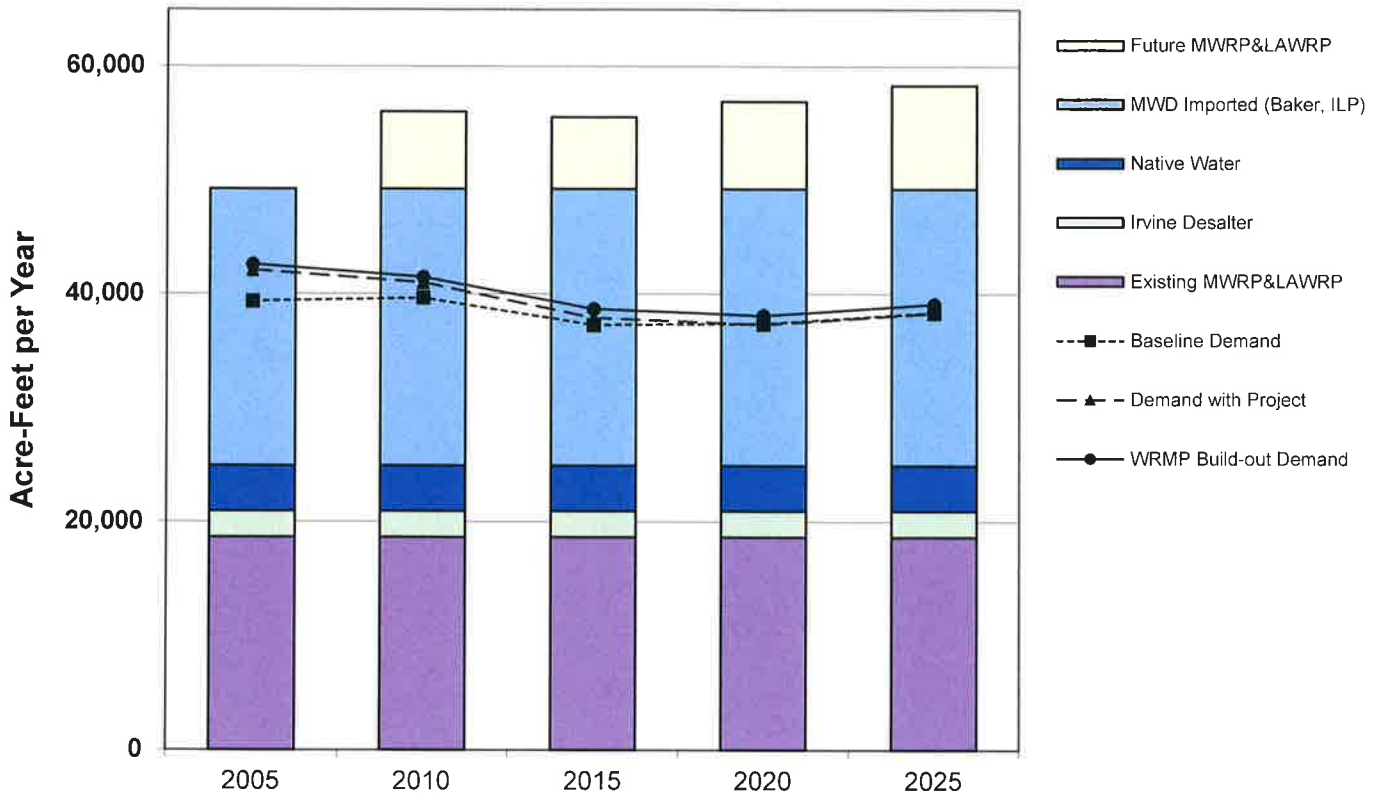
Notes: Supplies identical to Normal-Year based on Report on Metropolitan's Water Supplies (3/25/03) and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

**Figure 4
IRWD Maximum-Day Supply & Demand - Potable Water**



(in cfs)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	124.1	124.1	124.1	124.1	124.1
DRWF/DATS	90.0	90.0	90.0	90.0	90.0
Irvine Subbasin	8.0	8.0	8.0	8.0	8.0
Irvine Desalter	6.0	6.0	6.0	6.0	6.0
Supplies Under Development					
West Irvine Wellfield	-	20.0	20.0	20.0	20.0
Maximum Supply Capability	228.1	248.1	248.1	248.1	248.1
Baseline Demand	163.2	192.9	205.5	216.1	224.9
Demand with Project	163.2	195.7	209.7	221.7	230.4
WRMP Build-out Demand	168.0	200.6	214.8	226.8	235.6
Reserve Supply with Project	70.2	52.4	38.4	26.4	17.7

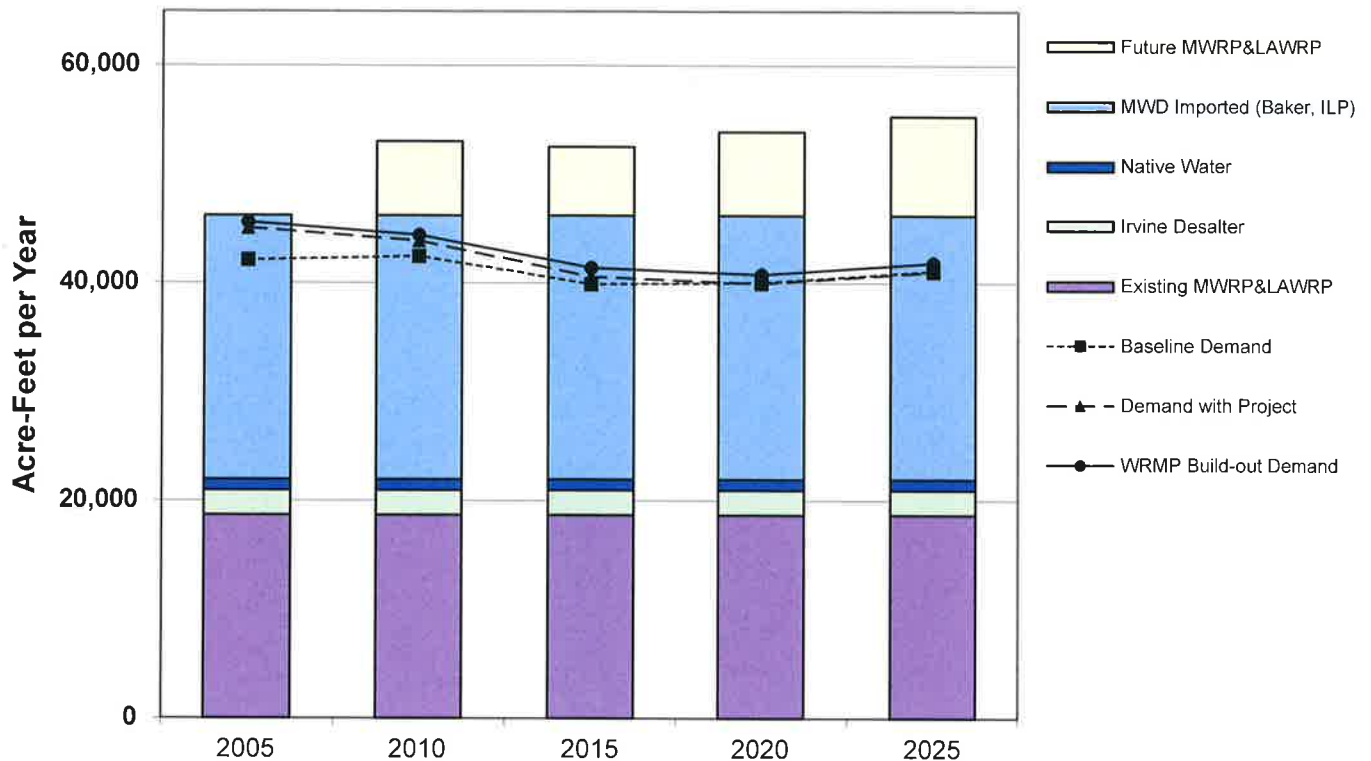
**Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2005	2010	2015	2020	2025
Current Nonpotable Supplies					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	4,000	4,000	4,000	4,000	4,000
Supplies Under Development					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	49,201	55,995	55,512	56,888	58,308
Baseline Demand	39,354	39,669	37,283	37,408	38,394
Demand with Project	42,101	40,997	37,909	37,332	38,318
WRMP Build-out Demand	42,604	41,485	38,688	38,111	39,098
Reserve Supply with Project	7,100	14,998	17,603	19,556	19,990

Note: Downward trend reflects reduction in agricultural use over time.

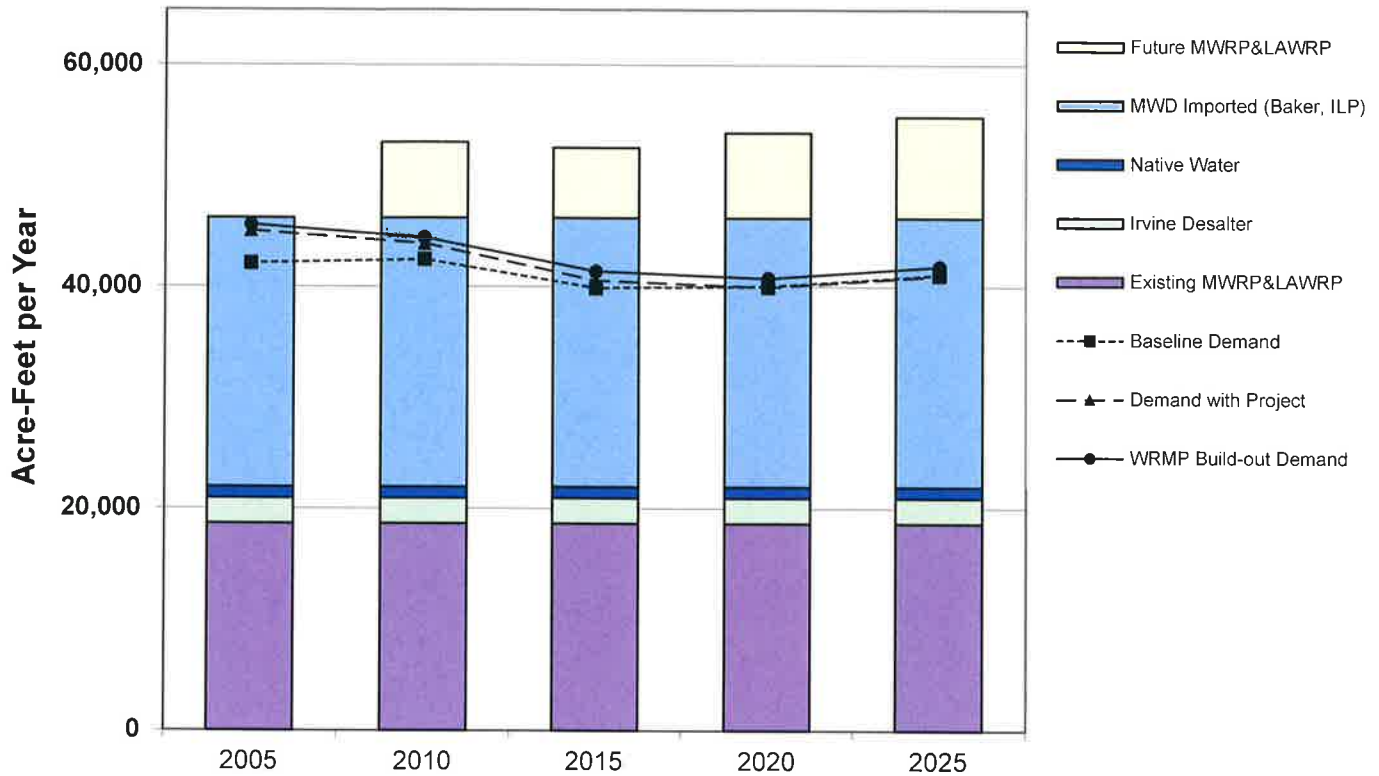
**Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2005	2010	2015	2020	2025
Current Nonpotable Supplies					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	46,201	52,995	52,512	53,888	55,308
Baseline Demand	42,109	42,446	39,893	40,026	41,082
Demand with Project	45,048	43,867	40,563	39,945	41,001
WRMP Build-out Demand	45,586	44,389	41,397	40,779	41,834
Reserve Supply with Project	1,153	9,128	11,949	13,943	14,307

Note: Downward trend reflects reduction in agricultural use over time.

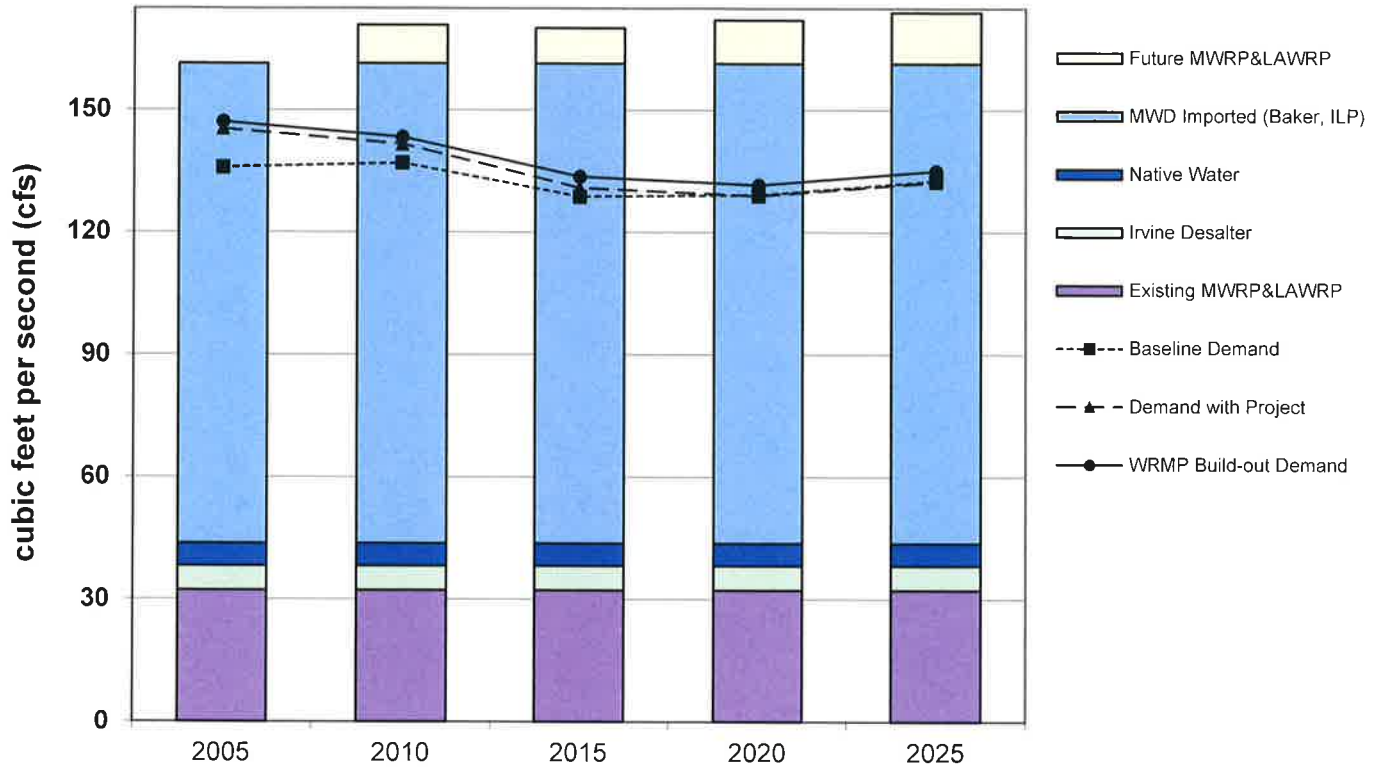
Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water



(in acre-feet per year)	2005	2010	2015	2020	2025
Current Nonpotable Supplies					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	46,201	52,995	52,512	53,888	55,308
Baseline Demand	42,109	42,446	39,893	40,026	41,082
Demand with Project	45,048	43,867	40,563	39,945	41,001
WRMP Build-out Demand	45,586	44,389	41,397	40,779	41,834
Reserve Supply with Project	1,153	9,128	11,949	13,943	14,307

Note: Downward trend reflects reduction in agricultural use over time.

Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water



(in cfs)	2005	2010	2015	2020	2025
Current Nonpotable Supplies					
Existing MWRP&LAWRP	32.2	32.2	32.2	32.2	32.2
Irvine Desalter	6.0	6.0	6.0	6.0	6.0
Native Water	5.5	5.5	5.5	5.5	5.5
MWD Imported (Baker, ILP)	117.7	117.7	117.7	117.7	117.7
Supplies Under Development					
Future MWRP&LAWRP	-	9.4	8.7	10.6	12.6
Maximum Supply Capability	161.4	170.8	170.1	172.0	174.0
Baseline Demand	135.9	137.0	128.7	129.2	132.6
Demand with Project	145.4	141.6	130.9	128.9	132.3
WRMP Build-out Demand	147.1	143.2	133.6	131.6	135.0
Reserve Supply with Project	16.0	29.2	39.2	43.1	41.7

Note: Downward trend reflects reduction in agricultural use over time.

2. Information concerning supplies

(a)(1) Existing sources of identified water supply for the proposed project:

IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area, as shown in the following table:

	Max Day (cfs)	Avg. Annual (AFY)	Annual by Category (AFY)
Current Supplies			
Potable - Imported			
East Orange County Feeder No. 2	41.4	16,652	¹
Allen-McColloch Pipeline	64.7	26,024	¹
Orange County Feeder	18.0	7,240	¹
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	²
Deep Aquifer Treatment System-DATS	10.0	7,200	²
Irvine Desalter	6.0	3,982	³
Irvine Subbasin	8.0	4,800	³
Total Potable Current Supplies	228.1		93,898
Nonpotable - Reclaimed Water			
MWRP (18 mgd)	23.9	17,340	⁴
LAWRP (5.5 mgd)	8.3	5,975	⁴
Nonpotable - Imported			
Baker Aqueduct	52.7	15,262	⁵
Irvine Lake Pipeline	65.0	9,000	⁶
Nonpotable - Groundwater			
Irvine Desalter-Nonpotable	6.0	2,282	⁷
Nonpotable Native			
Irvine Lake	5.5	4,000	⁸
Total Nonpotable Current Supplies	161.4		53,859
Total Combined Current Supplies	389.5		147,757
Supplies Under Development			
Potable Groundwater - West Irvine Wellfield	20.0	12,700	⁹
Nonpotable Reclaimed - Future MWRP&LAWRP Reclaimed	20.0	14,450	¹⁰
Total Supplies (Current and Under Development)			
Potable Supplies	248.1		106,598
Nonpotable Supplies	181.4		68,309
Total Supplies	429.5		174,907

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.8 (see Footnote 1, page 18).

2 Contract amount - See Potable Supply-Groundwater(iii).

3 Contract amount - See Potable Supply-Groundwater (iv) and (v). Maximum day well capacity (cfs) is compatible with contract amount.

4 MWRP 18.0 mgd treatment capacity (17,400 AFY RW production) and LAWRP 5.5 mgd tertiary treatment capacity (5,975 AFY)

5 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 2.5 (see Footnote 1, page 18).

6 Based on IRWD's proportion of Irvine Lake imported water storage; Actual ILP capacity would allow the use of additional imported water from MWD through the Santiago Lateral.

7 Contract amount - See Nonpotable Supply-Groundwater (i) and (ii). Maximum day well capacity (cfs) is compatible with contract amount.

8 Based on 69 years historical average of Santiago Creek Inflow into Irvine Lake.

9 Estimated combined capacity of wells.

10 Future estimated MWRP & LAWRP reclaimed water production.

(2) Quantities received in prior years from existing sources identified in (a)(1):

Source	1980	1985	1990	1995	2000
Potable - imported	29,510	43,320	44,401	28,397	36,777
Potable - groundwater	827	38	10,215	20,020	20,919
Nonpotable - reclaimed	9,196	12,399	11,589	10,518	14,630
Nonpotable - imported*	9,556	12,260	24,899	2,333	16,343
Nonpotable - groundwater	-	36	816	1,834	2,890
Nonpotable - native	11,909	3,587	2,778	5,980	4,949
Total	60,998	71,639	94,699	69,082	96,508

*Includes water purchased for delivery to storage in Irvine Lake.

(Source: water purchase and production records.)

(b) Required information concerning currently available and under-development water supply entitlements, water rights and water service contracts:

(1) Written contracts or other proof of entitlement.^{1 2}

• POTABLE SUPPLY - IMPORTED³

Potable imported water service connections (currently available).

(i) Potable imported water is delivered to IRWD at various service connections to the imported water delivery system of The Metropolitan Water District of Southern California (“MWD”): service connections CM-01A and OC-7 (Orange County Feeder); CM-10, CM-12, OC-38, OC-39, OC-57, OC-58, OC-63 (East Orange County Feeder No. 2); and OC-68, OC-71, OC-72, OC-73/73A, OC-74, OC-75, OC-83, OC-84, OC-87 (Allen-McColloch Pipeline). IRWD’s entitlements regarding service from the MWD delivery system facilities are described in the following paragraphs and summarized in the above Table ((2)(a)(1)). IRWD receives imported water service through Municipal Water District of Orange County (“MWDOC”), a member agency of MWD.

Allen-McColloch Pipeline (“AMP”) (currently available).

(ii) Agreement For Sale and Purchase of Allen-McColloch Pipeline, dated as of July 1, 1994 (Metropolitan Water District Agreement No. 4623) (“AMP Sale Agreement”). Under the AMP Sale Agreement, MWD purchased the Allen-McColloch Pipeline (formerly known as the “Diemer Intertie”) from MWDOC, the MWDOC Water Facilities Corporation and certain agencies, including IRWD and Los Alisos Water District (“LAWD”),⁴ identified as “Participants” therein. Section 5.02 of the AMP Sale Agreement obligates MWD to meet IRWD’s and the other Participants’ requests for deliveries and specified minimum hydraulic grade lines at each connection serving a Participant, subject to availability of water. MWD agrees to operate the AMP as any other MWD pipeline. MWD has the right to

¹ In some instances, the contractual and other legal entitlements referred to in the following descriptions are stated in terms of flow capacities, in cubic feet per second (“cfs”). In such instances, the cfs flows are converted to volumes of AFY for purposes of analyzing supply sufficiency in this assessment, by dividing the capacity by a peaking factor of 1.8 (potable) or 2.5 (nonpotable), consistent with maximum day peaking factors used in the WRMP. The resulting reduction in assumed available annual AFY volumes through the application of these factors recognizes that connected capacity is provided to meet peak demands, and that seasonal variation in demand and limitations in local storage prevent these capacities from being utilized at peak capacity on a year-round basis. However, the application of these factors produces a conservatively low estimate of annual AFY volumes from these connections; additional volumes of water are expected to be available from these sources.

² In the following discussion, contractual and other legal entitlements are characterized as either potable or nonpotable, according to the characterization of the source of supply. Some of the nonpotable supplies surplus to nonpotable demand could potentially be rendered potable by the addition of treatment facilities; however, IRWD has no current plans to do so.

³ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

⁴ IRWD has succeeded to LAWD’s interests in the AMP and other LAWD water supply facilities and rights mentioned in this assessment, by virtue of the consolidation of IRWD and LAWD on December 31, 2000.

operate the AMP on a "utility basis," meaning that MWD need not observe capacity allocations of the Participants but may use available capacity to meet demand at any service connection.

The AMP Sale Agreement obligates MWD to monitor and project AMP demands and to construct specified pump facilities or make other provision for augmenting MWD's capacity along the AMP, at MWD's expense, should that be necessary to meet demands of all of the Participants (Section 5.08).

(iii) Agreement For Allocation of Proceeds of Sale of Allen-McColloch Pipeline, dated as of July 1, 1994 ("AMP Allocation Agreement"). This agreement, entered into concurrently with the AMP Sale Agreement, provided each Participant, including IRWD, with a capacity allocation in the AMP, for the purpose of allocating the sale proceeds among the Participants in accordance with their prior contractual capacities adjusted to conform to their respective future demands. IRWD's capacity under the AMP Allocation Agreement (including its capacity as legal successor agency to LAWD) is 64.69 cfs at IRWD's first four AMP connections, 49.69 cfs at IRWD's next five downstream AMP connections and 35.01 and 10.00 cfs, respectively at IRWD's remaining two downstream connections. The AMP Allocation Agreement further provides that if a Participant's peak flow exceeds its capacity, the Participant shall "purchase" additional capacity from the other Participants who are using less than their capacity, until such time as MWD augments the capacity of the AMP. The foregoing notwithstanding, as mentioned in the preceding paragraph, the allocated capacities do not alter MWD's obligation under the AMP Sale Agreement to meet all Participants' demands along the AMP, and to augment the capacity of the AMP if necessary. Accordingly, under these agreements, IRWD can legally increase its use of the AMP beyond the above-stated capacities, but would be required to reimburse other Participants from a portion of the proceeds IRWD received from the sale of the AMP.

(iv) Improvement Subleases (or "FAP" Subleases) [MWDOC and LAWD; MWDOC and IRWD], dated August 1, 1989; 1996 Amended and Restated Allen-McColloch Pipeline Subleases [MWDOC and LAWD; MWDOC and IRWD], dated March 1, 1996. IRWD subleases its AMP capacity, including the capacity it acquired as successor to LAWD. To facilitate bond financing for the construction of the AMP, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership of the pipeline, and the Participants would be sublessees. As is the case with the AMP Sale Agreement, the subleases similarly provide that water is subject to availability.

East Orange County Feeder No. 2 ("EOCF#2") (currently available).

(v) Agreement For Joint Exercise of Powers For Construction, Operation and Maintenance of East Orange County Feeder No. 2, dated July 11, 1961, as amended on July 25, 1962 and April 26, 1965; Agreement Re Capacity Rights In Proposed Water Line, dated September 11, 1961 ("IRWD MWDOC Assignment Agreement"); Agreement Regarding Capacity Rights In the East Orange County Feeder No. 2, dated August 28, 2000 ("IRWD Coastal Assignment Agreement"). East Orange County Feeder No. 2 ("EOCF#2"), a feeder linking Orange County with MWD's feeder system, was constructed pursuant to a joint powers

agreement among MWDOC (then called Orange County Municipal Water District), MWD, Coastal Municipal Water District ("Coastal"), Anaheim and Santa Ana. A portion of IRWD's territory is within MWDOC and the remainder is within the former Coastal (which was consolidated with MWDOC in 2001). Under the IRWD MWDOC Assignment Agreement, MWDOC assigned 41 cfs of capacity to IRWD in the reaches of EOCF#2 upstream of the point known as Coastal Junction (reaches 1 through 3), and 27 cfs in reach 4, downstream of Coastal Junction. Similarly, under the IRWD Coastal Assignment Agreement, prior to Coastal's consolidation with MWDOC, Coastal assigned to IRWD 0.4 cfs of capacity in reaches 1 through 3 and 0.6 cfs in reach 4 of EOCF#2. Delivery of water through EOCF#2 is subject to the rules and regulations of MWD and MWDOC, and is further subject to application and agreement of IRWD respecting turnouts.

Orange County Feeder (currently available)

(vi) Agreement, dated March 13, 1956. This 1956 Agreement between MWDOC's predecessor district and the Santa Ana Heights Water Company ("SAHWC"), provides for delivery of MWD imported supply to the former SAHWC service area. SAHWC's interests were acquired on behalf of IRWD through a stock purchase and IRWD annexation of the SAHWC service area in 1997. The supply is delivered through a connection to MWD's Orange County Feeder designated as OC-7.

(vii) Agreement For Transfer of Interest In Pacific Coast Highway Water Transmission and Storage Facilities From The Irvine Company To the Irvine Ranch Water District, dated April 23, 1984; Joint Powers Agreement For the Construction, Operation and Maintenance of Sections 1a, 1b and 2 of the Coast Supply Line, dated June 9, 1989; Agreement, dated January 13, 1955 ("1955 Agreement"). The jointly constructed facility known as the Coast Supply Line ("CSL"), extending southward from a connection with MWD's Orange County Feeder at Fernleaf Street in Newport Beach, was originally constructed pursuant to a 1952 agreement among Laguna Beach County Water District ("LBCWD"), The Irvine Company (TIC) and South Coast County Water District. Portions were later reconstructed. Under the above-referenced transfer agreement in 1984, IRWD succeeded to TIC's interests in the CSL. The CSL is presently operated under the above-referenced 1989 joint powers agreement, which reflects IRWD's ownership of 10 cfs of capacity. The 1989 agreement obligates LBCWD, as the managing agent and trustee for the CSL, to purchase water and deliver it into the CSL for IRWD. LBCWD purchases such supply, delivered by MWD to the Fernleaf connection, pursuant to the 1955 Agreement with Coastal (now MWDOC).

POTABLE SUPPLY - GROUNDWATER

(i) Orange County Water District Act, Water Code App., Ch. 40 ("Act"). IRWD is an operator of groundwater-producing facilities in the Orange County Groundwater Basin (the "Basin"). Although the rights of the producers within the Basin vis a vis one another have not been adjudicated, they nevertheless exist and have not been abrogated by the Act (§40-77). The rights consist of municipal appropriators' rights and may include overlying and riparian rights.

The Basin is managed by OCWD under the Act, which functions as a statutorily-imposed physical solution. The Act empowers OCWD to impose replenishment assessments and basin equity assessments on production and to require registration of water-producing facilities and the filing of certain reports; however, OCWD is expressly prohibited from limiting extraction unless a producer agrees (§ 40-2(6)(c)) and from impairing vested rights to the use of water (§ 40-77). Thus, producers may install and operate production facilities under the Act; OCWD approval is not required. OCWD is required to annually investigate the condition of the Basin, assess overdraft and accumulated overdraft, and determine the amount of water necessary for replenishment (§40-26). OCWD has studied the Basin replenishment needs and potential projects to address growth in demand until 2020. This is described in detail in the OCWD Master Plan Report, dated April, 1999.

(ii) Irvine Ranch Water District v. Orange County Water District, OCSC No. 795827. A portion of IRWD is outside the jurisdictional boundary of OCWD. IRWD is eligible to annex the Santa Ana River Watershed portion of this territory to OCWD, under OCWD's current annexation policy (Resolution No. 86-2-15, adopted on February 19, 1986 and reaffirmed on June 2, 1999), and anticipates doing so. However, this September 29, 1998, Superior Court ruling indicates that IRWD is entitled to deliver groundwater from the Basin to the IRWD service area irrespective of whether such area is also within OCWD.

Dyer Road Wellfield (DRWF) / Deep Aquifer Treatment System (DATS) (currently available)

(iii) Agreement For Water Production and Transmission Facilities, dated March 18, 1981, as amended May 2, 1984, September 19, 1990 and November 3, 1999 (the "DRWF Agreement"). The DRWF Agreement, among IRWD, OCWD and Santa Ana, concerns the development of IRWD's Dyer Road Wellfield ("DRWF"), within the Basin. The DRWF consists of 16 wells pumping from the non-colored water zone of the Basin and 2 wells (with colored-water treatment facilities) pumping from the deep, colored-water zone of the Basin (the colored-water portion of the DRWF is sometimes referred to as the Deep Aquifer Treatment System or "DATS".) Under the DRWF Agreement, an "equivalent" basin production percentage (BPP) has been established for the DRWF, currently 28,000 AFY of non-colored water and 8,000 AFY of colored water, provided any amount of the latter 8,000 AFY not produced results in a matching reduction of the 28,000 AFY BPP. Although typically IRWD production from the DRWF does not materially exceed the equivalent BPP, the equivalent BPP is not an extraction limitation; it results in imposition of monetary assessments on the excess production. The DRWF Agreement also establishes monthly pumping amounts for the DRWF.

Irvine Subbasin / Irvine Desalter (currently available)

(iv) First Amended and Restated Agreement, dated March 11, 2002, restating May 5, 1988 agreement ("Irvine Subbasin Agreement"). TIC has historically pumped agricultural water from the Irvine Subbasin. (As in the rest of the Basin of which this subbasin is a part, the groundwater rights have not been adjudicated, and OCWD provides governance and management under the Act.)

The 1988 agreement between IRWD and TIC provided for the joint use and management of the Irvine Subbasin. The 1988 agreement further provided that the 13,000 annual yield of the Irvine Subbasin would be allocated 1,000 AFY to IRWD and 12,000 AFY to TIC. Under the restated Irvine Subbasin Agreement, the foregoing allocations have been superseded as a result of TIC's commencement of the building its Northern Sphere Area project, with the effect that the Subbasin production capability, wells and other facilities, and associated rights will be transferred from TIC to IRWD, and IRWD will assume the production from the Subbasin. In consideration of the transfer, IRWD is required to count the supplies attributable to the transferred Subbasin production in calculating available supplies for the Northern Sphere Area project and other TIC development and has agreed that they will not be counted toward non-TIC development.

A portion of the existing Subbasin water production facilities produce water which is of potable quality. IRWD plans to treat some of the water produced from the Subbasin for potable use, by means of the Desalter and other projects. Although, as noted above, the Subbasin has not been adjudicated and is managed by OCWD, TIC has reserved water rights from conveyances of its lands as development over the Subbasin has occurred, and under the Irvine Subbasin Agreement TIC will transfer its rights to IRWD.

(v) Second Amended and Restated Agreement Between Orange County Water District and Irvine Ranch Water District Regarding the Irvine Desalter Project, dated June 11, 2001, and other agreements referenced therein. This agreement provides for the extraction and treatment of subpotable groundwater from the Irvine Subbasin, a portion of the Basin. As is the case with the remainder of the Basin, IRWD's entitlement to extract this water is not adjudicated, but the use of the entitlement is governed by the OCWD Act. (See also, discussion of Irvine Subbasin in the preceding paragraph.) A portion of the product water will be delivered into the IRWD potable system, and the remainder will be delivered into the IRWD nonpotable system.

West Irvine Wells (under development)

(vi) IRWD is pursuing the installation of production facilities in the west Irvine portion of the Basin, located approximately between the 55 freeway and Peters Canyon Channel. This supply is considered to be under development; however, one well has been drilled (1992), a site for an additional well and treatment facility has been acquired by IRWD, and IRWD is in negotiation for the purchase of a third well site. The production facilities can be constructed and operated under the Act; no statutory or contractual approval is required to do so. See discussion of the Act under Potable Supply - Groundwater, paragraph (i), above.

•NONPOTABLE SUPPLY - RECLAIMED

Water Reclamation Plants (currently available)

Water Code Section 1210. IRWD supplies its own reclaimed water from wastewater collected by IRWD and delivered to IRWD's Michelson Water Reclamation Plant (MWRP) and Los Alisos Water Reclamation Plant (LAWRP).

MWRP currently has a permitted capacity of 18 million gallons per day (MGD) and LAWRP currently has a permitted capacity of 5.5 MGD. Water Code Section 1210 provides that the owner of a wastewater treatment plant operated for the purposes of treating wastes from a sanitary sewer system holds the exclusive right to the treated effluent as against anyone who has supplied the water discharged into the sewer system. IRWD's permits for the operation of MWRP and LAWRP allow only irrigation and other customer uses of reclaimed water, and do not permit stream discharge of reclaimed water; thus, no issue of downstream appropriation arises, and IRWD is entitled to deliver all of the effluent to meet contractual and customer demands.

Water Reclamation Plant Expansion (under development)

IRWD has prepared its Waste Water Management and Action Program Final Environmental Impact Report (November, 1979) to address impacts associated with its Wastewater Management and Action Program (WMAP). IRWD plans to increase its capacity on the existing plant sites to produce sufficient reclaimed water to meet the projected demand in the year 2025. (Initial capacity increases that are within existing permit authorizations and CEQA compliance are underway.) Additional reclamation capacity will augment local nonpotable supplies and improve reliability.

•**NONPOTABLE SUPPLY - IMPORTED**⁵

Baker Pipeline (currently available)

Santiago Aqueduct Commission Joint Powers Agreement, dated September 11, 1961, as amended December 20, 1974, January 13, 1978, November 1, 1978, September 1, 1981, October 22, 1986, and July 8, 1999 (the "SAC Agreement"); Agreement Between Irvine Ranch Water District and Carma-Whiting Joint Venture Relative to Proposed Annexation of Certain Property to Irvine Ranch Water District, dated May 26, 1981 (the "Whiting Annexation Agreement"). Service connections OC-13/13A, OC-33/33A. The imported untreated water pipeline initially known as the Santiago Aqueduct and now known as the Baker Pipeline was constructed under the SAC Agreement, a joint powers agreement. The Baker Pipeline is connected to MWD's Santiago Lateral. IRWD's capacity in the Baker Pipeline includes the capacity it subleases as successor to LAWD, as well as capacity rights IRWD acquired through the Whiting Annexation Agreement. (To finance the construction of AMP parallel untreated reaches which were incorporated into the Baker Pipeline, replacing original SAC untreated reaches that were made a part of the AMP potable system, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership, and the participants would be sublessees.) IRWD has 52.70 cfs in the first reach, 12.50 cfs in each of the second, third and fourth reaches and 7.51 cfs in the fifth reach of the Baker Pipeline. Water is subject to availability from MWD.

⁵ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

•NONPOTABLE SUPPLY - NATIVE

Irvine Lake (currently available)

(i) Permit For Diversion and Use of Water (Permit No. 19306) issued pursuant to Application No. 27503; License For Diversion and Use of Water (License 2347) resulting from Application No. 4302 and Permit No. 3238; License For Diversion and Use of Water (License 2348) resulting from Application No. 9005 and Permit No. 5202. The foregoing permit and licenses, jointly held by IRWD (as successor to The Irvine Company (TIC) and Carpenter Irrigation District (CID)) and Serrano Water District (SWD), secure appropriative rights to the flows of Santiago Creek. Under Licenses 2347 and 2348, IRWD and SWD have the right to diversion by storage at Santiago Dam (Irvine Lake) and a submerged dam, of a total of 25,000 AFY. Under Permit No. 19306, IRWD and SWD have the right to diversion by storage of an additional 3,000 AFY by flashboards at Santiago Dam (Irvine Lake). (Rights under Permit No. 19306 may be junior to an OCWD permit to divert up to 35,000 AFY of Santiago Creek flows to spreading pits downstream of Santiago Dam.) The combined total of native water that may be diverted to storage under these licenses and permit is 28,000 AFY. A 1996 amendment to License Nos. 2347, 2348 and 2349 [replaced by Permit No. 19306 in 1984] limits the withdrawal of water from the Lake to 15,483 AFY under the licenses. This limitation specifically references the licenses and doesn't reference water stored pursuant to other legal entitlements. The use and allocation of the native water is governed by the agreements described in the next paragraph.

(ii) Agreement, dated February 6, 1928 ("1928 Agreement"); Agreement, dated May 15, 1956, as amended November 12, 1973 ("1956 Agreement"); Agreement, dated as of December 21, 1970 ("1970 Agreement"); Agreement Between Irvine Ranch Water District and The Irvine Company Relative to Irvine Lake and the Acquisition of Water Rights In and To Santiago Creek, As Well As Additional Storage Capacity in Irvine Lake, dated as of May 31, 1974 ("1974 Agreement"). The 1928 Agreement was entered into among SWD, CID and TIC, providing for the use and allocation of native water in Irvine Lake. Through the 1970 Agreement and the 1974 Agreement, IRWD acquired the interests of CID and TIC, leaving IRWD and SWD as the two co-owners. TIC retains certain reserved rights. The 1928 Agreement divides the stored native water by a formula which allocates to IRWD one-half of the first 1,000 AF, plus increments that generally yield three-fourths of the amount over 1,000 AF.⁶ The agreements also provide for evaporation and spill losses and carryover water remaining in the Lake at the annual allocation dates. Given the dependence of native water on rainfall, for purposes of this assessment only a small portion of IRWD's share of the 28,000 AFY of native water rights (4,000 AFY in normal years and 1,000 AFY in single and multiple-dry years) is shown in currently available supplies, based on averaging of historical data. However, IRWD's ability to supplement Irvine Lake storage with its imported untreated water supplies, described herein, offsets the uncertainty associated with the native water supply.

⁶ The 1956 Agreement provides for facilities to deliver MWD imported water into the Lake, and grants storage capacity for the imported water. By succession, IRWD owns 9,000 AFY of this 12,000 AFY imported water storage capacity. This storage capacity does not affect availability of the imported supply, which can be either stored or delivered for direct use by customers.

• NONPOTABLE SUPPLY - GROUNDWATER

Irvine Subbasin / Irvine Desalter (currently available)

(i) IRWD's entitlement to produce nonpotable water from the Irvine Subbasin is included within the Irvine Subbasin Agreement. See discussion of the Irvine Subbasin Agreement under Potable Supply - Groundwater, paragraph (iv), above.

(ii) See discussion of the Irvine Desalter project under Potable Supply - Groundwater, paragraph (v), above. The Irvine Desalter project will produce nonpotable as well as potable water.

• IMPORTED SUPPLY - ADDITIONAL INFORMATION

As described above, the imported supply from MWD is contractually subject to availability. To assist local water providers in assessing the adequacy of local water supplies that are reliant in whole or in part on MWD's imported supply, MWD has provided information concerning the availability of the supplies to its entire service area. This report, entitled "Report on Metropolitan's Water Supplies" (March 25, 2003) ("MWD Report"), is consistent with MWD's Regional Urban Water Management Plan (December, 2000) ("RUWMP"). The MWD Report indicates that MWD's regional water demand projections used in the RUWMP are 6% to 16% percent higher than the aggregated projections of MWD's member agencies. As stated in the MWD Report, "this difference indicates that Metropolitan's supplies, developed in accordance with this water supply update, provide a level of "margin of safety" or flexibility to accommodate delays in local resource development or adjustments in development plans."

The MWD Report is intended to serve four primary purposes, described therein

"Address recent changes in demand and supply conditions as compared to Metropolitan's December 2000 Regional Urban Water Management Plan and February 11, 2002 *Report on Metropolitan's Supplies.*"

"Demonstrate Metropolitan's abilities to meet projected demands over the next 20 years and provide additional resource reserves as a "margin-of-safety" that mitigates against uncertainties in demand projections and risks in implementing supply programs."

"Demonstrate that Metropolitan has a blueprint for water supply reliability and is implementing a comprehensive plan to secure reliable water supplies in accordance with policy principles and objectives established by Metropolitan's Board of Directors."

"Provide a planning tool for local and retail agencies providing local water supplies."

The MWD Report finds "Metropolitan has and will continue to have the capability to develop supplies that are available at least ten years in advance of need and

ensure water supply reliability.” Furthermore, demand and supply comparisons “demonstrate that sufficient supplies can be reasonably relied upon to meet projected supplemental demands and that additional reserve supplies could provide a “margin of safety” to mitigate against uncertainties in demand projections and risks in fully implementing all supply programs under development.”

More particularly, MWD has documented sufficient *currently available* supplies to meet 100% of MWD’s member agencies’ supplemental water demands for 20 years under average-year conditions, for 15 years under multiple dry-year conditions (with 8-26% reserve capacity), and for 15 years under single dry-year conditions (with 8-25% reserve capacity). With the addition of *supplies under development*, MWD will be able to meet 100% of its agencies’ supplemental water needs under all supply and demand conditions through 2030 with 20-25% reserve capacity. Reference is made to the MWD Report for more detailed discussion. It is anticipated that MWD will revise its regional supply availability analysis annually to supplement its RUWMP in years when the RUWMP is not being updated.

IRWD is permitted by the statute to rely upon the water supply information provided by the wholesaler concerning a wholesale water supply source, for use in preparing its UWMPs. In turn, the Assessment Law provides for the use of UWMP information to support water supply assessments. In accordance with these provisions, IRWD is entitled to rely upon the conclusions of the MWD Report. IRWD has not been made aware of any significant changes that would adversely affect those conclusions. In a detailed May 14, 2003 report, San Diego County Water Authority (SDCWA) questioned several conclusions of the MWD Report. MWD has provided a reply dated July 17, 2003, containing a general response that SDCWA’s assertions are based on outdated water resource management strategies. MWD’s reply discusses several MWD supply capabilities which MWD states were overlooked by SDCWA, and is accompanied by MWD’s detailed responses to the specific criticisms.

MWD’s margin of safety in its demand projections and MWD’s reserve supplies, together with the fact that IRWD relies on MWD supplies as supplemental supplies that need not be used to the extent IRWD operates *currently available* and *under-development* local supplies, build a margin of safety into IRWD’s supply availability.

(2) Adopted capital outlay program to finance delivery of the water supplies.

All necessary delivery facilities currently exist for the use of the *currently available* and *under-development* supplies assessed herein, with the exception of west Irvine wells, MWRP expansion and IRWD sub-regional and developer-dedicated conveyance facilities necessary to complete the local distribution systems for the Project. IRWD’s turnout at each MWD connection and IRWD’s regional delivery facilities are sufficiently sized to deliver all of the supply to the subregional and local distribution systems.

With respect to west Irvine wells (PR No.19540) and the MWRP expansion (PR Nos. 202147 and 20276), IRWD has adopted its fiscal year 2004/05 capital

budget on June 14, 2004 (Resolution No. 2004-20), budgeting portions of the funds for such projects. (A copy is available from IRWD on request.) For these facilities, as well as unbuilt IRWD sub-regional conveyance facilities, the sources of funding are previously authorized general obligation bonds, revenue-supported certificates of participation and/or capital funds held by IRWD Improvement Districts. IRWD has maintained a successful program for the issuance of general obligation bonds and certificates of participation on favorable borrowing terms, and IRWD has received AA public bond ratings. IRWD has approximately \$500 million (water) and \$720 million (wastewater) of unissued, voter-approved bond authorization. Certificates of participation do not require voter approval. Proceeds of bonds and available capital funds are expected to be sufficient to fund all IRWD facilities for delivery of the supplies under development. Tract-level conveyance facilities are required to be donated to IRWD by the Applicant or its successor(s) at time of development.

(3) Federal, state and local permits for construction of delivery infrastructure.

Most IRWD delivery facilities are constructed in public right-of-way or future right-of-way. State statute confers on IRWD the right to construct works along, under or across any stream of water, watercourse, street, avenue, highway, railway, canal, ditch or flume (Water Code Section 35603). Although this right cannot be denied, local agencies may require encroachment permits when work is to be performed within a street. If easements are necessary for delivery infrastructure, IRWD requires the developer to provide them. The crossing of watercourses or areas with protected species requires federal and/or state permits as applicable.

(4) Regulatory approvals for conveyance or delivery of the supplies.

See response to preceding item (3). In addition, reclamation plant expansion will require approval of amendments to IRWD's permits issued by the Regional Water Quality Control Board.

3. Other users and contractholders (identified supply not previously used).

For each of the water supply sources identified by IRWD, if no water has been received from that source(s), IRWD is required to identify other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, that source(s):

Water has been received from all listed sources. Water has not been produced from the Irvine Desalter, which has not been constructed, but other Irvine Subbasin water has been produced by IRWD. As described under Potable Supply - Groundwater, paragraph (iv), TIC also holds water rights and contractual entitlements to the Irvine Subbasin groundwater, but existing contract provides that those rights and entitlements will be transferred to IRWD. A small quantity of Subbasin water is used by Woodbridge Village Association for the purpose of supplying its North and South Lakes. There are no other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, the Irvine Subbasin.

4. Information concerning groundwater included in the supply identified for the Project:

(a) Relevant information in the Urban Water Management Plan (UWMP):

See Irvine Ranch Water District 2000 UWMP, section III-3.

(b) Description of the groundwater basin(s) from which the Project will be supplied:

The Orange County Groundwater Basin ("Basin") is described at pages 3-1 through 3-14 of the OCWD Master Plan Report, dated April, 1999 ("MPR"). The rights of the producers within the Basin vis a vis one another have not been adjudicated. The Basin is managed by the Orange County Water District (OCWD) for the benefit of municipal, agricultural and private groundwater producers. OCWD is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin. Current production from the Basin is approximately 297,192 AFY.

The Department of Water Resources has not identified the Basin as overdrafted in its most current bulletin that characterizes the condition of the Basin, Bulletin 118 (2003). The efforts being undertaken by OCWD to eliminate long-term overdraft in the Basin are described in the OCWD MPR, including in particular, Chapters 4, 5, 6, 14 and 15 of the MPR. Although the water supply assessment statute (Water Code Section 10910(f)) refers to elimination of "long-term overdraft," overdraft includes conditions which may be managed for optimum basin storage, rather than eliminated. OCWD's Act defines annual groundwater overdraft to be the quantity by which production exceeds the natural replenishment of the Basin. Accumulated overdraft is defined in the OCWD Act to be the quantity of water needed in the groundwater basin forebay to prevent landward movement of seawater into the fresh groundwater body. However, seawater intrusion control facilities have been constructed by OCWD since the Act was written, and have been effective in preventing landward movement of seawater. These facilities allow greater utilization of the storage capacity of the Basin.

OCWD has invested over \$250 million in seawater intrusion control (injection barriers), recharge facilities, laboratories, and Basin monitoring to effectively manage the Basin. Consequently, although the Basin is defined to be in an "overdraft" condition, it is actually managed to allow utilization of up to 500,000 acre-feet of storage capacity of the basin during dry periods, acting as an underground reservoir and buffer against drought. OCWD also operates the basin to keep the target dewatered basin storage at 200,000 acre-feet as an appropriate accumulated overdraft. If the Basin is too full, artesian conditions can occur along the coastal area, causing rising water and water logging, an adverse condition. Since the formation of OCWD in 1933, OCWD has made substantial investment in facilities, Basin management and water rights protection, resulting in the elimination and prevention of adverse long-term "mining" overdraft conditions. OCWD continues to develop new replenishment supplies, recharge capacity and basin protection measures to meet projected production from the basin during normal rainfall and drought periods. (Source: 2002-2003 Engineer's Report on Groundwater Conditions, Water Supply and

Basin Utilization in the Orange County Water District; OCWD MPR, *supra*.)

OCWD's efforts include ongoing replenishment programs and planned capital improvements. It should be noted under OCWD's management of overdraft to maximize its use for annual production and recharge operations, overdraft varies over time as the Basin is managed to keep it in balance over the long term. The Basin is not operated on an annual safe-yield basis. (OCWD MPR, section 3.2)

(c) Description and analysis of the amount and location of groundwater pumped by IRWD from the Basin for the past five years:

The following table shows the amounts pumped, by groundwater source:

(In AFY)

Year (ending 6/30)	DRWF/DATS	Irvine Subbasin (IRWD)	Irvine Subbasin (TIC)	LAWD ⁷
2004	30,265	1,938	3,079	101
2003	24,040	2,132	4,234	598
2002	25,855	2,533	5,075	744
2001	20,377	1,687	3,967	543
2000	20,580	2,890	4,862	346

(d) Description and analysis of the amount and location of groundwater projected to be pumped by IRWD from the Basin:

IRWD has a developed groundwater supply of 35,200 AFY from the its Dyer Road Wellfield (including the Deep Aquifer Treatment System), in the main portion of the Basin.

Although TIC's production from the Subbasin has declined as its use of the Subbasin for agricultural water has diminished, OCWD's and other historical production records for the Subbasin show that production has been as high as 13,000 AFY. Under the Irvine Subbasin Agreement, all of the Subbasin production capability will be turned over by TIC to IRWD. Plans are also underway to expand IRWD's main Orange County Groundwater Basin supply, with wells in the West Irvine Wellfield (characterized as *under-development* supplies herein). (IRWD anticipates the development of additional production facilities within both the main Basin and the Irvine Subbasin. However, such additional facilities have not been included or relied upon in this assessment. Additional groundwater development will provide an additional margin of safety as well as reduce future water supply costs to IRWD.)

⁷ The water produced from IRWD's Los Alisos wells is not included in this assessment. IRWD is presently evaluating the future use of these wells.

The following table summarizes future IRWD groundwater production from currently available and under-development supplies.

(In AFY)

Year (ending 6/30)	DRWF ⁸	W Irvine ⁹	Subbasin ¹⁰	IDP (Potable)	IDP (Nonpotable)
2005	35,200	0	4,800	5,568	2,282
2010	35,200	12,700	4,800	5,568	2,282
2015	35,200	12,700	4,800	5,568	2,282
2020	35,200	12,700	4,800	5,568	2,282
2025	35,200	12,700	4,800	5,568	2,282

(e) If not included in the UWMP, analysis of the sufficiency of groundwater projected to be pumped by IRWD from the Basin to meet to meet the projected water demand of the Project:

See responses to 4(b) and 4(d).

The OCWD MPR examined future Basin conditions and capabilities, water supply and demand, and identified projects to meet increased replenishment needs of the basin. According to the OCWD MPR, production from the Basin can be maintained at 75% of the Basin producers' 2020 demand level, including demands from areas in IRWD and other producers to be annexed to OCWD.¹¹

Sufficient replenishment supplies are projected by the OCWD MPR to be available to OCWD to meet the increasing demand on the Basin. These supplies include capture of increasing Santa Ana River flows, purchases of replenishment water from MWD, and development of new local supplies. OCWD is moving forward with a number of replenishment supply projects, including the Groundwater Replenishment System project ("GWRS"). The OCWD MPR indicates that the GWRS will produce over 100,000 afy of new replenishment supply from recycled water.

Production of groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or

⁸ See Potable Supply - Groundwater, paragraph (iii), above. DRWF non-colored production above 28,000 AFY and colored water production above 8,000 AFY are subject to contractually-imposed assessments. In addition, seasonal production amounts apply.

⁹ Under development.

¹⁰ Subbasin potable water production (other than Irvine Desalter Project). Amounts shown are available as potable-quality production, without treatment.

¹¹ OCWD adopted a basin production percentage of 66% for 2004 and the basin production percentage could be further reduced. This is anticipated by IRWD to be a temporary measure employed by OCWD to encourage lower pumping levels as OCWD implements other measures to reduce the current accumulated overdraft in the Basin. This reduction is not expected to affect any of IRWD's currently available groundwater supplies listed in this assessment, which are subject to a contractually-set equivalent basin production percentage as described, or are exempt from the basin production percentage.

emergencies. Additional groundwater production is anticipated by OCWD in the Basin in dry years, as producers reduce their use of imported supplies, and the Basin is “mined” in anticipation of the eventual availability of replenishment water. (OCWD MPR, section 14.6.)

See also, Figures 1-8. IRWD assesses sufficiency of supplies on an aggregated basis, as neither groundwater nor other supply sources are allocated to particular projects or customers. Under the Irvine Subbasin Agreement, IRWD is contractually obligated to attribute the Subbasin supply only to TIC development projects for assessment purposes; however, the agreement does not allocate or assign rights in the Subbasin supply to any project.

5. This Water Supply Assessment is being completed for a project included in a prior water supply assessment. Date of prior assessment: _____ . Check all of the following that apply:

- Changes in the Project have substantially increased water demand.
- Changes in circumstances or conditions have substantially affected IRWD’s ability to provide a sufficient water supply for the Project.
- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment.

6. References

Water Resources Master Plan, Irvine Ranch Water District, March, 2002 (supplemented January, 2004)

2000 Urban Water Management Plan, Irvine Ranch Water District/Los Alisos Water District, December, 2000

The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December, 2000

Southern California’s Integrated Resources Plan, Metropolitan Water District of Southern California, March, 1996

Report on Metropolitan’s Water Supplies, Metropolitan Water District of Southern California, March 25, 2003

Master Plan Report, Orange County Water District, April, 1999

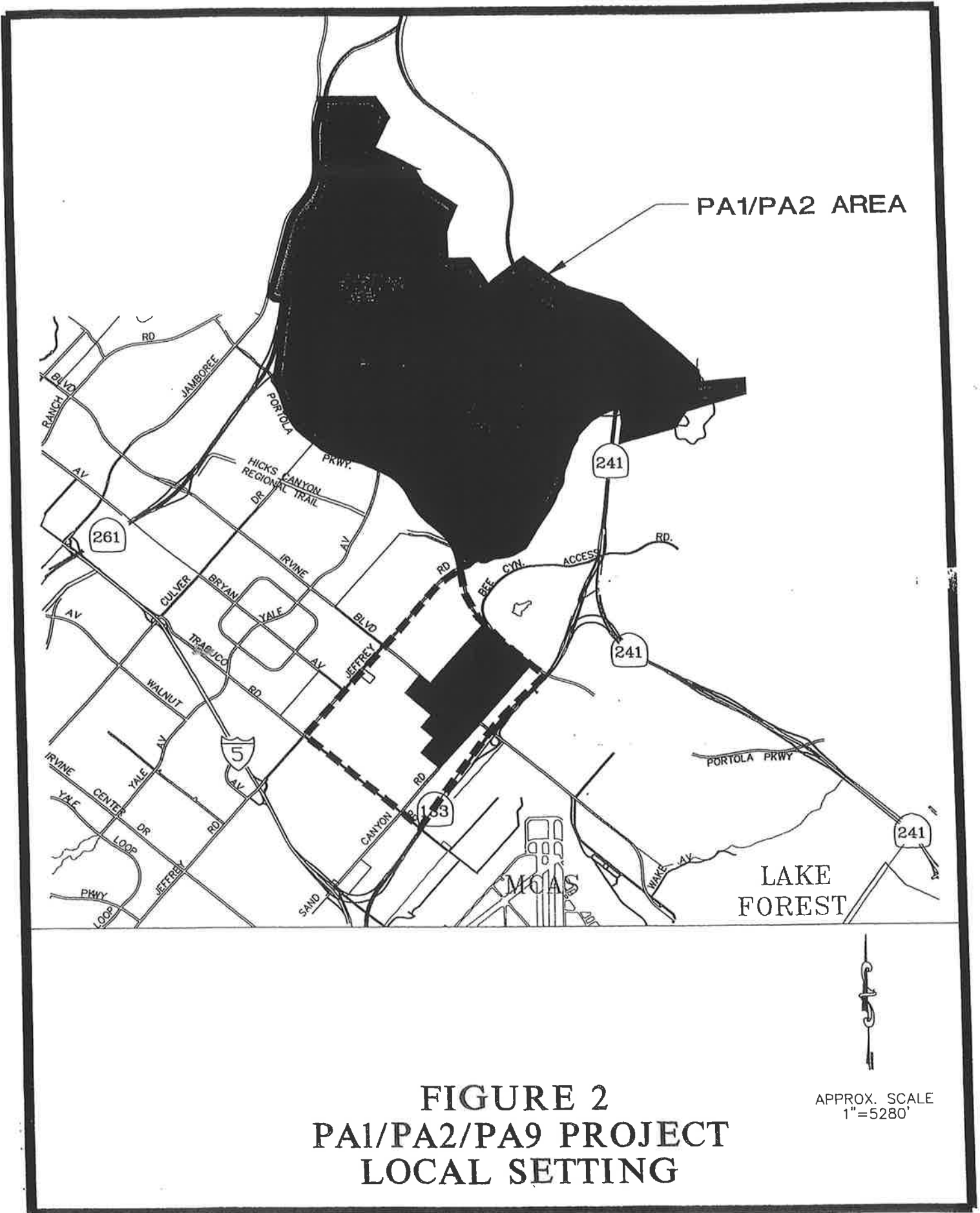
2002-2003 Engineer’s Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District

Review of Report on Metropolitan’s Water Supplies, San Diego County Water Authority Water Policy Committee board letter, May 14, 2003

Response to San Diego County Water Authority Review of the “Report on Metropolitan’s Water Supplies”, Metropolitan Water District of Southern California letter, July 17, 2003

Exhibit A

Depiction of Project Area



**FIGURE 2
PA1/PA2/PA9 PROJECT
LOCAL SETTING**

Exhibit B

Uses Included in Project



May 14, 2004

ENGINEERING AND PLANNING
MAY 17 2004
IRVINE RANCH
WATER DISTRICT

Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000

Re: Request for Water Supply Availability Assessment (Water Code §10910 *et seq.*)

The City of Irvine hereby requests an assessment of water supply availability for the below-described project. The City has determined that the project is a "project" as defined in Water Code §10912, and has determined that an environmental impact report (EIR) is required for the project. The Notice of Preparation of the draft EIR was sent to your agency on April 15, 2004.

Proposed Project Information

Project Title: General Plan Amendment, Zone Change, and Annexation for Planning Area 1 and 2 and a portion of Planning Area 9

Location of project: The project area is located in unincorporated Orange County within the City's Sphere of Influence (see Figure 1). Planning Areas 1 and 2 are located north of Portola Parkway and east of the City of Tustin and SR-261. Planning Area 9 is located west of SR-133 and south of Portola Parkway (see Figure 2).

A previous Water Supply Assessment that included the Planning Area 9 portion of the project was prepared on March 12, 2002.

This application requests a new Water Supply Assessment, due to the following (check all that apply):

- Changes in the project have substantially increased water demand
- Changes in circumstances or conditions have substantially affected IRWD's ability to provide a sufficient water supply for the project
- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment

Type of Development:

- Residential: No. of dwelling units: PA 1&2 - 4,310 DU; PA 9 - additional 1,593 DU
- Shopping center or business: No. of employees: NA Sq. ft. of floor space: 200,000
- Commercial office: No. of employees _____ Sq. ft. of floor space _____
- Hotel or motel: No. of rooms _____
- Industrial, manufacturing, processing or industrial park: No. of employees _____
- No. of acres _____ Sq. ft. of floor space _____
- Mixed use (check and complete all above that apply)
- Other: Deletion of 2,566,000 sq ft of Medical and Science from PA 9

Total acreage of project: PA1&2 - 4,235 ac; PA9 - 1,277 ac (no change)

Acreage devoted to landscape:

Greenbelt NA golf course none parks NA
 Agriculture 508 ac other landscaped areas 2,205 ac Preservation

Number of schools Two elementary schools Number of public facilities NA

Other factors or uses that would affect the quantity of water needed, such as peak flow requirements or potential uses to be added to the project to reduce or mitigate environmental impacts:

Hillside development may impact fire flow requirements.

What is the current land use of the area subject to a land use change under the project?
Undeveloped land with major portions devoted to interim agricultural uses.

Is the project included in the existing General Plan? Yes If no, describe the existing General Plan Designation. The overall development intensity has been contemplated within the existing General Plan; however, the applicant proposes to relocate 1,593 residential units from Planning Area 1 and 2 to Planning Area 9 and delete 2,566,000 square feet of Medical and Science from Planning Area 9.

The City acknowledges that IRWD's assessment will be based on the information hereby provided to IRWD concerning the project. If it is necessary for corrected or additional information to be submitted to enable IRWD to complete the assessment, the request will be considered incomplete until IRWD's receipt of the corrected or additional information. If the project, circumstances or conditions change or new information becomes available after the issuance of a Water Supply Assessment, the Water Supply Assessment may no longer be valid. The City will request a new Water Supply Assessment if it determines that one is required.

The City acknowledges that the Water Supply Assessment shall not constitute a "will-serve" or in any way entitle the project applicant to service or to any right, priority or allocation in any supply, capacity or facility, and that the issuance of the Water Supply Assessment shall not affect IRWD's obligation to provide service to its existing customers or any potential future customers

including the project applicant. In order to receive service, the project applicant shall be required to file a completed Application(s) for Service and Agreement with the Irvine Ranch Water District on IRWD's forms, together with all fees and charges, plans and specifications, bonds and conveyance of necessary easements, and meet all other requirement as specified therein.

CITY OF IRVINE:

By: Alan Worthington
Principal Planner

REQUEST RECEIVED:

Date: 6/14/04
By: Kelli Welch
Irvine Ranch Water District

REQUEST COMPLETE:

Date: 6/14/04
By: [Signature]
Irvine Ranch Water District



May 27, 2004

ENGINEERING AND PLANNING

MAY 28 2004

**IRVINE RANCH
WATER DISTRICT**

Kelli Welch
Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000

Re: Request for Water Supply Availability Assessment (Water Code §10910 *et seq.*)

In response to your May 24, 2004, telephone request for additional information, the City of Irvine is providing a breakdown of the proposed General Plan amendments to Planning Areas 1 & 2 and to Planning Area 9. This information supplements our May 14, 2004, request for a water supply availability assessment.

Planning Areas 1 and 2

The City is requesting that IRWD prepare a new water supply availability assessment as no previous assessment directly related to these planning areas has been conducted.

Planning Area	Estate Residential 0-1 DU	Low Density Residential 0-5 DU	Community Commercial
Existing PA1	222	4,380	23,769
Existing PA2	25	1,276	0
Total	247	5,656	23,769
Proposed changes in development intensity with this GPA	(-247)	(-1,346)	+ 176,231
Proposed development intensity in new Planning Area 1 (combining PAs 1 & 2)	0	4,310	200,000

Planning Area 9

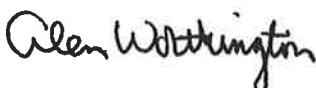
The City is requesting that IRWD prepare a revision to a previous water supply availability assessment for this planning area. This planning area was included in the Northern Sphere water supply availability assessment and updated on April 6, 2004, in conjunction with a City-initiated General Plan amendment for Subarea 9C. Please note that the 9C General Plan amendment has not yet been reviewed or approved by the City Council of the City of Irvine.

Planning Area	Medium Density Residential 0-10 DU	Medium-High Density Residential 0-25 DU	Multi-Use Sq. Ft.	Research/Industrial Sq. Ft.
Existing PA9 (approved as part of the Northern Sphere GPA)	3,750	1,800	450,000	4,166,000
Proposed changes in development intensity with 9C GPA		+3,000		(-1,600,000)
Subtotal with 9C GPA	3,750	4,800	450,000	2,566,000
Proposed changes in development intensity with this GPA	+1,593	0	0	(-2,566,000)
Proposed development intensity in PA9 with both GPAs	5,343	4,800	450,000	0

The City wants IRWD to analyze the water supply availability for Planning Area 9 using the combined changes proposed by both General Plan amendments as shown in the last row of the table above.

The City assumes that this additional information will enable IRWD to complete the water supply availability assessment for the proposed General Plan amendment to both Planning Areas 1 & 2 and to Planning Area 9. If you need additional information, please do not hesitate to call me at (949) 724-6370.

Sincerely,



GLEN WORTHINGTON
 Principal Planner

Water Supply Assessment Information

Purpose of Assessment

Irvine Ranch Water District (“IRWD”) has been identified by the City as a public water system that will supply water service (both potable and nonpotable) to the project identified on the cover page of this assessment (the “Project”). As the public water system, IRWD is required by Section 10910 *et seq.* of the Water Code to provide the City with an assessment of water supply availability (“assessment”) for defined types of projects. The Project has been found by the City to be a project requiring an assessment. The City is required to include this assessment in the environmental document for the Project, and, based on the record, make a determination whether projected water supplies are sufficient for the Project and existing and planned uses.

Water Code Section 10910 *et seq.* (the “Assessment Law”) contains the requirements for the information to be set forth in the assessment.

Prior Water Supply Assessments

IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area. Because of IRWD’s aggregation of demands and supplies, each assessment completed by IRWD is expected to be generally similar to the most recent assessment, with changes as needed to take into account changes, if any, in demands and supplies, and any updated and corrected information obtained by IRWD. Previously assessed projects’ water demands will be included in the baseline. A newly assessed project’s water demand will have been included in previous water supply assessments for other projects (as part of IRWD’s “full build-out” demand) to the extent of any land use planning or other water demand information for the project that was available to IRWD.

The Project’s water demand was included (as part of IRWD’s “full build-out” demand) in previous water supply assessments performed by IRWD. In this water supply assessment, the Project demand will be revised in accordance with updated information provided by the applicant and included in the “with project” demand. This Amended Assessment supersedes the Assessment dated December 17, 2007, to adjust water demand figures as shown in Figures 1 through 8 in order to reflect the effect on the Project of the proposed land use change designated “Planning Area (PA) 12 and PA 40 General Plan Amendment and Zone Change Project,” as requested by the letter from the City of Irvine dated April 28, 2017 (see Exhibit B).

Supporting Documentation

IRWD prepares two planning documents to guide water supply decision-making. IRWD’s principal planning document is IRWD’s “Water Resources Master Plan” (“WRMP”). The WRMP is a comprehensive document compiling data and analyses that IRWD considers necessary for its planning needs. IRWD also prepares an Urban Water Management Plan (“UWMP”), a document required by statute. The UWMP is based on the WRMP, but contains defined elements as listed in the statute (Water Code Section 10631 *et seq.*), and, as a result, is more limited than the WRMP in the treatment of supply and demand issues. Therefore, IRWD primarily relies on its most recent WRMP. The UWMP is required to be updated in years ending with “five” and “zero,” and IRWD’s most recent update of that document was adopted June 27, 2016.

In addition to the WRMP and the 2015 UWMP mentioned above, other supporting documentation referenced herein is found in Section 6 of this assessment.

Due to the number of contracts, statutes and other documents comprising IRWD's written proof of entitlement to its water supplies, in lieu of attachment of such items, they are identified by title and summarized in Section 2(b) of this assessment (written contracts/proof of entitlement). Copies of the summarized items can be obtained from IRWD.

Assessment Methodology

Water use factors; dry-year increases. IRWD employs water use factors to enable it to assign water demands to the various land use types and aggregate the demands. The water use factors are based on average water use and incorporate the effect of IRWD's tiered-rate conservation pricing and its other water conservation programs. The factors are derived from historical usage (billing data) and a detailed review of water use factors within the IRWD service areas conducted as a part of the WRMP. System losses at a rate of approximately 5% are built into the water use factors. Water demands also reflect normal hydrologic conditions (precipitation). Lower levels of precipitation and higher temperatures will result in higher water demands, due primarily to the need for additional water for irrigation. To reflect this, base (normal) WRMP water demands have been increased 7% in the assessment during both "single-dry" and "multiple-dry" years. This is consistent with IRWD's 2015 UWMP and historical regional demand variation as documented in the Metropolitan Water District of Southern California's ("MWD's") Integrated Resources Plan (1996) (Volume 1). This increase in estimated demands is also consistent with MWDOC's 2015 UWMP which assumes increased demands in single dry and multiple dry years of 6% based on MWDOC's Orange County Reliability Study (MWDOC 2015 UWMP, pg. 3-42).

Planning horizon. For consistency with IRWD's WRMP, the assessment reviews demands and supplies through the year 2037, which is considered to represent build-out or "ultimate development".

Assessment of demands. Water demands are reviewed in this assessment for three development projections (to 2037):

- Existing and committed demand (without the Project) ("baseline"). This provides a baseline condition as of the date of this assessment, consisting of demand from existing development, plus demand from development that has both approved zoning and (if required by the Assessment Law) an adopted water supply assessment.
- Existing and committed demand, plus the Project ("with-project"). This projection adds the Project water demands to the baseline demands.
- Full WRMP build-out ("full build-out"). In addition to the Project, this projection adds potential demands for all presently undeveloped areas of IRWD based on current general plan information, modified by more specific information available to IRWD, as more fully described in Chapter 2 of the WRMP.

Assessment of supplies. For comparison with demands, water supplies are classified as *currently available* or *under development*:

- *Currently available* supplies include those that are presently operational, and those that will be operational within the next several years. Supplies expected to be operational in the next several years are those having completed or substantially completed the environmental and regulatory review process, as well as having necessary contracts (if any) in place to move forward. These supplies are in various stages of planning, design, or construction.
- In general, supplies *under development* may necessitate the preparation and completion of environmental documents, regulatory approvals, and/or contracts prior to full construction and implementation.

IRWD is also evaluating the development of additional supplies that are not included in either *currently available* or *under-development* supplies for purposes of this assessment. As outlined in the WRMP, prudent water supply and financial planning dictates that development of supplies be phased in over time consistent with the growth in demand.

Water supplies available to IRWD include several sources: groundwater pumped from the Orange County groundwater basin (including the Irvine Subbasin); captured local (native) surface water; recycled sewage; and supplemental imported water supplied by MWD through the Municipal Water District of Orange County (“MWD OC”). The supply-demand comparisons in this assessment are broken down among the various sources, and are further separated into potable and nonpotable water sources.

Comparison of demand and supply. The three demand projections noted above (baseline, with-project and full build-out) are compared with supplies in the following ways:

- On a total *annual* quantity basis (stated in acre-feet per year (“AFY”)).
- On a *peak-flow* (maximum day) basis (stated in cubic feet per second (“cfs”)).
- Under three climate conditions: base (normal) conditions and single-dry and multiple-dry year conditions. (Note: These conditions are compared for *annual* demands and not for *peak-flow* demands. *Peak-flow* is a measure of a water delivery system’s ability to meet the highest day’s demand of the fluctuating demands that will be experienced in a year’s time. Peak demands occur during the hot, dry season and as a result are not appreciably changed by dry-year conditions; dry-year conditions do affect *annual* demand by increasing the quantity of water needed to supplement normal wet-season precipitation.)

Summary of Results of Demand-Supply Comparisons

Listed below are Figures provided in this assessment, comparing projected potable and nonpotable water supplies and demands under the three development projections:

- Figure 1: Normal Year Supply and Demand – Potable Water
- Figure 2: Single Dry-Year Supply and Demand – Potable Water
- Figure 3: Multiple Dry-Year Supply and Demand – Potable Water
- Figure 4: Maximum-Day Supply and Demand – Potable Water

- Figure 5: Normal Year Supply and Demand – Nonpotable Water
- Figure 6: Single Dry-Year Supply and Demand – Nonpotable Water
- Figure 7: Multiple Dry-Year Supply and Demand – Nonpotable Water
- Figure 8: Maximum-Day Supply and Demand – Nonpotable Water

It can be observed in the Figures that IRWD's *supplies* remain essentially constant between normal, single-dry and multiple-dry years. This result is due to the fact that groundwater and MWD imported water account for the majority of all of IRWD's potable supply, and recycled water, groundwater and imported water comprise all of IRWD's nonpotable supply. Groundwater production typically remains constant or increases in cycles of dry years, even if overdraft of the basin temporarily increases, as groundwater producers reduce their demand on imported supplies to secure reliability. (See Section 4 herein.) As to imported water, MWD's 2015 Urban Water Management Plan (MWD UWMP) concludes that MWD has sufficient supply capabilities to meet expected demands from 2020 through 2040 under a repeat of the 1990-1992 multiple dry-year hydrology and the 1977 single dry-year hydrology. (See also Section 2(b) (1) "IMPORTED SUPPLY - ADDITIONAL INFORMATION," below.) Recycled water production also remains constant, and is considered "drought-proof" as a result of the fact that sewage flows remain virtually unaffected by dry years. Only a small portion of IRWD's supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years. The foregoing factors also serve to explain why there is no difference in IRWD's supplies between single-dry and multiple-dry years.

A review of the Figures indicates the following:

- *Currently available* supplies of potable water are adequate to meet projected annual demands for both the *baseline* and *with-project* demand projections under the normal year conditions through the year 2037. (Figures 1, 2 and 3.)
- Meeting both single- and multiple-dry-year annual demands for *full build-out* will require the completion of *under-development* supplies. (Figures 2 and 3.)
- Adequate *currently available* potable water supply capacity is available to meet *peak-flow* (maximum day) demands for all demand projections through the year 2037. (Figure 4.)
- With respect to nonpotable water, *currently available* supplies are adequate to meet projected annual demands for both the *baseline* and *with-project* demand projections under both dry-year conditions through the year 2037. (Figures 5, 6, 7 and 8.) IRWD has proceeded with the implementation of future nonpotable supplies, as shown in the Figures, to improve local reliability during dry-year conditions.

The foregoing Figures provide an overview of IRWD potable and nonpotable water supply capabilities. More detailed information on the anticipated development and use of supplies, which incorporates source costs and reliability issues, is provided in the WRMP.

Margins of safety. The Figures and other information described in this assessment show that IRWD's assessment of supply availability contains several margins of safety or buffers:

- “Reserve” water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projections, future changes in land use, or alterations in supply availability.
- Conservative estimates of annual potable and nonpotable *imported* supplies have been made based on connected delivery capacity (by application of peaking factors as described below in Section 2, footnote 1); additional supplies are expected to be available from these sources, based on legal entitlements, historical uses and information provided by MWD. In addition to MWD’s existing regional supply assessments, this assessment has considered MWD information concerning recent events. See “**Recent Actions on Delta Pumping,**” below.
- Information provided by MWD, as the imported water supplier, concerning the adequacy of its regional supplies, summarized herein, demonstrates MWD’s inclusion of reserves in its regional supply assessments. In addition to MWD’s existing regional supply assessments, this assessment has considered MWD information concerning recent events. See “**Recent Actions on Delta Pumping,**” below.
- Although groundwater supply amounts shown in this assessment assume production levels within applicable basin production percentages described herein, production of groundwater can exceed applicable basin production percentages on a short-term basis, which provides additional reliability during dry years or emergencies.

Recent Actions on Delta Pumping. The Sacramento/San Joaquin Delta (“Delta”) is a vulnerable component in both the State and Federal systems to convey water from northern portions of California to areas south of the Delta. Issues associated with the Delta have generally been known for years; however, most recently, the continuing decline in the number of endangered Delta smelt resulted in the filing of litigation challenging permits for the operation of the Delta pumping facilities. On August 31, 2007, a Federal court ordered interim protective measures for the endangered Delta smelt, including operational limits on Delta pumping, which have an effect on State Water Project (“SWP”) operations and supplies. On June 4, 2009, a federal biological opinion imposed rules that further restrict water diversions from the Delta to protect endangered salmon and other endangered fish species. At present, several proceedings concerning Delta operations are ongoing to evaluate options to address Delta smelt impacts and other environmental concerns. In addition to the regulatory and judicial proceedings to address immediate environmental concerns, the Delta Vision process and Bay-Delta Conservation Plan (“BDCP”) process are defining long-term solutions for the Delta. In addition, State and federal agencies and water user entities are currently engaged in the development of the BDCP/California WaterFix, which is aimed at making physical and operational improvements to the SWP system in the Delta necessary to restore and protect ecosystem health, south of Delta SWP water supplies and water quality (MWD UWMP). Prior to the 2007 court decision, MWD’s Board approved a Delta Action Plan in May 2007 that described short, mid and long-term conditions and the actions to mitigate potential supply shortages and to develop and implement long-term solutions. To address uncertainties in expected SWP supplies, in October 2007, MWD prepared 2007 IRP Implementation Report, in which MWD estimated that it could see as much as up to a 22% reduction on average of its SWP supplies based on the court order. To comprehensively address the impacts of the SWP cut back on MWD’s water supply development targets, in December 2007, MWD brought to its Board a strategy and work plan to update the long-term Integrated Resources Plan (“IRP”). As part of its ongoing long term planning, in its 2010 IRP Update, MWD identified changes to the long-term plan and established direction to address the range of potential changes in water

supply planning. The 2010 IRP also discusses dealing with uncertainties related to impacts of climate change (see additional discussion of this below), as well as actions to protect endangered fisheries. MWD's reliability goal that full-service demands at the retail level will be satisfied for all foreseeable hydrologic conditions remained unchanged in the 2010 IRP Update. The 2010 IRP Update emphasizes an evolving approach and suite of actions to address the water supply challenges that are posed by uncertain weather patterns, regulatory and environmental restrictions, water quality impacts and changes in the state and the region. MWD's Adaptive Resource Management Strategy includes three components: Core Resources Strategy, Supply Buffer Implementation and Foundational Actions which together provides the basis for the 2010 IRP Update. The 2010 IRP Update expands the concept of developing a planning buffer from the 2004 IRP Update by implementing a supply buffer equal to 10 percent of the total retail demand. MWD indicates it will collaborate with its member agencies to implement this buffer through complying with Senate Bill 7 which calls for the state to reduce per capita water use 20 percent by the year 2020.

In January 2016, MWD adopted its 2015 IRP Update. In the 2015 IRP Update, MWD continued its adaptive management strategy and integrated future supply actions to improve the viability of potential contingency resources as needed, and to position the region to effectively implement these resources in a timely manner. The 2015 IRP finds additional action is needed in investments in conservation, local supplies, the California WaterFix, and stabilizing Colorado River supplies. Among the supply actions, MWD will continue to work collaboratively with state and federal agencies on the California WaterFix, maximize its storage and transfer approach, and continue to develop and protect local supplies and conservation.

IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD: In the MWD UWMP, MWD states it has supply capability that would be sufficient to meet expected demands from 2020 to 2040 under single dry year and multiple dry year conditions.¹

Based on the prior MWD 2007 IRP Implementation Report, as a result of the 2007 federal court order, MWD estimated that it could receive reduction of SWP supplies of up to 22% on average until a long term solution was implemented. For purposes of ensuring a conservative analysis, IRWD made an evaluation of the effect of the 22% estimated reduction of MWD's SWP supplies on its overall imported supplies. IRWD estimates that 22% reduction of SWP supplies conservatively translates to approximately 16% reduction in all of MWD's imported supplies over the years 2015 through 2037. For this purpose it is assumed that MWD's total supplies consist only of imported SWP and Colorado deliveries. Based on this estimate, this assessment uses a 16% reduction in MWD supplies available to IRWD for the years 2015 through 2037, using IRWD's connected capacity without any water supply allocation imposed by MWD. This reduction in MWD supplies is reflected in Figures 1, 2, 3, 5, 6, and 7.

Per the MWD UWMP, MWD performs water shortage planning in its Water Surplus and Drought Management ("WSDM") Plan (1988) which guides MWD's planning and operations during both shortage and surplus conditions. Furthermore, MWD developed the Water Supply Allocation Plan ("WSAP") (February 2009, updated December 2014) which provides

¹ MWD's UWMP utilized DWR's 2015 SWP Delivery Capability Report to estimate its SWP supplies for 2015 through 2040. These estimates incorporate the effect of regulatory requirements in accordance with biological opinions and also reflect potential impacts of climate change on SWP operations. Tables A.3-7 of the MWD UWMP reflect a reduction of approximately 12% in MWD's expected average year SWP entitlement supplies. This amount is a smaller percentage reduction than MWD's 2007 estimate of 22% that was used by IRWD for purposes of this analysis. For purposes of a conservative analysis, IRWD has used the 22% reduction cited by MWD in its October 2007 IRP Implementation Report as the basis of IRWD's analysis.

standardized methodology for allocation of MWD's supplies during times of shortage. The WSDM Plan distinguishes between shortages, severe shortages and extreme shortages. These terms have specific meanings relating to MWD's ability to deliver water and the actions it takes. In June 2008, MWD's Board adopted a Water Supply Condition Framework to communicate the urgency of the region's water supply situation and the need for further water conservation to reduce regional demands, MWD uses the WSDM Plan and Framework to determine if a WSAP is recommended.

As an alternative means of analyzing the effect of reduced MWD supplies on IRWD, Figures 1a, 2a, and 3a show IRWD's estimated supplies in all of the 5-year increments (average and single and multiple dry years) under a short-term MWD allocation scenario whereby MWD declares a shortage stage under its WSAP, and a cutback is applied to IRWD's actual usage rather than its connected capacity. IRWD's evaluation of reduced MWD supplies to IRWD as shown in Figures 1a, 2a and 3a conservatively analyzes the effect of up to a MWD level 5 Regional Shortage Level. In February 2009, IRWD updated Section 15 of its Rules and Regulations – Water Conservation and Water Supply Shortage Program and also updated its Water Shortage Contingency Plan which is a supporting document for Section 15. Section 15 of the Rules and Regulations serves as IRWD's "conservation ordinance". As stated in IRWD's Water Shortage Contingency Plan, use of local supplies, storage and other supply augmentation measures can mitigate shortages, and are assumed to be in use to the maximum extent possible during declared shortage levels. On April 14, 2015, MWD approved the implementation of its WSAP at a level 3 Regional Shortage Level and an effective 15% reduction in regional deliveries effective July 1, 2015, through June 30, 2016. As a result of IRWD's diversified water supplies, IRWD is reliant on MWD for only 20% of its total supplies. IRWD's evaluation of reduced MWD supplies to IRWD as shown in Figures 1a, 2a and 3a would include MWD's 2015 actions to implement a level 3 Regional Shortage Level and 15% reduction.

Under shortage scenarios, IRWD may need to supplement supplies with production of groundwater, which can exceed the applicable basin production percentage on a short-term basis, providing additional reliability during dry years or emergencies.²

In addition, IRWD has developed water banking projects in Kern County, California which may be called upon for delivery of supplemental banked water to IRWD under a MWD WSAP.³ IRWD may also convert non-potable water uses to recycled water as a way to

² In these scenarios, it is anticipated that other water suppliers who produce water from the Orange County Basin will also experience cutbacks of imported supplies and will increase groundwater production and that Orange County Water District ("OCWD") imported replenishment water may also be cutback. The OCWD's "2015-2016 Engineer's Report on the Groundwater Conditions, Water Supply and Basin Utilization" references a report (OCWD Report on Evaluation of Orange County Groundwater Basin Storage and Operational Strategy, 2007) which recommends a basin management strategy that provides general guidelines for annual basin refill or storage decrease based on the level of accumulated overdraft. It states: "Although it is considered to be generally acceptable to allow the basin to decline to 500,000 AF overdraft for brief periods due to severe drought conditions and lack of supplemental water...an accumulated overdraft of 100,000 AF best represents an optimal basin management target. This optimal target level provides sufficient storage space to accommodate anticipated recharge from a single wet year while also providing water in storage for at least 2 or 3 consecutive years of drought." MWD replenishment water is a supplemental source of recharge water and OCWD estimates other main supply sources for recharge are available.

³ IRWD has developed water banking projects ("Water Bank") in Kern County, California and has entered into a 30-year water banking partnership with Rosedale-Rio Bravo Water Storage District to operate IRWD's Strand Ranch and Stockdale West portions of the Water Bank. The Water Bank can improve IRWD's water supply reliability by capturing lower cost water available during wet hydrologic periods for use during dry periods. The Water Bank can enhance IRWD's ability to respond to drought conditions and potential water supply interruptions.

conserve potable water. In addition, if needed, resultant net shortage levels can be addressed by demand reduction programs as described in IRWD's Water Shortage Contingency Plan.

Listed below are Figures provided comparing projected potable water supplies and demands in all of the five year increments, under a temporary MWD allocation scenario:

- Figure 1a: Normal Year Supply and Demand (MWD Allocated) – Potable Water
- Figure 2a: Single Dry-Year Supply and Demand (MWD Allocated) – Potable Water
- Figure 3a: Multiple Dry-Year Supply and Demand (MWD Allocated) – Potable Water

It can be noted that IRWD's above approach is conservative, in that IRWD evaluates the effect of the 16% reduction through 2037 and shows the effect of current allocation scenarios in all of the five-year increments, but MWD reports that it has made significant progress in other water resource categories such as transfers, groundwater storage and developing other local resources, and supplies will be available from these resources over the long-term.

Climate Change. The California Department of Water Resources ("DWR") released a report "Progress on Incorporating Climate Change into Management of California's Water Resources" (July 2006), considering the impacts of climate change on the State's water supply. DWR emphasizes that "the report represents an example of an impacts assessment based on four scenarios defining an expected range of potential climate change impacts." DWR's major goal is to extend the analysis for long-term water resource planning from "assessing impacts" to "assessing risk." The report presents directions for further work in incorporating climate change into the management of California's water resources. Emphasis is placed on associating probability estimates with potential climate change scenarios in order to provide policymakers with both ranges of impacts and the likelihoods associated with those impacts. DWR's report acknowledges "that all results presented in this report are preliminary, incorporate several assumptions, reflect a limited number of climate change scenarios, and do not address the likelihood of each scenario. Therefore, these results are not sufficient by themselves to make policy decisions."

In MWD's 2015 IRP Update, MWD recognizes there is additional risk and uncertainty associated with climate change that may affect future supply and demands. MWD plans to hedge against supply and demand uncertainties by implementing a long-term plan that recognizes the risk and provides resource development to offset the risk. Per MWD's UWMP, for longer term risks, like climate change, MWD established a Robust Decision Making ("RDM") approach that can show how vulnerable the region's reliability is to the longer-term risks and can also establish "signposts" that can be monitored to see when crucial changes may be happening. MWD has stated in its 2015 UWMP that it intends to revisit the RDM approach with the new resource reliability targets identified in its 2015 IRP Update.

Per MWD's UWMP, MWD continues to incorporate current climate change science into its planning efforts. MWD's 2015 IRP Update incorporates evaluating a wider range of water management strategies and seeking robust and adaptive action plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. Per MWD's UWMP, MWD's planning activities support the MWD Board-adopted principles on climate change by: 1) Supporting reasonable, economically viable, and technologically feasible management strategies for reducing impacts on water supply; 2) Supporting flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts; and 3) Evaluating staff recommendations regarding climate change and water resources against the California

Environmental Quality Act to avoid adverse effects on the environment. Potential climate change impacts on state, regional and local water supplies and relevant information for the Orange County hydrologic basin and Santa Ana Watershed have not been sufficiently developed at this time to permit IRWD to assess and quantify the effect of any such impact on its conclusions in the Assessment.

Catastrophic Supply Interruption Planning. MWD has developed Emergency Storage Requirements (MWD UWMP) to safeguard the region from catastrophic loss of water supply. MWD has made substantial investments in emergency storage and has based its planning on a 100% reduction in its supplies for a period of six months. The emergency plan outlines that under such a catastrophe, non-firm service deliveries would be suspended, and firm supplies would be restricted by a mandatory cutback of 25 percent from normal year demand deliveries. In addition, MWD discusses DWR's investments in improvements on the SWP and the long term Delta plan in its UWMP (pages 3-19 to 3-23). IRWD has also addressed supply interruption planning in its WRMP and 2015 UWMP.

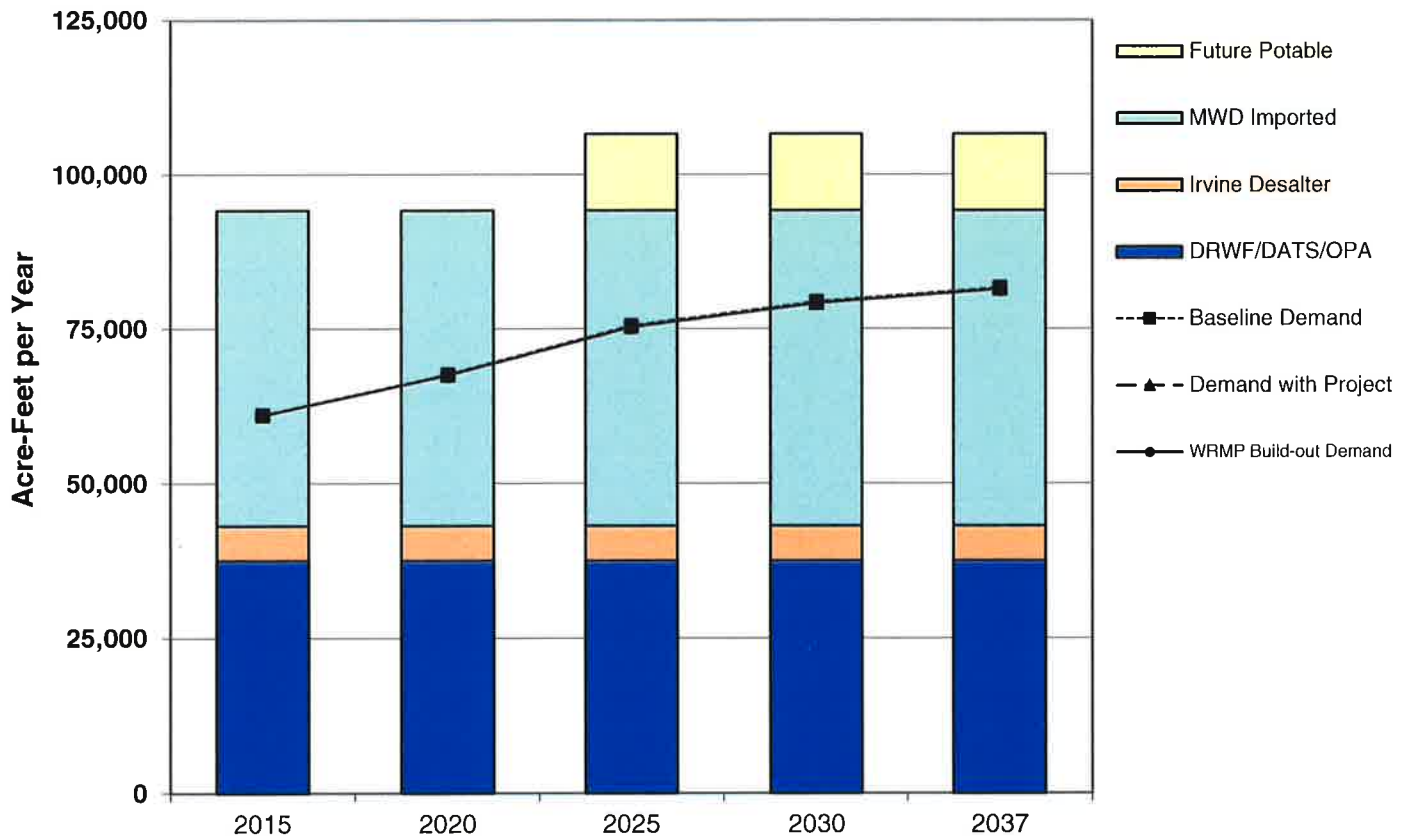
Recent Actions Related to Drought Conditions. In response to the historically dry conditions throughout the state of California, on April 1, 2015, Governor Brown issued an Executive Order directing the State Water Resources Control Board (SWRCB) to impose restrictions to achieve an aggregate statewide 25 percent reduction in potable water use through February 2016. The Governor's Order also includes mandatory actions aimed at reducing water demands, with a particular focus on outdoor water use. On May 5, 2015, the SWRCB adopted regulations which required that IRWD achieve a 16% reduction in potable water use from the 2013 levels. On November 13, 2015, Governor Brown issued an Executive Order directing the SWRCB to extend the 2015 Emergency Regulation through October 31, 2016 if drought conditions continued. On February 2, 2016, the SWRCB adopted an extended and modified Emergency Regulation. As a result of the modification, IRWD's mandated reduction was changed from 16% to 9% effective March 1, 2016. On April 14, 2015, MWD approved actions to implement the WSAP at a level 3 Regional Shortage Level and a 15% reduction in regional deliveries effective July 1, 2015, through June 30, 2016. During this period, IRWD continued to implement actions to reduce potable water demands during the drought; however, this did not affect IRWD's long-term supply capability to meet the demands. As discussed under "IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD" (see above), IRWD has effectively analyzed an imported water supply reduction up to a level 5 Regional Shortage Stage in Figures 1a, 2a, 3a. These Figures do not reflect a reduction in demands, thus representing a more conservative view of IRWD's supply capability. In particular, the reduction in demand mandated by Senate Bill 7 in 2010, requiring urban retail water suppliers to establish water use targets to achieve a 20% reduction in daily per capita water use by 2020, has not been factored into the demands in this analysis. Similarly, notwithstanding the Governor's order, IRWD's conservative supply-sufficiency analysis in Figures 1a, 2a and 3a does not include the ordered reduction in potable demands. On April 7, 2017, Governor Brown rescinded the Executive Order in all but four counties in California.

Detailed Assessment

1. Supply and demand comparison

Comparisons of IRWD's average annual and peak (maximum day) demands and supplies, under *baseline* (existing and committed demand, without the Project), *with-project* (baseline plus Project), and *full build-out* development projections, are shown in the following Figures 1-4 (potable water), Figures 5-8 (nonpotable water) and Figures 1a, 2a, and 3a (short term MWD allocation potable water). See also the "Recent Actions on Delta Pumping" above.

**Figure 1
IRWD Normal-Year Supply & Demand - Potable Water**



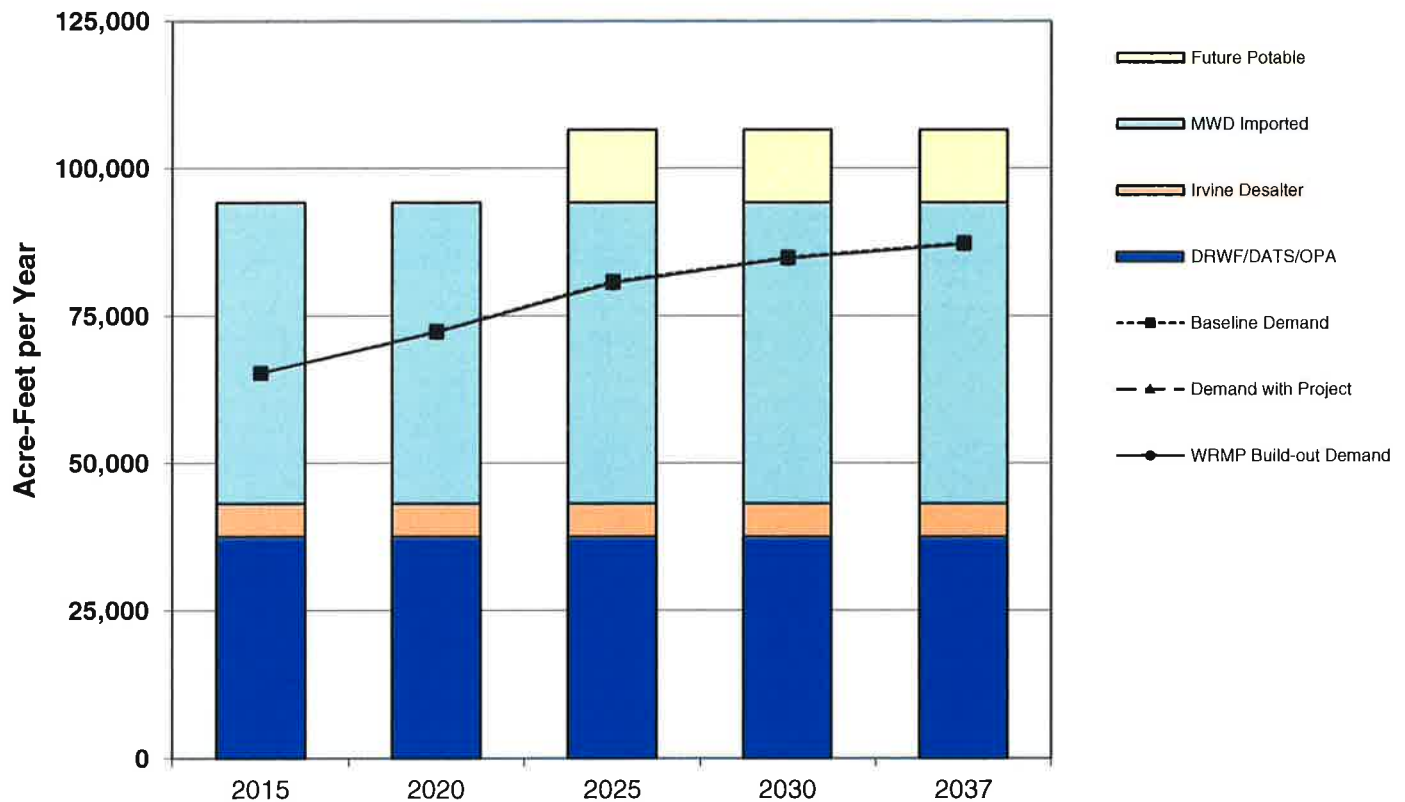
(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	-	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	100,506	103,554	115,907	115,907	115,907
Baseline Demand	61,061	67,656	75,532	79,369	81,664
Demand with Project	61,061	67,513	75,352	79,189	81,486
WRMP Build-out Demand	61,061	67,513	75,352	79,189	81,486
Reserve Supply with Project	39,445	36,042	40,554	36,717	34,421

Notes: By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

Baker Water Treatment Plant will be supplied untreated imported water and native water from Irvine Lake.

**Figure 2
IRWD Single Dry-Year Supply & Demand - Potable Water**



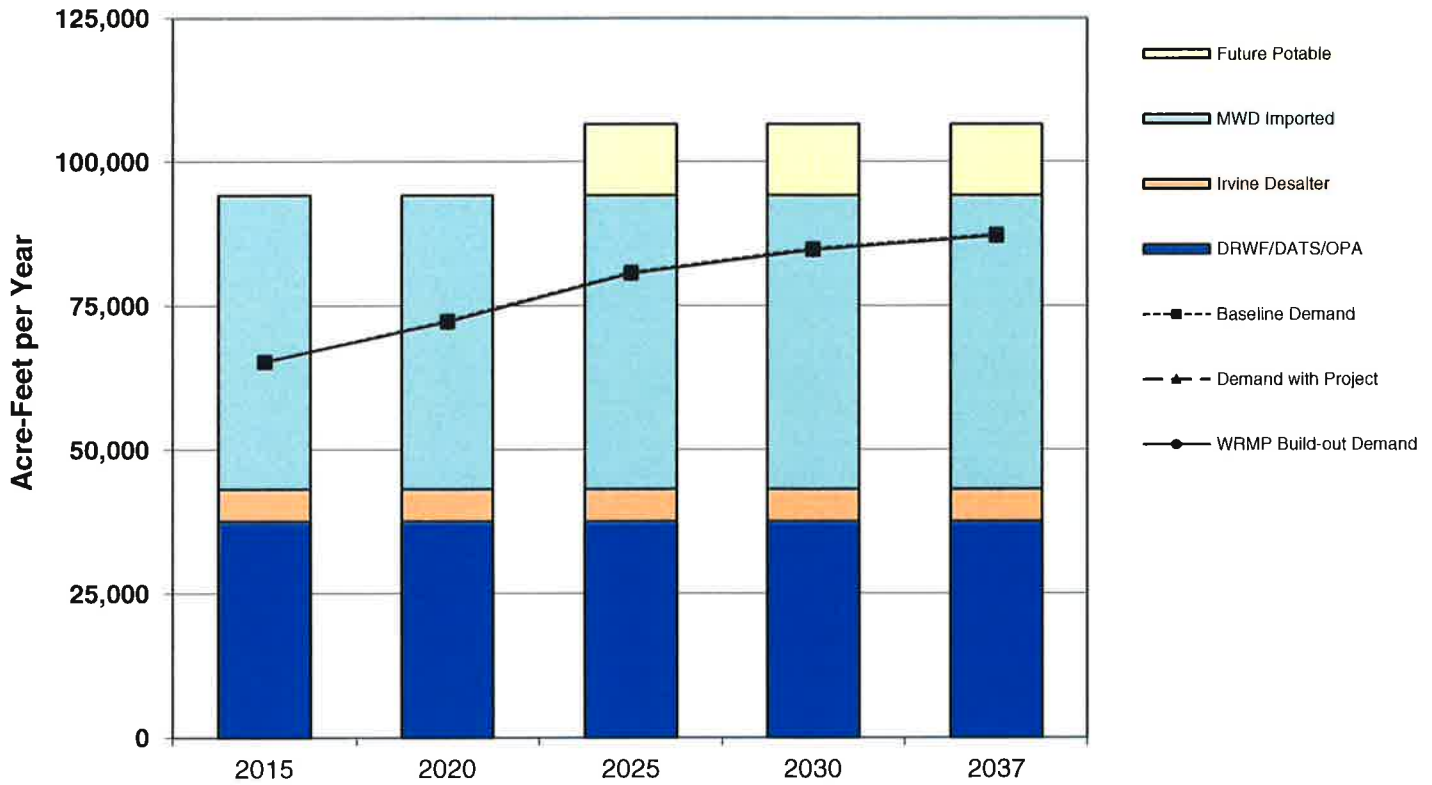
(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	-	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	100,506	101,506	113,859	113,859	113,859
Baseline Demand	65,335	72,392	80,819	84,925	87,381
Demand with Project	65,335	72,238	80,627	84,733	87,190
WRMP Build-out Demand	65,335	72,238	80,627	84,733	87,190
Reserve Supply with Project	35,171	29,268	33,231	29,126	26,669

Notes: Supplies identical to Normal-Year based on Metropolitan's Urban Water Management Plan and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

Baker Water Treatment Plant will be supplied untreated imported water and native water from Irvine Lake.

**Figure 3
IRWD Multiple Dry-Year Supply & Demand - Potable Water**



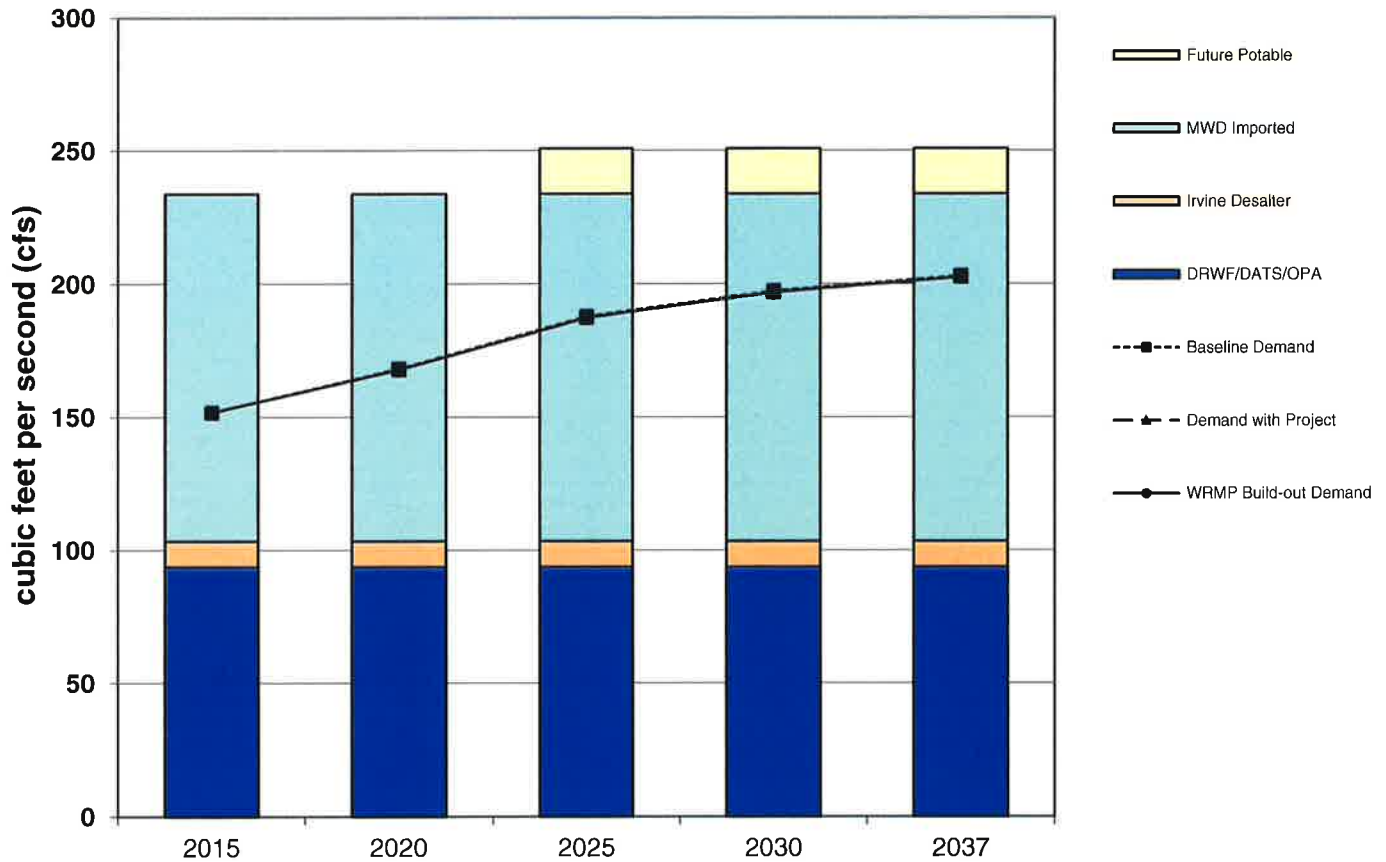
(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, B)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portic	-	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	100,506	101,506	113,859	113,859	113,859
Baseline Demand	65,335	72,392	80,819	84,925	87,381
Demand with Project	65,335	72,238	80,627	84,733	87,190
WRMP Build-out Demand	65,335	72,238	80,627	84,733	87,190
Reserve Supply with Project	35,171	29,268	33,231	29,126	26,669

Notes: Supplies identical to Normal-Year based on Metropolitan's Urban Water Management Plan and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

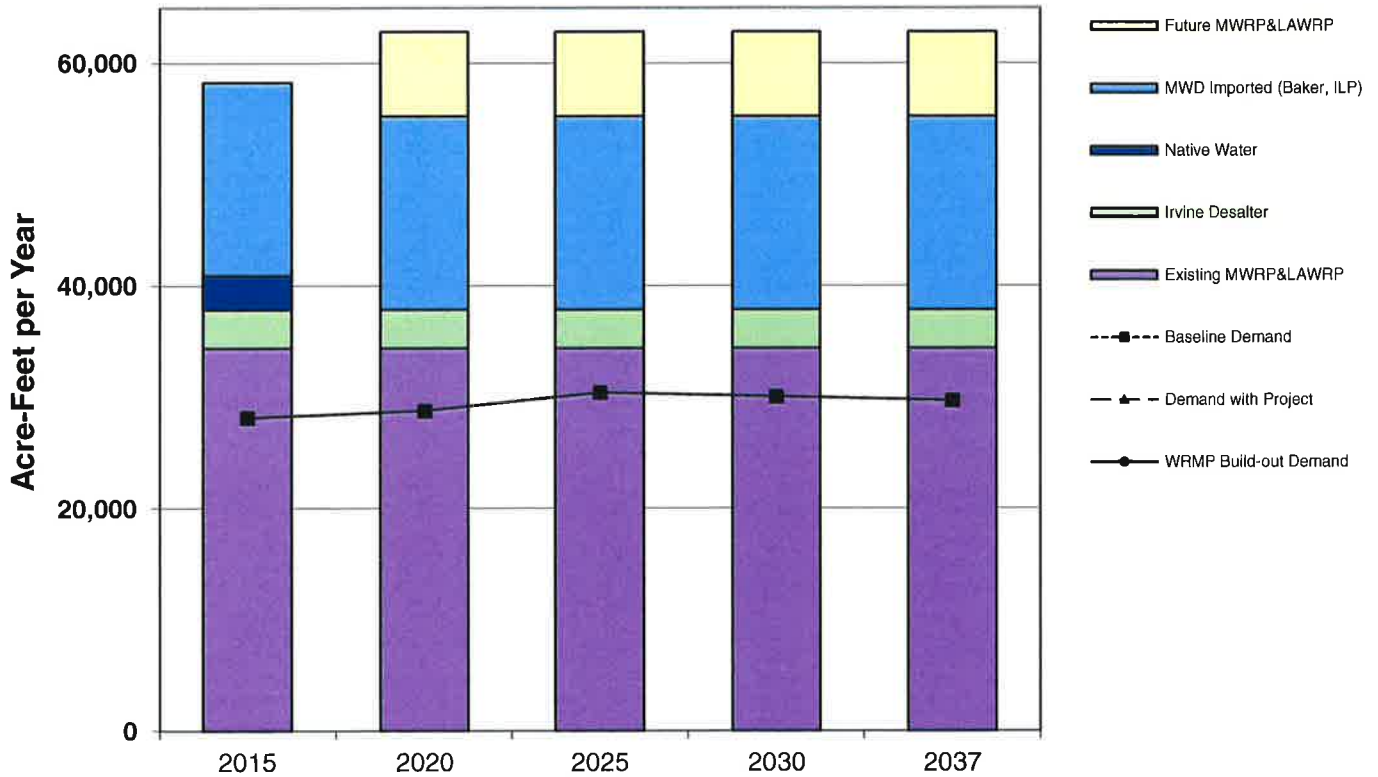
Baker Water Treatment Plant will be supplied untreated imported water and native water from Irvine Lake.

**Figure 4
IRWD Maximum-Day Supply & Demand - Potable Water**



(in cfs)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	130.4	130.4	130.4	130.4	130.4
DRWF/DATS/OPA	93.7	93.7	93.7	93.7	93.7
Irvine Desalter	9.7	9.7	9.7	9.7	9.7
Wells 21 & 22	8.6	8.6	8.6	8.6	8.6
Baker Water Treatment Plant (native port)	-	4.2	4.2	4.2	4.2
Supplies Under Development					
Future Potable	-	-	17.0	17.0	17.0
Maximum Supply Capability	242.3	246.6	263.6	263.6	263.6
Baseline Demand	151.8	168.2	187.8	197.3	203.0
Demand with Project	151.8	167.8	187.3	196.9	202.6
WRMP Build-out Demand	151.8	167.8	187.3	196.9	202.6
Reserve Supply with Project	90.5	78.7	76.2	66.7	61.0

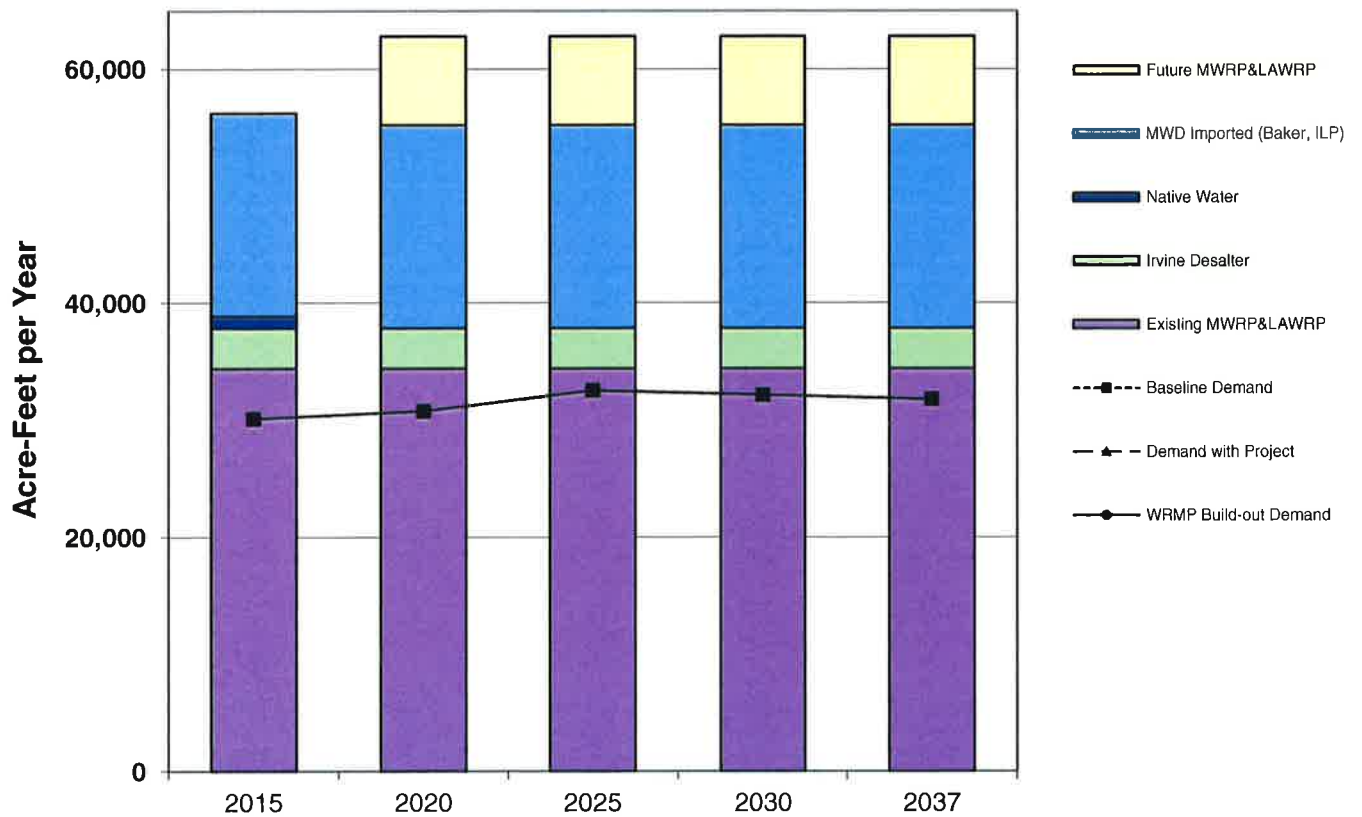
**Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2015	2020	2025	2030	2037
Current Nonpotable Supplies					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	3,048	-	-	-	-
Maximum Supply Capability	58,245	62,820	62,820	62,820	62,820
Baseline Demand	28,173	28,788	30,430	30,062	29,724
Demand with Project	28,173	28,785	30,425	30,058	29,720
WRMP Build-out Demand	28,173	28,785	30,425	30,062	29,720
Reserve Supply with Project	30,073	34,035	32,395	32,758	33,100

Note: Downward trend reflects reduction in agricultural use over time.
 Native water will be treated to potable through the Baker Water Treatment Plant after 2016.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

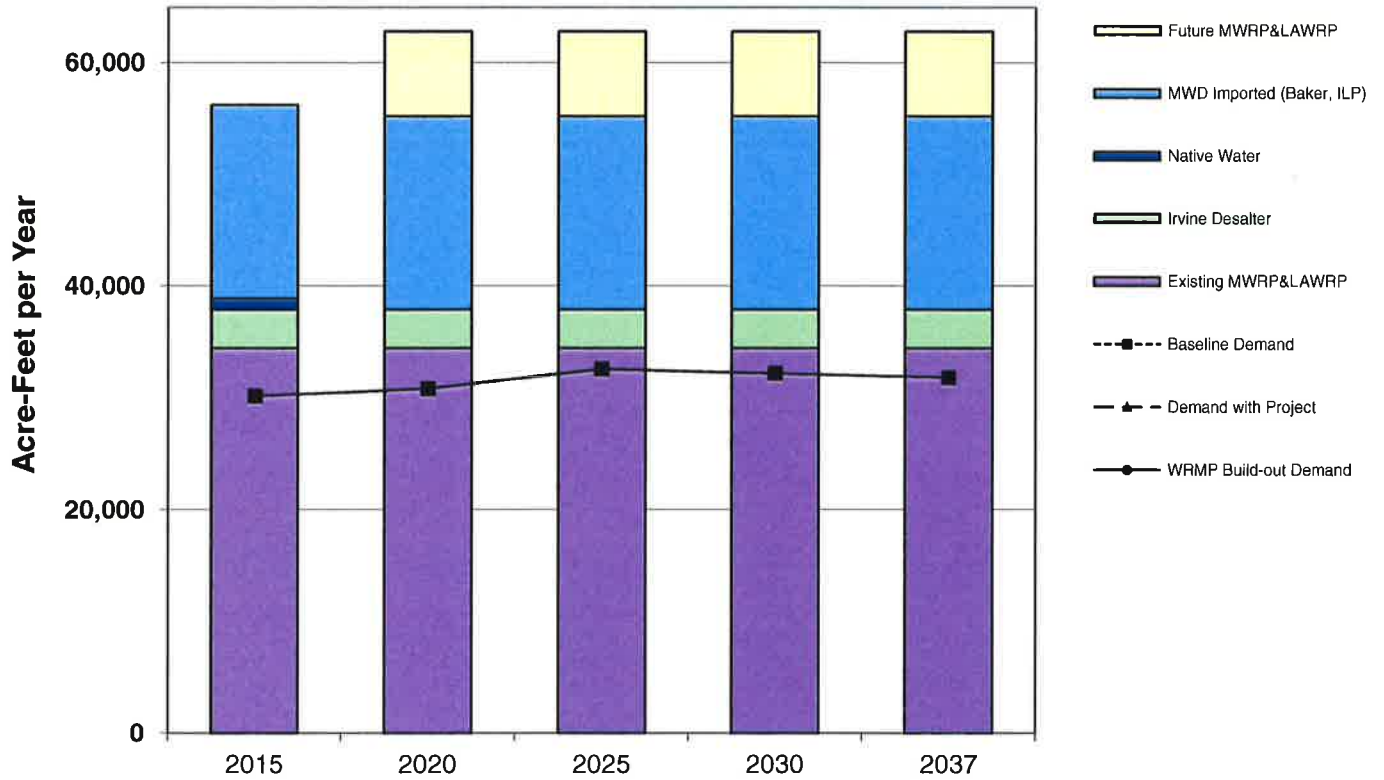
Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water



(in acre-feet per year)	2015	2020	2025	2030	2037
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	1,000	-	-	-	-
Maximum Supply Capability	56,197	62,820	62,820	62,820	62,820
Baseline Demand	30,145	30,804	32,560	32,166	31,805
Demand with Project	30,145	30,800	32,555	32,162	31,800
WRMP Build-out Demand	30,145	30,800	32,555	32,166	31,800
Reserve Supply with Project	26,052	32,020	30,265	30,658	31,020

Note: Downward trend reflects reduction in agricultural use over time.
 Native water will be treated to potable through the Baker Water Treatment Plant after 2016.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

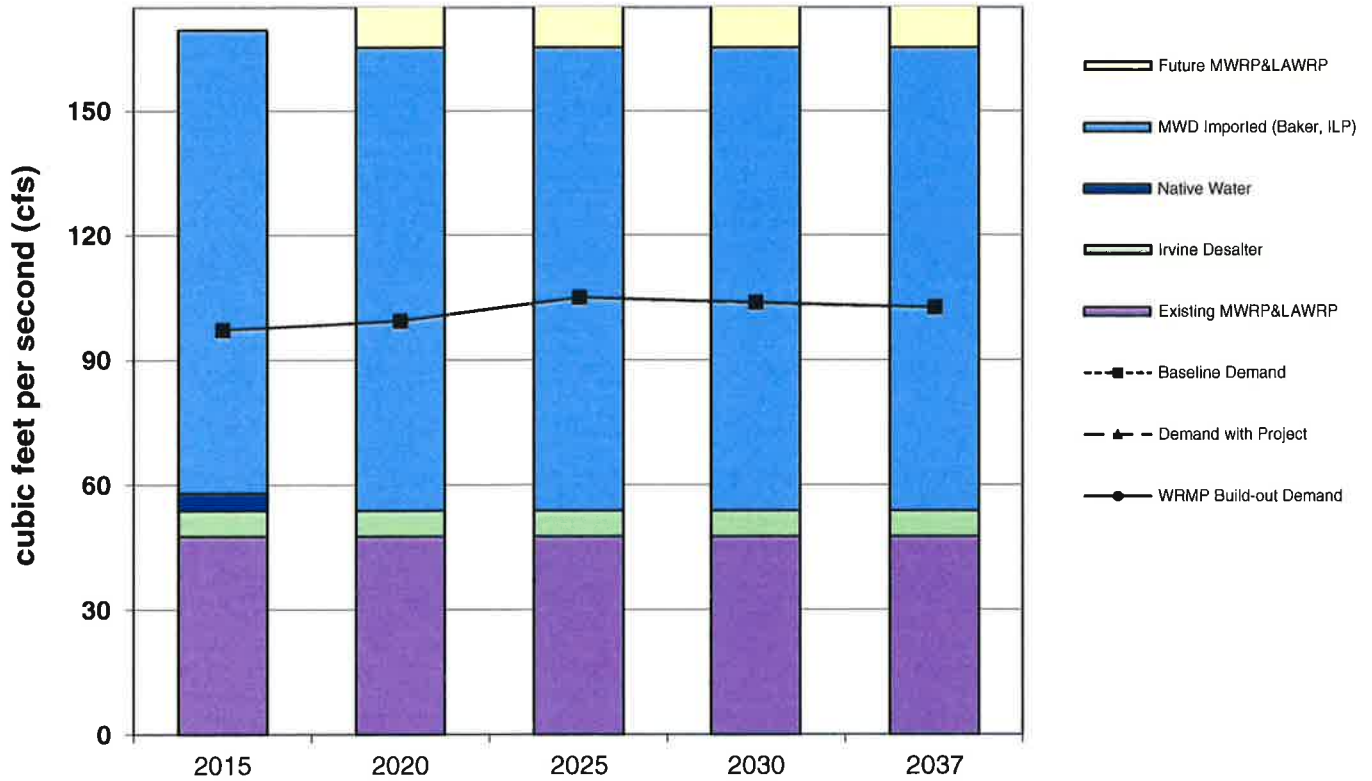
**Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2015	2020	2025	2030	2037
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	34,389	34,389	34,389	34,389	34,389
Future MWRP&LAWRP	-	7,623	7,623	7,623	7,623
MWD Imported (Baker, ILP)	17,347	17,347	17,347	17,347	17,347
Irvine Desalter	3,461	3,461	3,461	3,461	3,461
Native Water	1,000	-	-	-	-
Maximum Supply Capability	56,197	62,820	62,820	62,820	62,820
Baseline Demand	30,145	30,804	32,560	32,166	31,805
Demand with Project	30,145	30,800	32,555	32,162	31,800
WRMP Build-out Demand	30,145	30,800	32,555	32,166	31,800
Reserve Supply with Project	26,052	32,020	30,265	30,658	31,020

Note: Downward trend reflects reduction in agricultural use over time.
 Native water will be treated to potable through the Baker Water Treatment Plant after 2016.
 MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

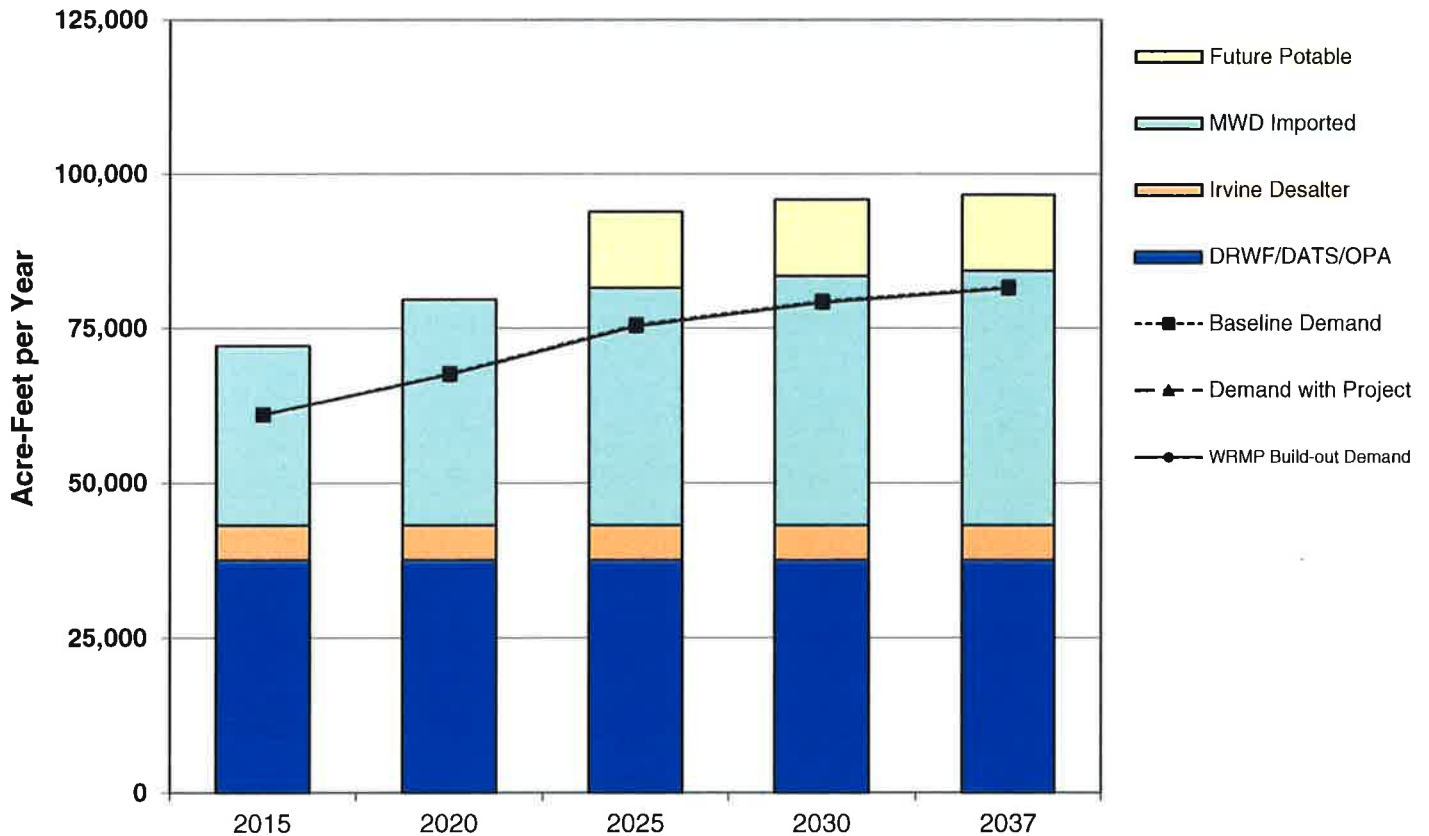
**Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water**



(in cfs)	2015	2020	2025	2030	2037
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	47.6	47.6	47.6	47.6	47.6
Future MWRP&LAWRP	-	10.5	10.5	10.5	10.5
MWD Imported (Baker, ILP)	111.5	111.5	111.5	111.5	111.5
Irvine Desalter	6.2	6.2	6.2	6.2	6.2
Native Water	4.2	-	-	-	-
Maximum Supply Capability	169.5	175.8	175.8	175.8	175.8
Baseline Demand	97.3	99.4	105.1	103.8	102.6
Demand with Project	97.3	99.4	105.1	103.8	102.6
WRMP Build-out Demand	97.3	99.4	105.1	103.8	102.6
Reserve Supply with Project	72.2	76.4	70.8	72.0	73.2

Note: Downward trend reflects reduction in agricultural use over time.
Native water will be treated to potable through the Baker Water Treatment Plant after 2016.

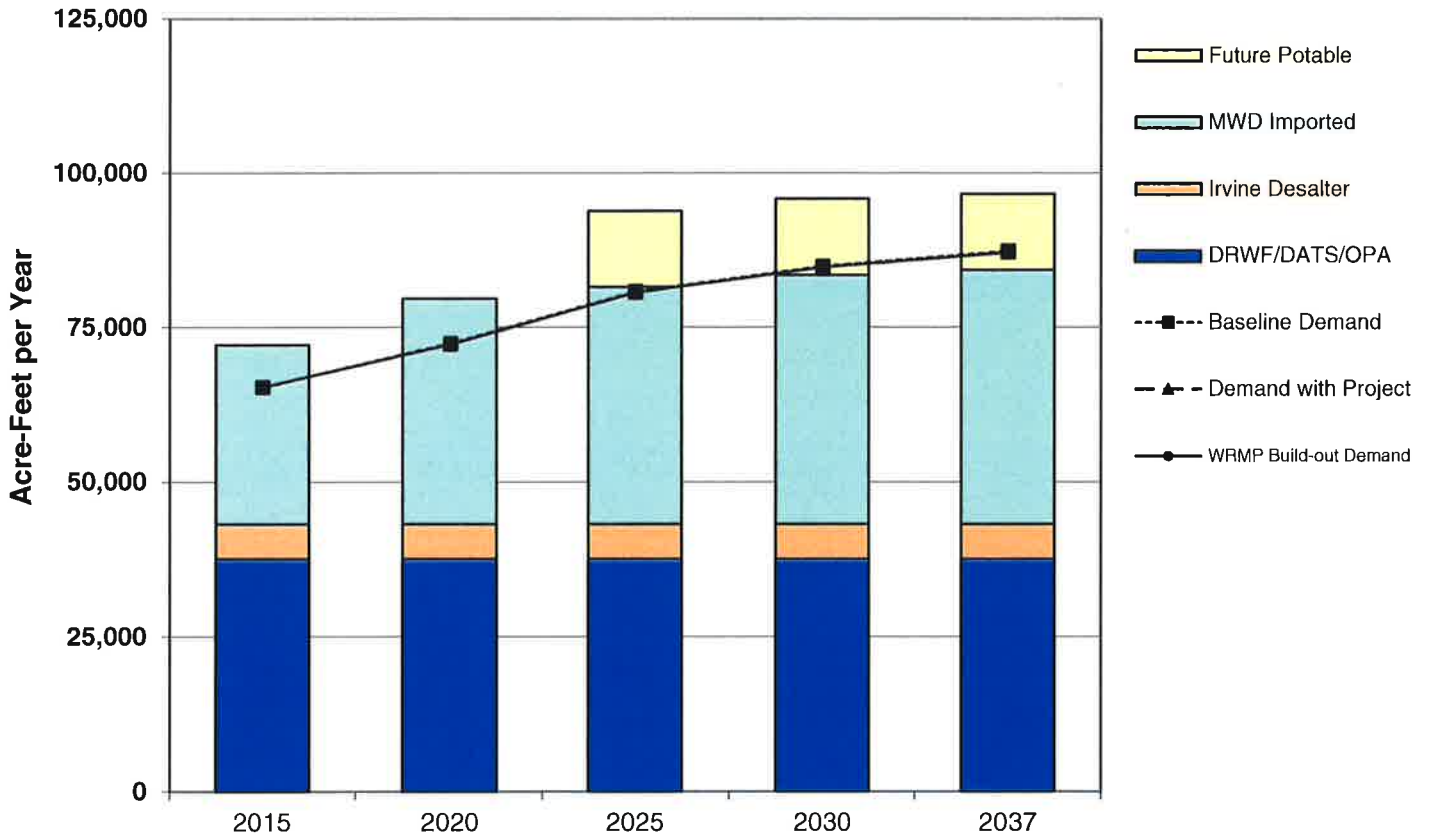
**Figure 1a
IRWD Normal-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation***



(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	29,000	36,500	38,362	40,319	41,129
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	-	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	78,479	89,027	103,242	105,199	106,009
Baseline Demand	61,061	67,656	75,532	79,369	81,664
Demand with Project	61,061	67,513	75,352	79,189	81,486
WRMP Build-out Demand	61,061	67,513	75,352	79,189	81,487
Reserve Supply with Project	17,418	21,515	27,889	26,009	24,523

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

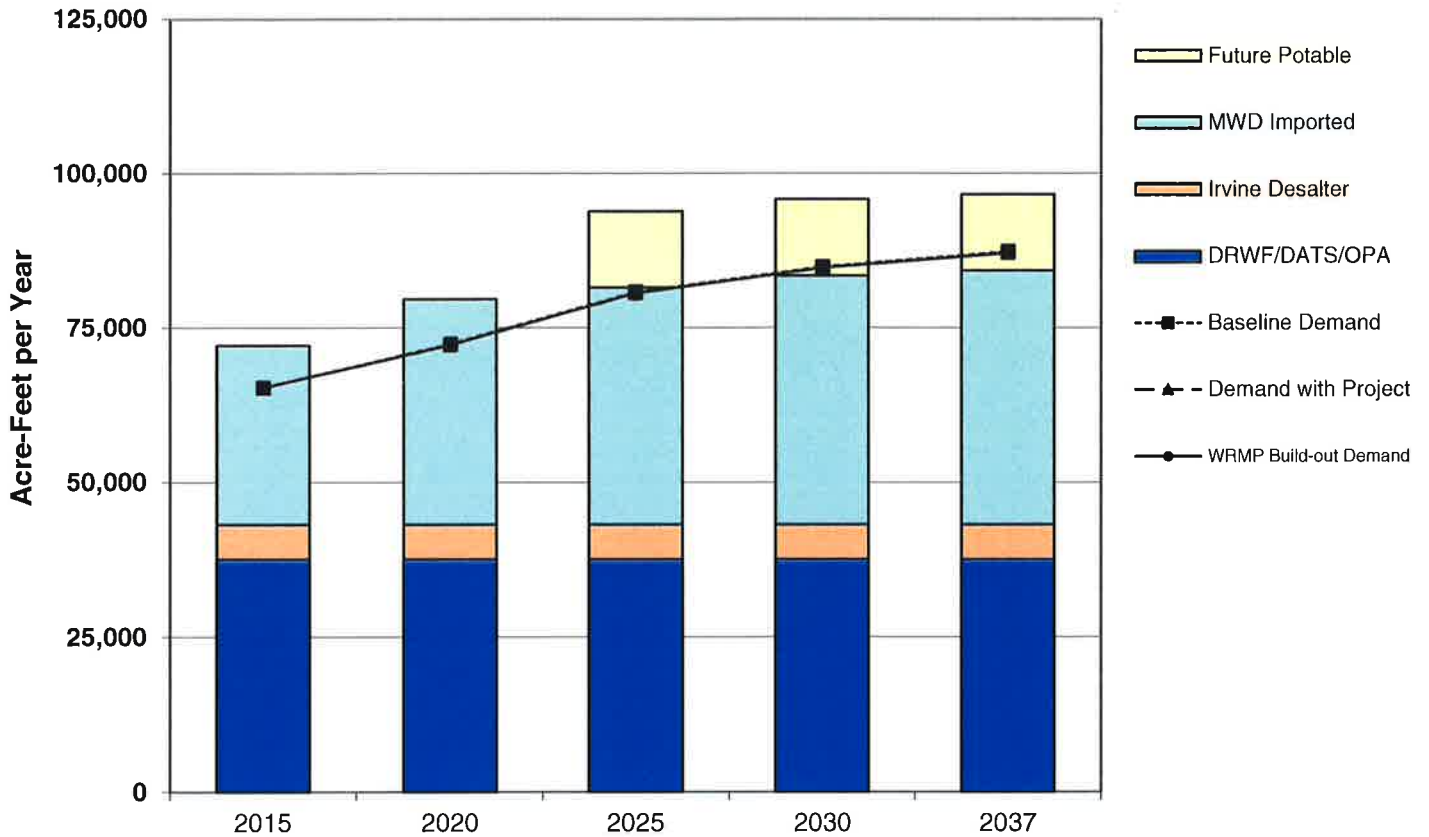
Figure 2a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	29,000	36,500	38,362	40,319	41,129
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	-	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	78,479	86,979	101,194	103,151	103,961
Baseline Demand	65,335	72,392	80,819	84,925	87,381
Demand with Project	65,335	72,238	80,627	84,733	87,190
WRMP Build-out Demand	65,335	72,238	80,627	84,733	87,191
Reserve Supply with Project	13,144	14,741	20,567	18,418	16,771

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

**Figure 3a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation***



(in acre-feet per year)	2015	2020	2025	2030	2037
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	29,000	36,500	38,362	40,319	41,129
DRWF/DATS/OPA	37,532	37,532	37,532	37,532	37,532
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	6,329	6,329	6,329	6,329	6,329
Baker Water Treatment Plant (native portion)	-	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	-	12,352	12,352	12,352
Maximum Supply Capability	78,479	86,979	101,194	103,151	103,961
Baseline Demand	65,335	72,392	80,819	84,925	87,381
Demand with Project	65,335	72,238	80,627	84,733	87,190
WRMP Build-out Demand	65,335	72,238	80,627	84,733	87,190
Reserve Supply with Project	13,144	14,741	20,567	18,418	16,771

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation, Shortage Stage 3 in all of the 5-year increments. However, it is likely that such a scenario would only be temporary. Under a MWD Allocation, IRWD could supplement supplies with groundwater production which can exceed applicable basin percentages on a short-term basis or transfer water from IRWD's water bank. IRWD may also reduce demands by implementing shortage contingency measures as described in the UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water only.

2. Information concerning supplies

(a)(1) Existing sources of identified water supply for the proposed project: IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area, as updated in the following table:

	Max Day (cfs)	Avg. Annual (AFY)	Annual by Category (AFY)
Current Supplies			
Potable - Imported			
East Orange County Feeder No. 2	41.4	18,746	1
Allen-McColloch Pipeline*	64.7	29,296	1
Orange County Feeder	18.0	8,150	1
	124.1	56,192	56,192
Potable - Treated Surface			
Baker Treatment Plant (Imported)	6.3	4,554	6
Baker Treatment Plant (Native)	4.2	3,048	6
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	2
OFA Well	1.4	914	
Deep Aquifer Treatment System-DATS	12.3	8,618	2
Wells 21 & 22	8.6	6,329	2
Irvine Desalter	9.7	5,618	3
Total Potable Current Supplies	246.6		113,273
Nonpotable - Recycled Water			
MWRP (25.2 mgd)	39.1	28,228	4
LAWRP (5.5 mgd)	8.5	6,161	4
Future MWRP & LAWRP	10.6	7,623	5
			42,012
Nonpotable - Imported			
Baker Aqueduct	40.2	11,651	6
Irvine Lake Pipeline	65.0	9,000	7
	105.2	20,651	20,651
Nonpotable - Groundwater			
Irvine Desalter-Nonpotable	6.2	3,461	8
Nonpotable Native			
Irvine Lake (see Baker Treatment Plant above)	4.2	3,048	6,9
Total Nonpotable Current Supplies (Excludes Native)	169.6		66,124
Total Combined Current Supplies	416.2		179,397
Supplies Under Development			
Potable Supplies			
Future Groundwater Production Facilities	17.0	12,352	12,352
Total Under Development	17.0	12,352	12,352
Total Supplies			
Potable Supplies	263.6		125,625
Nonpotable Supplies	169.6		66,124
Total Supplies (Current and Under Development)	433.2		191,750

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.6 (see Footnote 5, page 24). Max Day is equivalent to Treatment Plant Production

2 Contract amount - See Potable Supply-Groundwater(iii).

3 Contract amount - See Potable Supply-Groundwater (iv) and (v). Maximum day well capacity is compatible with contract amount.

4 MWRP 28.0 mgd treatment capacity (28,228 AFY RW production) with 90% plant efficiency (25.2 mgd) and LAWRP permitted 5.5 mgd tertiary treatment capacity (6,161 AFY)

5 Future estimated MWRP & LAWRP recycled water production. Includes biosolids and expansion to 33 mgd

6 After 2016, Baker Water Treatment Plant (WTP) will treat imported and native water. Baker Aqueduct capacity has been allocated to Baker WTP participants and IRWD will own 46.50 cfs in Baker Aqueduct after completion of Baker WTP, of which 10.5 cfs will be for potable treatment. IRWD will have 35 cfs remaining capacity for non-potable uses. The nonpotable average use is based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 2.5 (see Footnote 8, page 27).

7 Based on IRWD's proportion of Irvine Lake imported water storage; Actual ILP capacity would allow the use of additional imported water from MWD through the Santiago Lateral.

8 Contract amount - See Nonpotable Supply-Groundwater (i) and (ii). Maximum day well capacity (cfs) is compatible with contract amount.

9 Based on 70+ years historical average of Santiago Creek Inflow into Irvine Lake. By 2020, native water will be treated through Baker WTP..

*64.7 cfs is current assigned capacity; based on increased peak flow, IRWD can purchase 10 cfs more (see page 24 (b)(1)(iii))

(b) Required information concerning currently available and under-development water supply entitlements, water rights and water service contracts:

(1) Written contracts or other proof of entitlement.^{4 5}

• POTABLE SUPPLY - IMPORTED⁶

Potable imported water service connections (currently available).

(i) Potable imported water is delivered to IRWD at various service connections to the imported water delivery system of The Metropolitan Water District of Southern California ("MWD"): service connections CM-01A and OC-7 (Orange County Feeder); CM-10, CM-12, OC-38, OC-39, OC-57, OC-58, OC-63 (East Orange County Feeder No. 2); and OC-68, OC-71, OC-72, OC-73/73A, OC-74, OC-75, OC-83, OC-84, OC-87 (Allen-McColloch Pipeline). IRWD's entitlements regarding service from the MWD delivery system facilities are described in the following paragraphs and summarized in the above Table ((2)(a)(1)). IRWD receives imported water service through Municipal Water District of Orange County ("MWDOC"), a member agency of MWD.

Allen-McColloch Pipeline ("AMP") (currently available).

(ii) Agreement For Sale and Purchase of Allen-McColloch Pipeline, dated as of July 1, 1994 (Metropolitan Water District Agreement No. 4623) ("AMP Sale Agreement"). Under the AMP Sale Agreement, MWD purchased the Allen-McColloch Pipeline (formerly known as the "Diemer Intertie") from MWDOC, the MWDOC Water Facilities Corporation and certain agencies, including IRWD and Los Alisos Water District ("LAWD"),⁷ identified as "Participants" therein. Section 5.02 of the AMP Sale Agreement obligates MWD to meet IRWD's and the other Participants' requests for deliveries and specified minimum hydraulic grade lines at each connection serving a Participant, subject to availability of water. MWD agrees to operate the AMP as any other MWD pipeline. MWD has the right to operate the AMP on a "utility basis," meaning that MWD need not observe

⁴ In some instances, the contractual and other legal entitlements referred to in the following descriptions are stated in terms of flow capacities, in cubic feet per second (cfs). In such instances, the cfs flows are converted to volumes of AFY for purposes of analyzing supply sufficiency in this assessment, by dividing the capacity by a peaking factor of 1.8 (potable) or 2.5 (nonpotable), consistent with maximum day peaking factors used in the WRMP. The resulting reduction in assumed available annual AFY volumes through the application of these factors recognizes that connected capacity is provided to meet peak demands and that seasonal variation in demand and limitations in local storage prevent these capacities from being utilized at peak capacity on a year-round basis. However, the application of these factors produces a conservatively low estimate of annual AFY volumes from these connections; additional volumes of water are expected to be available from these sources.

⁵ In the following discussion, contractual and other legal entitlements are characterized as either potable or nonpotable, according to the characterization of the source of supply. Some of the nonpotable supplies surplus to nonpotable demand could potentially be rendered potable by the addition of treatment facilities; however, except where otherwise noted, IRWD has no current plans to do so.

⁶ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

⁷ IRWD has succeeded to LAWD's interests in the AMP and other LAWD water supply facilities and rights mentioned in this assessment, by virtue of the consolidation of IRWD and LAWD on December 31, 2000.

capacity allocations of the Participants but may use available capacity to meet demand at any service connection.

The AMP Sale Agreement obligates MWD to monitor and project AMP demands and to construct specified pump facilities or make other provision for augmenting MWD's capacity along the AMP, at MWD's expense, should that be necessary to meet demands of all of the Participants (Section 5.08).

(iii) Agreement For Allocation of Proceeds of Sale of Allen-McColloch Pipeline, dated as of July 1, 1994 ("AMP Allocation Agreement"). This agreement, entered into concurrently with the AMP Sale Agreement, provided each Participant, including IRWD, with a capacity allocation in the AMP, for the purpose of allocating the sale proceeds among the Participants in accordance with their prior contractual capacities adjusted to conform to their respective future demands. IRWD's capacity under the AMP Allocation Agreement (including its capacity as legal successor agency to LAWD) is 64.69 cfs at IRWD's first four AMP connections, 49.69 cfs at IRWD's next five downstream AMP connections and 35.01 and 10.00 cfs, respectively at IRWD's remaining two downstream connections. The AMP Allocation Agreement further provides that if a Participant's peak flow exceeds its capacity, the Participant shall "purchase" additional capacity from the other Participants who are using less than their capacity, until such time as MWD augments the capacity of the AMP. The foregoing notwithstanding, as mentioned in the preceding paragraph, the allocated capacities do not alter MWD's obligation under the AMP Sale Agreement to meet all Participants' demands along the AMP, and to augment the capacity of the AMP if necessary. Accordingly, under these agreements, IRWD can legally increase its use of the AMP beyond the above-stated capacities, but would be required to reimburse other Participants from a portion of the proceeds IRWD received from the sale of the AMP.

(iv) Improvement Subleases (or "FAP" Subleases) [MWDOC and LAWD; MWDOC and IRWD], dated August 1, 1989; 1996 Amended and Restated Allen-McColloch Pipeline Subleases [MWDOC and LAWD; MWDOC and IRWD], dated March 1, 1996. IRWD subleases its AMP capacity, including the capacity it acquired as successor to LAWD. To facilitate bond financing for the construction of the AMP, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership of the pipeline, and the Participants would be sublessees. As is the case with the AMP Sale Agreement, the subleases similarly provide that water is subject to availability.

East Orange County Feeder No. 2 ("EOCF#2") (currently available).

(v) Agreement For Joint Exercise of Powers For Construction, Operation and Maintenance of East Orange County Feeder No. 2, dated July 11, 1961, as amended on July 25, 1962 and April 26, 1965; Agreement Re Capacity Rights In Proposed Water Line, dated September 11, 1961 ("IRWD MWDOC Assignment Agreement"); Agreement Regarding Capacity Rights In the East Orange County Feeder No. 2, dated August 28, 2000 ("IRWD Coastal Assignment Agreement"). East Orange County Feeder No. 2 ("EOCF#2"), a feeder linking Orange County with MWD's feeder system, was constructed pursuant to a joint powers agreement among MWDOC (then called Orange County Municipal Water District), MWD, Coastal Municipal Water District ("Coastal"), Anaheim and Santa

Ana. A portion of IRWD's territory is within MWDOC and the remainder is within the former Coastal (which was consolidated with MWDOC in 2001). Under the IRWD MWDOC Assignment Agreement, MWDOC assigned 41 cfs of capacity to IRWD in the reaches of EOCF#2 upstream of the point known as Coastal Junction (reaches 1 through 3), and 27 cfs in reach 4, downstream of Coastal Junction. Similarly, under the IRWD Coastal Assignment Agreement, prior to Coastal's consolidation with MWDOC, Coastal assigned to IRWD 0.4 cfs of capacity in reaches 1 through 3 and 0.6 cfs in reach 4 of EOCF#2. Delivery of water through EOCF#2 is subject to the rules and regulations of MWD and MWDOC, and is further subject to application and agreement of IRWD respecting turnouts.

Orange County Feeder (currently available)

(vi) Agreement, dated March 13, 1956. This 1956 Agreement between MWDOC's predecessor district and the Santa Ana Heights Water Company ("SAHWC") provides for delivery of MWD imported supply to the former SAHWC service area. SAHWC's interests were acquired on behalf of IRWD through a stock purchase and IRWD annexation of the SAHWC service area in 1997. The supply is delivered through a connection to MWD's Orange County Feeder designated as OC-7.

(vii) Agreement For Transfer of Interest In Pacific Coast Highway Water Transmission and Storage Facilities From The Irvine Company To the Irvine Ranch Water District, dated April 23, 1984; Joint Powers Agreement For the Construction, Operation and Maintenance of Sections 1a, 1b and 2 of the Coast Supply Line, dated June 9, 1989; Agreement, dated January 13, 1955 ("1955 Agreement"). The jointly constructed facility known as the Coast Supply Line ("CSL"), extending southward from a connection with MWD's Orange County Feeder at Fernleaf Street in Newport Beach, was originally constructed pursuant to a 1952 agreement among Laguna Beach County Water District ("LBCWD"), The Irvine Company (TIC) and South Coast County Water District. Portions were later reconstructed. Under the above-referenced transfer agreement in 1984, IRWD succeeded to TIC's interests in the CSL. The CSL is presently operated under the above-referenced 1989 joint powers agreement, which reflects IRWD's ownership of 10 cfs of capacity. The 1989 agreement obligates LBCWD, as the managing agent and trustee for the CSL, to purchase water and deliver it into the CSL for IRWD. LBCWD purchases such supply, delivered by MWD to the Fernleaf connection, pursuant to the 1955 Agreement with Coastal (now MWDOC).

Baker Water Treatment Plant (currently available)

IRWD recently constructed the Baker Water Treatment Plant (Baker WTP) in partnership with El Toro Water District, Moulton-Niguel Water District, Santa Margarita Water District and Trabuco Canyon Water District. The Baker WTP is supplied with untreated imported water from MWD and native Irvine Lake water supply. IRWD owns 10.5 cfs of treatment capacity rights in the Baker WTP.⁸

•POTABLE SUPPLY - GROUNDWATER

(i) Orange County Water District Act (“OCWD”), Water Code App., Ch. 40 (“Act”). IRWD is an operator of groundwater-producing facilities in the Orange County Groundwater Basin (the “Basin”). Although the rights of the producers within the Basin vis a vis one another have not been adjudicated, they nevertheless exist and have not been abrogated by the Act (§40-77). The rights consist of municipal appropriators’ rights and may include overlying and riparian rights. The Basin is managed by OCWD under the Act, which functions as a statutorily-imposed physical solution. The Act empowers OCWD to impose replenishment assessments and basin equity assessments on production and to require registration of water-producing facilities and the filing of certain reports; however, OCWD is expressly prohibited from limiting extraction unless a producer agrees to such limitation (§ 40-2(6) (c)) and from impairing vested rights to the use of water (§ 40-77). Thus, producers may install and operate production facilities under the Act; OCWD approval is not required. OCWD is required to annually investigate the condition of the Basin, assess overdraft and accumulated overdraft, and determine the amount of water necessary for replenishment (§40-26). OCWD has studied the Basin replenishment needs and potential projects to address growth in demand through 2035 in its Final Draft Long-Term Facilities Plan (January, 2006), last updated November 19, 2014. The Long-Term Facilities Plan is updated approximately every five years.

(ii) *Irvine Ranch Water District v. Orange County Water District*, Orange County Superior Court Case No. 795827. A portion of IRWD is outside the jurisdictional boundary of OCWD. IRWD is eligible to annex the Santa Ana River Watershed portion of this territory to OCWD, under OCWD’s current annexation policy (OCWD Resolution No. 86-2-15, adopted on February 19, 1986 and reaffirmed on June 2, 1999). This September 29, 1998, Superior Court ruling indicates that IRWD is entitled to deliver groundwater from the Basin to the IRWD service area irrespective of whether such area is also within OCWD.

Dyer Road Wellfield (“DWRF”) / Deep Aquifer Treatment System (“DATS”) (currently available)

(iii) Agreement For Water Production and Transmission Facilities, dated March 18, 1981, as amended May 2, 1984, September 19, 1990 and November 3, 1999 (the “DRWF Agreement”). The DRWF Agreement, among IRWD, OCWD and

⁸ The Baker WTP is supplied nonpotable imported water through the existing Baker Pipeline. IRWD’s existing Baker Pipeline capacity (see Section 2(b)(1) NONPOTABLE SUPPLY – IMPORTED) has been apportioned to the Baker WTP participants based on Baker WTP capacity ownership, and IRWD retains 10.5 cfs of pipeline capacity through the Baker WTP for potable supply and retains 36 cfs in Reach 1U of the Baker Pipeline capacity for nonpotable supply.

Santa Ana, concerns the development of IRWD's Dyer Road Wellfield (DRWF), within the Basin. The DRWF consists of 16 wells pumping from the non-colored water zone of the Basin and 2 wells (with colored-water treatment facilities) pumping from the deep, colored-water zone of the Basin (the colored-water portion of the DRWF is sometimes referred to as the Deep Aquifer Treatment System or DATS.) Under the DRWF Agreement, an "equivalent" basin production percentage ("BPP") has been established for the DRWF, currently 28,000 AFY of non-colored water and 8,000 AFY of colored water, provided any amount of the latter 8,000 AFY not produced results in a matching reduction of the 28,000 AFY BPP. Although typically IRWD production from the DRWF does not materially exceed the equivalent BPP, the equivalent BPP is not an extraction limitation; it results in imposition of monetary assessments on the excess production. The DRWF Agreement also establishes monthly pumping amounts for the DRWF. With the addition of the Concentrated Treatment System ("CATS"), IRWD has increased the yield of DATS.

Irvine Subbasin / Irvine Desalter (currently available)

(iv) First Amended and Restated Agreement, dated March 11, 2002, as amended June 15, 2006, restating May 5, 1988 agreement ("Irvine Subbasin Agreement"). TIC has historically pumped agricultural water from the Irvine Subbasin. (As in the rest of the Basin of which this subbasin is a part, the groundwater rights have not been adjudicated, and OCWD provides governance and management under the Act.) The 1988 agreement between IRWD and TIC provided for the joint use and management of the Irvine Subbasin. The 1988 agreement further provided that the 13,000 AFY annual yield of the Irvine Subbasin ("Subbasin") would be allocated 1,000 AFY to IRWD and 12,000 AFY to TIC. Under the restated Irvine Subbasin Agreement, the foregoing allocations were superseded as a result of TIC's commencement of the building its Northern Sphere Area project, with the effect that the Subbasin production capability, wells and other facilities, and associated rights have been transferred from TIC to IRWD, and IRWD has assumed the production from the Subbasin. In consideration of the transfer, IRWD is required to count the supplies attributable to the transferred Subbasin production in calculating available supplies for the Northern Sphere Area project and other TIC development and has agreed that they will not be counted toward non-TIC development.

A portion of the existing Subbasin water production facilities produce water which is of potable quality. IRWD could treat some of the water produced from the Subbasin for potable use, by means of the Desalter and other projects. Although, as noted above, the Subbasin has not been adjudicated and is managed by OCWD, TIC reserved water rights from conveyances of its lands as development over the Subbasin has occurred, and under the Irvine Subbasin Agreement TIC has transferred its rights to IRWD.

(v) Second Amended and Restated Agreement Between Orange County Water District and Irvine Ranch Water District Regarding the Irvine Desalter Project, dated June 11, 2001, and other agreements referenced therein. This agreement provides for the extraction and treatment of subpotable groundwater from the Irvine Subbasin, a portion of the Basin. As is the case with the remainder of the Basin, IRWD's entitlement to extract this water is not adjudicated, but the use of the entitlement is governed by the OCWD Act. (See also, discussion of Irvine

Subbasin in the preceding paragraph.) A portion of the product water has been delivered into the IRWD potable system, and the remainder has been delivered into the IRWD nonpotable system.

Orange Park Acres (currently available)

On June 1, 2008, through annexation and merger, IRWD acquired the water system of the former Orange Park Acres Mutual Water company, including its well (“OPA Well”). The well is operated within the Basin.

Wells 21 and 22 (currently available)

In early 2013, IRWD completed construction of treatment facilities, pipelines and wellhead facilities for Wells 21 and 22. Water supplied through this project became available in 2013. The wells are operated within the Basin.

Irvine Wells (under development)

(vi) IRWD is pursuing the installation of production facilities in the west Irvine, Tustin Legacy and Tustin Ranch portions of the Basin. These groundwater supplies are considered to be under development; however, four wells have been drilled and have previously produced groundwater, three wells have been drilled but have not been used as production wells to date, and a site for an additional well and treatment facility has been acquired by IRWD. These production facilities can be constructed and operated under the Act; no statutory or contractual approval is required to do so. Appropriate environmental review has or will be conducted for each facility. See discussion of the Act under Potable Supply - Groundwater, paragraph (i), above.

• **NONPOTABLE SUPPLY - RECYCLED**

Water Recycling Plants (currently available)

Water Code Section 1210. IRWD supplies its own recycled water from sewage collected by IRWD and delivered to IRWD’s Michelson Water Recycling Plant (“MWRP”) and Los Alisos Water Recycling Plant (“LAWRP”). Under the recently completed MWRP Phase II Capacity Expansion Project, IRWD increased its tertiary treatment capacity on the existing MWRP site to produce sufficient recycled water to meet the projected demand in the year 2037. MWRP currently has a permitted tertiary capacity of 28 million gallons per day (“MGD”) and LAWRP currently has a permitted tertiary capacity of 5.5 MGD. Water Code Section 1210 provides that the owner of a sewage treatment plant operated for the purposes of treating wastes from a sanitary sewer system holds the exclusive right to the treated effluent as against anyone who has supplied the water discharged into the sewer system. IRWD’s permits for the operation of MWRP and LAWRP allow only irrigation and other customer uses of recycled water, and do not permit stream discharge of recycled water; thus, no issue of downstream appropriation arises, and IRWD is entitled to deliver all of the effluent to meet contractual and customer demands. Additional reclamation capacity will augment local nonpotable supplies and improve reliability.

•NONPOTABLE SUPPLY - IMPORTED⁹

Baker Pipeline (currently available)

Santiago Aqueduct Commission (“SAC”) Joint Powers Agreement, dated September 11, 1961, as amended December 20, 1974, January 13, 1978, November 1, 1978, September 1, 1981, October 22, 1986, and July 8, 1999 (the “SAC Agreement”); Agreement Between Irvine Ranch Water District and Carma-Whiting Joint Venture Relative to Proposed Annexation of Certain Property to Irvine Ranch Water District, dated May 26, 1981 (the “Whiting Annexation Agreement”); service connections OC-13/13A, OC-33/33A. The imported untreated water pipeline initially known as the Santiago Aqueduct and now known as the Baker Pipeline was constructed under the SAC Agreement, a joint powers agreement. The Baker Pipeline is connected to MWD’s Santiago Lateral. IRWD’s capacity in the Baker Pipeline includes the capacity it subleases as successor to LAWD, as well as capacity rights IRWD acquired through the Whiting Annexation Agreement. (To finance the construction of AMP parallel untreated reaches which were incorporated into the Baker Pipeline, replacing original SAC untreated reaches that were made a part of the AMP potable system, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership, and the participants would be sublessees.) IRWD’s original capacities in the Baker Pipeline include 52.70 cfs in the first reach, 12.50 cfs in each of the second, third and fourth reaches and 7.51 cfs in the fifth reach of the Baker Pipeline. These existing Baker Pipeline capacities have been apportioned to the Baker WTP participants based on Baker WTP capacity ownership. IRWD retains 10.5 cfs of the pipeline capacity for potable supply through the Baker WTP and retains 36 cfs in Reach 1U of the Baker Pipeline capacity for nonpotable supply (See also footnote 8, page 27). Water is subject to availability from MWD.

•NONPOTABLE SUPPLY - NATIVE

Irvine Lake (currently available)

(i) Permit For Diversion and Use of Water (“Permit No. 19306”) issued pursuant to Application No. 27503; License For Diversion and Use of Water (“License 2347”) resulting from Application No. 4302 and Permit No. 3238; License For Diversion and Use of Water (“License 2348”) resulting from Application No. 9005 and Permit No. 5202. The foregoing permit and licenses, jointly held by IRWD (as successor to The Irvine Company (“TIC”) and Carpenter Irrigation District (“CID”)) and Serrano Water District (“SWD”), secure appropriative rights to the flows of Santiago Creek. Under Licenses 2347 and 2348, IRWD and SWD have the right to diversion by storage at Santiago Dam (Irvine Lake) and a submerged dam, of a total of 25,000 AFY. Under Permit No. 19306, IRWD and SWD have the right to diversion by storage of an additional 3,000 AFY by flashboards at Santiago Dam (Irvine Lake). (Rights under Permit No. 19306 may be junior to an OCWD permit to divert up to 35,000 AFY of Santiago Creek flows to spreading

⁹ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

pits downstream of Santiago Dam.) The combined total of native water that may be diverted to storage under these licenses and permit is 28,000 AFY. A 1996 amendment to License Nos. 2347, 2348 and 2349 [replaced by Permit No. 19306 in 1984] limits the withdrawal of water from the Lake to 15,483 AFY under the licenses. This limitation specifically references the licenses and doesn't reference water stored pursuant to other legal entitlements. The use and allocation of the native water is governed by the agreements described in the next paragraph.

(ii) Agreement, dated February 6, 1928 ("1928 Agreement"); Agreement, dated May 15, 1956, as amended November 12, 1973 ("1956 Agreement"); Agreement, dated as of December 21, 1970 ("1970 Agreement"); Agreement Between Irvine Ranch Water District and The Irvine Company Relative to Irvine Lake and the Acquisition of Water Rights In and To Santiago Creek, As Well As Additional Storage Capacity in Irvine Lake, dated as of May 31, 1974 ("1974 Agreement"). The 1928 Agreement was entered into among SWD, CID and TIC, providing for the use and allocation of native water in Irvine Lake. Through the 1970 Agreement and the 1974 Agreement, IRWD acquired the interests of CID and TIC, leaving IRWD and SWD as the two co-owners. TIC retains certain reserved rights. The 1928 Agreement divides the stored native water by a formula which allocates to IRWD one-half of the first 1,000 AF, plus increments that generally yield three-fourths of the amount over 1,000 AF.¹⁰ The agreements also provide for evaporation and spill losses and carryover water remaining in the Lake at the annual allocation dates. Given the dependence of native water on rainfall, for purposes of this assessment only a small portion of IRWD's share of the 28,000 AFY of native water rights (3,048 AFY in normal years and 1,000 AFY in single and multiple-dry years) is shown in currently available supplies, based on averaging of historical data. However, IRWD's ability to supplement Irvine Lake storage with its imported untreated water supplies, described herein, offsets the uncertainty associated with the native water supply.

• NONPOTABLE SUPPLY - GROUNDWATER

Irvine Subbasin / Irvine Desalter (currently available)

(i) IRWD's entitlement to produce nonpotable water from the Irvine Subbasin is included within the Irvine Subbasin Agreement. See discussion of the Irvine Subbasin Agreement under Potable Supply - Groundwater; paragraph (iv), above.

(ii) See discussion of the Irvine Desalter project under Potable Supply - Groundwater, paragraph (v), above. The Irvine Desalter project will produce nonpotable as well as potable water.

¹⁰ The 1956 Agreement provides for facilities to deliver MWD imported water into Irvine Lake, and grants storage capacity for the imported water. By succession, IRWD owns 9,000 AFY of this 12,000 AFY imported water storage capacity. This storage capacity does not affect availability of the imported supply, which can be either stored or delivered for direct use by customers.

•IMPORTED SUPPLY - ADDITIONAL INFORMATION

As described above, the imported supply from MWD is contractually subject to availability. To assist local water providers in assessing the adequacy of local water supplies that are reliant in whole or in part on MWD's imported supply, MWD has provided information concerning the availability of the supplies to its entire service area. In MWD's UWMP, MWD has extended its planning timeframe out through 2040 to ensure that MWD's UWMP may be used as a source document for meeting requirements for sufficient supplies. In addition, the MWD UWMP includes "Justifications for Supply Projections" (Appendix A-3) that details the planning, legal, financial, and regulatory basis for including each source of supply in the plan. The MWD UWMP summarizes MWD's planning initiatives over the past 15 years, which includes the Integrated Resources Plan (IRP), the IRP 2015 Update, the WSDM Plan, Strategic Plan and Rate Structure. The reliability analysis in MWD's 2015 IRP Update shows that MWD can maintain reliable supplies under the conditions that have existed in past dry periods throughout the period through 2040. The MWD UWMP includes tables that show the region can provide reliable supplies under both the single driest year (1977) and multiple dry years (1990-92) through 2040. MWD has also identified buffer supplies, including additional State Water Project groundwater storage and transfers that could serve to supply the additional water needed.

It is anticipated that MWD will revise its regional supply availability analysis periodically, if needed, to supplement the MWD UWMP in years when the MWD UWMP is not being updated.

IRWD is permitted by the statute (Wat. Code, § 10610 *et seq.*) to rely upon the water supply information provided by the wholesaler concerning a wholesale water supply source, for use in preparing its UWMPs. In turn, the statute provides for the use of UWMP information to support water supply assessments and verifications. In accordance with these provisions, IRWD is entitled to rely upon the conclusions of the MWD UWMP. As referenced above under Summary of Results of Demand-Supply Comparisons - **Recent Actions on Delta Pumping**, MWD has provided additional information on its imported water supply.

MWD's reserve supplies, together with the fact that IRWD relies on MWD supplies as supplemental supplies that need not be used to the extent IRWD operates currently available and under-development local supplies, build a margin of safety into IRWD's supply availability.

(2) Adopted capital outlay program to finance delivery of the water supplies.

All necessary delivery facilities currently exist for the use of the *currently available* and *under-development* supplies assessed herein, with the exception of future groundwater wells, and IRWD sub-regional and developer-dedicated conveyance facilities necessary to complete the local distribution systems for the Project. IRWD's turnout at each MWD connection and IRWD's regional delivery facilities are sufficiently sized to deliver all of the supply to the sub-regional and local distribution systems.

With respect to future groundwater well projects (PR Nos. 01402 and 07140), IRWD adopted its fiscal year 2017-18 capital budget on June 12, 2017 (Resolution No. 2017-14), budgeting portions of the funds for such projects. (A copy is available from IRWD on request.) For these facilities, as well as unbuilt IRWD sub-regional conveyance facilities, the sources of funding are previously authorized general obligation bonds, revenue-supported certificates of participation and/or capital funds held by IRWD Improvement Districts. IRWD has maintained a successful program for the issuance of general obligation bonds and certificates of participation on favorable borrowing terms, and IRWD has received AAA public bond ratings. IRWD has approximately \$585.5 million (water) and \$711.1 million (recycled water) of unissued, voter-approved bond authorization. Certificates of participation do not require voter approval. Proceeds of bonds and available capital funds are expected to be sufficient to fund all IRWD facilities for delivery of the supplies under development. Tract-level conveyance facilities are required to be donated to IRWD by the Applicant or its successor(s) at time of development.

See also MWD's UWMP, Appendix A.3 Justifications for Supply Projections with respect to capital outlay programs related to MWD's supplies.

(3) Federal, state and local permits for construction of delivery infrastructure.

Most IRWD delivery facilities are constructed in public right-of-way or future right-of-way. State statute confers on IRWD the right to construct works along, under or across any stream of water, watercourse, street, avenue, highway, railway, canal, ditch or flume (Water Code Section 35603). Although this right cannot be denied, local agencies may require encroachment permits when work is to be performed within a street. If easements are necessary for delivery infrastructure, IRWD requires the developer to provide them. The crossing of watercourses or areas with protected species requires federal and/or state permits as applicable.

See also MWD's UWMP, Appendix A.3 Justifications for Supply Projections with respect to permits related to MWD's supplies.

(4) Regulatory approvals for conveyance or delivery of the supplies.

See response to preceding item (3). Additionally, in general, supplies under development may necessitate the preparation and completion of environmental documents and/or regulatory approvals prior to full construction and implementation. IRWD obtains such approvals when required, and copies of documents pertaining to approvals can be obtained from IRWD.

See also MWD's UWMP, Appendix A.3 Justifications for Supply Projections with respect to regulatory approvals related to MWD's supplies.

3. Other users and contractholders (identified supply not previously used).

For each of the water supply sources identified by IRWD, if no water has been received from that source(s), IRWD is required to identify other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, that source(s):

Water has been received from all listed sources. A small quantity of Subbasin water is used by Woodbridge Village Association for the purpose of supplying its North and South Lakes. There are no other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, the Irvine Subbasin.

4. Information concerning groundwater included in the supply identified for the Project:

(a) Relevant information in the Urban Water Management Plan (UWMP):

See Irvine Ranch Water District 2015 UWMP, section 6.2.

(b) Description of the groundwater basin(s) from which the Project will be supplied:

The Orange County Groundwater Basin ("Basin") is described in the Orange County Water District Groundwater Management Plan ("GMP") 2015 Update, dated June 17, 2015¹¹. The rights of the producers within the Basin vis a vis one another have not been adjudicated. The Basin is managed by the Orange County Water District ("OCWD") for the benefit of municipal, agricultural and private groundwater producers. OCWD is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin. Current production from the Basin is approximately 277,000 AFY.

The DWR has not identified the Basin as "critically overdrafted," and has not identified the Basin as overdrafted in its most current bulletin that characterizes the condition of the Basin, Bulletin 118 (2003) and 2016 Bulletin 118 Interim Update. The efforts being undertaken by OCWD to eliminate long-term overdraft in the Basin are described in the OCWD GMP 2015 Update and OCWD Master Plan Report ("MPR"), including in particular, Chapters 4, 5, 6, 14 and 15 of the MPR. OCWD has also prepared a Long Term Facilities Plan ("LTFP") which was received by the OCWD Board in July 2009, and was last updated in November 2014. The LTFP Chapter 3 describes the efforts being undertaken by OCWD to eliminate long-term overdraft in the Basin.

Although the water supply assessment statute (Water Code Section 10910(f)) refers to elimination of "long-term overdraft," overdraft includes conditions which may be managed for optimum basin storage, rather than eliminated. OCWD's Act defines annual groundwater overdraft to be the quantity by which production exceeds the natural replenishment of the Basin. Accumulated overdraft is defined in the OCWD Act to be the quantity of water needed in the groundwater basin forebay to prevent landward movement of seawater into the fresh groundwater body. However, seawater intrusion control facilities have been constructed by OCWD since the Act was written, and have been effective in preventing landward movement of seawater. These facilities allow greater utilization of the storage capacity of the Basin.

¹¹ OCWD has also prepared a Long-Term Facilities Plan which was received and filed by its Board in July 2009, and last updated in November 2014.

OCWD has invested over \$250 million in seawater intrusion control (injection barriers), recharge facilities, laboratories, and Basin monitoring to effectively manage the Basin. Consequently, although the Basin is defined to be in an “overdraft” condition, it is actually managed to allow utilization of up to 500,000 acre-feet of storage capacity of the basin during dry periods, acting as an underground reservoir and buffer against drought. OCWD has an optimal basin management target of 100,000 acre-feet of accumulated overdraft provides sufficient storage space to accommodate increased supplies from one wet year while also provide enough water in storage to offset decreased supplies during a two- to three year drought. If the Basin is too full, artesian conditions can occur along the coastal area, causing rising water and water logging, an adverse condition. Since the formation of OCWD in 1933, OCWD has made substantial investment in facilities, Basin management and water rights protection, resulting in the elimination and prevention of adverse long-term “mining” overdraft conditions. OCWD continues to develop new replenishment supplies, recharge capacity and basin protection measures to meet projected production from the basin during normal rainfall and drought periods. (OCWD GMP, OCWD MPR and LTFP)

OCWD’s efforts include ongoing replenishment programs and planned capital improvements. It should be noted under OCWD’s management of overdraft to maximize the Basin’s use for annual production and recharge operations, overdraft varies over time as the Basin is managed to keep it in balance over the long term. The Basin is not operated on an annual safe-yield basis. (OCWD GMP, OCWD MPR, section 3.2 and LTFP, section 6)

(c) Description and analysis of the amount and location of groundwater pumped by IRWD from the Basin for the past five years:

The following table shows the amounts pumped, by groundwater source:

(In AFY)

Year (ending 6/30)	DRWF/DATS/ OPA/21-22	Irvine Subbasin (IRWD)	Irvine Subbasin (TIC)	LAWD ¹²
2016	37,216	4,672	0	307
2015	40,656	9,840	0	336
2014	42,424	10,995	0	376
2013	38,617	8,629	0	282
2012	37,059	7,059	0	0
2011	34,275	7,055	0	0
2010	37,151	8,695	0	3

¹² The water produced from IRWD’s Los Alisos wells is not included in this assessment. IRWD is presently evaluating the future use of these wells.

2009	38,140	7,614	0	0
2008	36,741	4,539	0	16
2007	37,864	5,407	0	6
2006	37,046	2,825	0	268
2005	36,316	2,285	628	357
2004	30,265	1,938	3,079	101
2003	24,040	2,132	4,234	598
2002	25,855	2,533	5,075	744

(d) Description and analysis of the amount and location of groundwater projected to be pumped by IRWD from the Basin:

IRWD has a developed groundwater supply of 35,200 AFY from its Dyer Road Wellfield (including the Deep Aquifer Treatment System), in the main portion of the Basin.

Although TIC's historical production from the Subbasin declined as its use of the Subbasin for agricultural water diminished, OCWD's and other historical production records for the Subbasin show that production has been as high as 13,000 AFY. Plans are also underway to expand IRWD's main Orange County Groundwater Basin supply (characterized as *under-development* supplies herein). (See Section 2 (a) (1) herein). IRWD anticipates the development of potential additional production facilities within both the main Basin and the Irvine Subbasin. However, such additional facilities have not been included or relied upon in this assessment. Additional groundwater development will provide an additional margin of safety as well as reduce future water supply costs to IRWD.

The following table summarizes future IRWD groundwater production from currently available and under-development supplies.

(In AFY)

Year (ending 6/30)	DRWF¹³	Future GW¹⁴	IDP (Potable)	IDP (Nonpotable)
2020	43,861	0	5,618	3,461
2025	43,861	12,352	5,618	3,461
2035	43,861	12,352	5,618	3,461
2040	43,861	12,352	5,618	3,461

¹³ See Potable Supply - Groundwater, paragraph (iii), above. DRWF non-colored production above 28,000 AFY and colored water production above 8,000 AFY are subject to contractually-imposed assessments. In addition, seasonal production amounts apply. This also includes 914 AFY for the OPA well and 6,329 AFY for Wells 21 & 22.

¹⁴ Under-development.

(e) If not included in the 2015 UWMP, analysis of the sufficiency of groundwater projected to be pumped by IRWD from the Basin to meet the projected water demand of the Project:

See responses to 4(b) and 4(d).

The OCWD MPR and LTFP examined future Basin conditions and capabilities, water supply and demand, and identified projects to meet increased replenishment needs of the basin. With the implementation of OCWD's preferred projects, the Basin yield in the year 2025 would be up to 500,000 AF. The amount that can be produced will be a function of which projects will be implemented by OCWD and how much increased recharge capacity is created by those projects, total demands by all producers, and the resulting Basin Production Percentage ("BPP") that OCWD sets based on these factors.¹⁵ Sufficient replenishment supplies are projected by the OCWD MPR to be available to OCWD to meet the increasing demand on the Basin. These supplies include capture of increasing Santa Ana River flows, purchases of replenishment water from MWD, and development of new local supplies. In 2008, OCWD began operating its replenishment supply project, the Groundwater Replenishment System project ("GWRS"). The GWRS currently produces approximately 100,000 AFY of new replenishment supply from recycled water (OCWD GMP).

Production of groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or emergencies. Additional groundwater production is anticipated by OCWD in the Basin in dry years, as producers reduce their use of imported supplies, and the Basin is "mined" in anticipation of the eventual availability of replenishment water. (OCWD MPR, section 14.6.)

See also, Figures 1-8 hereto. IRWD assesses sufficiency of supplies on an aggregated basis, as neither groundwater nor other supply sources are allocated to particular projects or customers. Under the Irvine Subbasin Agreement, IRWD is contractually obligated to attribute the Subbasin supply only to TIC development projects for assessment purposes; however, the agreement does not allocate or assign rights in the Subbasin supply to any project.

Sustainable Groundwater Management Act. Pursuant to the Sustainable Groundwater Management Act ("SGMA"), the DWR has designated the Orange County groundwater basin, Basin 8-1, as a medium priority basin for purposes of groundwater management. The SGMA specifically calls for OCWD, which regulates the Orange County groundwater basin, to serve as the groundwater sustainability agency or "GSA". The SGMA allows Special Act Districts created by statute, such as OCWD, to prepare and submit an Alternative to a Groundwater Sustainability Plan ("GSP") which is to be "functionally equivalent"

¹⁵ OCWD has adopted a basin production percentage of 75% for 2017-18. In prior years OCWD has maintained a basin production percentage that is lower than the current percentage, and IRWD anticipates that such reductions may occur from time to time as a temporary measure employed by OCWD to encourage lower pumping levels as OCWD implements other measures to reduce the current accumulated overdraft in the Basin. Any such reductions are not expected to affect any of IRWD's currently available groundwater supplies listed in this assessment, which are subject to a contractually-set equivalent basin production percentage as described, or are exempt from the basin production percentage.

to a GSP. Basin 8-1 includes the OCWD service area and several fringe areas outside of OCWD that are within the Basin 8-1 boundary. Per the requirements of SGMA, an Alternative Plan must encompass the entire groundwater basin as defined by DWR. On January 1, 2017, OCWD and the overlying agencies within Basin 8-1, including IRWD, jointly prepared and submitted an Alternative Plan in compliance with SGMA (Basin 8-1 Alternative).

5. This Water Supply Assessment is being completed for a project included in a prior water supply assessment. Check all of the following that apply:

- Changes in the Project have substantially increased water demand.
- Changes in circumstances or conditions have substantially affected IRWD's ability to provide a sufficient water supply for the Project.
- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment.

6. References

Water Resources Master Plan, Irvine Ranch Water District, Updated 2017

Section 15 of the Rules and Regulations – Water Conservation and Water Supply Shortage Program, Irvine Ranch Water District, February 2009

Water Shortage Contingency Plan, Irvine Ranch Water District, February 2009

2015 Urban Water Management Plan, Irvine Ranch Water District, June, 2016

Southern California's Integrated Water Resources Plan, Metropolitan Water District of Southern California, March 1996

Proposed Framework for Metropolitan Water District's Delta Action Plan, Metropolitan Water District of Southern California, May 8, 2007

2007 IRP Implementation Report, Metropolitan Water District of Southern California, October 7, 2007

Board Letter, Action plan for updating the Integrated Resources Plan, Metropolitan Water District of Southern California, December 11, 2007

2010 Integrated Resources Plan Update, Metropolitan Water District of Southern California, October 2010

2015 Integrated Resources Plan Update, Metropolitan Water District of Southern California, January 2016

2015 Urban Water Management Plan, Metropolitan Water District of Southern California, June 2016

2015 Urban Water Management Plan, Municipal Water District of Orange County, May 2016

Progress on Incorporating Climate Change into Management of California's Water Resources, California Department of Water Resources, July 2006

Master Plan Report, Orange County Water District, April, 1999

Groundwater Management Plan 2015 Update, Orange County Water District, June 2015

Final Draft Long-Term Facilities Plan, Orange County Water District, January 2006

Long-Term Facilities Plan 2014 Update, Orange County Water District, November 2014

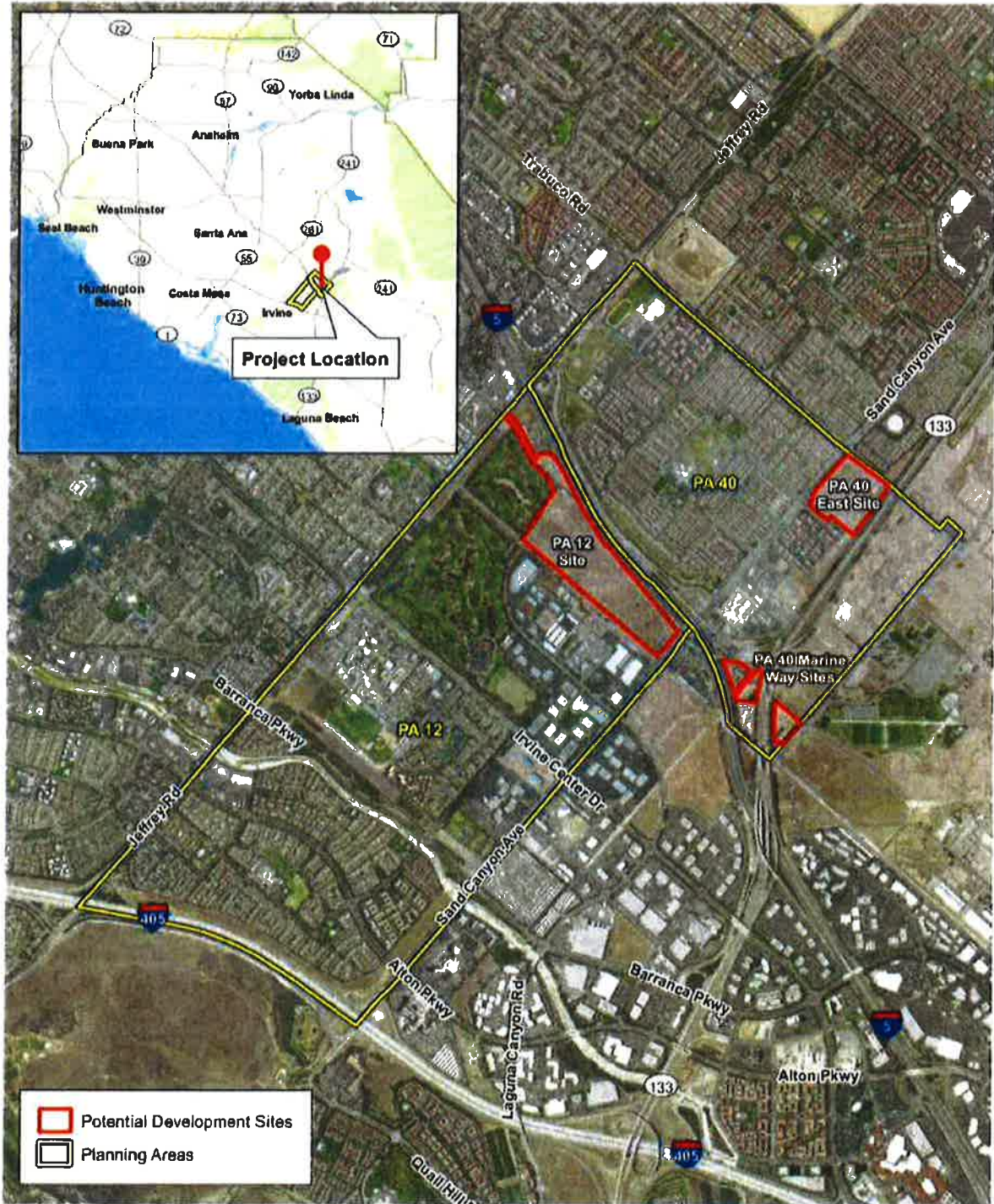
2015-2016 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District, February 2017

Basin 8-1 Alternative, Orange County Water District, January 2017

Exhibit A

Depiction of Project Area

REGIONAL LOCATION AND LOCAL VICINITY



Planning Areas 12 and 40
General Plan Amendment and Zone Change Project
Irvine, CA



Exhibit B

Uses Included in Project



April 28, 2017

Irvine Ranch Water District
15600 Sand Canyon Avenue
PO Box 57000
Irvine, CA 92619-7000

Re: Request for Water Supply Availability Assessment (Water Code §10910 et seq.)

The City of Irvine, County of Orange hereby requests an assessment of water supply availability for the below-described project. The City of Irvine has determined that the project is a "project" as defined in Water Code §10912, and has determined that an Environmental Impact Report is required for the project.

Proposed Project Information

Project Title: Planning Area (PA) 12 and PA 40 General Plan Amendment (GPA) and Zone Change Project – Inclusive of the three project areas known as the PA 12 Site, PA 40 East Site, and PA 40 Marine Way Sites

Project Location: The PA 12 Site is bound by the Oak Creek Golf Club to the northwest, the Orange County Transportation Authority (OCTA) / Metrolink railroad to the southwest, Sand Canyon Avenue to the southeast, and Interstate (I) 5 to the northeast. The PA 40 East Site is bound by Roosevelt (a street) to the southwest, State Route (SR) 133 to the southeast, Trabuco Road to the northeast, and Sand Canyon Avenue to the northwest. The Marine Way Sites are composed of two individual sites. The northwest site is generally bound by I-5 to the west, the planned future Marine Way alignment to the north, the SR-133 overpass to the east, and an OCTA property to the south. The southeast site is bound by the SR-133 overpass to the west, the planned future alignment of Marine Way to the northeast, and Ridge Valley to the southeast. Refer to the attached Exhibit A.

(For projects requiring a new assessment under Water Code §10910 (h).) Previous Water Supply Assessment including this project was prepared on: December 2007. This application requests a new Water Supply Assessment, due to the following (check all that apply):

- Changes in the project have substantially increased water demand.
- Changes in circumstances or conditions have substantially affected IRWD's ability to provide a sufficient water supply for the project.

- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment. (Enclose maps and exhibits of the project)

Type of Development:

- Residential: No. of dwelling units: +1,343 (net increase see attached Table 1)
- Shopping center or business: No. of employees _____ Sq. ft. of floor space -180,000 sq. ft. (net reduction see attached Table 1)
- Commercial office: No. of employees _____ Sq. ft. of floor space _____
- Hotel or motel: No. of rooms _____
- Industrial, manufacturing, processing or industrial park: No. of employees _____ No. of acres _____ Sq. ft. of floor space -665,181 sq. ft. (net reduction see attached Table 1)
- Mixed use (check and complete all above that apply)
- Other: Mixed Use: -675,237 sq. ft. (net reduction see attached Table 1), and a 10,000 sq. ft. childcare center (1.3 acres) on the PA 40 East Site

Total acreage of project: Total acreage of PA 12 is 1,053 acres, of which the PA 12 Project Site is 70.2 acres. The total acreage of PA 40 is 634 acres, of which the PA 40 East Site is 25.7 acres, and the PA 40 Marine Way Sites are 12.7 acres.

Acreage devoted to landscape:

Greenbelt n/a Golf course n/a Parks Approx. 7 acres (project sites only)

Agriculture n/a Other landscaped areas Approx. 27 acres (project sites only)

Number of schools n/a Number of public facilities n/a

Other factors or uses that would affect the quantity of water needed, such as peak flow requirements or potential uses to be added to the project to reduce or mitigate environmental impacts: n/a

What is the current land use of the area subject to a land use change under the project? Project sites are currently vacant; however, agricultural activities currently occur at the PA 12 Site, the PA 40 East site is used for temporary construction staging, and a landscape company is utilizing the southeast PA 40 Marine Way Site.

Is the project included in the existing General Plan? No

If no, describe the existing General Plan Designation: General Plan land uses for the three project sites are Research and Industrial (PA 12 Site and PA 40 Marine Way Sites), Medium High Density Residential (PA 40 East Site), and a small area of Recreation (along Jeffrey Road at the location of the Walnut Road extension from the PA 12 Site). Refer to the attached Initial Study project description for more information about the proposed GPA.

The City acknowledges that IRWD's assessment will be based on the information hereby provided to IRWD concerning the project. If it is necessary for corrected or additional information to be submitted to enable IRWD to complete the assessment, the request will be considered incomplete until IRWD's receipt of the corrected or additional information. If the project, circumstances or conditions change or new information becomes available after the issuance of a Water Supply Assessment, the Water Supply Assessment may no longer be valid. The City will request a new Water Supply Assessment if it determines that one is required.

The City acknowledges that the Water Supply Assessment shall not constitute a "will-serve" or in any way entitle the project applicant to service or to any right, priority or allocation in any supply, capacity or facility, and that the issuance of the Water Supply Assessment shall not affect IRWD's obligation to provide service to its existing customers or any potential future customers including the project applicant. In order to receive service, the project applicant shall be required to file a completed Application(s) for Service and Agreement with the Irvine Ranch Water District on IRWD's forms, together with all fees and charges, plans and specifications, bonds and conveyance of necessary easements, and meet all other requirement as specified therein.

CITY OF IRVINE /COUNTY OF ORANGE

By: 
Stephanie Frady, Senior Planner
PO Box 19575, Irvine, CA 92623
sfrady@cityofirvine.org

REQUEST RECEIVED:

Date: May 4, 2017

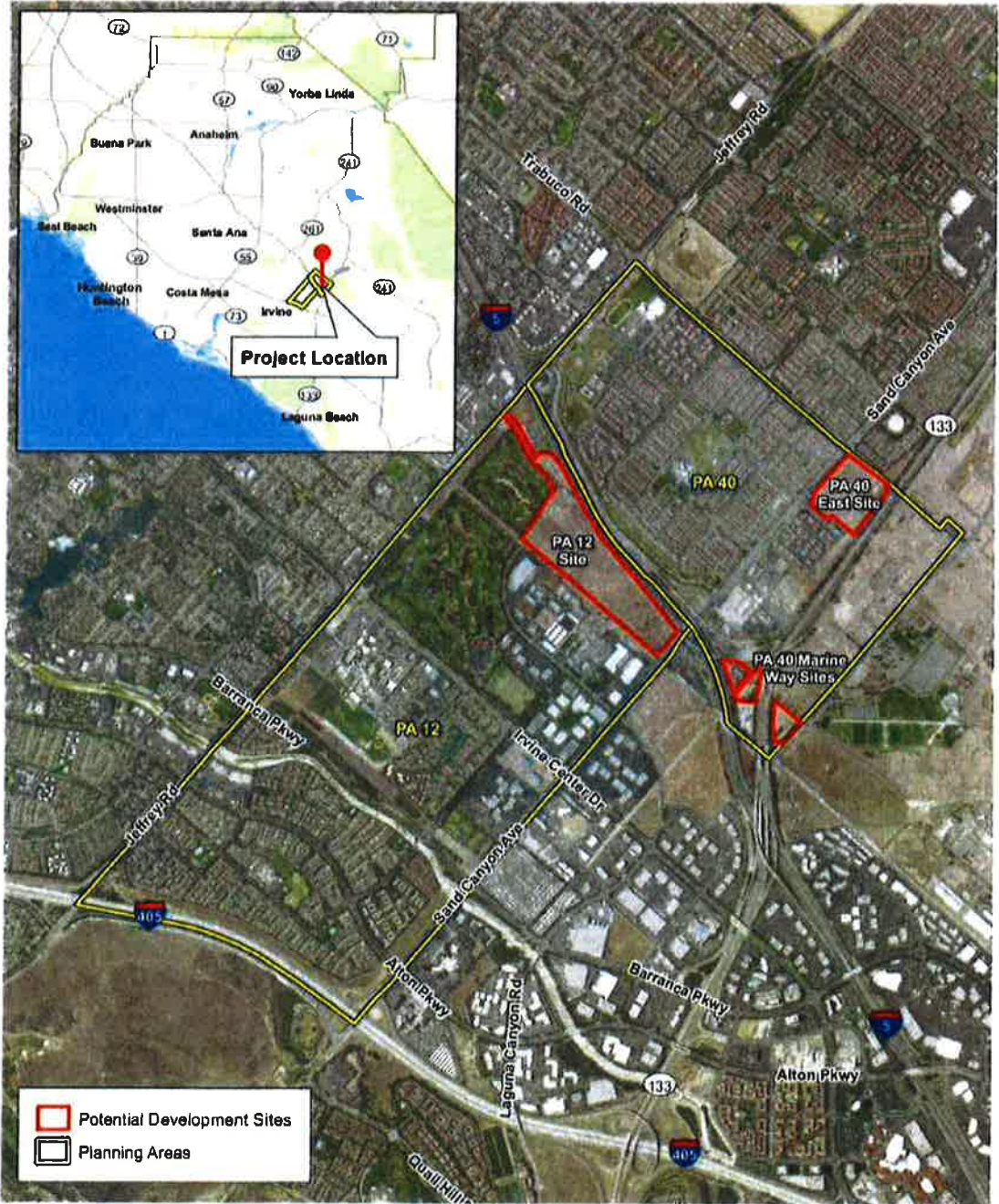
By: 
Irvine Ranch Water District

REQUEST COMPLETE:

Date: June 19, 2017

By: 
Irvine Ranch Water District

**Exhibit 1
REGIONAL LOCATION AND LOCAL VICINITY**



Planning Areas 12 and 40
General Plan Amendment and Zone Change Project
Irvine, CA



TABLE 1

EXISTING AND PROPOSED
 MAXIMUM INTENSITY STANDARDS BY PLANNING AREA
 (Table A-1 of the General Plan)

Planning Area	Residential			Multi-Use			Institutional		Industrial		Commercial		Maximum Dwelling Units	Maximum of
	Medium (0-10 DUs/Acre)	Med-High (0-25 DUs/Acre)	High (0-40 DUs/Acre)	Unallocated Residential Units	0-40 DUs/Acre	Square Feet	0-40 DUs/Acre	Public Facility (sf)	Educational Facility (sf)	Research/Industrial (sf)	Community Commercial (sf)	Neighborhood Commercial (sf)		
<i>Existing</i>														
Approved PA 12	190	2,164	1,172	40	694	470,000	0	194,440	150,000	3,603,281	955,000	150,000	4,280	5,522,721
Approved PA 40	1,595	2,323	0	0	1,303	675,237	0	0	100,000	1,662,352	205,000	0	5,221	2,842,588
Approved Total	1,785	4,487	1,172	40	1,997	1,145,237	0	194,440	250,000	5,265,633	1,160,000	150,000	9,481	8,165,310
<i>Proposed</i>														
Proposed PA 12	190	3,874	1,172	40	694	470,000	0	194,440	150,000	2,636,632	955,000	175,000	5,970	4,579,972
Proposed PA 40	1,595	1,956	0	0	1,303	0	0	0	100,000	1,964,920	0	0	4,854	2,064,920
Proposed Total	1,785	5,830	1,172	40	1,997	470,000	0	194,440	250,000	4,600,452	955,000	175,000	10,824	6,644,892
Difference Between Approved and Proposed Totals for PAs 12 and 40	NC	+1,343	NC	NC	NC	-675,237	NC	NC	NC	-665,181	-285,000	+25,000	+1,343	-1,520,418

Notes - DU: Dwelling Units; NC: No Change
 sf - square feet

* Figures listed as "existing" will be finalized as part of the General Plan technical update to be processed in summer 2017. While these figures do not appear in the current version of the City of Irvine General Plan, the units and square footage totals are approved.

September 27, 2021
Prepared by: L. Srader
Submitted by: T. Mitcham
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

ADOPTION OF REVISED IRWD SCHEDULE OF
POSITIONS AND SALARY RATE RANGES

SUMMARY:

Adjustments to IRWD’s Schedule of Positions and Salary Rate Ranges are needed at this time. Staff recommends the Board adopt a resolution rescinding Resolution No. 2021-18 and revising the District’s Schedule of Positions and Salary Rate Ranges to incorporate the proposed changes.

BACKGROUND:

Staff recommends the Board adopt a resolution adopting the revised IRWD Schedule of Positions and Salary Rate Ranges that incorporates the following changes:

- Upgrade the position of Safety Manager (U17.E) to Director of Safety and Security (U27.E) to account for the increased scope of activity;
- Downgrade the Government Relations Officer/Deputy General Council (U25.E) position to Community Relations Manager position (U18.E) to account for the growth in scope and activity allowing IRWD to engage in a wider variety of policy issues of interest to the District within the Strategic Communications and Advocacy Department; and
- Add the Communications Analyst/Deputy PIO (U13.E) position to account for the growth of the Strategic Communications and Advocacy Department and to occasionally serve as backup for the Public Affairs Manager.

CalPERS requires that changes to employment positions and pay rates be identified in a publicly available pay schedule (CalPERS Regulations, 2 CCR 570.5). Staff recommends the Board adopt a resolution superseding Resolution No. 2021-18 and adopting the proposed changes to IRWD’s Schedule of Positions and Salary Rate Ranges, effective September 27, 2021. The resolution is provided as Exhibit “A”, and the revised Salary Grade Schedule is provided as Exhibit “B”.

FISCAL IMPACTS:

There are sufficient funds included in the Fiscal Year 2021-22 Operating Budget, approved by the Board on April 26, 2021, to accommodate these changes.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act and California Code of Regulations, Title 14, Chapter 3, Section 15378.

COMMITTEE STATUS:

This item was not reviewed by a Committee.

RECOMMENDATION:

THAT THE BOARD ADOPT THE FOLLOWING RESOLUTION BY TITLE:

RESOLUTION NO. 2021 -

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
IRVINE RANCH WATER DISTRICT RESCINDING
RESOLUTION NO. 2021-18 AND ADOPTING A REVISED
SCHEDULE OF POSITIONS AND SALARY RATE RANGES

LIST OF EXHIBITS:

Exhibit "A" – Resolution Adopting Revised IRWD Schedule of Positions and Salary Rate
Ranges

Exhibit "B" – Salary Grade Schedule

EXHIBIT "A"

RESOLUTION NO. 2021 -

RESOLUTION OF THE BOARD OF DIRECTORS
OF IRVINE RANCH WATER DISTRICT,
SUPERSEDING RESOLUTION NO. 2021-18 AND
ADOPTING A REVISED SCHEDULE OF POSITIONS
AND SALARY RATE RANGES

The Board of Directors of Irvine Ranch Water District, by adoption of Resolution No. 2021-18 on July 26, 2021, established a Schedule of Positions and Salary Rate Ranges of the Irvine Ranch Water District; and

The Board of Directors of Irvine Ranch Water District have reviewed the Schedule of Positions and Salary Rate Ranges and desires to make revisions thereto.

The Board of Directors of Irvine Ranch Water District does hereby resolve, determine and order as follows:

Section 1. That the Schedule of Positions and Salary Rate Ranges adopted by Resolution No. 2021-18 on July 26, 2021, is hereby superseded effective September 27, 2021

Section 2. That the Schedule of Positions and Salary Rate Ranges for the Irvine Ranch Water District as set forth in Schedule "A" attached to this Resolution, and as effective September 27, 2027, for all classifications, is hereby approved and adopted.

ADOPTED, SIGNED and APPROVED on September 27, 2021.

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

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

APPROVED AS TO FORM:

By: _____
Claire Hervey Collins, General Counsel
Hansen Bridgett LLP

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Schedule "A"

**IRVINE RANCH WATER DISTRICT
MONTHLY SALARY GRADE SCHEDULE**

Managers, Exempt Supervisors, Confidential & Exempt Employees

Effective September 27, 2021

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
<u>NON-EXEMPT</u>			
Salary Grade U1.N	\$3,165	\$3,924	\$4,120
Salary Grade U2.N	\$3,234	\$4,032	\$4,234
Salary Grade U3.N	\$3,302	\$4,143	\$4,350
Salary Grade U4.N	\$3,363	\$4,264	\$4,477
Salary Grade U5.N	\$3,440	\$4,381	\$4,601
Salary Grade U6.N	\$3,507	\$4,509	\$4,735
Salary Grade U7.N	\$3,577	\$4,634	\$4,867
Salary Grade U8.N	\$3,655	\$4,767	\$5,005
Salary Grade U9.N	\$3,724	\$4,898	\$5,146
Salary Grade U10.N	\$3,802	\$5,033	\$5,283
Salary Grade U11.N	\$3,876	\$5,161	\$5,416
Salary Grade U12.N	\$3,952	\$5,313	\$5,579
Salary Grade U13.N	\$4,026	\$5,464	\$5,740
Salary Grade U14.N	\$4,117	\$5,619	\$5,901
Salary Grade U15.N	\$4,205	\$5,768	\$6,056
Salary Grade U16.N	\$4,305	\$5,930	\$6,225
Salary Grade U17.N	\$4,396	\$6,078	\$6,382
Salary Grade U18.N	\$4,492	\$6,241	\$6,555
Salary Grade U19.N	\$4,595	\$6,398	\$6,721
Safety Assistant			
Salary Grade U20.N	\$4,717	\$6,606	\$6,937
Salary Grade U21.N	\$4,852	\$6,805	\$7,148
Salary Grade U22.N	\$4,984	\$7,020	\$7,371
Executive Secretary			

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Human Resources Assistant			
Salary Grade U23.N	\$5,116	\$7,232	\$7,592
Salary Grade U24.N	\$5,261	\$7,457	\$7,831
Salary Grade U25.N	\$5,399	\$7,686	\$8,073
Human Resources Technician			
Salary Grade U26.N	\$5,566	\$7,916	\$8,313
Executive Assistant			
Salary Grade U27.N	\$5,726	\$8,149	\$8,555
Salary Grade U28.N	\$5,894	\$8,390	\$8,811
Salary Grade U29.N	\$6,070	\$8,634	\$9,067
Administrative Assistant Safety Specialist			
Salary Grade U30.N	\$6,253	\$8,890	\$9,335
Salary Grade U31.N	\$6,439	\$9,157	\$9,615
Human Resources Analyst			
Salary Grade U32.N	\$6,623	\$9,428	\$9,899
Salary Grade U33.N	\$6,817	\$9,702	\$10,188
Network Administrator User Support Administrator			
Salary Grade U34.N	\$7,020	\$9,970	\$10,471
Salary Grade U35.N	\$7,231	\$10,270	\$10,784

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
EXEMPT			
Salary Grade U1.E	\$5,090	\$6,539	\$6,866
Salary Grade U2.E	\$5,260	\$6,793	\$7,133
Salary Grade U3.E	\$5,428	\$7,046	\$7,401
Salary Grade U4.E	\$5,598	\$7,317	\$7,682
Salary Grade U5.E	\$5,768	\$7,588	\$7,968
Salary Grade U6.E	\$5,967	\$7,882	\$8,277
Salary Grade U7.E	\$6,158	\$8,174	\$8,581
Salary Grade U8.E	\$6,359	\$8,493	\$8,918
Salary Grade U9.E	\$6,553	\$8,805	\$9,243
Salary Grade U10.E	\$6,770	\$9,138	\$9,594
Asset Systems Analyst Assistant Engineer Customer Service Supervisor Development Services Supervisor Management Analyst Public Affairs Analyst Senior Public Affairs Specialist			
Salary Grade U11.E	\$6,988	\$9,475	\$9,951
Purchasing Supervisor			
Salary Grade U12.E	\$7,214	\$9,840	\$10,329
Environmental Compliance Analyst Financial Analyst Regulatory Compliance Administrator Senior Accountant Senior Water Efficiency Analyst Source Control Program Administrator Water Efficiency Supervisor			
Salary Grade U13.E	\$7,448	\$10,196	\$10,705
Communications Analyst/Deputy PIO GIS Supervisor Legislative Analyst Right of Way Agent Senior Human Resources Analyst Treasury Analyst Water Resources Planner			
Salary Grade U14.E	\$7,689	\$10,589	\$11,118

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Accounting Supervisor Associate Engineer District Secretary QA/QC Compliance Administrator			
Salary Grade U15.E	\$7,934	\$10,986	\$11,533
Applications Analyst Automation Programmer Laboratory Supervisor Senior Regulatory Compliance Administrator Senior SCADA Network Administrator Senior Network Administrator			
Salary Grade U16.E	\$8,199	\$11,400	\$11,972
Salary Grade U17.E	\$8,460	\$11,820	\$12,409
Construction Inspection Manager Customer Service Manager Engineer Facilities/Fleet Manager Purchasing Manager Safety Manager			
Salary Grade U18.E	\$8,735	\$12,270	\$12,882
Collection Systems Manager Community Relations Manager Construction Services Manager Cybersecurity Analyst Electrical and Instrumentation Manager Field Services Manager Natural Resources Manager Public Affairs Manager Regulatory Compliance Manager Senior Applications Analyst Senior Applications Developer Senior Database Administrator Water Efficiency Manager Water Quality Manager			
Salary Grade U19.E	\$9,011	\$12,723	\$13,361
Manager of Risk & Contracts Administration Mechanical Services Manager Recycled Water Development Manager Treasury Manager Water Resources Manager			

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Salary Grade U20.E Automation Manager Operations Manager Reliability Engineer Senior Engineer User Support Manager	\$9,292	\$13,196	\$13,854
Salary Grade U21.E Controller Manager of Strategic Planning and Analysis	\$9,575	\$13,672	\$14,356
Salary Grade U22.E Applications Manager Network and Cybersecurity Manager	\$9,882	\$14,180	\$14,890
Salary Grade U23.E Principal Engineer	\$10,195	\$14,694	\$15,429
Salary Grade U24.E Engineering Manager	\$10,472	\$15,286	\$16,048
Salary Grade U25.E	\$10,795	\$15,863	\$16,656
Salary Grade U26.E	\$11,288	\$16,702	\$17,537
Salary Grade U27.E Director of Field Operations Director of Human Resources Director of Information Services Director of Maintenance Director of Strategic Communications & Advocacy/ Deputy General Counsel Director of Recycling Operations Director of Safety & Security Director of Water Quality & Regulatory Compliance Director of Water Resources Treasurer/Director of Risk Management	\$11,804	\$17,588	\$18,466
Salary Grade U28.E	\$12,347	\$18,513	\$19,438
Salary Grade U29.E	\$12,911	\$19,493	\$20,467
Salary Grade U30.E Executive Director of Finance Executive Director of Technical Services Executive Director of Operations Executive Director of Water Policy	\$13,507	\$20,529	\$21,554
Salary Grade U31.E	\$14,179	\$21,693	\$22,776

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Salary Grade U32.E	\$14,889	\$22,928	\$24,075
Salary Grade U33.E	\$15,630	\$24,230	\$25,441
Salary Grade U34.E	\$16,414	\$25,605	\$28,322
General Manager			

IRVINE RANCH WATER DISTRICT
MONTHLY SALARY GRADE SCHEDULE
Non-Exempt Supervisors Unit
Effective September 27, 2021

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
<u>NON-EXEMPT</u>			
Salary Grade S26.N	\$5,566	\$7,916	\$8,313
Salary Grade S27.N	\$5,726	\$8,149	\$8,555
Salary Grade S28.N	\$5,894	\$8,390	\$8,811
Salary Grade S29.N	\$6,070	\$8,634	\$9,067
Salary Grade S30.N	\$6,253	\$8,890	\$9,335
Salary Grade S31.N Facilities Services Supervisor Fleet Supervisor	\$6,439	\$9,157	\$9,615
Salary Grade S32.N Collection Systems Supervisor Mechanical Services Supervisor	\$6,623	\$9,428	\$9,899
Salary Grade S33.N Cross Connection Supervisor Water Maintenance Supervisor	\$6,817	\$9,702	\$10,188
Salary Grade S34.N Construction Inspection Supervisor Automation Supervisor Electrical Supervisor Instrumentation Supervisor Water Monitoring Supervisor	\$7,020	\$9,970	\$10,471
Salary Grade S35.N Operations Supervisor	\$7,231	\$10,270	\$10,784

IRVINE RANCH WATER DISTRICT
MONTHLY SALARY GRADE SCHEDULE
General Employees Unit
Effective September 27, 2021

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
<u>NON-EXEMPT</u>			
Salary Grade 1.N	\$3,159	\$3,917	\$4,113
Salary Grade 2.N	\$3,227	\$4,024	\$4,225
Salary Grade 3.N	\$3,297	\$4,136	\$4,342
Salary Grade 4.N	\$3,357	\$4,255	\$4,467
Salary Grade 5.N	\$3,431	\$4,373	\$4,593
Salary Grade 6.N	\$3,500	\$4,500	\$4,725
	Office Assistant Mail Coordinator		
Salary Grade 7.N	\$3,568	\$4,625	\$4,857
Salary Grade 8.N	\$3,648	\$4,758	\$4,996
Salary Grade 9.N	\$3,719	\$4,889	\$5,132
Salary Grade 10.N	\$3,793	\$5,021	\$5,270
Salary Grade 11.N	\$3,867	\$5,152	\$5,407
	Maintenance Apprentice Material Control Clerk I Utility Worker		
Salary Grade 12.N	\$3,944	\$5,301	\$5,569
Salary Grade 13.N	\$4,018	\$5,455	\$5,725
	Customer Service Specialist I Support Specialist		
Salary Grade 14.N	\$4,109	\$5,607	\$5,888
Salary Grade 15.N	\$4,197	\$5,757	\$6,046
	Collection Systems Technician I Office Specialist		
Salary Grade 16.N	\$4,295	\$5,919	\$6,213
	Accounting Clerk Customer Service Field Technician		

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Metering Systems Technician I Water Maintenance Technician I			
Salary Grade 17.N	\$4,386	\$6,065	\$6,367
Customer Service Specialist II			
Salary Grade 18.N	\$4,482	\$6,229	\$6,539
Material Control Clerk II Senior Support Specialist Water Efficiency Field Technician			
Salary Grade 19.N	\$4,585	\$6,387	\$6,706
Development Services Specialist Purchasing Coordinator Senior Office Specialist			
Salary Grade 20.N	\$4,708	\$6,591	\$6,922
Collection Systems Technician II Engineering Technician I GIS Technician I Operator I Senior Accounting Clerk			
Salary Grade 21.N	\$4,840	\$6,791	\$7,133
Collection Systems CCTV Technician Customer Service Specialist III Senior Customer Service Field Technician			
Salary Grade 22.N	\$4,974	\$7,005	\$7,357
Facilities Services Technician Maintenance Mechanic Metering Systems Technician II Risk Assistant Senior Purchasing Coordinator Vehicle/Equipment Mechanic Water Maintenance Technician II			
Salary Grade 23.N	\$5,104	\$7,217	\$7,577
Senior Water Efficiency Field Technician			
Salary Grade 24.N	\$5,249	\$7,444	\$7,815
Buyer Public Affairs Assistant Recycled Water Specialist Water Loss Prevention Specialist Wetlands Specialist			

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Salary Grade 25.N Engineering Technician II GIS Technician II Senior Collection Systems CCTV Technician Senior Collection Systems Technician	\$5,387	\$7,672	\$8,057
Salary Grade 26.N Cross Connection Specialist Metering Systems Technician III Water Efficiency Specialist Water Maintenance Technician III Water Resources Specialist	\$5,553	\$7,901	\$8,294
Salary Grade 27.N Accountant Operator II Senior Facilities Services Technician Senior Maintenance Mechanic Senior Water Loss Prevention Specialist Senior Vehicle/Equipment Maintenance Mechanic	\$5,715	\$8,132	\$8,538
Salary Grade 28.N Automation Technician Construction Inspector Electrical Technician Instrumentation Technician Landscape Contracts Administrator Scientist	\$5,882	\$8,374	\$8,794
Salary Grade 29.N Engineering Technician III GIS Technician III Lead Maintenance Mechanic Operator III Public Affairs Specialist Senior Buyer Senior Recycled Water Specialist Senior Wetlands Specialist	\$6,057	\$8,618	\$9,047
Salary Grade 30.N Graphic Design Specialist Risk Analyst Senior Electrical Technician Senior Instrumentation Technician	\$6,241	\$8,872	\$9,318

	MINIMUM	MAXIMUM	EXCEPTIONAL PERFORMANCE TOP OF RANGE
Salary Grade 31.N Information Services Coordinator Payroll Administrator Recycled Water Project Specialist Senior Construction Inspector Senior Water Efficiency Specialist	\$6,424	\$9,140	\$9,594
Salary Grade 32.N Asset Maintenance Coordinator Automation Specialist Environmental Compliance Specialist Process Specialist Senior Scientist Wetlands Scientist	\$6,610	\$9,409	\$9,880
Salary Grade 33.N Operations Coordinator Water Efficiency Analyst	\$6,803	\$9,683	\$10,166
Salary Grade 34.N	\$7,005	\$9,951	\$10,449
Salary Grade 35.N	\$7,216	\$10,249	\$10,762

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September 27, 2021
Prepared by: A. Murphy / M. Cortez
Submitted by: K. Burton
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

SEWER SIPHON IMPROVEMENTS BUDGET INCREASE AND CONTRACT CHANGE ORDER

SUMMARY:

IRWD's sewer system includes 19 sewer siphons in various locations throughout its service area. In 2016, the District completed an evaluation that ranked the siphons using criticality analysis and prioritized rehabilitation based on a condition assessment, flow capacity, proximity to waterways and age. This project will rehabilitate four of the most critical sewer siphons. Staff recommends the Board:

- Authorize a budget increase in the amount of \$800,000, from \$9,746,000 to \$10,546,000, and
- Authorize the General Manager to execute Contract Change Order No. 3 in the amount of \$513,924.26 with Vido Artukovich & Son, Inc. for the Sewer Siphons Improvements.

BACKGROUND:

The Sewer Siphon Improvements project will rehabilitate four of the most critical sewer siphons located at: 1) San Diego Creek at Harvard Avenue (Siphon 2), 2) Main Street and Veneto (Siphon 4), 3) Harvard Avenue and Barranca Parkway (Siphon 6), and 4) Orange County Transit Authority at Jamboree Road (Siphon 10). A site map is provided as Exhibit "A". The improvements include cleaning and installing cured-in-place pipe (CIPP) lining in the siphon barrels, rehabilitating vaults and constructing new flow control components, site and vault access improvements, two grit traps and an odor control injection facility.

IRWD awarded the construction contract to Vido Artukovich & Son, Inc. (VAS) in May 2020. VAS has completed work at Siphons 4 and 10. In July, VAS completed the cleaning and closed-circuit television (CCTV) inspection of the South Irvine Interceptor that connects the Siphon 2 downstream vault to the MWRP Influent Junction Structure, and in August VAS completed CIPP lining of the Siphon 2 barrels and is currently working on the vault improvements and grit trap construction at the Siphon 2 upstream vault, and vault improvements at Siphon 6.

Contract Change Order No. 3 (CCO3): CIPP Lining of 39-inch South Irvine Interceptor:

During the cleaning and closed-circuit television inspection of the South Irvine Interceptor sewer from the Siphon 2 downstream vault in the San Joaquin Marsh main parking lot to the junction structure in the San Joaquin Marsh overflow parking lot, it was discovered that the existing 460-foot long, 55-year-old, 39-inch asbestos cement sewer pipe segment is severely degraded and has significant structural defects. A map of the South Irvine Interceptor highlighting the 39-inch pipe segment is provided as Exhibit "B". The design engineer, Woodard & Curran,

recommended rehabilitating this critical pipe segment that handles 25% of the MWRP influent with CIPP lining. This sewer segment was not replaced as part of the 2009 MWRP Phase II Expansion, and, when lined, the entire sewer length between the Siphon 2 upstream vault and MWRP influent sewer junction structure (home plate) will be completely restored with a long service life.

Lining this segment will require an above grade pumped bypass extending from the Siphon 2 downstream vault to home plate and a partial closure of Riparian View. Since the downstream vault lid has not yet been installed, it is an opportune time to install the CIPP lining prior to finishing all the downstream vault improvements. If the CIPP lining is deferred as a future project, IRWD will incur additional costs including removing and reinstalling the vault lid via crane, repairing any damages to the vault wall and coating, and repairing the asphalt paving adjacent to the vault. VAS's scope of work includes:

1. Construction of a temporary stop log in the Siphon 2 downstream vault to isolate the 39-inch pipe and provide a suction wet well for the bypass system;
2. Construction of a temporary bypass system including two primary and two standby pumps, 1,500 linear feet of primary and standby 18-inch-high density polyethylene discharge piping and labor to operate and monitor the bypass system;
3. Trenching and installation of the bypass piping below grade to provide construction access to the San Joaquin Marsh parking lot;
4. Cleaning, dewatering and CCTV inspection of the 39-inch pipe; and
5. CIPP lining of the 39-inch pipe.

The work is expected to take approximately 37 calendar days including construction and testing of the stop log and bypass system, cleaning, dewatering and lining of the 39-inch pipe and teardown of the bypass system and asphalt repairs. The bypass operation and CIPP will take one week. VAS will trench and plate the bypass piping across the driveway to the San Joaquin Marsh parking lot for construction access to allow visitors to access the parking lot. Riparian View will be reduced to one lane from south of the San Joaquin Marsh parking lot entrance to the MWRP Influent Junction Structure. Once the CIPP work is complete, it will take an additional 28 contract days to complete the remaining Siphon 2 downstream vault improvements which cannot be performed until the bypass and lining are complete. The proposed bypass plan is shown as Exhibit "C".

CCO3, provided as Exhibit "D", is for an amount of \$513,924.26 and adds 65 contract days. Costs for the CIPP lining, cleaning, and dewatering items in CCO3 were at or below the unit prices for CIPP work in the original contract and staff has determined that the cost for the bypass work is reasonable. The revised construction substantial completion date is November 26, 2021.

FISCAL IMPACTS:

Project 07886 is included in the FY 2021-22 Capital Budget. A budget increase is required to fund the construction and engineering support services for this change order work as shown in the following table:

Project No.	Current Budget	Addition <Reduction>	Total Budget
07886	\$9,746,000	\$800,000	\$10,546,000

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301 which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. A Notice of Exemption for the project was filed with the County of Orange on March 5, 2019.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on September 22, 2021.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE A BUDGET INCREASE FOR PROJECT 07886 IN THE AMOUNT OF \$800,000, FROM \$9,746,000 TO \$10,546,000, AND AUTHORIZE THE GENERAL MANAGER TO EXECUTE CONTRACT CHANGE ORDER NO. 3 IN THE AMOUNT OF \$513,924.26 TO VIDO ARTUKOVICH & SON, INC. FOR THE SEWER SIPHON IMPROVEMENTS, PROJECT 07886.

LIST OF EXHIBITS:

- Exhibit "A" – Location Map
- Exhibit "B" – South Irvine Interceptor Location Map
- Exhibit "C" – Bypass Plan
- Exhibit "D" – Contract Change Order No. 3

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EXHIBIT A - SEWER SIPHON IMPROVEMENTS LOCATION MAP



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EXHIBIT B: SOUTH IRVINE INTERCEPTOR LOCATION MAP

CCO NO. 3: CIPP LINING OF
~460 LF SOUTH IRVINE INTERCEPTOR
(39" ACP, 55-YEAR-OLD)

SOUTH AND NORTH IRVINE
INTERCEPTOR REPLACED AS PART OF
MWRP PHASE II EXPANSION IN 2012

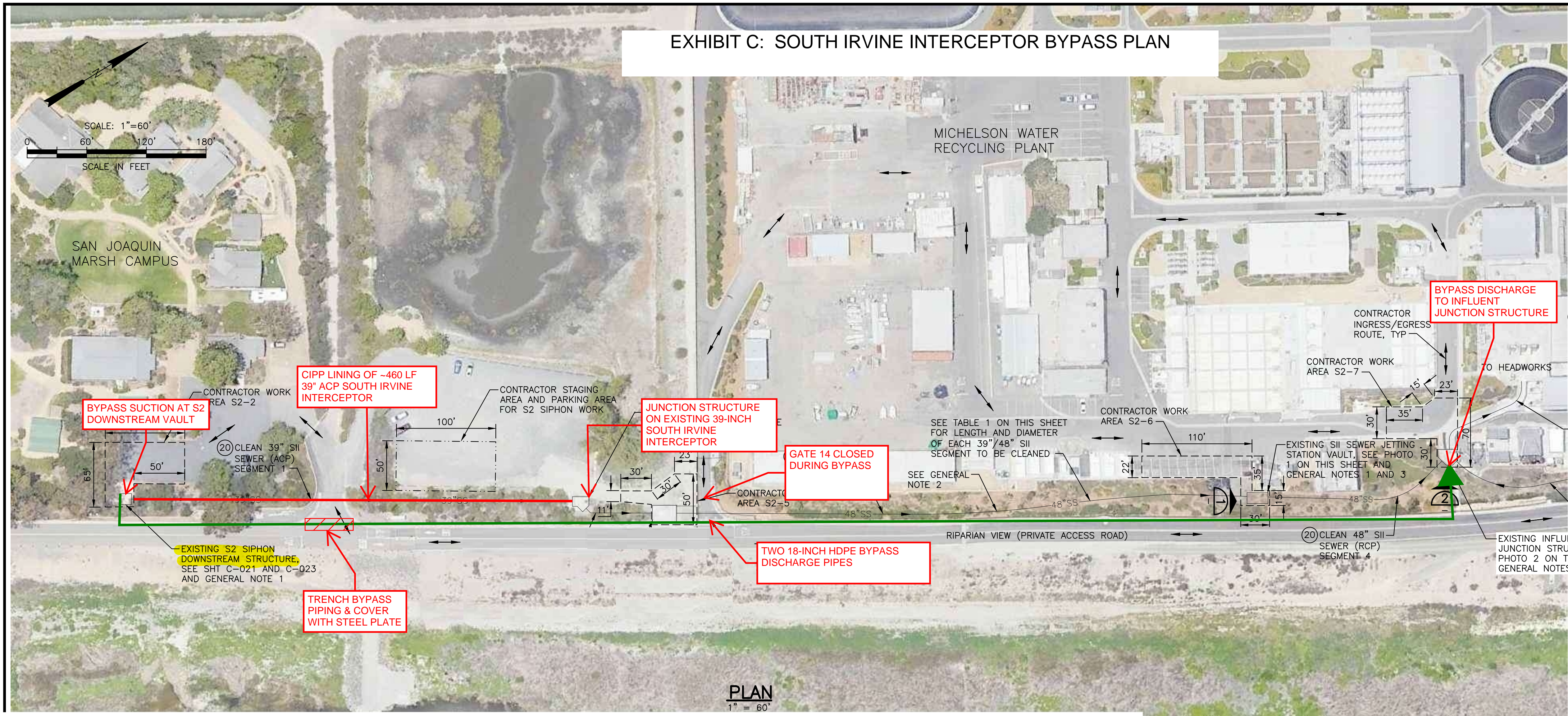
S2 SIPHON: CIPP LINING COMPLETED
IN AUGUST 2021 AS PART OF THE
SEWER SIPHON IMPROVEMENTS

MWRP INFLUENT JUNCTION
STRUCTURE ("HOME PLATE")



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EXHIBIT C: SOUTH IRVINE INTERCEPTOR BYPASS PLAN



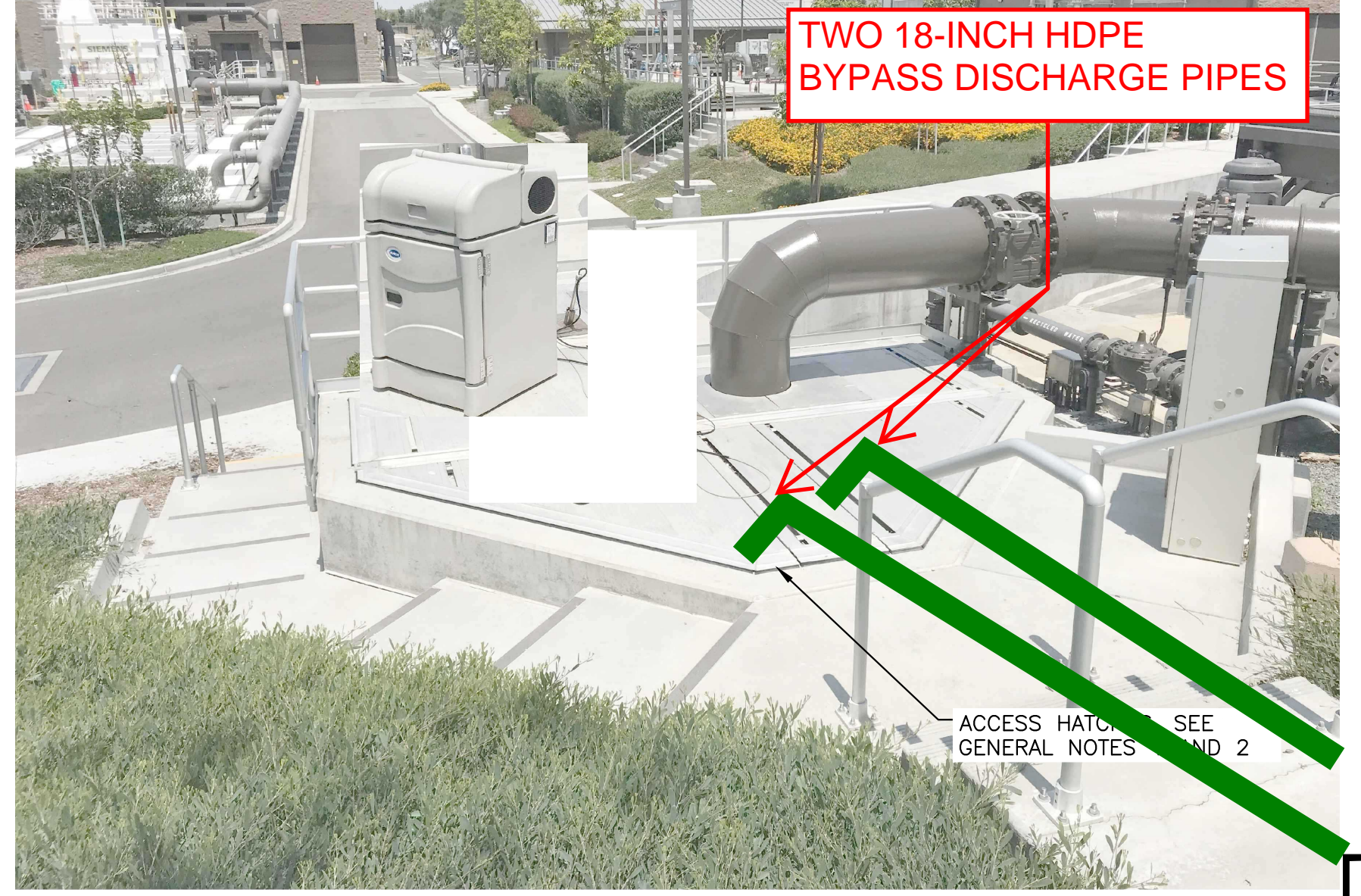
- GENERAL NOTES:**
- CONTRACTOR MAY ACCESS THE 39"/48" SOUTH IRVINE INTERCEPTOR (SII) SEWER FOR CLEANING AT THE FOLLOWING LOCATIONS: S2 SIPHON DOWNSTREAM STRUCTURE, INFLUENT FLOW METER VAULT, JETTING STATION VAULT, AND INFLUENT SEWER JUNCTION STRUCTURE.
 - REFER TO THE MWRP PHASE 2 EXPANSION RECORD DRAWINGS, IRWD PROJECT NOS. 20214 & 30214 (2016) FOR AS-BUILT INFORMATION ON THE 48" SII SEWER PLAN & PROFILE, SII SEWER CONNECTION STRUCTURE, SII SEWER INFLUENT FLOW METER VAULT, AND INFLUENT SEWER JUNCTION STRUCTURE. CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS AND FIELD VERIFY ALL DETAILS.
 - REFER TO THE MWRP SOUTH IRVINE INTERCEPTOR SEWER MANHOLE ACCESS RECORD DRAWINGS, IRWD PROJECT NO. 07112 (2019) FOR AS-BUILT INFORMATION ON THE SII SEWER JETTING STATION VAULT. CONTRACTOR SHALL CONFIRM EXISTING CONDITIONS AND FIELD VERIFY ALL DETAILS.

- CONSTRUCTION NOTES:**
- CLEAN SOUTH IRVINE INTERCEPTOR (SII) SEWER AND PERFORM POST-CLEANING CCTV INSPECTION IN LIVE FLOW PER SPECIFICATION SECTION 02520.

TABLE 1: SEWER PIPELINE SEGMENTS FOR CLEANING

SEWER SEGMENT NO.	PIPE DIAMETER (IN)	LENGTH TO CLEAN (LF)	ESTIMATED DEBRIS VOLUME (CY)
1	39	460	8
2	48	100	3
3	48	550	15
4	48	250	7
ESTIMATED TOTAL DEBRIS =			33

— CIPP LINING
— BYPASS PIPING



INFLUENT SEWER JUNCTION STRUCTURE
 PHOTO 2

CITY OF IRVINE
 PC#00802725-EMC
 PERMIT#00802726-MCE

NO.	DATE	REVISIONS	APPROVED

24422 Avenida de la Carlota, Suite 180
 Laguna Hills, CA 92653
 949.420.5300 | www.woodardcurran.com



Glenn E. Hermanson PROJECT ENGINEER 02/06/2020
 R.C.E. 46659 DATE
Nathan T.L. Chase PROJECT MANAGER 02/06/2020
 R.C.E. 77953 DATE
Malcolm A. Cortez IRWD ENGINEERING MANAGER 02/06/2020
 R.C.E. 52698 DATE

Irvine Ranch
 WATER DISTRICT

IRVINE RANCH WATER DISTRICT
 SEWER SIPHON IMPROVEMENTS
 PROJECT NO. 07886

S2 SIPHON DOWNSTREAM TO
 MICHELSON WRP SEWER
 CLEANING PLAN

SHEET
C-026
 11 of 43
 SHEETS

SEWER SIPHON IMPROVEMENTS

CODE 7437

FEBRUARY 2020

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CCO No.3 Cost Breakdown

IRWD
Job Estimate Summary

Job: SII CIPP
Bid Date & Time:
Eng. Estimate

	Pipe size & Type: 39" CIPP				
	Lin. Ft. : 460 LF		Quant.	Unit	Extension
	Contract Days:				(Total)
	CIPP	LS			\$152,554.57
	Aggregates (AC, CAB)	LS			\$2,550.00
	Grind & Cap	LS			\$10,000.00
Sub	CKC Pump/Bypass Rental	LS			\$80,893.13
	Fuel ^	Day	6	\$1,200.00	\$7,200.00
	Performace Pipe clean/dewater/cctv	LS			\$16,875.00
	Traffic control	LS			\$500.00
	Constr. Water - testing - meter	LS			\$1,200.00
	Small tools	LS			\$500.00
	SWPPP/BMP	LS			\$500.00
	Disposal	LD	3	\$400.00	\$1,200.00
	Field office & yard rentals	MO	1	\$1,000.00	\$1,000.00
	Pre Video	LS			\$0.00
	Steel Plate Rental (Road Plates)	Mo	10	\$170.00	\$1,700.00
	Temp Steel Stoplog Plate/ Angle Iron/ bolts...	LS			\$6,500.00
	Welder	Day	1	\$1,200.00	\$1,200.00
	Saw Cut	LS			\$800.00
	Anglemyer Crane Rental (Set S2 D/S Lid)	LS			\$10,000.00
	Equipment/ Fuel & maintenance	LS			\$ 27,811.00
	Truck Rental	Day	2	\$880.00	\$1,760.00
	Tool rental	LS			\$1,000.00
	Job Cost Subtotal				\$325,743.70
	Direct Labor cost			\$133,797.00	\$133,797.00
	Add - Tax, Ins., Fringe @ () %				
	Est. Job cost				\$459,540.70
	Add - Bonds @ (1) %			\$4,595.41	
	Overhead & profit ()			\$49,788.15	
	TOTAL JOB ESTIMATE				\$513,924.26
	Est. per L.F. (M.L.)				

Markup 5% | 15% IRWD Comments removed insituform bond markup corrected total to match aggregates tab total

\$7,627.73

\$500.00

\$12,133.97

\$1,080.00

\$843.75

\$75.00

\$180.00

\$75.00

\$75.00

\$180.00

\$150.00

\$0.00

\$255.00

\$975.00

\$60.00

\$40.00

\$500.00

corrected total to match equipment tab total before markup

\$4,171.65

\$264.00

\$150.00

\$20,069.55

\$49,788.15

Irvine Ranch Water District (IRWD)
 Sewer Siphon Improvement
 Insituform Project number 200389
 Change order for additional 39" Lining

Changes to the contract:

	Additional CIPP Lining, 39" downstream of S2 siphon:				
	Mob	EA	1	7,326	7,326.00
	CIPP Lining of 39" X 460 ft	LF	460	316	145,228.57
	Total Changes				152,554.57
	Bond 1.5%				2,288.32
	Total Changes including bond				154,842.89

seems reasonable per contract price for S4 42-inch

bond markup by GC not sub

25.00	Mobilization and demobilization for S4 CIPP activities.				
25.10	Mobilization and demobilization for S4 CCTV activities	LS	1	\$ 8,000.00	\$ 8,000.00
25.20	Mobilization and demobilization for S4 CIPP activities	LS	1	\$ 37,000.00	\$ 37,000.00
	<i>Total for Bid Item No. 25</i>				\$ 45,000.00
26.00	Provide and install CIPP lining of the S4 Siphon 42" barrel, including pre-CIPP installation cleaning, dewatering, and CCTV inspection and post-CIPP installation CCTV inspection.				
26.10	Clean and dewater the S4 Siphon 42" barrel	LF	455	\$ 65.00	\$ 29,575.00
26.20	Provide and install CIPP lining of the S4 Siphon 42" barrel	LF	455	\$ 395.00	\$ 179,725.00
	<i>Total for Bid Item No. 26</i>				\$ 209,300.00
27.00	Provide and install CIPP lining of the S4 Siphon 24" barrel, including pre-CIPP installation cleaning.				

S4 42-inch CIPP price

Material

	Quantity	Unit	Total
Hot Mix AC	20	\$75.00	\$1,500.00
CAB	35	\$30.00	\$1,050.00
Total			\$2,550.00

Charles King Company

2841 Gardena Ave.
 Signal Hill, CA 90755
 562 426-2974
 562 426-9714 FAX
 Lic No. 738236 A (Exp. 7/31/22)
 DIR # 1000001537

Date 7/30/21
Revised 8/31/21

Project: Downstream S2 Siphon CIPP
Owner: IRWD
Contractor: Artukovich
Bid Date: na Bid Time: na

Subject: Provide 8.2MGD Bypass System with Standby
 Revised with Discharge to Junction Structure

Includes the following:

- 1 Provide 8.2MGD Bypass system, including 100% standby pumps and piping.
- 2 Mobilization/Demobilization of all bypass and support equipment.
- 3 Based on attached preliminary bypass plan.
- 4 Furnish diesel/sound attenuated standby pumps.
- 5 Rental includes all pipe, pumps, manifolds, valves, fittings, bends for complete system.
- 6 1 month minimum rental will apply. Rent begins after system is installed and ready for use.
- 7 PERP AQMD Permits
- 8 All scheduled maintenance to pumping equipment/bypass system.
- 9 Bid item 2 includes 1 non labor technician and 2 fusion machines to assist GC with installation/testing process.
- 10 Install is estimated at 10 days based on GC providing 2 operators/2 labors. Removal estimate 3 days.
- 11 Bid item 2 includes 9K reach lift to assist GC with installation. GC to provide backhoe or 2nd machine for efficient install.
- 12 No Hidden Charges. Includes all sales taxes and fees.
- 13 Optional real time monitoring system with call out autodialer.

Excludes the following:

- 1-1 Items not specifically listed above.
- 1-2 Permits or notifications.
- 1-3 Traffic Control.
- 1-4 Plugs or Stoplogs
- 1-5 Operation and monitoring of equipment.
- 1-6 Breakdown and removal of system.
- 1-7 Water meter and backflow device in vicinity of pumps for testing and flushing.
- 1-8 Access or right of way for access to suction/discharge points.
- 1-9 Any special bypass/spill response requirements to working adjacent to waterway.
- 1-10 SWPPP plan or submittal, BMPs, Erosion Control.
- 1-11 Onsite labor.
- 1-12 Security, lighting, sanitation.
- 1-13 Secure Laydown area to be provided by GC.

BI #	Description	Unit	Est. Quan	Unit Cost	Subtotal
1	Mobilization of Bypass	LS	1	13,800.00	13,800.00
2	Install Support (fusion tech/machine/tools)	LS	1	21,963.13	21,963.13
3	Bypass System Rental	Monthly	1	41,130.00	41,130.00
4	Pump watch tech (to work with GC pump watch)	Hourly	46	155.00	6,480.00
5	Optional Real Time Monitoring System w/ autodialer	LS	1	4,000.00	4,000.00

Estimated Project Total: 87,373.13

80893.13

Includes all sales taxes.

This proposal is based on the inclusions and exclusions above.
 Thank you for the opportunity to submit this bid and please feel free to call the undersigned for further information.

Sincerely,

Steve Radaich

Labor Backup

Labor Cost Estimate

Contract Time:

	Mainline L.F.			Cost Per	
	Est. L.F. / Day _____		No.	8 Hrs.	Total
	Est. M.L. Wkg. Days _____			Day	
Excavation:	Operators		1	\$764.00	\$764.00
	Oilers		1	\$738.00	\$738.00
	Teamsters				
	Laborers				
Pipelaying:	Operators				
	Oilers				
	Teamsters				
	Laborers				
Backfill & Temp:	Operators				
	Oilers				
	Teamsters		1	\$601.00	\$601.00
	Laborers		1	\$589.00	\$589.00
Misc. Labor:	Operators				
	Teamsters				
	Laborers (Flag)		1	\$578.00	\$578.00
Supervision:	Foreman		1	\$833.00	\$833.00
	** Total Labor Cost per Day:				
			6		\$4,103.00
	Labor Recap:		Quant.	Unit	Total
	Build/Set Stoplog (6 men)		1	\$4,103.00	\$4,103.00
	Pothole (6 men)		1	\$4,103.00	\$4,103.00
	Dig ditch Driveway (6 men)		1	\$4,103.00	\$4,103.00
	Setup Bypass (6 men)		10	\$4,103.00	\$41,030.00
	Remove Bypass (6 men)		3	\$4,103.00	\$12,309.00
	Backfill/ Pave (6 men)		1	\$4,103.00	\$4,103.00
	Clean/Dewater/CCTV (2 men)		3	\$1,411.00	\$4,233.00
	CIPP (2 men)		3	\$1,411.00	\$4,233.00
	Pump Watch Clean/Dewater (2men)		3	\$6,480.00	\$19,440.00
	Pump Watch CIPP (2 men)		3	\$6,480.00	\$19,440.00
	Superintendent		20	\$835.00	\$16,700.00
	Total Direct Labor Cost:				\$133,797.00
	Main Line L.F.				
	Labor per L.F.				

Equipment Backup

<u>EQUIPMENT</u>	<u>Cal-Trans</u>	<u>HRS WK</u>	<u>HRS STBY</u>	<u>WK RATE</u>	<u>STBY RATE</u>	<u>TOTAL</u>
Pickup 4x4 F250	34	160		\$ 28.46	\$ 14.23	\$ 4,553.60
Pickup 4x4 F250	34			\$ 28.46	\$ 14.23	\$ -
Pickup 4x4 F250	34			\$ 28.46	\$ 11.38	\$ -
Pickup F550	34	160		\$ 36.92	\$ 18.46	\$ 5,907.20
Pickup F550	34			\$ 36.92	\$ 18.46	\$ -
Flatbed F650	34			\$ 39.12	\$ 19.56	\$ -
Dump Truck F750	35			\$ 50.64	\$ 25.32	\$ -
Water Truck 2000 gal	34/1	36		\$ 45.23	\$ 22.62	\$ 1,628.28
Compressor	1	8		\$ 18.17	\$ 9.09	\$ 145.36
JackHammer	1	8		\$ 1.58	\$ 0.79	\$ 12.64
Rivet Buster	1			\$ 0.88	\$ 0.44	\$ -
Clay Spade	1			\$ 0.88	\$ 0.44	\$ -
Compaction-hand guided	4	8		\$ 9.32	\$ 4.66	\$ 74.56
24" Compaction Wheel	25			\$ 4.63	\$ 2.32	\$ -
25' Suction Hose	23			\$ 0.13	\$ 0.06	\$ -
50' Discharge Hose	23			\$ 0.10	\$ 0.05	\$ -
4" Trash Pump	23			\$ 21.50	\$ 10.75	\$ -
2" Submersible Pump	23			\$ 21.50	\$ 10.75	\$ -
CAT 302.5C	32			\$ 27.42	\$ 13.71	\$ -
CAT 325BL	9			\$ 118.14	\$ 59.07	\$ -
CAT 345BLII	9			\$ 186.16	\$ 93.08	\$ -
CAT349E	9			\$ 197.71	\$ 98.86	\$ -
CAT 375L	9			\$ 313.21	\$ 156.61	\$ -
CAT 430F	17			\$ 58.53	\$ 29.27	\$ -
CAT 450E	18	132		\$ 77.84	\$ 38.92	\$ 10,274.88
CAT950H	18			\$ 89.18	\$ 44.59	\$ -
Hyundai Loader	18			\$ 93.25	\$ 46.63	\$ -
Asphalt Zipper	22			\$ 312.30	\$ 156.15	\$ -
Bobcat S220	4	16		\$ 28.66	\$ 14.33	\$ 458.56
Galion Crane	15	88		\$ 47.26	\$ 23.63	\$ 4,158.88
Dynapac Roller	26	8		\$ 47.99	\$ 24.00	\$ 383.92
CAT 224E	25			\$ 34.72	\$ 17.36	\$ -
Zieman	33			\$ 0.87	\$ 0.44	\$ -

Equipment Backup

Cut Off Saw			\$ 3.06	\$ 1.53	\$ -
Generaltor Multiquip	003-008	8	\$ 3.63	\$ 1.82	\$ 29.04
Generator Mag 35K	025-050		\$ 13.00	\$ 6.50	\$ -
Blower 10"		8	\$ 4.23	\$ 2.12	\$ 33.84
Light Tower	4lights		\$ 8.04	\$ 4.02	\$ -
Lincoln Welder			\$ 9.86	\$ 4.93	\$ -
Bit Tank		8	\$ 6.83	\$ 3.42	\$ 54.64
Test Pump		8	\$ 3.30	\$ 1.65	\$ 26.40
Vibro Plate	4.0	8	\$ 3.78	\$ 1.89	\$ 30.24
Wacker Walk Behind	26		\$ 19.49	\$ 9.75	\$ -
Gas Detector		8	\$ 4.87	\$ 2.44	\$ 38.96
Tripod/Winch/h/Fall Protection			\$ 3.75	\$ 1.88	\$ -
Arrowboard	32		\$ 3.18	\$ 1.59	\$ -
Arrowboard	32		\$ 3.18	\$ 1.59	\$ -
Arrowboard	32		\$ 3.18	\$ 1.59	\$ -
Message Board	32		\$ 11.87	\$ 5.94	\$ -
Message Board	32		\$ 11.87	\$ 5.94	\$ -
H Beams	21		\$ 0.04	\$ 0.02	\$ -
Plates	21 per day		\$ 1.42	\$ 0.71	\$ -
Fence Panels	per day		\$ 2.00	\$ 1.00	\$ -
Plywood	per day		\$ 1.50	\$ 0.75	\$ -
Delineators	32 per day		\$ 0.26	\$ 0.13	\$ -
Barricades/Sign	32		\$ 1.16	\$ 0.58	\$ -
Flag Stand	32 per day		\$ 2.97	\$ 1.49	\$ -
Cones	32 per day		\$ 0.16	\$ 0.08	\$ -
K-Rails	32 per day		\$ 0.48	\$ 0.24	\$ -
K-Rails filled	32 per day		\$ 1.23	\$ 0.62	\$ -
			Add on 15%		\$ 4,171.65
			Total Equipment Cost		\$ 31,982.65



STEMAR
EQUIPMENT & SUPPLY CO.

SERVING UNDERGROUND CONSTRUCTION SINCE 1922

SALES · RENTAL · SERVICE

800-992-0100

STEMARINC.COM

LOS ANGELES, CA

CUSTOMER		JOB LOCATION	TICKET #		
ARTUKOVICH AND SONS, VIDO 11155 RUSH STREET SO. EL MONTE CA 91733.3585		IRVINE IRVINE CA	BID# 66380		
ACCOUNT #	ORIGINAL TICKET #	SHIPPED VIA	OUT	DATE	TIME
101028				08/26/21	3:21 PM KBM
CONTACT:	PO/JOB #	ORDERED BY			
P		ANTHONY		09/23/21	3:21 PM KBM

*****BID*****

DEL:N P/U:N

Page: 1

QTY	ITEM	DESCRIPTION	EXT AMT	NET AMT
-----	------	-------------	---------	---------

PURCHASED ITEMS:

1	NONINVENTORY	A36 - 1"X72"X120" STEEL PL	3545.00 ea	3545.00	3545.00
1	NONINVENTORY	A36 - 1"X96"X120" STEEL PL	4726.50 ea	4726.50	4726.50
1	DEL	DELIVERY TO	150.00 ea	150.00	150.00

Rental Text : PRICING IS GOOD FOR 2 DAYS.

TURNAROUND TIME: 6-8 BUSINESS DAYS

5'X6'=- 2000

----- Payments -----

\$6500 for steel and angle iron

This is a contract. By signing this contract, I agree that all rental returns are subject to final inspection. Charges for damaged equipment may be billed on a separate invoice. IF I DO NOT UNDERSTAND OR FORGET THE INSTRUCTIONS I HAVE BEEN GIVEN, OR IF THE EQUIPMENT FAILS TO FUNCTION PROPERLY, I WILL NOT ATTEMPT TO OPERATE OR REPAIR IT. I WILL DISCONTINUE USE AND NOTIFY RENTAL CENTER WITHIN 30 MINUTES OF OCCURANCE (OTHERWISE NO REFUNDS OR ALLOWANCES WILL BE MADE). THE BACK OF THIS CONTRACT CONTAINS IMPORTANT TERMS AND CONDITIONS INCLUDING LESSOR'S DISCLAIMER FROM ALL LIABILITY FOR INJURY OR DAMAGES AND DETAILS OF CUSTOMER OBLIGATIONS. I ACKNOWLEDGE THAT A LARGER FONT COPY OF THE TERMS AND CONDITIONS IS AVAILABLE UPON REQUEST.

I have had the opportunity to read, and have read, discussed and understand the terms and conditions of the Agreement and agree to be bound thereto.

SIGNING PERSONALLY AND FOR THE CUSTOMER:

X _____

RENT	0.00
SALES	8271.50
OTHER	150.00
ENV FEES	0.00
Addl TAX	0.00
SALES TAX	785.79
TOTAL DUE	9207.29

TOTAL PAID 0.00

EST AMT DUE 9207.29

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September 27, 2021
Prepared by: A. Stayton
Submitted by: R. Mykitta / W. Chambers
Approved by: Paul A. Cook *P.A.C.*

CONSENT CALENDAR

ORANGE COUNTY OPERATIONAL AREA AGREEMENT

SUMMARY:

The Orange County Operational Area (OA) represents all local government jurisdictions and special districts within Orange County in planning, coordination, response, recovery and mitigation efforts resulting from natural, human-caused, or war-caused emergencies. The OA is staffed by the Orange County Emergency Management Division of the Orange County Sheriff-Coroner's Department. The County developed and executed an agreement with each jurisdiction in the OA in 1995, creating a formal understanding of cooperation and responsibilities. This agreement has been updated and must be approved by all jurisdictions to confirm the partnership. Staff recommends the Board authorize the General Manager to execute the Orange County Operational Area Agreement and any subsequent OA agreement updates.

BACKGROUND:

The OA Agreement formally organizes the County of Orange and its political subdivisions as the Orange County Operational Area for purposes of emergency management coordination as required by the State of California's Standardized Emergency Management System. First approved by the OA in 1995, the document outlines framework for inter-jurisdictional cooperation and the responsibilities of the County of Orange and its subdivisions. This document has served as the foundation for nearly 25 years of regional emergency management collaboration. IRWD signed the original agreement in 1995.

In 2017, the Orange County Sheriff's Department Emergency Management Division began a process to revise the Operational Area Agreement to account for changes in emergency operations plans, incorporate advances and new perspectives in the emergency management discipline, and ease administration of Operational Area functions. Following an extensive review and revision process in 2018 and 2019, the updated Operational Area Agreement was approved by the Orange County Board of Supervisors on March 24, 2020. The Agreement requires approval by each jurisdiction in the Orange County Operational Area.

Agreement Updates:

The new OA Agreement has significant structural and content changes from the original document approved by the IRWD Board in 1995. Agreement sections were reorganized to make the document easier to understand and reference. The document was also reformatted to more closely align with the Emergency Management Division's plan document style guide. The updated agreement is provided as Exhibit "A".

IRWD expectations and responsibilities are unchanged, although clarified. The Mutual Aid Agreement (where IRWD participates) has been moved to the OA Emergency Operations Plan to ensure its regular review and update. Staff recommends that the Board approve the OA agreement and any subsequent updates.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

This project is not subject to the California Environmental Quality Act (CEQA).

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on September 22, 2021.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE THE ORANGE COUNTY OPERATIONAL AREA AGREEMENT AND ANY SUBSEQUENT UPDATES.

LIST OF EXHIBITS:

Exhibit "A" – Orange County Operational Area Agreement

Orange County Operational Area Agreement



of the County of Orange
and Political Subdivisions

January 2020

EXHIBIT "A"

Orange County Operational Area Agreement

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EXHIBIT "A"

Orange County Operational Area Agreement

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EXHIBIT "A"

Orange County Operational Area Agreement

I. Recitals

**OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS**

THIS AGREEMENT is entered into this 19th day of May, 2020, which date is enumerated for purpose of reference only, by and between the County of Orange, hereinafter referred to as County, and all other Political Subdivisions within Orange County, as defined in Government Code Section 8557 (b) of the California Emergency Services Act, hereinafter referred to as Subdivisions, collectively hereinafter referred to as the Parties.

WITNESSETH:

WHEREAS, it is the intent of the Parties hereto to coordinate prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused, or war-caused disasters, hereinafter referred to as emergencies, as required by the California Emergency Services Act and the Standardized Emergency Management System (SEMS) Regulations, Title 19 California Code of Regulations Sections 2400 et seq.; and

WHEREAS, the purpose of an Operational Area, as defined in Government Code Section 8605 and Title 19 California Code of Regulations Sections 2403 and 2409, is to manage and coordinate information, resources, and priorities among the local governments within the geographic area of the County, and to serve as the coordination and communication link between the local government level and the regional level of the State; and to use multi-agency or inter-agency coordination to facilitate decisions for overall operational area level emergency response activities; and

WHEREAS, this Agreement is intended to provide for the continued management of the Operational Area; cooperative and mutual handling of duties and responsibilities of the Operational Area Lead Agency; coordination of the emergency functions of the Operational Area with all other public agencies, corporations, organizations, and affected private persons within the Operational Area; and the preparation and implementation of plans for the protection of persons and property within the Operational Area in the event of an emergency; and

WHEREAS, in accordance with the requirements of California laws and regulations the County previously adopted Orange County Codified Ordinances, section 3-1-5 and Resolutions 81-1104 and 95-870 and intends to adopt an updated resolution for this Agreement to support emergency management planning and coordination of all political subdivisions within the Orange County geographic area as required by State law; and

WHEREAS, Orange County Board of Supervisors Resolution 05-144 adopted the National Incident Management System (NIMS) for the Orange County Operational Area which sets many of the same objectives as the Standardized Emergency Management System;

NOW THEREFORE, the Parties hereto agree as follows:

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Orange County Operational Area Agreement

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Orange County Operational Area Agreement

Section One. Operational Area Establishment

1.1 Operational Area Established

The entire geographic area of Orange County constitutes an Operational Area (OA) for the purposes of coordinating the prevention, preparedness, response, recovery and mitigation efforts for the safety of persons and property from the effects of natural, human-caused or war caused disasters, hereinafter referred to as emergencies. All local governments should cooperate in organizing an effective OA, but the OA authority and responsibility is not affected by the non-participation of any local government. The County of Orange shall be the Operational Area Lead Agency as specified in Title 19 California Code of Regulations Section 2409(d).

1.2 Local Authority

In the event of an actual or threatened emergency, each jurisdiction shall retain the authority provided for by law respecting its jurisdiction. No body created by this Agreement can bind Parties to legal or financial obligations.

Orange County Operational Area Agreement

Section Two. Operational Area Council, Executive Board and Subcommittees

2.1 Operational Area Signatory Council

All political subdivisions within the geographic area of Orange County, California are organized into the OA, regardless of signatory status.¹ The OA Signatory Council, hereinafter referred to as the Council, is hereby created to include the signature Parties to this Agreement. The Parties acknowledge that the Council is not a separate legal entity and that it is not their intention to form a joint powers authority.

2.1.1 Membership

By approval and execution of this Agreement, all Subdivisions in the County of Orange, including cities, school districts, community college districts, special districts, joint powers authorities, and the County, are members of the Council. Each signature party shall designate annually in writing to the Orange County Sheriff's Department Emergency Management Division, hereinafter referred to as county emergency management, one primary and one alternate representative of its governing body to serve on the Council.

2.1.2 Responsibilities

It is not the intent of this Agreement that there be regular meetings of the Council. In routine matters and day-to-day decision-making, the OA Executive Board (as described in Section 2.2) will represent the interests of the OA. However, the Council shall have authority over the major policy issues of the OA, as determined by the Executive Board, including adoption of any amendments to this Agreement or adoption of any fees to support OA coordination activities. Council members will receive information regarding major OA policy issues from the Executive Board, when necessary, for consideration at their respective governing body meetings. Furthermore, whenever a majority of the Council determine that an issue should be brought before the Council, it shall be done irrespective of whether the Executive Board has identified it as a major policy issue.

2.1.3 Representatives Meeting

The representatives of the Council may meet as necessary as determined by the Executive Board or as requested by a majority of the members of the Council. Should it be necessary for the Council to meet, each member of the Council shall be entitled to one vote. The representatives present shall, by majority vote, select a Chair Pro Tem for that meeting from among the representatives present. A majority of all Council member representatives shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution, or order and to take any other action deemed appropriate to further the

¹ Title 19 California Code of Regulations Section 2409

EXHIBIT "A"

Orange County Operational Area Agreement

objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. All meetings will be noticed and conducted in accordance with the Brown Act.

2.2 Operational Area Executive Board

2.2.1 Membership

The Council shall have an OA Executive Board, hereinafter referred to as the Executive Board, consisting of sixteen voting members. The Executive Board includes representatives from the County Board of Supervisors, public safety agencies and Mutual Aid Coordinators, key County departments, and OA jurisdictions. Individuals will only serve as a voting member in one role for any single meeting and for purposes of determining quorum.

Executive Board Members

1. The Chair of the Orange County Board of Supervisors
2. The County Executive Officer
3. The OA Law Enforcement Mutual Aid Coordinator, the Orange County Sheriff
4. The OA Fire & Rescue Mutual Aid Coordinator, as selected by the Orange County Fire Chiefs Association
5. The OA Public Works Mutual Aid Coordinator, the Orange County Public Works Director
6. The OA Health Care Mutual Aid Coordinator, the Orange County Health Care Agency Director
7. The OA Water/Wastewater Mutual Aid Coordinator
8. The Orange County Social Services Agency Director
9. A representative selected jointly from the Orange County City Managers Association
10. A representative from the Orange County Chiefs of Police and Sheriff's Association
11. A representative from the Orange County Fire Chiefs Association
12. A representative from the Orange County City Engineers and Public Works Directors Association
13. A representative from Independent Special Districts of Orange County
14. The Orange County Superintendent of Schools, representing Orange County K-12 School Districts
15. A representative selected jointly from Orange County Community College Districts
16. The Orange County Transportation Authority Chief Executive Officer

Terms, Alternates and Voting

Executive Board members subject to being "selected," which are enumerated above as numbers 4, 9-13 and 15, shall be appointed by their respective agency, jurisdiction or organizations annually and shall serve at the discretion of their organization for one year. Each jurisdiction, agency or organization shall also designate three alternate representatives. Individuals appointed to the Executive Board can be the same or different than those identified in Section 2.1.1 as a

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member jurisdiction's Council primary or alternate representative. In no circumstances shall one individual occupy more than one Executive Board position or count as more than one member for purposes of determining quorum.

Each Executive Board member, or alternate in the absence of the voting member for whom he/she is the designated alternate, shall be entitled to one vote. A majority of the Executive Board (9 members) shall constitute a quorum for the transaction of business relating to the OA. Unless otherwise provided herein, a vote of the majority of those present and qualified to vote shall be sufficient for the adoption of any motion, resolution or order and to take any other action deemed appropriate to achieve the objectives of the OA. Voting will be conducted in accordance with Robert's Rules of Order. The OA Executive Board is a Brown Act meeting and is noticed and conducted as such.

Operational Area Executive Board Chair and Vice-Chair

The Chair and Vice Chair shall be elected annually by the Executive Board. In the absence of both the Chair and the Vice Chair, the members of the Executive Board present shall, by majority vote, select one of the members present to act as Chair Pro Tem.

Meetings

The Executive Board shall meet quarterly or as designated by the Executive Board Chair.

2.2.2 Responsibilities

The Executive Board shall have oversight of the actions of the OA Manager (as described in Section 4.2) in the daily operations and administration of the OA. The Executive Board's oversight authority shall include directing the development, establishment, and implementation of the policies of the OA, and keeping the Council informed of its actions. The Executive Board shall determine which major policy issues of the OA require Council approval and shall seek such approval.

Policy and Operational Area Emergency Operations Plan

The Executive Board will establish OA policy, review and approve the OA Emergency Operations Plan (EOP) and Annexes, and maintain these documents as required by SEMS and NIMS.

Mutual Aid Plans and Agreements

The Executive Board shall review proposals of emergency mutual aid plans and agreements and make recommendations on endorsement of such proposals to governing boards of Subdivisions.

Laws, Rules, Legislation and Regulation

The Executive Board shall review and may recommend for action or adoption by Subdivisions, emergency and mutual aid plans, agreements, ordinances, resolutions, and any rules and regulations necessary to implement such plans and agreements. The Executive Board may also

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Orange County Operational Area Agreement

study, review, and make recommendations on State and Federal legislation and policy as appropriate, and on matters referred to the Executive Board in writing by Council members.

Operational Area Executive Board Emergency Advisory Capacity

The Executive Board may be convened by the Chair or the OA Coordinator, as described in Section 4.1, to review a potential or actual emergency situation and make and receive appropriate recommendations from the OA Coordinator and Council members to facilitate a coordinated OA response.

2.2.3 Subcommittees and Working Groups

The Executive Board may establish standing and ad hoc subcommittees and working groups to complete its work and to ensure communication and coordination between all interested persons or groups. Subcommittees and working groups shall elect a Chairperson and provide appropriate staff support from their participants. The OA Manager shall provide coordination between these subcommittees and the Executive Board only.

2.3 Orange County Emergency Management Organization

There is hereby established a standing subcommittee to the Executive Board, the Orange County Emergency Management Organization, hereinafter referred to as OCEMO. OCEMO is a collaboration and coordination body tasked with developing the plans, procedures, and associated documents necessary for a robust Operational Area emergency management program. The County and all Subdivisions shall be expected to participate in OCEMO, to the maximum extent possible, with the understanding that the cooperative maintenance of the OA EOP, policies and procedures, training and exercises is necessary to ensure that the OA EOP, policies, procedures, training and exercises meet the emergency needs of the Subdivisions, County, and OA.

2.3.1 Membership

The entire OCEMO body ("Members at Large") consists of three groups of representatives involved in some capacity of an emergency management function, as defined below and in the OCEMO Bylaws.

Signatory Members

Staff members with primary emergency management responsibilities from signatory agencies to this agreement are considered Signatory Members. Each signatory jurisdiction shall identify a primary and secondary representative who shall have the right to vote on behalf of the jurisdiction. To ensure compliance with the Brown Act, no more than eight OCEMO members who are also voting members of the OA Executive Board shall be present at any OCEMO meeting.

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Collaborative Members

Representatives of other government, non-profit, or private agencies that are not signatories to this agreement and are not currently represented by a Signatory or Collaborative Member, but are considered to have a significant role in OA planning, response and recovery processes are considered Collaborative Members. Collaborative members must be approved by Signatory Members and have limited voting rights as outlined in the OCEMO Bylaws.

Associate Members

Other representatives of organizations interested in participating in OCEMO activities, and who may provide input into the OA EOP, annexes, and supporting Standard Operating Procedures (SOPs) are considered Associate Members. Associate members have no voting rights.

2.3.2 Responsibilities

As a subcommittee to the Executive Board, the responsibilities of OCEMO are to meet the following objectives as they relate to disaster and emergency prevention, preparedness, response, recovery and mitigation within the OA:

Operational Area Plans, Annexes, and Standard Operating Procedures

- Participate in revisions and updates of the OA EOP and associated Annexes and SOPs developed and maintained by county emergency management staff as described in Section 3.2. Once completed, plans and the associated Annexes reviewed by OCEMO shall be forwarded to the OA Executive Board for approval.

Training and Exercises

- Coordinate training and exercises for the OA, to include after action discussions, lessons learned and professional development.

Public Education and Outreach

- Coordinate the development of public education and whole community emergency preparedness programs.

Legislation

- Review and report on legislation impacting emergency plans and programs, and propose concepts for new legislation for consideration by the Executive Board.

Other

- Other duties as assigned by the Executive Board.

2.3.3 OCEMO Leadership

The OCEMO Leadership shall consist of the OCEMO Chairperson, First Vice Chairperson and Second Vice Chairperson, elected in accord with the OCEMO Bylaws, the OA Manager and the

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immediate past Chairperson. Any Signatory or Collaborative Member shall be eligible to serve as a candidate for OCEMO Chairperson, First Vice Chairperson, and Second Vice Chairperson as outlined in the OCEMO Bylaws.

2.3.4 Organization and Procedures

OCEMO will maintain and approve Bylaws. The Bylaws will define, at a minimum, OCEMO purpose, membership, leadership duties, elections, voting procedures, official meeting frequency, and the process for amending the Bylaws. The Bylaws shall in all instances be consistent with this Agreement.

OCEMO will review the Bylaws, as needed. Any amendments to the Bylaws will be approved by OCEMO Signatory Members, as detailed in the OCEMO Bylaws.

If OCEMO identifies the need for additional Subcommittees or working groups, OCEMO members participating in that subcommittee or working group shall provide staff support.

2.3.5 Administrative Support

The County shall provide administrative support to OCEMO as follows:

- Attend all OCEMO and OCEMO Leadership meetings
- Maintain a contact list of the primary and alternate representatives of each OCEMO member
- Organize and manage OCEMO Leadership elections and votes on other issues
- Notify members of their appointment to office or subcommittees
- Create and distribute OCEMO meeting agendas
- Take and transmit OCEMO meeting minutes
- Maintain official OCEMO records, including agendas and minutes, in compliance with County record retention policies.

Orange County Operational Area Agreement

Section Three. Responsibilities

3.1 Operational Area Jurisdiction Responsibilities

Subdivisions of the OA have the responsibilities as set forth below:

Participation

Actively participate as a member jurisdiction in the Council, Executive Board (if designated), and subcommittees such as OCEMO.

Cooperation

Promote cooperation among all Subdivisions in order to improve the overall OA emergency management program.

Emergency Management Program

Develop an emergency management program to provide for the needs of the Subdivision, which shall be complementary to and compatible and coordinated with the needs of the OA in the event of an emergency.

Emergency Plan and Organization

Develop and maintain an EOP and organization to provide for the emergency needs of the Subdivision according to SEMS Regulations and NIMS, and coordinate with and, where able, support other Subdivisions, the County, and the OA Emergency Operations Center (EOC).

Procedures

Develop Subdivision procedures that outline the steps necessary to satisfy responsibilities as a member jurisdiction of the OA.

Training and Exercises

Maintain a thorough knowledge of the Parties' and OA's EOPs and ensure that the supporting services and key personnel are properly trained and organized to meet all of their responsibilities in the event of an emergency. Conduct regular exercises and participate in regional exercises, when offered.

Emergency Assistance

Parties shall offer assistance to other jurisdictions and secondary and relief support to the OA within the limits of capabilities and according to applicable mutual aid agreements. Parties should participate in mutual aid agreements wherever possible.

Resource Lists

Maintain current resource listings of staff, facilities, equipment and supplies available in the jurisdiction for use in the event of an emergency.

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Critical Points of Contact

Identify 24-hour or other critical points-of-contact for the Subdivision that may be used by the OA EOC during emergency operations. If the points-of-contact are individuals, identify a primary and at least three alternates for each. Inform county emergency management staff when critical points-of-contact change or are updated.

Disaster Recovery and Financial Reimbursement

Subdivisions have ultimate responsibility for their own recovery program and will work directly with FEMA and Cal OES throughout the cost recovery process. Each Subdivision is individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

3.2 County-Specific Responsibilities

The County acts as the OA Lead Agency. The OA Lead Agency has the following responsibilities to the OA in addition to those responsibilities specified under Section 3.1 of this Agreement:

24-Hour Contact Point

The County will serve as the 24-hour contact point for the OA and act as lead in activating the OA EOC, hereinafter referred to as OA EOC.

Operational Area Emergency Operations Center

The County EOC and Alternate EOC (as designated) shall serve as the OA EOC. The OA EOC shall exist as a dedicated essential facility and be capable of serving as the central point for:

- coordinating information and resources with OA subdivisions
- coordinating all levels of government as a component of Orange County's Multiagency Coordination System (MACS)
- coordinating with other OAs
- reporting information to and coordinating with the California Office of Emergency Services (Cal OES) Southern Region EOC

County emergency management staff shall be responsible for ensuring the OA EOC is maintained in a state of constant readiness, in accord with the FEMA Emergency Operations Center Assessment Checklist and ASTM E2668 – Standard Guide for Emergency Operations Center Development, or subsequent standards if revised.

Initial EOC Activation Staffing

The County shall provide initial OA EOC activation staff. Subdivisions with available resources may provide secondary and relief OA EOC staffing.

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Disaster Recovery and Financial Reimbursement

The County shall be responsible for coordinating the formal recovery process through Cal OES and FEMA and will assist with:

- Coordinating initial OA disaster recovery
- Scheduling damage assessment site visits
- Other duties as outlined in the Recovery Annex to the OA EOP

Operational Area Emergency Operations Plan and Annexes

County emergency management staff shall be responsible for coordinating with the Orange County Emergency Management Organization to maintain and revise the OA EOP, annexes and SOPs as directed by the Executive Board.

Operational Area Executive Board Support

County emergency management staff shall provide support to the Executive Board for agendas and minutes for meetings and coordinating follow-up only.

Subcommittee and Working Group Support

County emergency management staff shall provide support to Executive Board subcommittees and working groups.

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Section Four. Operational Area Coordinator and Operational Area Manager

4.1 Operational Area Coordinator

By this Agreement, the Council creates and recognizes the position of an OA Coordinator, hereinafter referred to as the Coordinator. During an emergency the OA Coordinator position will be filled by the Orange County Director of Emergency Services, as specified by Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.1.1 Powers and Duties

The Coordinator shall direct and coordinate the OA during times of emergency. In addition to his/her responsibilities as Director of Emergency Services, the Coordinator shall have the additional duties and powers, as described below and in the OA EOP:

Direction and Coordination

Serve as key decision-maker in the OA EOC, providing direction and coordination necessary to accomplish the purposes of this Agreement and responsibilities of the OA Lead as specified in Title 19 California Code of Regulations Section 2409(e).

Operational Area Representative

Represent the OA in all dealings with the public or private agencies on matters pertaining to emergencies as defined in Section 3-1-2 of the Orange County Code of Ordinances.

4.2 Operational Area Manager

By this Agreement, the Council creates and recognizes the position of an OA Manager. The OA Manager shall be the County Emergency Manager as specified in Section 3-1-6 of the Orange County Code of Ordinances and County Board of Supervisors Resolution 12-036, as presently existing or as hereafter amended.

4.2.1 Powers and Duties

The OA Manager shall have the following powers and duties:

Administration of Operational Area Agreement

On a day-to-day basis, ensure County-specific responsibilities detailed in Section 3.2 are met.

Staff to the Operational Area Executive Board

Serve as staff to the Executive Board, maintain close liaison with the Executive Board, and coordinate all activities of assigned OA staff with the Executive Board.

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Daily Coordination and Assistance

Direct the daily coordination and cooperation between the county emergency management staff, Subdivisions, and Executive Board Subcommittees, including OCEMO. Resolve questions of authority and responsibility that may arise between them, and work closely with and assist the Executive Board, as required.

Notification of Emergency Operations Center Activation

Notify the Board of Supervisors, the Executive Board, and OCEMO of an OA EOC activation as soon as practical, and keep the Executive Board and Board of Supervisors informed on all aspects of a current emergency situation as soon as information becomes available.

OCEMO Support

Serve on OCEMO Leadership. Provide support to OCEMO for agendas, minutes and administrative support only. Staff support to OCEMO subcommittees shall be provided by OCEMO members.

Budget and Staffing

Develop an annual operating budget and staffing recommendations, and monitor the expenditures at the direction of the Executive Board.

After Action Reports

Coordinate with OCEMO for the development of after action reports for the Executive Board following activations of the OA EOC.

Resource Coordination

Act as the coordination point between Subdivisions and the Cal OES on a day-to-day basis for Emergency Management Mutual Aid (EMMA) resource requests, in accordance with the State of California Emergency Management Mutual Aid Plan. The OA Manager may also coordinate other OA mutual aid requests, as appropriate.

Orange County Operational Area Agreement

Section Five. Operational Area Response Systems

5.1 Operational Area Emergency Operations Plan

Under the direction of the Executive Board, county emergency management staff shall be responsible for maintaining the OA EOP, which shall provide for the effective mobilization of all OA resources, both public and private, to meet any condition constituting an emergency; and shall provide for the organization, powers and duties, and staff of the OA emergency response organization. This responsibility is inclusive of the EOP and any associated Annexes and SOPs.

5.1.1 Compliance

The OA Emergency Operations Plan shall comply with applicable local, state and federal planning criteria, including NIMS and SEMS.

5.1.2 Functional Assignments

The OA EOP shall include the functions assigned to the mutual aid organizations, County agencies/departments and Subdivisions. It shall be the responsibility of agency/department heads and Subdivisions to appoint staff who shall report to the OA EOC and carry out the assigned duties as appropriate.

5.1.3 Approval

Updates and revisions to the OA EOP and annexes will be effective on approval by the Executive Board. SOPs and other support documents may be updated on an ongoing basis by county emergency management staff as long as changes are consistent with approved plans and annexes.

5.2 Operational Area Emergency Operations Center

5.2.1 Location

The primary and dedicated County EOC located at 2644 Santiago Canyon Rd., Silverado, California, or alternate as designated, shall serve as the OA EOC. Communication connection to the OA EOC shall be the responsibility of each Subdivision and Mutual Aid Coordinator or their representative.

5.2.2 Required Activation

Activation of the OA EOC is required under the conditions defined by SEMS, Title 19 California Code of Regulations Section 2409(f), the Orange County OA EOP and associated Annexes.

5.2.3 Staff for the Operational Area Emergency Operations Center

The County shall provide initial OA EOC activation staff. Subdivisions with available resources shall provide secondary and relief OA EOC staffing. Emergency management or other mutual aid shall be used to staff the OA EOC as necessary. The County declares its willingness to provide a staff member to an impacted Subdivision's EOC or Incident Command Post to act as an OA coordination point, if desired by the Subdivision and as personnel availability and safety concerns allow.

Orange County Operational Area Agreement

Section Six. Operational Area Finance

6.1 Operational Area Expenses and Revenues

Operational Area Administrative Expenses

This Agreement recognizes that there are day-to-day costs associated with OA administration and emergency management activities; these costs are separate from County-specific emergency management activities. The County shall provide administrative staffing for the OA to carry out the duties as delineated in Section 3.2 and Section 4 of this Agreement; however, the County shall not be solely responsible for the costs of administering the OA.

The County Board of Supervisors has the over-arching authority and responsibility to approve the county emergency management budget that supports both County and OA emergency management activities.

To offset costs of the OA, the Executive Board shall be responsible for the acquisition and distribution of federal, state, and business or private foundation emergency management grant funds. For emergency management grant funds made available to the OA for distribution among the Subdivisions, the Executive Board will review and approve proposed funding allocation methods. Their review will take into consideration recommendations from OCEMO, acting in their role as subcommittee to the Executive Board. To offset administrative costs, a percentage of such grants may be allotted to the OA before apportionment among the subdivisions. If funding becomes available with a short application period that does not allow for OCEMO, Executive Board, and County Board of Supervisors pre-approval, then approval will be sought retroactively through the ratification process set forth by the County Board of Supervisors.

The County or any Subdivision may fund through general or special funds any services, supplies, or programs that they separately or jointly determine are necessary to comply with laws or regulations, or that serve the purposes of emergency prevention, preparedness, response, recovery and mitigation on an OA level.

Costs of Operational Area during Emergency Response and Recovery

During emergencies, all OA jurisdictions shall be expected to participate to the maximum extent possible, according to mutual aid and other agreements, with the understanding that during an emergency, the priorities are life safety, property, and the environment (in that order), regardless of which jurisdiction is impacted. This Agreement incorporates by reference the reimbursement concepts of the Emergency Management Assistance Compact, the California Disaster and Civil Defense Master Mutual Aid Agreement, and the State of California Emergency Management Mutual Aid Plan. Expenditures made in connection with such emergency activities required by this Agreement, the California Emergency Services Act and/or SEMS, including mutual aid activities,

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shall be deemed conclusively to be for the direct protection and benefit of the persons and property in the OA.

In deciding the level of OA response and resource commitment during emergencies, the County and Subdivisions agree to operate according to the EOP and supporting documents defined in Section 5.1 of this Agreement.

Financial Reimbursement and Recovery Following Emergencies

The County and each Subdivision are each individually responsible for developing, submitting, and receiving their own emergency aid, loans or grants from any source including local, state, and federal governments. Each is individually responsible for the timeliness, accuracy, and compliance of its own expenditures submitted for reimbursement through such mechanisms.

Orange County Operational Area Agreement

Section Seven. Operational Area Agreement Administration

7.1 Existing Agreements

Nothing contained in this Agreement shall be construed as superseding or modifying any existing agreements, including mutual aid agreements, except for superseding the existing OPERATIONAL AREA AGREEMENT OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS dated October 3, 1995, and addenda; and nothing herein shall be construed as preventing any Party from entering into or modifying mutual aid or other emergency response agreements.

7.2 Effective Date

This Agreement shall become effective six months after approval and execution by the County Board of Supervisors and at least one Subdivision. Any Subdivision in Orange County may become a Party hereto by executing this Agreement. Notice shall be provided to the County upon a Subdivision's execution of this Agreement.

7.3 Withdrawal

Any Party may withdraw from this Agreement by providing written notice to county emergency management staff. Said notice shall be given 30 days before withdrawal from this Agreement.

7.4 Indemnification

Each Party shall defend, indemnify, and hold harmless the other Parties, and their officers, agents, employees and representatives from any and all losses, liability, damages, claims, suits, actions, administrative proceedings, demands, and litigation, and all expenses and costs relating directly to the negligent or otherwise wrongful acts or omissions of the indemnitor, its officers, agents, employees, or representatives arising out of or incidental to performance under this Agreement. No Party assumes liability for the acts or omissions of persons other than that Party's respective officers, agents, employees or representatives.

7.5 Counterparts

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same instrument.

7.6 Interpretation

Save to the extent that the context or the express provisions of this Agreement otherwise require:

- Headings and sub-headings are for ease of reference only and shall not be taken into consideration in the interpretation or construction of this Agreement;
- All references to Parts, Sections, and Paragraphs are references to Parts, Sections and Paragraphs contained herein;

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Orange County Operational Area Agreement

- All references to any ordinance, resolution, law, regulation or guidance shall include references to any ordinance, resolution, law, regulation or guidance which amends, extends, consolidates or replaces the same or which has been amended, extended, consolidated, supplemented, substituted, novated, replaced, or assigned by the same and shall include, without limitation, any instrument, proclamation, bylaw, directive, decision, regulation, rule, order, notice, codes of practice, code of conduct, rule of court, instrument or delegated or other subordinate legislation thereto;
- The words "herein", "hereto" and "hereunder" refer to this Agreement as a whole and not to the particular Section, or Paragraph in which such word may be used;
- Any reference to a public organization or representative shall be deemed to include a reference to any successor to such public organization or representative or any organization or entity or representative which has taken over the functions or responsibilities of such public organization or representative.

7.7 Ambiguities

In the case of any ambiguity or discrepancy:

- Between the provisions in this Agreement and the provisions of any underlying Executive Order, law, or regulation, the provisions of underlying Executive Order, law, or regulations will be incorporated by approval of the Executive Board and written notice shall be provided to all Parties.
- Between the provisions in this Agreement and the provisions of any underlying mutual aid agreement or EOP, the provisions of this Agreement shall prevail until such time as the OA Executive Board considers the matter and notice of proposed resolution to such issues are provided to all Parties.

7.8 Amendment

This Agreement may not be amended or modified except in a writing executed by a majority of all signature Parties as defined by Section 2.1 of this Agreement.

OPERATIONAL AREA AGREEMENT
OF THE COUNTY OF ORANGE AND POLITICAL SUBDIVISIONS

DATED: 5/19/20

County of Orange

(City or Jurisdiction)

BY *Michelle Steel*

Michelle Steel, Chairwoman

County of Orange

ATTEST:

By: *Robin Stieler*
Robin Stieler, Clerk of the Board
County of Orange



Date 5/19/20

NOTICE TO COUNTY OF ORANGE TO BE GIVEN TO:

City/Jurisdiction

Donna Boston

Name

County of Orange

City/Jurisdiction

2644 Santiago Canyon Road

Address

Silverado, CA 92676

City/State/Zip

714-628-7154

FAX Number

APPROVED AS TO FORM:

Wendy J Phillips

Wendy Phillips, Senior Deputy County Counsel

County of Orange

Dated 5/26/20

EXHIBIT "A"

Orange County Operational Area Agreement

ATTEST:

By: _____

Date _____

NOTICE TO _____ TO BE GIVEN TO:

City/Jurisdiction

Name

City/Jurisdiction

Address

Chapter 3 City/State/Zip

FAX Number

APPROVED AS TO FORM:

Wendy J Phullysi

Senior Deputy County Counsel

Orange County

Dated *2/26/20* _____

EXHIBIT "A"

September 27, 2021
Prepared by: F. Sanchez
Submitted by: C. Compton / P. Weghorst
Approved by: Paul A. Cook *P.A.C.*

ACTION CALENDAR

STATEWIDE DROUGHT AND LEVEL TWO WATER SHORTAGE DECLARATION

SUMMARY:

Due to severe drought conditions, Governor Newsom has declared regional states of emergency in 50 of the 58 counties in California. In response to an expanding drought emergency, the Governor issued Executive Order N-10-21 on July 8, 2021. The order calls upon all Californians to voluntarily reduce water use by 15% compared with 2020 for the purpose of preserving available water supplies and reserves. IRWD's Water Shortage Contingency Plan (WSCP) defines a 15% reduction as a Level Two Shortage (defined as a Significant Shortage Condition), which includes a number of response actions designed to achieve voluntary demand reductions. While IRWD does not currently have a water shortage, staff recommends the Board adopt a resolution declaring a Level Two Water Shortage to assist with meeting the Governor's call for a 15% reduction.

BACKGROUND:

California is experiencing a severe statewide drought. Throughout the state, water storage levels are decreasing and conserving water has become imperative to extend water reserves in anticipation of another dry winter. In April and May 2021, the Governor declared drought emergencies in 41 counties. Due to worsening conditions, the Governor issued Executive Order N-10-21 on July 8, 2021, declaring states of emergency in an additional nine counties. At the same time, he asked all Californians to voluntarily reduce water consumption by 15% compared with 2020 levels. A 15% reduction in potable water use falls within the 10 to 20% Shortage Level Two defined as a Significant Shortage Condition in the District's WSCP, which is provided as Exhibit "A".

Level Two response actions include all the basic measures that are in effect as Level One actions, that increase awareness of conservation opportunities and encourage repair of water leaks, plus additional actions necessary to respond to an 11% to 20% shortage. Following is an overview of actions and prohibitions that are currently in effect as well proposed additional Level Two response actions that will be taken if IRWD declares a Level Two Shortage.

Actions Currently in Effect:

In response to the Executive Order, staff has already implemented the following voluntary measures, which are consistent with Level Two response actions:

- Increased outreach efforts including water saving articles and tips on the District's website, social media and newsletters;

- Launched a new landscape tune-up program designed to reduce leaks and improve irrigation efficiency;
- Launched a Drought Response 15% Savings Sweepstakes to encourage customers to do their part to help achieve a 15% reduction; and
- Launched regular and appropriate drought messaging.

Permanent Prohibitions on Water Waste:

The following measures that prohibit water waste are permanently in effect regardless of drought conditions:

- Prevention of irrigation run-off and water waste;
- Leak prevention;
- Ban on washing down hard or paved surfaces, except, when necessary, to alleviate safety or sanitary hazards;
- Ban on the use of non-recirculating decorative fountains or water features;
- Ban on the use of potable water to irrigate turf on public street medians, unless it is irrigated incidentally with trees;
- No person shall apply potable water to outdoor landscapes during 48 hours and within 48 hours after measurable rain;
- Ban on single-pass cooling; and
- Ban on the use of a hose for vehicle washing unless the hose has a positive, automatic shut-off device.

Proposed Additional Level Two Response Actions:

In addition to the actions listed above, under a Level Two Shortage, the following additional response measures are proposed:

- Customers will be encouraged to restrict showers to five minutes or less or to fill bathtubs to no more than one-quarter full;
- Customers will be encouraged to refrain from running water unnecessarily while shaving, brushing teeth, bathing, preparing food, etcetera;
- Customers will be encouraged to run only full loads of laundry and dishes;
- The District will establish a water waste reporting “hotline”;
- The District will encourage diligent repair of water leaks;
- The District will expand conservation programs and workshops as well as consideration of enhanced rebates for outdoor water efficiency including rebates for turf replacements and efficient irrigation equipment;

- Ongoing outreach efforts will be increased to more aggressively target wasteful tier customers through a variety of methods including postal mail, electronic mail and telephone while offering assistance and virtual audits to customers to help identify the source of wasteful tier use and to provide recommendations for reducing water use;
- Customers will be encouraged to reduce potable landscape irrigation;
- Commercial conveyor and in-bay car wash systems will be required to reuse water if equipped to do so;
- Common interest associations shall not fine or assess owners of separate interests for reducing or eliminating the watering of vegetation or lawns, unless the association uses only recycled water for irrigation of the association's common areas and recycled water is also available at the irrigated areas of the separate interests; and
- The District, by separate action, may implement demand management measures through adjustments in the water-budget based pricing structure to target discretionary outdoor potable use (following required noticing in compliance with Proposition 218).

Staff anticipates that in the near future the Governor will likely issue a new Executive Order that mandates statewide reductions if drought conditions do not substantially improve. As the administration determines its next steps on drought response, it is evaluating the actions water agencies have undertaken and the level of water shortage each has declared.

Declaring a Level Two Shortage now will help IRWD and its customers meet the call for the voluntary 15% reduction, as well as prepare the District for any potential future reduction mandates. Staff and legal counsel have prepared the resolution that is provided as Exhibit "B" for consideration by Board of Directors to formally declare a Level Two Shortage (Significant Shortage Condition). Staff recommends the Board adopt this resolution declaring a Level Two Shortage.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

This item was not reviewed by Committee.

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, DECLARING WATER SHORTAGE LEVEL TWO
(SIGNIFICANT SHORTAGE CONDITION).

LIST OF EXHIBITS:

Exhibit "A" – Water Shortage Contingency Plan

Exhibit "B" – Resolution Declaring Water Shortage Level Two (Significant Shortage Condition)

Exhibit "A"

2020 Water Shortage Contingency Plan

Adopted June 28, 2021



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Overview

The California Water Code (CWC) Section 10632 requires that every urban water supplier shall prepare and adopt a Water Shortage Contingency Plan (WSCP) as part of its Urban Water Management Plan (UWMP). The first Irvine Ranch Water District (IRWD) WSCP was adopted in 1987 to provide guidance on implementing actions to reduce water demands in the event of a water shortage. Since then, IRWD's WSCP has been revised several times. The last significant revision to the WSCP occurred in 2018.

Following the 2012-2016 drought in California, IRWD prepared and adopted an updated WSCP in May 2018. The 2018 WSCP incorporates the lessons learned during the 2012-2016 California drought, as well as new elements from the state's long-term framework document, *Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16*, which was released in April 2017.

IRWD's 2018 WSCP provided procedures for responding to various levels of supply shortages. The use of local supplies, storage and other supply augmentation measures can mitigate shortages, and be used as necessary and appropriate during declared shortage levels. The remaining shortage levels, after use of local emergency supplies, can be addressed by employing a range of demand management measures (DMM) that can vary depending on the level and duration of the shortage condition. The 2018 WSCP defined a list of voluntary measures, non-rate response measures, and potential rate response measures for each level of shortage. While these measures are to be applied incrementally, IRWD's 2018 WSCP built in a level of flexibility to adopt additional measures to ensure the appropriate level of demand reduction.

This 2020 WSCP update has been prepared to incorporate new legislated requirements including supply reliability processes, annual water supply and demand assessment procedures, a seismic hazard assessment, and additional prescriptive elements. IRWD maintains the flexibility to amend the WSCP periodically and independently of the UWMP.

WSCP Requirements & Sections

This 2020 WSCP addresses and incorporates the required elements set forth by CWC Section 10632, including the following new requirements:

- Key attributes of the urban water supplier's water supply reliability analysis conducted pursuant to Water Code Section 10635. [Section 10632(a)(1)]
- Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage. [Section 10632(a)(3)(A)]

- Locally appropriate “shortage response actions” for each shortage level, with a corresponding estimate of the extent the action will address the gap between supplies and demands. [Section 10632(a)(4)]
- Procedures for conducting and approving an annual water supply and demand assessment with prescribed elements that is required by CWC Section 10632.1. [Section 10632(a)(2)]
- Monitoring and reporting requirements and procedures to assure appropriate data is collected to monitor customer compliance and to respond to any state reporting requirements. [Section 10632(a)(9)]
- A reevaluation and improvement process to assess the functionality of the urban water supplier’s WSCP and to make appropriate adjustments as may be warranted. [Section 10632(a)(10)]
- In addition to the requirements of paragraph (3) of subdivision (a) of CWC Section 10632, beginning January 1, 2020, the WSCP shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a supplier’s water system and to mitigate those vulnerabilities. An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621. An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk. [Section 10632.5(a)]

These new requirements and prescriptive elements have been incorporated into this 2020 WSCP update, and where applicable, additions to the 2018 WSCP have been emphasized. This WSCP is organized into the following sections:

Section 1 – Analysis of Supply Reliability and Seismic Risk Assessment

Section 2 – Annual Water Supply and Demand Assessment Procedures

Section 3 – Six Standard Shortage Stages

Section 4 – Additional Shortage Response Actions

Section 5 – Communication Protocols

Section 6 – Compliance and Enforcement

Section 7 – Legal Authorities

Section 8 – Financial Consequences

Section 9 – Monitoring and Reporting

Section 10 – WSCP Refinement Procedures

Past Implementation of WSCP

On January 17, 2014, Governor Brown proclaimed a Drought State of Emergency, which called on Californians to voluntarily reduce water consumption by 20%. In September 2014, IRWD's Board of Directors (Board) responded to the drought and the Governor's Emergency Proclamation by declaring a Level 1 Shortage Warning. In response to worsening statewide drought conditions, on April 1, 2015, the Governor issued an Executive Order that mandated a 25% statewide reduction in urban potable water use compared to 2013 water use levels. For IRWD, the State Water Resources Control Board (SWRCB) mandated a water use reduction target of 16% compared to 2013 levels. In July 2015, IRWD's Board declared a Level 2 Shortage Condition aimed at reducing demands by 10-25% in response to the SWRCB's mandate.

In April of 2017, Governor Brown lifted the drought emergency declaration while retaining a commitment to advance conservation and drought planning and response measures throughout the state. Response measures and other lessons learned from the recent drought and declaration of a Level 2 Shortage Condition in 2015 were previously incorporated into IRWD's 2018 WSCP.

Section 1 – Analysis of Supply Reliability and Seismic Risk Assessment

In 2008, IRWD completed a Water Reliability Study which forecasted potential water supply gaps due to climate change and environmental restrictions on the State Water Project (SWP). The SWP is operated and managed by the Department of Water Resources (DWR). Since 2008, IRWD has offset potential water supply gaps by making continued investments into conservation, diversifying its water portfolio and drought resilient supplies, and by securing groundwater banking resources.

In 2016, IRWD prepared a Water Supply Reliability Evaluation (Evaluation) which provided an understanding of how current and projected conditions, such as imported water supply shortages, climate change, and facility outages could impact water supply. The 2016 Evaluation included an analysis of IRWD's ability to maintain a minimum level of service under reasonably foreseeable hydrologic and system outage conditions and emergency scenarios, or combination of such scenarios, based on a rigorous and transparent probability analysis.

1.1 Supply Reliability Scenario Planning

IRWD's 2016 Evaluation considered multiple potential scenarios that could affect the reliability of IRWD's water supplies. A brief summary of the scenarios is described below:

a) Planned Conditions:

Planned conditions were based on 2016 conditions including water supply projects planned by IRWD and imported water supplies already planned by the Metropolitan Water District of Southern California (Metropolitan), the regional provider of imported water to Southern California. The scenario assumed no new water supply investments.

b) Major California Drought:

Increased duration and frequency of major California droughts would impact the availability of Santa Ana River recharge to the Orange County Groundwater Basin and the availability of imported water to Metropolitan from the SWP.

c) Colorado River Shortage:

The Colorado River is consistently over-allocated and Metropolitan's imported supply from the Colorado River Aqueduct (CRA) has a lower priority within California's allocation. Ongoing discussions between basin states were addressing to what extent, if any, California would participate in a cutback and under what conditions the cutback would be implemented.

d) Climate Change:

Reduction in the total snowpack due to warmer storms could mean reduced imports of CRA and SWP water. Saltwater intrusion of the San Francisco Bay Delta (Bay Delta) due to sea level rise could pose as the greatest long-term risk to the SWP water supplies. Climate change was also estimated to affect the availability of recharge to the Orange County Groundwater Basin.

e) Delta Levee Failure:

A seismic event in the Bay Delta causing a levee failure can flood the Bay Delta islands with salt water and interrupt SWP exports due to impaired water quality. The level of impact would depend on the extent of damage (i.e., number of levee failures, specific Bay Delta islands, and season).

f) Bay Delta Environmental Restrictions:

Restrictions from the Bay Delta to protect local wildlife have reduced SWP allocations. There is potential for future restrictions to protect the environment. The "California Water Fix" was expected to increase the reliability of SWP deliveries by bypassing the Bay Delta, and thus reduce environmental impacts on the Bay Delta.

g) Facility Outages and Seismic Events:

Local plant outages or seismic events that damage treatment or conveyance facilities may create disruptions to imported and local water supply deliveries. Local seismic events could potentially disrupt services from either the Baker Water Treatment Plant or local groundwater well fields. Potential effects on Metropolitan deliveries could result in outages as long as six months, depending on severity. See Section 1.2 Catastrophic Interruption and Section 1.4 Seismic Risk Assessment and Mitigation Plan below for additional information.

To evaluate the overall reliability of IRWD's potable water supply system, these scenarios were simulated using IRWD's Integrated Resources Planning Distribution System Model (IRPDSM), a comprehensive distribution system model which simulates deliveries and storage of imported water through IRWD's distribution system.

For every scenario modeled, the simulation results indicated that only minor shortages (up to 2%) have a 16% or smaller chance of occurrence in any month during the modeled 25-year span from 2015 to 2040. The small percentage model results reflect minor hydraulic capacity constraints (based on average capacities) that could be alleviated through operational adjustments. For each of the scenarios modeled, there is sufficient availability of water supplies to IRWD to meet projected demands.

Table 1-1 indicates the shortage levels in the WSCP as they correlate with the reliability scenarios described above. The scenarios in **Table 1-1** are each represented as a single scenario and not combinations of scenarios unless specifically stated. For example, scenarios that could produce a Level 1 shortage of up to 10 percent are either planned conditions, a Colorado River shortage, or the impacts of climate change.

Table 1-1: IRWD Reliability Scenarios, Shortage Levels and Projected Use of Water Banking Supplies

Modeled Reliability Scenario	IRWD WSCP Shortage Level	Anticipated Water Bank Usage (AFY)
Facility Outages and Seismic Events	No Shortage Identified	Access may be limited
Planned Conditions	Level One Shortage Warning (up to 10%)	300 to 3,000
Colorado River Shortage		
Climate Change		
Major California Drought	Level Two Significant Shortage (up to 20%)	7,300 to 11,500
Major California Drought and Bay Delta Environmental Restrictions	Level Three Significant Shortage (up to 30%)	14,800 to 18,100
Delta Levee Failure		
Catastrophic Delta Levee Failure and Beyond Currently Forecasted Events	Level Four Severe Shortage (up to 40%)	18,100+
	Level Five Crisis Shortage (up to 50%)	
	Level Six Crisis Shortage (exceeding 50%)	

These identified shortage levels are prior to and independent of utilizing emergency supplies from IRWD’s Water Banking Program (IRWD Water Bank). **Table 1-1** identifies how each of the shortage conditions would be offset using water from the IRWD Water Bank. Water banking is a highly reliable and cost-efficient practice of recharging low-cost water to underground storage aquifers during wet periods and recovering this water for later use. IRWD’s Water Bank provides an important water management tool to improve imported water reliability and protect IRWD customers from imported water shortages. With use of the Water Bank, as an emergency supply option, no supply shortage gaps were identified in any of the scenarios modeled in the 2016 Evaluation. A major earthquake resulting in a catastrophic Delta levee failure would result in shortages beyond currently forecasted events, ranging from a Level 4 to Level 6 shortage. IRWD would rely on its water banking emergency supplies for 18,100 AFY or more in such a catastrophic event. See Section 1.3 below for additional information on catastrophic events and major Delta levee failures.

An additional water supply available to IRWD during shortage conditions would be to pump above the Basin Production Percentage (BPP) set by the Orange County Water District (OCWD). This would be a feasible and available source of water, should IRWD’s Water Banking Program not have available supplies in the amounts listed in **Table 1-1**. However, pumping additional groundwater could be subject to surcharges imposed by OCWD. As discussed in more detail below, the Water Banking Program would be used in combination with other

response actions under the implementation of IRWD’s WSCP. It should be noted that none of the scenarios modeled resulted in a Shortage Level greater than Level 3 (up to 30%). A major earthquake and catastrophic Delta levee failure would create significant disruptions in SWP supplies to Southern California and is expected to result in at least a Level 3 shortage. Depending on the extent of the damage it could result in shortages that are beyond currently forecasted events, with shortages ranging from Level 4 to Level 6.

1.2 Catastrophic Interruption

Catastrophic supply interruptions could be the result of regional power outages, earthquakes, floods, water supply interruptions, structural damage from an explosive device, and threat of or possible contamination to the water system. IRWD’s response to a catastrophic interruption of water supply would depend on the cause, severity, and anticipated duration of the emergency. A potential shortage resulting in a reduction of available supplies can be addressed through a combination of alternative supplies and storage, combined with low level implementation of the WSCP. Since IRWD's major potable water sources include both imported water (including IRWD’s Water Banking Program) and local groundwater, it is unlikely that an outage of both sources would occur simultaneously.

A 2008 United States Geological Survey Study entitled “*The Uniform California Earthquake Rupture Forecast*” indicated that there is a 97% probability of an earthquake of magnitude 6.7 or greater in Southern California and a 37% probability of an earthquake greater than 7.5 in magnitude within the next 30 years. Local seismic events have the potential to temporarily disrupt service from either the regional facilities or local well fields. A seismic event could also cause damage to the well field that would permanently limit the production capability of one or more wells. Potential effects of earthquakes on Metropolitan deliveries could result in outages as long as six months, as shown in **Table 1- 2**. This table provides estimated outage durations for seismic events.

Table 1-2: Estimated Outage Durations from Seismic Events

Regional Facilities	Moderate Earthquake (M 6.7)	Extreme Earthquake (>M 7.0)
Metropolitan – Colorado River Aqueduct	1 month	6 months
DWR – State Water Project	Up to 6 months	6+ months
Metropolitan – Conveyance and Distribution	1 week to 2 months	1 week to 3 months
Metropolitan – Treatment Plants	Up to 1 month	Up to 6 months

Source: MWD Seismic Vulnerability Assessment, June 2013

A major seismic event in the Delta with levee failures would have more significant and longer term impacts to supplies. It would result in flooding of the Delta with saline waters and disruption of water exports to the SWP, resulting in partial or full loss of water supplies south of the Delta for up to 3 years. Delta levees are typically 15 to 20 feet high protecting island interiors that are 10 to 15 feet below sea level. DWR's 2009 Delta Risk Management Strategy (DMRS) estimated that there is a 66% probability of at least one magnitude 6.7 or greater earthquake in the Bay Area before 2032. Such an event has the potential to cause multiple Delta islands to flood from levee failures. For a 20-island breach event, the total cost of levee repair and dewatering is estimated to be \$1.8 billion and would require 25 months on average, from the date of the earthquake. A Delta Levee failure of this magnitude would result in the disruption and potentially prolonged reduction of SWP deliveries to southern California and IRWD. In its 2020 UWMP Metropolitan estimates that a catastrophic outage would result in the use of emergency stored supplies and mandatory cuts of 25% to imported supplies to retail suppliers.

Depending on the cause and severity of the local plant outage or seismic event, potential damages to treatment and conveyance facilities may extend from short to long-term disruptions in imported and local water supply deliveries. Unlike drought conditions, which manifest over several years, the response measures available to respond to a catastrophic interruption are limited. During such an event, the IRWD Board, at its discretion, may choose to implement mandatory measures at earlier levels of shortages. See also Section 1.4 Seismic Risk Assessment and Mitigation Plan below for additional information. For additional information on response to severe drought events and consecutive multi-dry year analyses refer to the UWMP, Sections 6 and 7.

1.3 Multiple Dry Year Analysis and Drought Risk Assessment

IRWD's 2020 UWMP includes an assessment of IRWD's reliability during normal, dry, and multiple dry water years as well as a Drought Risk Assessment (DRA). The DRA and WSCP share a similar purpose and are developed to jointly assess IRWD's current and future water reliability, especially during extended periods of drought. The water reliability analyses indicate that IRWD is reliable throughout all conditions including single dry year, multiple dry year, as well as during an extended drought. **Table 1-3** shows the results of the potable multiple dry year water reliability analysis. See IRWD 2020 UWMP Section 7 for the full normal, single-dry, and multiple dry year analysis and tables.

Results of the DRA indicates that IRWD has sufficient supplies to meet its projected demands, even during multiple dry years (**Table 1-4**). Supplies are expected to exceed IRWD's projected water use for all future years evaluated (**Table 1-3 and Table 1-4**). Recycled water is considered a drought resistant supply. Therefore, **Table 1-3** and **Table 1-4** show only potable supplies and demands. For additional tables and non-potable results refer to the 2020 UWMP Section 7 and Appendix E.

The DRA indicates that even in five years of consecutive drought there is a water supply surplus without the use of WSCP response actions. Historic customer usage indicates that both with and

without a drought mandate, customer usage decreased between 3-5% in subsequent years of drought between 2005 and 2020 (See UWMP Section 7). This decrease is likely a result of continued, voluntary IRWD actions to encourage water use efficiency, conservation, statewide and regional drought messaging, as well as the use of recycled water wherever applicable. When Metropolitan WSCP response actions trigger a Level 10 shortage condition (more than 50%), IRWD would only be in a Level 1 shortage condition (less than 10%, see WSCP Section 3.1). For additional details on the Multiple Dry Year Analysis and DRA refer to 2020 UWMP Section 7.

Table 1-3: Multiple Dry Year Water Reliability Analysis – Potable Water

DWR Table 7-4 A Retail: Multiple Dry Years Supply and Demand Comparison - Potable					
		2025	2030	2035	2040
First year	Supply totals	113,859	113,859	113,859	113,859
	Demand totals	64,740	72,665	80,589	88,514
	Difference	49,119	41,194	33,270	25,345
Second year	Supply totals	113,859	113,859	113,859	113,859
	Demand totals	62,798	70,485	78,171	85,859
	Difference	51,061	43,374	35,688	28,000
Third year	Supply totals	113,859	113,859	113,859	113,859
	Demand totals	60,914	68,370	75,826	83,283
	Difference	52,945	45,489	38,033	30,576
Fourth year	Supply totals	113,859	113,859	113,859	113,859
	Demand totals	59,086	66,319	73,551	80,784
	Difference	54,773	47,540	40,308	33,075
Fifth year	Supply totals	113,859	113,859	113,859	113,859
	Demand totals	57,314	64,330	71,345	78,361
	Difference	56,545	49,529	42,514	35,498
NOTES: Supply values represent potable supplies from Table 7-1. Demands adjusted for single dry year conditions in year one, then adjusted down 3% per year for each subsequent year of drought, as referenced in UWMP Section 7 (7.1, 7.2), based on historic drought analysis.					

Source: IRWD 2020 UWMP, DWR Table 7 - 4.A

Table 1-4: Five-Year Drought Risk Assessment Tables – Potable Water

DWR Submittal Table 7-5 Five-year Drought Risk Assessment Tables to address Water Code Section 10635(b) - Potable	
2021	Total
Total Water Use - <i>Potable</i>	53,299
Total Supplies - <i>Potable</i>	101,506
Surplus/Shortfall w/o WSCP Action	48,207
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	-533
Revised Surplus/(shortfall)	47,674
Resulting % Use Reduction from WSCP action	-1%
2022	Total
Total Water Use [Use Worksheet]	51,700
Total Supplies [Supply Worksheet]	101,506
Surplus/Shortfall w/o WSCP Action	49,806
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,599
Revised Surplus/(shortfall)	51,405
Resulting % Use Reduction from WSCP action	3%
2023	Total
Total Water Use [Use Worksheet]	50,149
Total Supplies [Supply Worksheet]	101,506
Surplus/Shortfall w/o WSCP Action	51,357
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,551
Revised Surplus/(shortfall)	52,908
Resulting % Use Reduction from WSCP action	3%
2024	Total
Total Water Use [Use Worksheet]	48,644
Total Supplies [Supply Worksheet]	101,506
Surplus/Shortfall w/o WSCP Action	52,862
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,504
Revised Surplus/(shortfall)	54,366
Resulting % Use Reduction from WSCP action	3%

WSCP - 13

2025	Total
Total Water Use [Use Worksheet]	47,185
Total Supplies [Supply Worksheet]	113,859
Surplus/Shortfall w/o WSCP Action	66,673
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,459
Revised Surplus/(shortfall)	68,133
Resulting % Use Reduction from WSCP action	3%

Source: IRWD 2020 UWMP, DWR Table 7 - 5.A

1.4 Seismic Risk Assessment and Mitigation Plan

LAW

10632.5. (a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

As stated in the CWC Section 10632.5.(a), beginning January 1, 2020, the UWMP shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities. An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multi-hazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multi-hazard mitigation plan addresses seismic risk.

In March 2020, IRWD completed and submitted the “Water System Risk and Resilience Assessment (RRA): A Comprehensive Analysis Consistent with America’s Water Infrastructure Act of 2018 (AWIA)” in coordination with the Metropolitan Water District of Orange County (MWDOC) and the Water Emergency Response Organization of Orange County (WEROC). The document was accepted and certified as complete from the Environmental Protection Agency, **Exhibit B**.

In addition, IRWD has completed numerous seismic studies for individual projects and facilities including dam seismic hazard potentials, water system disruption potential in the case of major earthquake, and full system vulnerabilities similar to the AWIA RRA.

IRWD also has prepared an Emergency Operations Plan, updated in September 2020, that includes an extensive specific hazard response plan for earthquakes including mitigation action, response actions, responsible authorities, and phases of response.

Furthermore, IRWD is currently in the process of preparing an updated Local Hazard Mitigation Plan (LHMP) expected to be completed in August of 2021 and certified by FEMA in December of 2021. Pending approval and adoption, the 2021 LHMP will be amended to the IRWD 2020 UWMP Update as an additional appendix. Although not fully certified, the seismic analysis and mitigation recommendations present in the pending IRWD 2021 LHMP are consistent with the information presented below and have been referenced in preparing these materials. In particular, mitigation actions have been included from LHMP draft materials as prepared by consulting engineers at Michael Baker International.

IRWD is in the process of evaluating the seismic performance of its five dams and reservoirs as part of its Dam Safety Program. IRWD continually monitors, inspects and maintains its dams and reservoirs. Its engineers and dam safety experts are implementing a state-of-the-art Dam Safety Program that will exceed all current state standards, and even provide a roadmap for other agencies to follow. This new program combines the traditional tried and true safety standards with a modern Risk-Informed Decision-Making process, known as RIDM.

RIDM is a rigorous, systematic and thorough approach to dam safety that identifies and reduces any risks. Incorporating RIDM will create one of the most robust dam safety and reservoir management programs in the nation. Irvine Ranch Water District's Dam Safety Program builds on industry best practices to ensure that our dams and reservoirs will always be safe.

A. Excerpts from IRWD Water System Risk and Resilience Assessment (RRA)

Due to the sensitive nature of IRWD's RRA report, certain sections are not appropriate to be released as part of the UWMP and WSCP. The following excerpts have been pulled from the existing RRA Seismic Risk Assessment and Mitigation plan to demonstrate the essential content in assessing seismic risk. In addition, Herndon Solutions Group (HSG) has prepared a technical memo addressing the UWMP directly attached as **Exhibit C** below.

The RRA study establishes the risk baseline for the IRWD's water system and complies with the ANSI/AWWA J100 National Standard for Risk and Resilience Management of Water and Wastewater Systems. HSG was asked to facilitate IRWD's RRA with information collected from IRWD's assessment team, led by the Horsley Witten Group, Inc. (HW), between August 2019 and March 2020. Following are excerpts from the RRA assessment.

I. Overview of Water Emergency Preparedness in Orange County

Water distribution and treatment in Orange County involves dozens of agencies and utilities working together and relies on integrated regional systems and facilities. There are many retail water utilities in Orange County, each with its own distinct service area and sources of potable water. The retail water agencies include water districts and city water departments.

MWDOC serves more than 2.3 million Orange County, California, residents through 28 cities, water districts, and investor-owned utilities or MAs. MWDOC's service area covers all of Orange County except the cities of Anaheim, Fullerton, and Santa Ana.

WEROC, administered by MWDOC, coordinates emergency response and mutual aid planning for all 35 Orange County water and wastewater agencies including Anaheim, Fullerton, and Santa Ana. WEROC provides its participating agencies and volunteer staff with planning support, emergency preparedness, and response training. In the event of a major emergency affecting Orange County, these volunteers would mobilize at the WEROC emergency operations centers to coordinate response. WEROC works closely with the County of Orange, Orange County Fire Authority, California State Water Resource Control Board Division of Drinking Water, and other entities to ensure a holistic approach and a well-coordinated emergency response.

II. Assessment Approach

IRWD provided an asset database, which included all assets in IRWD's potable water system. Since the preliminary asset list was too large to perform an assessment on in accordance with AWIA, HSG and HW worked with IRWD to preliminarily identify critical potable assets. These selected assets were presented to the assessment team and the initial list was reviewed and updated, as necessary.

Next, the assessment team identified and prioritized the set of threats against which the assessment was to be conducted. All J100 reference threats were considered in addition to two specific threats included by the team: drought and earthquake liquefaction. The final list of 145 threat-asset pairs were assessed for their consequences from the threat, vulnerability to the threat, and likelihood of occurrence. The final risk baseline values were presented to the assessment team for an evaluation of accuracy and completeness.

III. Key System Elements

IRWD's potable water facilities include the Dyer Road Wellfield, the Baker Water Treatment Plant, the Irvine Desalter Project which treats drinking water in the Irvine sub-basin, the Deep

Aquifer Treatment System that removes the tinted color from local groundwater, Wells 21 and 22 Desalter Project, that recovers and treats local impaired groundwater for potable use, and 36 drinking water reservoirs with a combined 150 MG storage capacity. Potable water is distributed through 1,760 miles of distribution pipelines.

IV. Vulnerability Assessment

After identifying critical assets and the threats of concern, each critical asset was paired to every identified threat. The assessment team then evaluated the plausibility of the identified threat having significant consequence to the critical asset and prioritized those threat-asset pairs of concern to their system. Out of a possible 1,264 pairs, a total of 145 threat-asset pairs were ultimately selected to be included in the assessment. These threat-asset pairs represent the most significant concern to the District.

V. Earthquake Liquefaction

Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes. For example, during the 1989 Loma Prieta, California, earthquake, liquefaction of the soils and debris used to fill in a lagoon caused major subsidence, fracturing, and horizontal sliding of the ground surface in the Marina district in San Francisco. The risk assessment team identified earthquake liquefaction to be a threat of concern to potable water assets located in liquefaction zones. Earthquake liquefaction is a concern for the Michelson Ops Complex (which includes the Michelson Operations Center, the Chemical Storage Facility and the LAW RP Fuel Facility) and the Dyer Road Groundwater (GW) Complex (which includes the Dyer Road GW Well System, the Dyer Road IDF, and the Dyer Road PDF).

B. Seismic Mitigation Actions

Due to the inherent seismic risk associated with infrastructure based in Southern California the following mitigation actions have already been implemented or are currently being considered to alleviate potential risks:

- Implement low-cost, easy to implement, earthquake mitigation measures in facilities (e.g., bracing items to walls, anchoring equipment to the slab, installing earthquake-activated shut-off valves, providing flexible connections to piping or conduit).

- Monitor changes and updates to building codes and seismic regulations to determine if IRWD-owned critical facilities may need seismic retrofits as they age and building codes are updated.
- Implementing earthquake mitigation measures for critical operations.
- Include assessment and mitigation of potential liquefaction conditions in the scope of any new building or infrastructure project.
- Perform monthly checks on permanent, and portable backup generators.
- Maintain WEROC membership for communication and collaboration opportunities with regional water districts, including identification and implementation of mitigation actions with shared benefits.
- Consider implementing backup communication systems such as satellite phones and amateur radio.
- Consider moving backup servers to locations that are not on the same earthquake fault lines as the primary servers or to cloud-based services.
- Consider developing and seeking funding for an evaluation program to determine the seismic vulnerability of critical assets.
- Regularly conduct earthquake and evacuation drills with all staff.

Section 2 – Annual Water Supply and Demand Assessment Procedures

The IRWD Board, in accordance with the provisions of the CWC, will determine and declare the shortage level based on an assessment of the available supplies and demands. The evaluation process is conducted to determine if a shortage declaration is needed, and at what level. The shortage level is calculated by projecting total short-term water demands within IRWD’s service area and comparing those demands to the available water supplies. The supply analysis includes evaluation of hydrologic and regulatory conditions that could impact supplies such as imported water, groundwater, and surface water. Drought resilient, hydrologically independent supplies, such as recycled water, are considered fully reliable and can be excluded from the required estimated shortage reduction.

Starting in 2022, each supplier will be required by the CWC to submit an annual water supply and demand assessment to DWR by July 1 of each year. Procedures for determining IRWD’s annual water supply and demand assessment (WSDA) are provided below.

2.1 Water Supply and Demand Assessment Requirements

LAW

10632.1. An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

10632. (a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:

- (1) The analysis of water supply reliability conducted pursuant to Section 10635.
- (2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:
 - (A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.
 - (B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:
 - (i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.
 - (ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.
 - (iii) Existing infrastructure capabilities and plausible constraints.
 - (iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.
 - (v) A description and quantification of each source of water supply.

2.2 Annual Water Supply and Demand Assessment Procedures

CWC Section 10632(a)(2) requires that urban water suppliers prepare and submit an annual WSDA. IRWD's annual WSDA is a determination of the near-term outlook for supplies and demands and identification of any expected shortage that may prompt response actions in the current year. IRWD's annual WSDA supply and demand estimates may differ from IRWD's projections used for long term planning and are not intended for that purpose.

Available supplies are assessed through ongoing coordination with wholesalers, groundwater managers, and IRWD facility operators and staff. Due to the nature of IRWD's water supply system, many supplies are tracked and managed directly by IRWD on an operational basis.

IRWD's diversified water portfolio allows for multiple sources to be available to meet projected customer demands in varying circumstances.

To project water demands for the WSDA reliability analysis, IRWD uses historical customer water usage data. This data is evaluated in conjunction with local weather conditions, estimated water use requirements, and is adjusted to account for population growth. IRWD has implemented successful water use efficiency and outreach programs since the early 1990's. These efforts, combined with the long-term use of budget-based rates, have resulted in IRWD having relatively consistent levels of customer water use demands, and less discretionary water use over time. The WSDA considers this customer use trend in the overall analysis.

The following WSDA methodology includes a written decision-making process to determine water supply reliability. Once completed, the WSDA is reviewed by the IRWD Board of Director's Water Resources, Policy and Communications Committee (WRP Committee) and subsequently considered by IRWD's full Board for approval.

A. Key Data Inputs

The following data components are important inputs to the preparation of IRWD's annual WSDA.

- 1) The first component of the WSDA, is the estimated acre-feet (AF) of water sales derived from customer usage data. This is based on actual water sales from previous fiscal years (FY). The customer usage data is categorized by water type (treated, untreated, recycled) as well as customer type. Actual water sales are tracked and finalized at the end of each FY in a database managed by the IRWD Finance Department.
- 2) The second component of the WSDA is the availability of water supplies by water type (treated, untreated, recycled) in AF. IRWD's Operations Department provides estimates for treated and untreated water supplies. IRWD Recycled Water Operations provides estimates for production of recycled water-based supplies. Certain supply sources may be limited by existing contractual agreements or wholesaler capacities. Any limitations in supply availability are incorporated into the annual supply assessment.
- 3) The third component of the WSDA are adjustments for weather variability (based on dry year and wet year conditions), growth (based on population data from the Center for Demographic Research (CDR), as well as any changes to existing infrastructure capacities or plausible constraints.

B. Assessment Methodology and Procedures

The preparation of IRWD’s annual WSDA uses the following methodology and procedures, which may be expanded and amended in the future. Any such changes will accomplish the same goal of assessing the IRWD’s water supply reliability and potential shortages. Should the assessment indicate a potential shortage, the triggered shortage response actions, compliance and enforcement actions, and communication actions will be consistent with the WSCP as required in CWC Sections 10632 and 10632.1.

Step 1: Access Historic Customer Use Data

The basis of the IRWD WSDA is historic customer water use data, compiled in a local database and maintained by the IRWD Finance Department. At the end of each fiscal year, the actual water uses, and sales are verified for accuracy. Customer demand projections for the purpose of the WSDA are based on actual water deliveries as tracked by the Finance Department and stored in the local database from 2005 to present (e.g., Water Consolidated and Acre files). Customer usage is sorted by supply type and calculated for each FY (July - June) in AF. Units of AF are used throughout the entire WSDA. In accordance with CWC 10632(a)(2)(B), IRWD considers the projected current year available supply and demand as Year 1 and one dry year as Year 2.

Step 2: Determine Available Supplies

Estimating available supplies is accomplished by determining the volume of each supply source reasonably anticipated to be available that year and the estimated percentage loss during treatment or delivery based on past operations data. These values are estimated by IRWD facility operators monitoring available supplies (Baker Water Treatment Plant, Irvine Desalter Project, Dyer Road Well Field, Deep Aquifer Treatment System, Wells 21 and 22, Michelson Water Recycling Plant, Los Alisos Water Recycling Plant, recycled water storage reservoirs), and through coordination with water supply partners including but not limited to groundwater managers (Orange County Water District (OCWD)), and wholesalers (Metropolitan and MWDOC) to confirm expected availability of supplies for each year.

In addition to estimating available supplies to meet annual customer demands, estimates are also calculated for supplies held in emergency storage in IRWD’s Water Banking Program that can be made available. Through IRWD’s water banking operations in Kern County, IRWD maintains supplies in emergency storage that can be recovered and delivered into IRWD’s service area through a Coordinated Operating, Water Storage, Exchange and Delivery Agreement with Metropolitan and MWDOC, (Coordinated Operating Agreement, see “Available Supply Coordination: Water Banking” section below).

IRWD is involved in numerous programs to help reduce dependence upon imported water (the most expensive source). These programs may influence the timing of the various sources and

supply availability. Please see “Description and Quantification Section” below for more detail on individual supply sources.

Available Supply Coordination: OCWD & Groundwater

For groundwater supplies, coordination efforts are implemented with OCWD, which manages the Orange County Groundwater Basin (Basin). Approximately 50 percent of IRWD’s overall supply comes from its groundwater wells in the Basin. Each year the OCWD sets a target amount of pumping and establishes a Basin Pumping Percentage (BPP) for the groundwater producers. The BPP is the ratio of groundwater production to total water demands expressed as a percentage. To discourage pumping above the established BPP, any groundwater production above the BPP is charged a Basin Equity Assessment (BEA) which is set so that the cost of groundwater pumping is similar to the cost of imported water. Some of IRWD’s treated groundwater supplies are exempt from the BEA.

The majority of the potable groundwater used by IRWD is produced from its Dyer Road Well Field (DRWF) located in the City of Santa Ana. The DRWF consists of 16 wells that pump from the clear water zone of the Basin and two wells (with colored-water treatment facilities) that pump from the deep, tinted-water zone of the Basin. The tinted-water portion of the DRWF is referred to as the Deep Aquifer Treatment System (DATS). Through an existing agreement, the DRWF production is limited to 28,000 AFY per year (AFY) consisting of 20,000 AFY of clear groundwater and an additional 8,000 AFY of “matching” clear groundwater, provided a minimum of 8,000 AFY of colored groundwater is pumped from the deep aquifer zone.

Available Supply Coordination: Metropolitan & MWDOC (Imported Water)

IRWD receives imported water through MWDOC. MWDOC is a wholesale member agency Metropolitan. IRWD submits imported water supply requests to MWDOC, which then incorporates the request into a regional order of water for imported supplies to Metropolitan. Both Metropolitan and MWDOC provide wholesaler information indicating their ability to meet IRWD anticipated imported water demands. Metropolitan and MWDOC both state in their UWMP and WSCP that these imported supplies are reliable through multiple, consecutive years of drought. The wholesale agencies are also involved with coordination of deliveries from IRWD’s Water Banking Program to be used in the event of imported water shortages.

Available Supply Coordination: Water Banking

IRWD has diversified its water supply reliability by developing cost effective water banking projects, as emergency storage, in Kern County, California. IRWD has constructed a fully operational Water Banking Program that makes it possible for IRWD and its banking partners to store excess water during “wet” hydrologic periods. The stored water is then available for use during “dry” periods to offset reduced water supplies under periods of severe drought or during periods of supply interruptions.

Water banking, recharge, storage, and recovery programs will continue to provide a cost effective and reliable supplemental source of water that can be relied upon during major droughts and periods of supply interruptions. IRWD has secured water supplies for its water banking projects through unbalanced exchange partnerships with other agencies. These partnerships allow agencies with surplus water to store water in IRWD's water banking projects in return for transferring half or more of the water to IRWD. In addition, as previously stated, wheeling and exchange agreements including a long-term Coordinated Operating Agreement with MWDOC and Metropolitan allows the delivery of SWP supplies from IRWD's Water Banking Program to the IRWD service area (see "Emergency Supplies – Water Banking" below for quantification of supplies made available).

Step 3: Calculate Projected Customer Demands for Year 1

Once the historic customer demand data is obtained, IRWD updates existing customer type information and monthly water use by customer and water type. To calculate the unconstrained demand for IRWD customers, an average is taken across the past three fiscal years, by customer and water type, to determine the upcoming customer demand projections. This is the projected unconstrained customer demands for Year 1.

Step 4: Apply Adjustments for Expected Weather, Growth, and Capacity Changes

Once the base customer unconstrained demands are projected, then adjustments are made for local weather conditions, population growth and any expected capacity changes for that year. These projections are used as a comparison to validate the three-year average, to track changing demands across all fiscal years and to identify wet, normal, and dry year trends in customer demands.

Water supply and demand conditions are prone to fluctuation each year. IRWD's historic planning methods and diverse portfolio of water supplies allow for accommodating these annual fluctuations relatively easily, with additional built-in measures for significant changes when necessary. The WSDA specifically takes into account population growth when comparing customer demand changes from year to year.

Population Growth

In addition to the fiscal year average, calculations are performed comparing customer demand changes, by customer type, across all fiscal years, normalized for population growth each year. Population growth data, as calculated by the CDR at California State Fullerton, is supplied each January by MWDOC for the IRWD service area. The ongoing customer water use calculations are based on fiscal year use data for total water sources, total potable sources, and total recycled sources. Using the data obtained from CDR, these total values are then normalized across fiscal years by taking the ratios of AF per customer. The percentage change calculated between each individual water supply source is then comparable across years with respect to population growth.

Weather

When conditions are indicative of a dry year or continuous dry years additional adjustments are made by comparing historical dry year customer demands. The customer demands analysis utilizes changes in demands pre- and post- water reduction drought declaration and water use reduction mandates with data going back to 2005 through present. Local California Irrigation Management Information System (CIMIS) data, obtained from station #75 Santa Ana, is also used to track changes in service area weather conditions. Values for evapotranspiration, rainfall, and air temperature are measured at the hourly, daily, and annual scale. CIMIS data is used to track historic trends and allow for additional adjustments and refinement to projected customer demands based on past trends for similar conditions.

Capacity Changes

Capacity changes related to large scale supply availability are also considered. These include, but are not limited to, new facility operations, closed facility operations, state mandates, changes to the BPP, and water delivery schedules. For example, knowledge of a scheduled facility closure during the year for project improvements, repairs, replacements or upgrading infrastructure may alter the availability of the supply source for that upcoming year depending on the duration of the work involved. When applicable, the available supply is adjusted for the upcoming year.

After the projected demands for the upcoming fiscal year are calculated, adjustments are made to the first-year projected demands based on projected changes to operations by source due to expected weather, growth, and facility capacities.

Step 5: Calculate Projected Customer Demands for Year 2 (Single Dry Year)

For the purpose of the WSDA an additional single dry year of projected demands are also calculated for the subsequent year. This provides the projected customer demands for Year 2. The demands for a single dry year are described as follows:

Single dry year customer demand projections are based on historic trend analysis under dry year conditions. The analysis uses data for Dry, Wet, and Normal water years is obtained from DWR and cross-checked with the federal drought monitor run by National Integrated Drought Information System (NIDIS) at the state and local level. This information for different year conditions is then applied to the existing percentage change in customer historic water use calculations. In conducting the analysis, years indicated as dry are grouped and averaged for the effect of a single dry year on customer demands. Calculations using data from 2005-2020, indicate eight “Dry” fiscal year periods. The average percentage change in total customer demands for a single dry year (with and without state mandates applied) is between an 0.62% and 2.83% increase. The average percentage change in potable demands is negligible, ranging between a 1.37% decrease to a 0.52% increase. Recycled demands observe between a 4.44% to 7.23% increase in usage for a single dry year.

For a conservative estimate in the year 2020 an increase of 3% in customer demands for a single dry year would be applied across all water use types. This is the average value for an increase in a single dry year customer usage, without a drought declaration. IRWD's water supplies fully meet projected water demands for the current and next single dry year, as indicated by using this methodology.

Please note that further historical analysis for consecutive dry years, utilized for IRWD's 2020 UWMP, indicates an average decrease in customer demands across all water use types between 3-5% on average and decreasing to upwards of 10% when drought declarations were implemented. For the purpose of a single dry year analysis when a drought declaration is unlikely to be in effect, the conservative 3% increase will be used, unless otherwise indicated by updated historical dry year usage data.

Step 6: Compare Total Supply and Demands – Assess Possible Shortage

Once demand calculations for Year 1 and Year 2 have been completed, adjustments have been applied, and water supply availability has been confirmed, IRWD staff compares total demands to total supplies. Then, IRWD can ascertain if a supply shortage is anticipated.

When an anticipated shortage meets the criteria for Levels 1-6 of the WSCP, shortage response actions will be taken as described in the most recently adopted WSCP. If a shortage is anticipated, supplies may be supplemented from emergency storage in IRWD's Water Bank Program.

Step 7: Initiate Shortage Response Actions (SHORTAGE CONDITION ONLY)

In the case that additional available supplies (emergency water banking supplies) do not meet the projected unconstrained demand for both the upcoming year and single subsequent dry year, IRWD would prepare a recommendation to implement response actions from the WSCP at the appropriate level. This recommendation would be reviewed and considered by IRWD's Water Resources Policy and Communications (WRP) Committee. If the WRP Committee concurs, the recommendation would be considered by IRWD's Board at a meeting immediately following the WRP Committee meeting. WRP Committee and Board meetings are scheduled monthly. Special Committee and Board meetings can be scheduled should the shortage necessitate more urgent action. See Sections 3, 4, and 5 below.

C. Review of Decision-Making Process

The CWC requirements stress the importance of a written decision-making process for completing the WSDA. As stated in the preceding sections, IRWD conducts the annual WSDA as described by the WSDA methods including calculating consumer demand projections for a single year and subsequent dry year. IRWD adjusts the projected demands based on the

methods described for weather, growth, and capacity changes. Supplies are also estimated based on coordination efforts with wholesalers, water patterns, groundwater managers, and IRWD facility operators.

When the WSDA indicates a possible shortage in supplies, IRWD Senior Staff work with the General Manager (GM) to prepare a recommendation to implement the WSCP. The staff recommendation is brought before IRWD’s WRP Committee for consideration of approval. The recommendation is then brought before the IRWD Board to consider adoption of a resolution declaring a water shortage.

Pending Board approval, IRWD will carry-out the designated WSCP response actions for each appropriate level. This process is depicted in **Figure 2-1** below. After a typical annual WSDA is completed with no indication of shortage, the plan is submitted to the DWR as required.

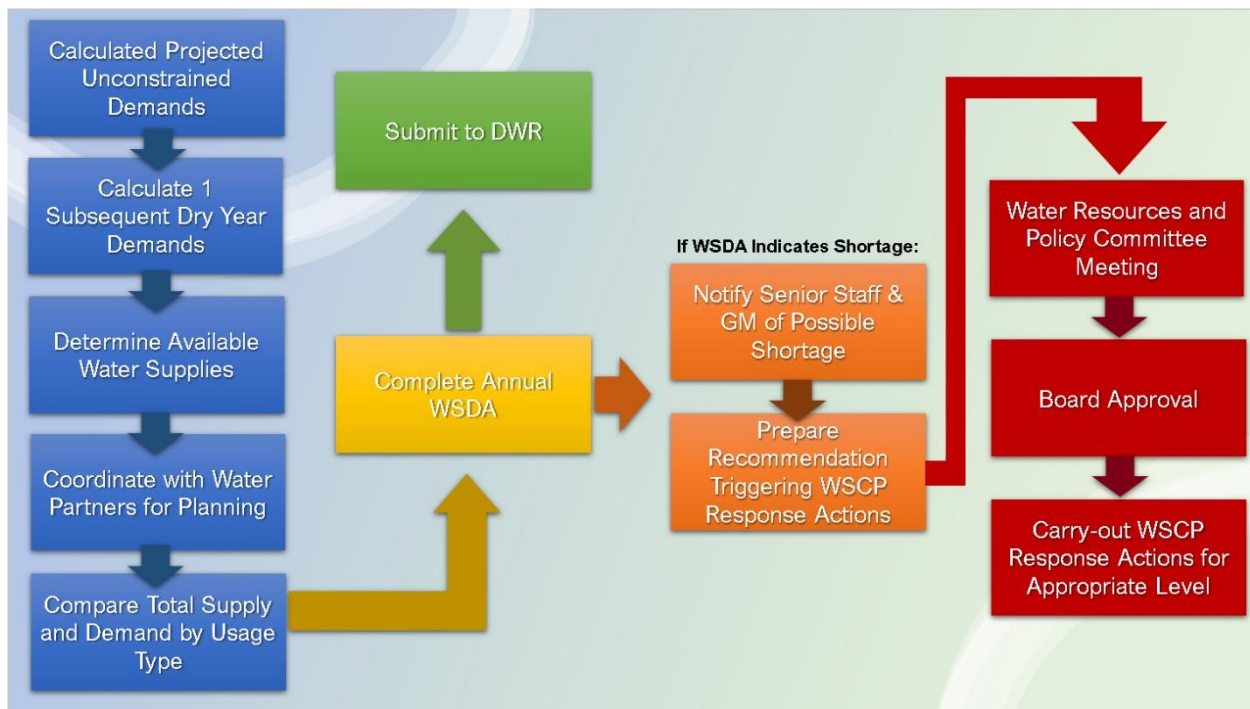


Figure 2 - 1. Decision Making Chart

D. Description and Quantification of Each Water Supply Source

As required, a description and quantification of each IRWD water supply source is provided below with the average annual supply shown in AFY. IRWD’s water supply availability estimates are as follows:

Treated (Potable) Water

- 1) Dyer Road Well Field (DRWF), 28,000 AFY. This local groundwater source water can be pumped year-round, although availability may be limited at times due to well maintenance. Under Agreement, IRWD can pump up to 28,000 AFY from DRWF, consisting of 20,000 AFY of clear groundwater and an additional 8,000 AFY of matching clear groundwater, provided a minimum of 8,000 AFY of tinted groundwater is pumped through the Deep Aquifer Treatment System (DATS) from the deep aquifer zone. It should be noted that there also exists additional flexibility to pump above these levels might be possible under extreme circumstances with short-term amendments to existing agreements.
- 2) DATS, 8,400 AFY. This is a local groundwater source. 2% of the water pumped is lost due to the treatment process. DATS water can be pumped consistently throughout the year although the treatment process may be paused periodically for maintenance.
- 3) Irvine Desalter Plant (IDP), 5,700 AFY. This is a local groundwater source. 15% of the water pumped is lost due to the treatment process. Salty water is pumped from wells and sent to the IDP facility to make it suitable for drinking purposes. This water is pumped consistently throughout the year with interruptions due to maintenance.
- 4) Wells 21 & 22 Desalter Treatment plant (Wells 21 & 22), 2,400 AFY. This plant recovers and treats local groundwater to remove nitrites and other impurities. 15% of the water pumped is lost due to the treatment process. This water is pumped consistently throughout the year with downtime for maintenance.
- 5) Baker Water Treatment Plant (Baker), 7,200 AFY. This plant is a joint regional project by five water districts. Baker uses advanced treatment technologies to produce drinking water from local surface water sources and untreated water from Metropolitan. Produced water is shared by the districts and IRWD receives about 24% of the production. 2% of the water is lost due to the treatment process. This water is produced consistently throughout the year.
- 6) Imported Water via MWDOC and Metropolitan, 15,000 AFY. Imported water supplied from Metropolitan and MWDOC serves to fill any gaps in IRWD local supplies and as such makes up a smaller percentage of the total water used in the IRWD service area. These values are subject to increase in the future if demands grow. Drinking water imported to IRWD comes from Northern California via the Sacramento-San Joaquin Delta (Delta) through the SWP and from the Colorado River via the CRA. IRWD submits imported water demand requests to MWDOC for inclusion in a regional request supplied by Metropolitan.

Untreated Water

- 1) Irvine Lake: A limited number of customers use untreated water directly from Irvine Lake. Irvine Lake water sources include surface water runoff (native water) and imported water from Metropolitan.
 - a) Irvine Lake, native water supply, use is typically ~3,000 AFY. As noted, any native water from runoff is generally delivered to the Baker Water Treatment Plant for treatment for potable use. This estimate is based on available water in the lake and rainfall projections for the upcoming year for the Year 1 Assessment and a conservative estimate for Year 2 based on historical availability.
 - b) IRWD can use imported water stored in Irvine Lake to supplement the recycled water system when demands for recycled water exceed available recycled water supplies. This supplement to the recycled water system historically has ranged from ~1,500 to 2,500 AFY.
 - c) Some imported untreated water, via MWDOC and Metropolitan as stated above, is also used to directly meet demands for certain commercial and agricultural customers. This supply ranges from 200 to 500 AFY.

Recycled Water

In certain months, more recycled water is produced than needed and placed into storage reservoirs. In other months when more water is needed, stored water is used which reduces reliance on imported water:

- 1) Michelson Water Recycling Plant (MWRP), 28,000 AFY. More than a quarter of IRWD's current water supply is recycled water, enough to provide landscape irrigation for more than 80% of the District's business and community customers – including parks, school grounds, and golf courses. MWRP's treatment capacity is 28 million gallons per day. The MWRP enables IRWD to provide water to meet the future needs of our growing community, while decreasing IRWD's dependence on imported drinking water. This plant treats sewage to produce tertiary treated recycled water.
- 2) Los Alisos Water Recycling Plant (LAWRP), 6,100 AFY. A multi-step process is used to produce recycled water suitable for non-potable use. This plant is only operated during months when the demand for recycled water is high during the months of April through September.

- 3) Non-Potable Wells, 4,165 AFY. Shallow groundwater well water is pumped and used for non-potable purposes. This water is pumped throughout the year with some interruptions due to maintenance.
- 4) Excess recycled water produced is stored to meet recycled customer demands. Stored recycled water is used to meet seasonal demands and reduce reliance on imported water. IRWD has four recycled water seasonal storage reservoirs that can store excess recycled water produced by IRWD's MWRP.
- 5) Any additional water required by the recycled water system during the peak summer months is purchased from Metropolitan as needed. Typically, 2,200 AFY is purchased to supplement the recycled water system.

Emergency Supplies – Water Banking

IRWD continues to further diversify its water supply portfolio by developing water banking facilities in the Kern Fan area located in the southern San Joaquin Valley of Kern County as discussed above. IRWD's Water Banking Program supplies are kept in storage and may be used during periods of shortage to further supply reliable sources of water to IRWD customers.

Through the Water Banking Program facilities and agreements, IRWD has 135,500 AF of available storage capacity (126,000 AF plus an additional 9,500 AF in the Kern Water Bank), 44,600 AF of recharge capacity and 28,750 AF of recovery capacity. As previously described, IRWD has entered into a Coordinated Operating Agreement with Metropolitan and MWDOC which allows IRWD to have SWP water recovered from the Water Bank and delivered to IRWD's service area.

In 2014, IRWD and Metropolitan entered into an agreement for transferring non-SWP water into IRWD's service area. Under this agreement, in 2015, IRWD recovered and delivered 1,000 AF of its non-SWP water to its service area. This was used July 1, 2015 through February 2016 as extraordinary supply to supplement reduced imported supplies during a water supply allocation from Metropolitan during the drought. IRWD staff continuously tracks available water for emergency supplies with accounting databases for water banking operations, water supply deliveries, and facility operations.

E. Reporting

The annual WSDA is to be completed and reviewed by the WRP Committee and then the IRWD Board. Once completed and approved by the IRWD Board, the WSDA will be submitted to DWR prior to July 1 in each year starting in 2022.

Section 3 – Six Standard Shortage Stages

LAW

Six standard water shortage levels are established by law in the CWC as follows:

Water Code Section 10632(a)(3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers’ water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

The WSCP provides guidelines for responses to varying levels of supply shortages in the six standard shortage levels established by the CWC. The WSCP includes actions that can be implemented to reduce demands down to specific levels in accordance with reduced supply availability. The levels of action identified in the WSCP are shown in **Table 3-1**.

Table 3 - 1: Shortage Levels in Water Shortage Contingency Plan

IRWD Shortage Level	Percent Supply Reduction	Water Supply Condition
Level 1	0% - 10%	Shortage Warning
Level 2	11% to 20%	Significant Shortage
Level 3	21% to 30%	Severe Shortage
Level 4	31% to 40%	Severe Shortage
Level 5	41% to 50%	Crisis Shortage
Level 6	50% +	Crisis Shortage

Levels or stages of the WSCP are declared at the discretion of IRWD’s Board depending on the level and duration of the water shortage. The Board evaluates water supply conditions and, if it determines that a shortage exists, declares the corresponding level of the WSCP. As part of the

declaration, it is at the discretion of the Board to implement specific water shortage restrictions, prohibitions, and DMM.

3.1 Imported Water Shortage

An imported water supply shortage represents one of the main causes of a potential supply shortage for IRWD. Metropolitan is responsible for importing water into the region through its contract with the State of California for SWP supplies and its operation of the CRA. Both sources are blended at Metropolitan’s Diemer and Weymouth Water Treatment Plants and then distributed to member agencies.

Metropolitan uses its Water Surplus and Drought Management (WSDM) Plan, Integrated Water Resources Plan (IRP), and Long-Term Conservation Plan to guide its planning, operations, and water management during both shortage and surplus conditions. In times of shortage, Metropolitan’s Board may activate its Water Supply Allocation Plan (WSAP) based on its estimate and forecast of supplies, demands, and reserve levels. If forecasted supplies and demands are determined to put pressure on Metropolitan’s storage reserves, Metropolitan’s Board may decide to limit the availability of water by implementing its WSAP. The Metropolitan WSAP has 10 levels of water supply allocations, each corresponding to an additional 5 percent reduction of supply.

Under Metropolitan’s Regional Shortage Levels shown in **Table 3-2**, IRWD’s retail level reliability is high due to IRWD’s lower dependency on imported Metropolitan supplies and additional credits and adjustments (primarily from the retail impact adjustment and demand hardening credit). IRWD’s retail level reliability (excluding recycled water) remains substantially reliable at a Regional Shortage Level 10, and Metropolitan’s WSAP allocations can be supplemented with water supplies from IRWD’s Water Banking Program or from pumping above OCWD’s BPP as a supply of last resort. If Metropolitan implements its WSAP, then supplies stored in IRWD’s Water Banking Program qualify as an “extraordinary supply” and IRWD may take delivery of that supply through Metropolitan’s system, which increases IRWD’s WSAP allocation from Metropolitan. As previously illustrated in **Table 1-1**, IRWD would not experience shortage gaps in any IRWD stages with the use of its water banking supplies. **Table 3-2** assumes normal levels of local hydrology. Refer to Section 1 for a discussion of how combinations of local hydrologic scenarios and imported supply reliability can impact IRWD’s reliability.

Table 3 - 2: Metropolitan WSAP and IRWD Shortage Levels

MWD Regional Shortage Level	Regional Shortage Percentage	Retail Impact Adjustment Maximum	IRWD Reliability	IRWD Shortage Level
Level 1	5%	2.5%	100%	Level 1
Level 2	10%	5.0%	99%	Level 1
Level 3	15%	7.5%	98%	Level 1
Level 4	20%	10.0%	97%	Level 1
Level 5	25%	12.5%	96%	Level 1
Level 6	30%	15.0%	95%	Level 1
Level 7	35%	17.5%	94%	Level 1
Level 8	40%	20.0%	93%	Level 1
Level 9	45%	22.5%	92%	Level 1
Level 10	50%	25.0%	90%	Level 1

3.2 Emergency Supplies

IRWD’s Water Banking Program provides an important water management tool to improve imported water reliability and protect IRWD customers during potential shortages. This source of supply is in addition to the supplies that are available to IRWD during non-shortage periods and is only used as “extraordinary supply” during shortages triggered by Metropolitan allocations or other conditions.

Water banking is the practice of recharging water to underground storage aquifers during wet periods and recovering this water for later use. IRWD’s stated goal in its Policy Position for Water Banking, Transfers and Wheeling (2020) is to provide a cost effective and reliable supplemental source of water that could be called upon during drought conditions or supply interruptions. In the event of a major supply interruption, this water would be available to fulfill IRWD’s estimated needs for imported water over extended periods of time. IRWD’s Water Banking Program provides IRWD the ability to store and recover this supplemental water to meet long-term supply reliability requirements. IRWD considers dependence on over-drafting the Orange County Groundwater Basin by pumping above OCWD’s BPP as a supply of last resort. This is an available supply that exists as a backup should IRWD’s Water Banking supplies not be available in a shortage condition.

3.3 Stages of Action by Level

- The levels of shortage are declared at the discretion of IRWD’s Board depending on the assessment of the available water supplies and demands. As part of the declaration, the Board will implement specific demand management measures. Table 3-3 provides the levels of shortage that may be declared, and a combination of the potential strategies that are likely to be sufficient to achieve the necessary demand reductions according to the severity and duration of the shortage. It is at the Board’s discretion to use a combination of water shortage measures in a way it deems most appropriate. A draft Board resolution for the declaration of a specified shortage level is included as **Exhibit A**.

Table 3-3: Shortage Levels and Response Actions Considered

Shortage Level	Response Type	Supply Shortage Response Actions Considered	Estimated Savings
Level 1	Voluntary	Increase outreach efforts, targeting over-budget customers, and expand leak alert program	10%
Level 2	Voluntary	Expand residential survey program, large landscape survey program, outdoor education programs and workshops, and establish water waste reporting “hotline”	11% - 20%
	Rate Based	Review of water budgets and potential adjustments to target discretionary outdoor uses for residential and landscape customers	
	End Use Prohibitions	Discourage filling of fountains, pools, and water features and other discretionary uses	
	Operational Measures	Conduct evaluation on operational measures to reduce potable water use and expand the authorized use of recycled water	
Level 3	Voluntary	Increase rebate amounts, targeted outreach, and employee training at high use businesses, implement a public outreach campaign and work with public sector on raising public awareness and demonstrating reduced usage at public sites	21% - 30%
	Rate Based	Review of residential and landscape water budgets and target potential adjustments to limit residential and landscape customers to efficient irrigation of low drought tolerant landscaping	
Level 4	Voluntary	Implement direct install programs to retrofit inefficient devices and landscape equipment	31% - 40%
	Rate Based	Review commercial, industrial, and public authority water budgets and consider adjustments to maximize potential savings while minimizing economic impacts	
	End Use Prohibitions	Limiting or modifying specific municipal uses such as hydrant flushing, street cleaning, and water-based recreation	

Level 5	Voluntary	Implement pay to save incentive programs for industrial customers	41% - 50%
	Rate Based	Review residential and landscape water budgets and consider adjustments to target the elimination of all non-recycled outdoor uses	
	Mandatory Measures	Eliminate non-recycled water outdoor use (100% reduction)	
Level 6	Rate Based	Review of residential water budgets and potential adjustments to target all uses not required for health and safety	51% +
	Mandatory Measures	Use of flow restrictors on severely over-budget accounts that are non-responsive to outreach, and other mandatory restrictions and enforcement, as necessary	

A. Level One (Shortage Warning – up to 10% shortage)

Level 1 is a low-level shortage warning condition intended to address supply reductions of up to 10%. Measures considered Level 1 would include the following voluntary actions:

- Increase public awareness of water supply situation and conservation opportunities
- Encourage diligent repair of water leaks

The measures used in Level 1 are designed to achieve reductions in outdoor over-irrigation. An enhanced public awareness campaign would be targeted toward customers that use water in excess of their water budget amounts to help them identify the source of their overuse and correct the problem. General conservation efforts include dedicated pages on IRWD’s website, information provided in the customer newsletter, and drought-related presentations to groups such as city council, community associations, chambers of commerce, business groups, and schools.

B. Level Two (Significant Shortage Condition – up to 20% shortage)

Level 2 is a significant shortage condition intended to address supply shortages between 11% and 20%. Measures considered under Level 2 would incorporate the actions taken under Level 1, and would include the following:

- Expand water conservation programs and projects, including residential survey program, large landscape survey program, outdoor education programs and workshops
- Establish water waste reporting “hotline”
- Review of water budgets and potential adjustments to target discretionary outdoor uses for residential and landscape customers.
- Prohibitions on filling of fountains, pools, and water features, as well as specific municipal uses.

The measures used in Level 2 are intended to target discretionary uses of water. These measures require shorter lead time to implement, although it should be noted that rate-based measures are subject to public notice and a rate hearing process under Proposition 218. Voluntary measures can include short-term expansion of existing programs and may include new programs that can be implemented quickly. Over-budget usage from the changes to tiers would also offset the additional administrative and implementation costs to IRWD including increased staffing to address the expansion of IRWD's water conservation programs and projects.

C. Level Three (Significant Shortage Condition – up to 30% shortage)

Level 3 is a severe shortage condition intended to address supply shortages between 21% and 30%. Measures considered under Level 3 would incorporate the actions taken under Level 2, and would include the following:

- Enhance incentives for rebate programs, such as turf replacement installation, high efficiency clothes washers, and commercial and industrial devices.
- Targeted outreach to specific customers based on over-budget use including employee training at high use businesses, work with public sector on raising public awareness, and demonstrating reduced usage at public sites.
- Implement a public outreach campaign and work with public sector on raising public awareness and demonstrating reduced usage at public sites.
- Conduct analysis of landscape water budgets and implement potential adjustments to budget-based rates to target elimination of all outdoor water use beyond what is required to maintain drought friendly landscaping.

The measures used in Level 3 are intended to target deeper outdoor use reductions in residential and landscape customers and additional voluntary reductions from commercial, industrial, and institutional customers. These measures may require a longer time to implement due to the need for coordination workshops, establishing and prioritizing objectives, and Board approval of funding.

D. Level Four (Severe Shortage Condition – up to 40% shortage)

Level 4 is a severe shortage condition intended to address supply shortages between 31% and 40%. Measures considered under Level 4 would incorporate the actions taken under Level 3, and would include the following:

- Implement direct install programs to retrofit inefficient devices and landscape equipment.
- Conduct analysis of commercial, industrial, and public authority water budgets, and consider adjustments to maximize potential savings while minimizing economic impacts.
- Elimination of specific municipal uses such as hydrant flushing, street cleaning, and water-based recreation.

The measures used in Level 4 are intended to target commercial, industrial, and public authority customers while minimizing negative economic impacts. A Level 4 shortage would require

further adjustments to budget-based rates, new measures that may require more time for direct install programs to launch, and Board approval of funding and award of contracts.

E. Level Five (Crisis Shortage Condition – up to 50% shortage)

Level 5 is a crisis shortage condition intended to address supply shortages between 41% and 50%. Measures considered under Level 5 would incorporate the actions taken under Level 4, and would include the following:

- Implement pay to save incentive programs for industrial customers.
- Review residential and landscape budgets and consider adjustments to target the elimination of all non-recycled outdoor uses.
- Eliminate non-recycled water outdoor use (100% reduction).

The measures used in Level 5 are intended to eliminate all non-recycled outdoor use. The measures may require policy changes, enforcement mechanism and consequences such as ability to levy fines or penalties for violations.

F. Level Six (Crisis Shortage Condition – exceeding 50% shortage)

Level 6 is a crisis shortage condition intended to address supply shortages exceeding 50%. Measures selected under Level 6 would be designed to incorporate the objectives listed under Level 5, and achieve the following further reductions in use:

- Review of residential water budgets and potential adjustments to target all uses not required for health and safety.
- Use of flow restrictors on severely over-budget accounts that are non-responsive to outreach and other mandatory restrictions and enforcement, as necessary.

At a Level 6, the Board may determine that it is necessary to use mandatory restrictions and possible discontinuation of non-health and safety related service to achieve the necessary demand reductions.

Section 4 – Additional Shortage Response Actions

In addition to basic measures, which are always in effect, there are different types of response measures that can be implemented by IRWD in the event of a supply shortage. These response measures represent a “toolbox” with a range of actions that can be used in combination, depending on the severity and duration of the shortage.

- a) Voluntary reduction measures through expansion and enhancement of IRWD’s conservation and outreach programs;
- b) Use of the IRWD’s budget-based rate structure;
- c) End use prohibitions and use of mandatory enforcement measures; and
- d) Operational drought control measures.

4.1 Standard IRWD Practices for Shortage Response

The following basic measures are considered good water management practices and are always in effect in IRWD’s service area regardless of whether a shortage level is declared. Additional information on these measures is contained in IRWD’s Rules and Regulations (Section 15).

Example standard IRWD water management practices include:

- Leaks:
No person shall permit leaks of water that he has the authority to eliminate.
- Gutter Flooding:
No person shall cause or permit any water furnished to any property within IRWD to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device into any gutter or otherwise to escape from the property if such running or escaping can reasonably be prevented.
- Washing Hard Surface Areas:
Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys is prohibited except when necessary, to alleviate safety or sanitary hazards.
- Washing of Motor Vehicle:
No person shall wash a motor vehicle with a hose not fitted with a shut-off nozzle or similar functioning device.
- Use of Potable Water in a Fountain:
No person shall use potable water in a fountain or other decorative water feature, except where the water is recirculated.
- Application of Potable Water to Outdoor Landscapes:
No person shall apply potable water to outdoor landscapes during and within 48 hours after measurable rain.
- Irrigation of Street Medians:
No person shall use potable water to irrigate ornamental turf on public street medians.

- Newly Constructed Homes and Buildings:
No person shall use potable water to irrigate landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.
- Waste:
No person shall cause or permit water under his or her control to be wasted.

In addition, IRWD has a budget-based rate structure based on the cost of service, which also limits the amount of water allocated to each customer to an amount that is reasonable for the customer's needs and property characteristics, reducing wasteful use of water. When a declared shortage condition is not in effect, basic water budgets established by IRWD are limited to the amount that is reasonable for the customer's needs and property characteristics and exclude wasteful use.

4.2 Voluntary Reduction Measures

IRWD has always taken a proactive approach to water conservation and is looked to as a leader by other water agencies throughout the state and country. IRWD implements a wide range of conservation programs designed to target all customer sectors. They are continually evaluated to maximize water savings and modified to integrate the latest water efficient technologies and practices. Specific programs that IRWD currently relies upon to promote water conservation are listed below.

- a) Free on-site assistance and customized reports for customers in all sectors to help identify opportunities for water savings, eliminate water waste, and to recommend appropriate programs and strategies to reduce water demands.
- b) Water Smart Reports that provide enhanced customer engagement through multiple communication methods.
- c) Turf replacement installation and rebate programs.
- d) Rebates for weather-based irrigation controllers, drip irrigation and rain barrels.
- e) Programs and rebates for high efficiency plumbing devices.
- f) Rebates for high efficiency clothes washers.

- g) Rebates for commercial and industrial efficiency devices, such as cooling tower conductivity controllers.
- h) Performance based incentive program for commercial, industrial, and institutional (CII) customers to upgrade equipment and improve their water processes to provide greater water use efficiency. High use CII accounts are targeted for participation in the program.
- i) Fix A Leak program.
- j) Robust system water loss prevention and meter testing programs.

During the implementation of the WSCP in 2014, 2015, and 2018 IRWD took a proactive approach in expanding and enhancing these conservation and outreach efforts as part of a Drought Action Plan. In the event of a future water shortage, IRWD will develop a similar implementation plan to increase levels of voluntary conservation using an adaptive approach, while considering the IRWD's financial stability and the ease and timing of implementation. Under this action, the following measures will be considered:

- Expand Conservation Programs:
Contract with a qualified firm or recruit temporary staff to significantly increase resources to expand existing water use efficiency programs, including the residential survey program, large landscape survey program, and outdoor education and workshops.
- Increased Rebate Funding:
Enhance incentives and rebate programs, such as turf replacement installation, high efficiency clothes washers, and commercial and industrial devices.
- Targeted Outreach:
IRWD will increase ongoing outreach efforts to more aggressively target wasteful tier customers. Additional outreach includes employee training at high use businesses, working with the public sector on raising public awareness, and demonstrating reduced usage at public sites.
- Direct Install Programs:
Implement direct install programs to retrofit inefficient devices and landscape equipment.

4.3 Use of Budget-Based Rates

IRWD's budget-based rate structure was instituted in 1991 to promote the efficient use of water and is designed to provide customers with a significant economic incentive to use the non-wasteful amount of water required to serve indoor, landscape, commercial/industrial and institutional demands. This is accomplished by setting a customized monthly water budget for each customer account that is based upon a variety of factors such as: irrigated area, daily weather characteristics, number of residents, industrial or commercial business type, and other

more unique characteristics such as the presence of a pool, livestock or specialized industrial equipment.

Water is sold to customers under a four-tier structure based upon their monthly water budget, which varies for landscape use relative to weather patterns. Customers using water within budget purchase water in the Low Volume and Base Rate tiers resulting in lower water bills. Customers using more than their budget purchase water in the Inefficient and Wasteful Tiers, resulting in higher water bills and a strong pricing signal to curb excessive use. The higher rates for over budget use incorporate the additional cost to IRWD of acquiring water supplies to meet over-budget demand, as well as the additional cost of demand management measures in a shortage. IRWD’s 2020-2021 domestic residential commodity rates for each of the four tiers are shown in **Table 4-1**.

Table 4-1: Commodity Rates for Residential Customers

Customer Tier	Percent of Budget	Rate Per CCF
Low Volume	0 – 40%	\$1.47
Base Rate	41 – 100%	\$2.00
Inefficient	101 – 140%	\$4.86
Wasteful	141% +	\$13.63

A. Adjustments to Budget-Based Rates

Application of any or a combination of water budget adjustment strategies may place customers into the higher usage tiers, which acts as a reporting and enforcement mechanism by creating a strong financial incentive for customers to reduce demands by paying their proportional cost of receiving water service. Three types of water budget adjustments can be established and refined based on customer response in such a way that specified uses are discouraged. Adjustments to the water budgets, tiers and rates will be at the discretion of the Board and subject to public notice and rate hearing process under Proposition 218.

a) Adjusting the Tier Thresholds:

This strategy does not adjust the actual water budget formula itself, but rather adjusts the percentage thresholds for the over-budget tiers. The current tiers are thresholds for the various account types. Adjusting the tier thresholds downward would have the effect of shifting more use into the higher tiers. Customers in these tiers would be subject to increased rates depending on the extent of their use (percentage of use over budget). Reducing the tier thresholds incentivizes customers to consume less water.

b) Customer Water Budget Adjustments:

An adjustment to the water budget entails refining the water budget formula. This can be done either as a simple percentage adjustment or by adjusting a specific portion of the formula. For example, residential water budgets are made up of an indoor plus an outdoor budget component. It is possible to adjust the outdoor component downward to allow for less outdoor irrigation or to discourage it altogether depending on the need for demand reductions. Water budgets could also be set to levels that would eliminate all outdoor water use including irrigation, car washing, pool filling, agricultural use of non-recycled water etc. Under this scenario, the indoor component could be left the same or could be altered, as necessary.

c) Rate Increases for Over-Budget Use:

This approach entails adopting higher rates for over budget use and would be linked to purchases of imported water at Metropolitan’s penalty rates, among other things. The establishment of utility rates is subject to the requirements of Proposition 218, which requires that established rates do not exceed the proportional cost of service to any specific class of customers.

B. Evaluating Customer Usage

A detailed analysis of the customer usage by tier, using the most recently available data, is one of the first steps that should be undertaken in developing demand management strategies in response to shortage conditions. IRWD has developed the Water Shortage Contingency Plan Multiplier Tool to estimate demands and potential water savings from budget-based rates during shortage conditions. The tool is based on the use of a multiplier to be applied to the percentage thresholds for customer tiers. An example of a hypothetical 75% multiplier is shown in **Table 4-2**. Note that the tool does safeguard water supplies for uses that meet public health needs by maintaining the current definition of the Low Volume tier.

Table 4 - 2: Example of Multiplier Applied to Tier Definition

Customer Tier	Current Tier Definition	Multiplier (75%)
Low Volume	0 – 40%	0 – 40%
Base Rate	41 – 100%	41 - 75%
Inefficient	101 – 140%	76 – 106%
Wasteful	141% +	107% +

The use of the Water Shortage Contingency Plan Multiplier Tool is based on the following four steps:

1. Data on Usage by Customer Category:
The tool uses the most recent available monthly billing data by tier for Single Family Residential, Multi-Family Residential, Landscape, Commercial, Industrial, and Public Authority customers. All data is for non-recycled water (the tool does include an analysis of recycled water use). For longer term planning, the tool incorporates demand forecasting and estimates future demand hardening from conservation.

2. Identify Savings Potential:
The savings potential in each customer category is defined to discourage specific uses of water. During the early shortage levels, the tool targets the elimination of discretionary (primarily outdoor) uses of water, as defined by water use in the Inefficient and Wasteful tiers. At deeper levels of shortage, the tool targets additional savings, up to the elimination of all outdoor water use beyond what is required to maintain drought-friendly landscaping. During an emergency, the tool targets up to the elimination of all outdoor water use, and up to minimum indoor amount required for public health and safety needs.

3. Estimate Response Rate:
The estimated water use reductions achieved from implementing changes to the budget-based rates is calculated by assessing recent research on customer ability and willingness to comply with rate-based measures, as well as IRWD’s experience with use of budget-based rates and the previous implementation of the WSCP.

4. Determine Water Use Reductions:
The final step involves balancing water use reductions across customer categories to achieve the desired level of demand management. The multipliers as applied to each customer class will vary due to several factors, including the targeting of discretionary uses where appropriate and avoiding impacts to the economy. **Table 4-3** provides a hypothetical example of multipliers applied to each customer category and the resulting estimated savings.

Table 4-3: Example of Savings Estimate

Customer Sector	Multiplier	Estimated Savings
Single Family	0.75	15%
Multi Family	0.8	12%
Landscape	0.6	30%
Commercial	0.9	5%
Industrial	0.9	5%
Public Authority	0.9	5%
Total Non-Recycled Savings:		12%

4.4 End-Use Prohibitions

Through adopted resolutions, IRWD has provisions for mandatory prohibitions of certain end uses, if necessary, based on the water shortage level declared. Examples of consumption reduction measures used by IRWD are summarized as follows:

- Serving of drinking water:
Only to be served upon request in eating or drinking establishments.
- Car-washing and Pool-filling Bans:
Demand reductions on car-washing and pool filling that cannot be achieved through voluntary measures and financial incentives related to adjustments in the budget-based rate structure would be attained through a ban on these actions.
- Municipal Uses:
Elimination of specific municipal uses such as unrequired hydrant flushing.
- Construction Activities:
Recycled water shall be required for construction activities, including earthwork, dust control and clean-up. IRWD may, at its discretion, waive this requirement if it can be demonstrated to IRWD's satisfaction that compliance with the requirement imposes undue hardship.
- Street Sweeping:
The use of recycled water shall be required for street sweeping activities. IRWD may, at its discretion, waive this requirement if it can be demonstrated to IRWD's satisfaction that compliance with the requirement imposes undue hardship.
- Commercial Car Washes:
Commercial conveyor and in-bay car wash systems must reuse water if equipped.
- Common Interest Associations:
Common interest associations shall not fine or assess owners of separate interests for reducing or eliminating the watering of vegetation or lawns unless the association uses only recycled water for irrigation of the association's common areas and recycled water is also available at the irrigated area of the separate interest.

A. Critical Shortage Measures

In an emergency, the primary function of IRWD's water supply system is to meet essential public health and safety needs. IRWD may determine that it is necessary to use mandatory restrictions and possible discontinuation of non-health and safety related service to achieve the necessary

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demand reductions during crisis level shortages. In addition to the measures implemented in all prior stages, IRWD may impose any combination of the following mandatory measures.

- Portable Irrigation Ban:
Outdoor irrigation would be the initial target for any demand reductions or eliminations that cannot be met through voluntary measures and financial incentives related to adjustments in the budget-based rate structure.
- Flow Restrictors:
Under extreme conditions of noncompliance, IRWD could install flow restrictors in individual service lines. Thus, water would be available for drinking, cooking, sponge baths, and slow fill of toilet tanks, but showers and other high-volume type uses would not be possible. Under these conditions individual customer reaction would be severe. It would probably be necessary to augment the customer service field service staff to maintain surveillance of these services to assure that unauthorized changes are not made by the customer.
- Mandatory Restrictions and Fines:
IRWD's ability to establish restrictions on water use and to possibly discontinue non-health and safety related service in the case of repeat violators is provided for under the CWC, Division 1, Chapters 3 and 3.5.

4.5 Operational Drought Control Measures

Recycled water has proven to be a reliable and effective drought-resilient supply since sewage flows remain virtually unaffected by dry years. During a water supply shortage, IRWD will conduct an evaluation that will focus on expanding the authorized use of recycled water where it can replace potable water use. The following is a list of recycled water customer development programs that can be expanded during a water supply shortage:

- a) Potable Irrigation Conversions
- b) Industrial Process Water Conversions
- c) Cooling Towers Conversions
- d) Street Sweeping/Construction
- e) Agricultural Customers

Due to regulatory requirements, conversions and expansions of use may take longer to implement than other actions but can be expedited when feasible, particularly for projects that are already in progress.

Section 5 – Communication Protocols

IRWD’s communication plan includes the various channels IRWD will utilize to convey critical messages regarding water shortage allocations and voluntary and mandatory actions, as outlined in **Table 3-3**. Public outreach programs can help increase awareness of water shortages, while customer services and workshops can encourage ratepayers to actively participate in demand reducing strategies. A strong communication plan will educate IRWD customers, including local leaders and the business community, on the water supply situation; what actions are proposed; what the intended achievements are; and how these actions are to be implemented. While specific types of messaging are deployed at various shortage response levels, how these messages are conveyed to the public are described in the following communication plan.

The single most important step IRWD can take in implementing voluntary measures is to inform customers in order to help reduce water demand. IRWD will employ additional strategies to achieve the necessary demand reductions in a shortage situation. Most of the effort will be focused on providing additional outreach to high usage tier customers. The community can be informed through IRWD’s website, webinars, workshops, social media postings, press releases, videos, billing inserts, email campaigns, water conservation booths, community association meetings, presentations, newsletters etc. Literature will be provided on the shortage condition, conservation methods and programs as well as water-saving devices, which can be distributed through various local organizations and communication program methods. The communication methods listed below can help convey the need for immediate conservation.

- **Public Outreach Program and Social Media** – IRWD’s public outreach is aimed at promoting voluntary water conservation, something which IRWD has always done. Conservation is a constant ethic and goal, promoted throughout the service area, regardless of drought conditions. IRWD makes extensive use of its website and social media, including Facebook, Twitter, Instagram and NextDoor, to continually remind customers of the conservation message. The IRWD water use efficiency microsite and the IRWD website heavily feature conservation and easy to use irrigation scheduling guideline, information on incentives, and efficient irrigation. IRWD also informs its customers through billing inserts, mailers, videos, water conservation booths, newsletters, postcards, community association meetings, and local public events. Outreach is accomplished by having key IRWD personnel present to groups such as the city council, community associations, chambers of commerce, business groups, etc.
- **Drought Response Center** – In order to respond to increased customer requests for on-site assistance, higher call volumes, and new and expanded water efficiency program offerings, additional temporary staff and consultants will be brought on to augment the water efficiency staff. IRWD will also establish a hot line to respond to customer questions and a special email response program. A drought information webpage will

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also be provided. The webpage will have both local and statewide drought information in one easy to access location.

- **Campaigns** – A water conservation or shortage response campaign messages will be promoted to influence public attitudes toward water use.
- **Media** – Extensive use of all available forms of media will be employed and coordinated with other agencies. This includes public service messages on local outlets and press releases in local newspapers. The messaging and level of response will be correlated with the need for demand reductions.
- **Customer Service** – Customers will be encouraged to work collaboratively to save water and to call IRWD’s water use efficiency experts for assistance in finding water leaks or providing ways to use water more efficiently. IRWD’s Customer Service Department can assist in identifying wasteful activities within the IRWD service area. IRWD staff will contact the customer associated with the property and offer on-site assistance and recommendations to address the problem.
- **Webinars, Workshops and Tours** – IRWD already offers online and in-person workshops and tours to its customers a part of an ongoing outreach effort. During a drought, IRWD will hold such events targeted toward helping customers reduce outdoor water use and be more efficient. These workshops will be held in various locations throughout the service area to reach an increased number of customers. A self-guided garden tour will be established to assist customers in identifying drought friendly landscapes.
- **Targeting Over-Allocation Customers** – IRWD will increase ongoing outreach efforts to target wasteful tier customers more aggressively. Customers in the wasteful tier are notified through a variety of methods including mail, email, and telephone. IRWD will continue to offer on-site assistance and audits to customers to help identify the source of wasteful tier use and to provide recommendations for reducing water use.
- **Community Events** – IRWD will hold large community events that feature presentations, workshops, discussions, and hands-on learning opportunities. These events will be coordinated with the cities within the service area and with the County of Orange.

Section 6 – Compliance and Enforcement

IRWD's Rules and Regulations (Section 15) provide for enforcement and penalties that may apply to violators during a water shortage. An excess use charge based upon the budget-based rate structure, which is always in effect, is sufficient to encourage demand reduction to required levels. Depending on the level of shortage, IRWD may reduce customer water budgets, tighten the tiers, increase rates, or some combination of those strategies to obtain the necessary reductions. IRWD also has the ability to establish restrictions on water use or to discontinue service in the case of repeat violators under the Water Code of the State of California.

Section 15.6.2 of IRWD's Rules and Regulations states that "[P]rior to enforcement of the restrictions pursuant to the Rules and Regulations Section 15.4 (General Prohibitions) and 15.5 (Shortage Restrictions), any person who is suspected of violating the restrictions hereby imposed shall be given a preliminary notice in writing of such violation, with the description of violation set forth in such preliminary notice. Such person shall have 24 hours to correct such violation or terminate the use. If the violation is not corrected or the use not terminated, the General Manager may immediately:

- (a) disconnect service,
- (b) install flow-restricting devices restricting non-health and safety related water service, or
- (c) order issued a second preliminary notice."

Pursuant to Section 14.1.3 of IRWD's Rules and Regulations, from and after the publication or posting of any ordinance or resolution implementing any restrictions or mandatory measures under the WSCP, violations thereof shall be misdemeanors punishable by imprisonment in the County Jail for not more than 30 days or by fine of not more than \$1,000, or both, or as otherwise provided by law or such resolution or ordinance.

Section 7 – Legal Authorities

Under California law, including CWC Chapters 3.3 and 3.5 of Division 1, Parts 2.55 and 2.6 of Division 6, Division 13, and Article X, Section 2 of the California Constitution, the Board is authorized to implement the water shortage actions outlined in this WSCP. In all water shortage cases, shortage measures to be implemented, including adjustments to the water budgets, tiers, and rates, will be at the discretion of the Board and will be based on an assessment of the supply shortage, customer response, and need for demand reductions. IRWD will declare a water shortage emergency in accordance with CWC Chapter 3 (commencing with Section 350_ of Division 1. IRWD will coordinate with any city or county within which it provides water supply

services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

The Board reserves the right to change the schedule of water, sewer, recycled water and natural treatment system service charges and other charges at any time. This section is intended to complement and be used in tandem with the budget based tiered pricing structure adopted by the District in 1991 and implemented under Section 12.1 of the IRWD Rules and Regulations on an ongoing basis as part of the District's rates and charges. Any modifications to the pricing structure must be consistent with the provisions of Proposition 218.

As described in the California Constitution, it is at the Board's discretion to use a combination of water shortage measures in a way it deems most appropriate. When specified shortage levels are to be declared, the Board will approve and issue a resolution instituting the appropriate action responses. A draft Board shortage response resolution is included below as **Exhibit A**.

Section 8 – Financial Consequences

CWC Section 10632 requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. The WSCP does not provide a detailed analysis of revenue and expenditure impacts of water shortages because IRWD's billing structure is designed to be insulated from revenue swings resulting from deviations between actual and budgeted water sales and from declining or reduced water sales. IRWD's billing structure consists of a fixed meter charge and a commodity charge based on the number of units of water used. Meter charges are set to meet IRWD's fixed costs of operation (e.g., salaries, supplies, etc.). The base commodity charge is set to match the cost of producing, purchasing, and delivering water. Therefore, IRWD can recover its fixed costs regardless of the quantity of water sold, whereas the water sales at any level will cover the costs of providing water. This system has proven to be effective in balancing revenue and expenditures. **Table 8 - 1** and **Table 8 - 2** show components of revenue and expenditure impacts that were evaluated and found to have either minimal or no significant impacts.

Table 8 - 1: Actions and Conditions of the Impact Expenditure

Type	Anticipated Revenue Reduction
Reduced Sales	Minimal to No Impact
Development of Reserves	Minimal to No Impact
Impact of Supplier’s Higher Rates (Tier 2)	Likely Passed through to Customer
Category	Anticipated Cost
Change in Quantity of Sales	Minimal to No Impact
Increased Staff Salaries/Overtime	Minimal to No Impact
Increased Costs of New Supplies/Transfers/Exchanges	Minimal to No Impact

Table 8 - 2: Proposed Measures to Overcome Revenue Impacts

Name of Measure	Summary of Effects
Review of Rate Adjustment	IRWD can revise its rate structure during water shortage stages which can increase commodity sale revenues if needed to offset Metropolitan shortage tier rates
Reserves	IRWD maintains reserves that can stabilize water rates during times of reduced water sales
Decreased or Deferred Capital and Maintenance Expenditures	If necessary, IRWD can postpone capital expenditures and defer certain maintenance expenditures

8.1 Cost of Compliance

The IRWD budget-based pricing structure encourages use within a water budget through a significantly tiered commodity pricing system and discourages wasteful use. The response measures for the levels of water supply shortage include a set of measures, referred to as DMM, that can be implemented through and along with the budget-based pricing structure.

Any additional expenditures directly resulting from water shortage action responses and compliance with these responses such as customer outreach, review of water use, and enforcement are covered by IRWD’s existing revenue structure. Enforcing compliance with shortage response actions and the cost of these DMM does not pose significant change or

hardship in the overall IRWD budget. Many of these responses and actions are carried out, as detailed above in Section 4 and in the public IRWD Rules and Regulations, on a regular voluntary basis and have been previously budgeted for accordingly.

Section 9 – Monitoring and Reporting

IRWD customers and facilities are fully metered, allowing for detailed accounting of water use in the service area. Monthly meter reads provide IRWD with a significant quantity of data for tracking and reporting actual reductions in water use in response to a water shortage. IRWD's budget-based rates are designed to achieve the necessary reductions in water use. Each month during a shortage, IRWD determines how much water each customer has used in relation to their budget. This comparison is used to track attainment of water use reduction goals for the agency and is included in the customer's bill to encourage compliance with the water budgets.

Section 10 – WSCP Refinement Procedures

The WSCP will be re-evaluated at least every five years in coordination with the UWMP update and more frequently at the discretion of the Board. An evaluation of the effectiveness of the water shortage response actions on demand levels will be conducted following future implementation of the WSCP. The evaluation will compare the expected percent demand reduction against actual reductions, and measures in the WSCP will be revised appropriately. IRWD will also assess the effectiveness of the communication plan so that it may be modified as appropriate in the future.

Special Water Feature Distinction

CWC Section 10632(b) indicates that for purposes of developing the WSCP an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

IRWD recognizes that limitations to pools and spas may require different considerations compared to non-pool and non-spa water features. Where applicable throughout the IRWD WSCP, these various water features have been separately identified as "fountains", "pools", and "water features" more generally. Please refer to Section 4.1 Standard IRWD Practices for Shortage Responses, above, for more detail on the existing IRWD Rules and Regulations for

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these feature types. Section 15.4.1 of IRWD's Rules and Regulations distinguish between the types of water features, such as, "[n]o person shall use potable water in a fountain or other decorative water feature, except where the water is recirculated[.]" These various distinctions have been clearly identified in the shortage level and response actions stages of this plan. IRWD maintains the ability to further refine shortage response actions to address different water feature types in the future and encourages recycled water use.

Plan Adoption, Submittal, and Availability

The WSCP has been prepared in accordance with the existing requirements as stated in the CWC, the DWR 2020 UWMP Guidebook, and DWR materials. IRWD maintains the flexibility to amend the WSCP periodically and independently of the UWMP.

The IRWD Board adopts the WSCP at a Board meeting following a public hearing. Before adoption, IRWD issues notices of the public hearing to cities, counties, and the general public in various mediums. Cities and counties are notified at least 60 days prior to the public hearing. At least two notifications are issued including publication in a local newspaper for at least one week for two successive weeks, with at least five days between publication dates. Typically, an IRWD public hearing notice is posted in the Orange County Register newspaper for multiple weeks, cities and counties are often notified by letter, and the meeting information is posted on the IRWD website. The WSCP is made available for public viewing on the IRWD website prior to the public hearing and is added to the meeting Board packet.

In accordance with Government Code 6066, on June 6 and June 13, 2021, IRWD published a notice in the Orange County Register regarding a public hearing on IRWD's 2020 WSCP. IRWD held a public hearing to adopt the 2020 WSCP on Monday, June 28, 2021. The public hearing provided an opportunity for the public to provide input to the plan before it was adopted. No comments were received from the public. The adoption of the 2020 WSCP was combined with the public hearing. Following the public hearing, IRWD's Board of Directors adopted the 2020 WSCP by Resolution No. 2021-11. IRWD's signed adoption resolution is included under **Appendix J**.

The final adopted WSCP will be made available no later than 30 days after adoption by the IRWD Board. In accordance with the CWC, IRWD shall make available the WSCP to our customers as well as any city or counties supplied water by IRWD. The 2020 WSCP Update shall be submitted to DWR and the California State Library as part of the 2020 UWMP Update process.

Exhibit A – Draft Water Shortage Contingency Resolution

RESOLUTION NO. 20xx- ____

RESOLUTION OF THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT DECLARING WATER SHORTAGE LEVEL _____

Irvine Ranch Water District (“**IRWD**”) has adopted Rules and Regulations for Water, Sewer, Recycled Water, and Natural Treatment System Service (the “**Rules and Regulations**”).

Section 15 of the Rules and Regulations, entitled “Water Conservation and Water Supply Shortage Program and Regulations” (“**Section 15**”) was adopted by this Board of Directors on *[date]*, following a public hearing held upon notice duly given and based on findings of necessity for the adoption of the water conservation program contained in said Section 15, and a summary was duly published following adoption, in accordance with California Water Code Section 375.

The Board of Directors has adopted an amended Water Shortage Contingency Plan, which serves as the resource and supporting document for the implementation of Section 15.

Section 15 provides that the Board of Directors may declare levels of shortage and describes six levels of shortage with approximate ranges of conditions and the corresponding water use reductions to be achieved.

The Water Shortage Contingency Plan describes an illustrative list of measures that may be implemented in each level, and Section 15 further provides that at the time of declaring a level of shortage conditions, the Board in its discretion will determine the particular response measures that will be implemented, which may include measures in a different level from the level(s) shown or other measures in lieu of or in addition to those measures.

Section 15 provides that the application of shortage level response measures or restrictions may vary as to type of water service, and that through the declaration of a shortage level, the Board will determine and set forth how and to what extent, if any, the implementation of measures or restrictions on potable water service will be applied to non-potable water services furnished by IRWD.

Because the water reduction mandate only applies to potable water, IRWD’s response measures in this declaration address potable water.

Section 15 is intended to complement and be used in tandem with the allocation-based tiered pricing structure implemented as a demand management measure on an ongoing basis as part of the District’s rates and charges.

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As contemplated in Section 15 and the Water Shortage Contingency Plan, the Board has, by separate action through the adoption of Resolution No. _____, implemented demand management measures through adjustments in the allocation-based pricing structure.

THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT
THEREFORE RESOLVES AS FOLLOWS:

Section 1. The Board of Directors hereby finds that a significant water shortage condition, involving a [_____] % shortage, exists and declares that Level [_____] to be in effect as of the date of this Resolution.

Section 2. The following measures shall be in effect during the Level [_____] shortage condition, including measures that are always in effect [*and measures that were implemented in Level[s] One [through ____]*].

Measures Always in Effect

[INSERT HERE]

Measures to Remain in Effect from Level[s] One [through ____]

[INSERT HERE]

Additional Measures in Effect in Level [____]

[Section 3. *The declaration of water shortage condition Level _____, made by this Board of Directors on [date], is hereby rescinded and superseded by this declaration.*]


This resolution is being signed and adopted on [date].


Signature _____

•

Exhibit B – EPA Emergency Response Plan (ERP) Certification Receipt and Confirmation

United States Environmental Protection Agency

 Advanced Shared Services (/AWIA/Home/SCSHandoff)

 Contact Us (/AWIA/Home/Contact)

America's Water Infrastructure Act (Sec. 2013(b)) / Emergency Response Plan Certification Statement

I Emilyn Zuniga hereby certify that IRVINE RANCH WATER DISTRICT, serving a population of 450526, has completed an emergency response plan that incorporates findings of the risk and resilience assessment conducted under Section 2013(a) of America's Water Infrastructure Act of 2018 for such system (and any revisions thereto). This emergency response plan includes:

- Strategies and resources to improve the resilience of the system, including the physical security and cyber security of the system;
- Plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water;
- Actions, procedures, and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals, including the development of alternative source water options, relocation of water intakes, and construction of flood protection barriers; and
- Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.

Date of certification: 09/25/2020

The U.S. EPA and the authorized official signing this document agree that this certification may be signed electronically. The parties agree that the typed electronic signature that appears on this certification is the same as a handwritten signature for the purposes of validity, enforceability, and admissibility.

Once you have submitted your emergency response plan certification, EPA will send an email acknowledging receipt of your certification. If you have any problems, please email us at dwresilience@epa.gov (<mailto:dwresilience@epa.gov>).

[Advanced SCS Home \(/AWIA/?area=\)](#) | [Privacy and Security Notice \(/AWIA/Home/PrivacyNotice?area=\)](#)

<http://www.epa.gov/accessibility/statement.htm> | [Terms & Conditions \(/AWIA/Home/TermsAndConditions?area=\)](#)



Exhibit C – HSG Technical Memo



Technical Memorandum

TO: California Department of Water Resources

FROM: Allen Shinbashi, Irvine Ranch Water District

SUBJECT: Urban Water Management Plan Seismic Assessment

On March 23rd, 2020, Irvine Ranch Water District certified its Risk and Resilience Assessment (RRA) with the Environmental Protection Agency to comply with America’s Water Infrastructure Act of 2018. The RRA is a multihazard assessment to identify the resilience of the water system’s critical infrastructure. The seismic assessment conducted for the purposes of the RRA is being used to satisfy the Urban Water Management Plan (UWMP) seismic requirements. The RRA includes sensitive information to the utility that could compromise its security if released to the public and is therefore protected by the Critical Infrastructure Protection Act of 2001. This technical memo has been created to summarize the seismic assessment results. The risk classifications for earthquakes impacting the identified critical assets are listed in **Table A** with high representing those assets that face the highest risk to seismic activity and low representing the assets that face the lowest risk to seismic activity. The seismic mitigation plan for the critical assets identified as high risk are listed under **Mitigation Recommendations**.

Table A. Seismic Risk by Asset

Asset Name	Risk Classification
Distribution System	High
Michelson Operations Center	Medium
Lake Forest Baker Filtration	Medium
Dyer Road Ground Water System	Low
Chemical Storage Building	Low
Headquarters Building	Low
Central Irvine Zone 1 Reservoir	Low
Foothill Zone 6 Reservoir	Low
LAWRP Fuel Facility	Low

Asset Name	Risk Classification
Coastal OC 63-Zn.4 Pump Station	Low
Santiago Canyon Zone 5	Low
Portola Hills Zone 8 Reservoir	Low
Portola Hills Zone 9 Reservoir	Low
Coastal Zone 4 Reservoir	Low
Foothill Zone 6A Reservoir	Low
Modjeska Reservoir	Low
Quail Hill Zone 3 Reservoir	Low
Lake Forest Emergency Storage #1 Zone 1 & Zone 2 (4) Reservoir	Low
Read Reservoir	Low
Coastal Zone 2 Reservoir	Low
Single Source Supply Transmission Mains	Low
Williams Canyon Reservoir	Low
East Irvine Zone 1-3 Pump Station	Low
Foothill Zone 4-6 Pump Station	Low
Portola Hills Zone 8-9 Pump Station	Low
Portola Hills Zone 6-8	Low
Lake Forest Zone 1-2 West Pump Station	Low
Shaw Reservoir	Low
Quail Hill Zone 3-4 Pump Station	Low
Dyer Road PDF	Low
Dyer Road IDF	Low
Turtle Rock ZN 3-4 Pump Station	Low
Dyer Road GW Complex LF	Low
Shaw Pump Station	Low
Read Pump Station	Low
William Canyon Pump Station	Low
Manning Pump Station	Low
Benner Reservoir	Low
Coastal Zone 4-6 Pump Station	Low
Cabinland Booster Pump Station	Low

Mitigation Recommendations:

To mitigate potential seismic risk to assets considered as high risk, the following actions are recommended including:

- 1) Regularly update and exercise IRWD’s Emergency Response Plan (ERP).
- 2) Routinely update the IRWD Earthquake Incident Specific Response Plan sections of the IRWD Emergency Operations Plan.
- 3) Consider installation of additional isolation valves in the water distribution system where possible.
- 4) Consider upgrading the most vulnerable pipeline sections, near major fault lines, with seismic-resistant pipes.

Exhibit "B"

RESOLUTION NO. 2021- ____

RESOLUTION OF THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT DECLARING WATER SHORTAGE LEVEL TWO (SIGNIFICANT SHORTAGE CONDITION)

A. Irvine Ranch Water District (“**IRWD**”) has adopted Rules and Regulations For Water, Sewer, Recycled Water, and Natural Treatment System Service (the “**Rules and Regulations**”).

B. Section 15 of the Rules and Regulations, entitled “Water Conservation and Water Supply Shortage Program and Regulations” (“**Section 15**”) was adopted by this Board of Directors on December 16, 2019, following a public hearing held upon notice duly given and based on findings of necessity for the adoption of the water conservation program contained in said Section 15, and a summary was duly published following adoption, in accordance with California Water Code Section 375.

C. The Board of Directors has adopted an amended Water Shortage Contingency Plan, which serves as the resource and supporting document for the implementation of Section 15.

D. Section 15 provides that the Board of Directors may declare levels of shortage and describes six levels of shortage with approximate ranges of conditions and the corresponding water use reductions to be achieved.

E. The Water Shortage Contingency Plan describes an illustrative list of measures that may be implemented in each level, and Section 15 further provides that at the time of declaring a level of shortage conditions, the Board in its discretion will determine the particular response measures that will be implemented, which may include measures in a different level from the level(s) shown or other measures in lieu of or in addition to those measures.

F. On July 8, 2021, the Governor issued Executive Order N-10-21 finding that continuing severe statewide drought conditions require a voluntary reduction of 15 percent water use from 2020 levels’.

G. Section 15 provides that the application of shortage level response measures or restrictions may vary as to type of water service, and that through the declaration of a shortage level, the Board will determine and set forth how and to what extent, if any, the implementation of measures or restrictions on potable water service will be applied to non-potable water services furnished by IRWD.

H. Because the state’s water reduction target is voluntary, IRWD’s response measures in this declaration only address discretionary uses of potable water.

I. Section 15 is intended to complement and be used in tandem with the District’s water budget based tiered pricing structure implemented as a demand management measure on an ongoing basis as part of the District’s rates and charges.

THE BOARD OF DIRECTORS OF IRVINE RANCH WATER DISTRICT THEREFORE RESOLVES AS FOLLOWS:

Section 1. In response to the Governor’s call for a voluntary 15 percent reduction, the Board of Directors hereby finds that a significant statewide water shortage condition, involving a 11–20% shortage, exists and declares that a Level Two (Significant) water shortage condition to be in effect as of the date of this Resolution..

Section 2. The following measures are in effect during the Level Two shortage condition, including measures that are always in effect and all Level One measures:

A. Measures Always In Effect and Level One Measures

- (1) *No Gutter Flooding* - No person shall cause or permit any water furnished to any property within the District to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device into any gutter or otherwise to escape from the property if such running or escaping can reasonably be prevented.
- (2) *Eliminate Leaks* - No person shall permit leaks of water that he has the authority to eliminate.
- (3) *No Washing Hard Surface Areas* - Washing down hard or paved surfaces, including, but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards.
- (4) *No Waste* - No person shall cause or permit water under his control to be wasted.
- (5) *Restrictions on Washing of Motor Vehicles* - No person shall wash a motor vehicle with a hose not fitted with a shut-off nozzle or similar functioning device
- (6) *No Use of Potable Water in a Fountain.* No person shall use potable water in a fountain or other decorative water feature, except where the water is recirculated or recirculation would cause a public health safety or sanitary hazard.
- (7) *No Application of Potable Water to Outdoor Landscapes* - No person shall apply potable water to outdoor landscapes during and within 48 hours of measureable rainfall.
- (8) *No Irrigation of Public Street Medians* – No person shall use potable water to irrigate ornamental turf on public street medians.

- (9) *No Single-Pass Cooling* - No person shall operate a single pass cooling system.

B. Measures In Effect In Level Two

- (1) *Showering* - Each person is encouraged to restrict showers to five minutes or less; fill the bath tub no more than one-quarter full.
- (2) *Running Water* - Customers are encouraged to refrain from running water unnecessarily while shaving, brushing teeth, bathing, preparing food, etc.
- (3) *Washing Machines and Dishwashers* - Customers are encouraged to run only full loads of laundry and dishes.
- (4) *Drought Messaging* – The General Manager shall undertake outreach to customers to encourage increased general conservation. These outreach efforts may include preparing and publicizing dedicated pages on IRWD’s website, information provided in the *Pipelines* customer newsletter, and making drought-related presentations to groups such as city councils, community associations, chambers of commerce, business groups, and schools.
- (5) *Landscape watering* – Customers shall reduce discretionary potable landscape watering.
- (6) *Commercial car washes* - Commercial conveyor and in-bay car wash systems must reuse water if equipped to do so, and shall repair and maintain the equipment in a manner that allows for the operation of the reuse system.
- (7) *Common Interest Developments* - No owner of a separate interest within a common interest development shall be fined or assessed by the association for reducing or eliminating the watering of vegetation or lawns, unless the association uses only recycled water for irrigation of the common interest development’s common areas and recycled water distribution facilities are available at the irrigated area of the separate interest.
- (8) *Targeted Conservation Efforts* – Staff shall ensure that customers in the wasteful tier will be contacted via letter, telephone, e-mail and other means and offered to help identify the source of the over-budget use and provide recommendations to reduce their use to within their budget.

Section 3. The Board hereby directs the General Manager to take any other measures set forth in the Water Shortage Contingency Plan or the Rules and Regulations that he determines, in

his reasonable discretion, to be necessary or appropriate to target and reduce discretionary uses of potable water within the District's service area.


This resolution is being signed and adopted on September 27, 2021.

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Hanson Bridgett, LLP

By: _____
General Counsel

September 27, 2021
Prepared by: K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook 

ACTION CALENDAR

CONSULTANT SELECTION TO UPDATE THE IRWD ENERGY AND GREENHOUSE GAS MASTER PLAN

SUMMARY:

Consistent with IRWD's Board-approved 2021 Goals and Target Activities, staff is preparing to update the District's Energy and Greenhouse Gas Master Plan. The plan will identify a suite of cost-effective projects to reduce current and future energy costs and to reduce greenhouse gas (GHG) emissions. A Request for Proposal (RFP) to perform the work was circulated and three proposals were received. Staff recommends the Board authorize the General Manager to execute a Professional Services Agreement with NV5 Global, Inc. in the amount of \$307,995 to update IRWD's Energy and Greenhouse Gas Master Plan.

BACKGROUND:

In 2012, IRWD prepared an Energy and Greenhouse Gas Master Plan that identified and recommended a portfolio of cost-effective projects to reduce the District's energy use, and as required under future regulatory conditions, reduce GHG emissions. Since that time, IRWD has constructed several major facilities and has implemented a number of projects and programs to address IRWD's energy goals. These projects and programs include:

- 6.25 Megawatt (MW) Energy Storage Facilities;
- Wells 21 & 22 Water Treatment Plant;
- Baker Water Treatment Plant;
- 1.0 MW Baker Solar Project;
- Biosolids and Energy Recovery Facilities; and
- Southern California Edison-IRWD Water Energy Pilot Program.

Updating Energy and Greenhouse Gas Master Plan:

IRWD's Board-approved 2021 Goals and Target Activities included an item to update the District's Energy and Greenhouse Gas Master Plan. In accordance with this item, staff proposes to update the plan in two phases. Phase 1 will reevaluate IRWD's historic and future energy use and GHG emissions and identify up to 20 potential projects that could achieve further cost-effective reductions in energy use and emissions. This phase will include an assessment of any external funding sources that could be leveraged to implement the projects, as well as any potential regulatory or legislative constraints that may impact energy use or GHG emissions. A Phase 1 report will summarize the work effort and recommend up to five projects for further analysis in Phase 2. Phase 2 of the project will analyze the recommended projects and provide a basis of design for each that will include a project description, cost estimate, schedule, estimated

energy savings with net present values, and expected GHG reductions. A final Energy and Greenhouse Gas Master Plan will be prepared that summarizes the key findings and results from both phases of work. Following is an overview of the consultant selection process for performing the required work.

Consultant Selection Process:

Staff issued an RFP to five firms to update IRWD's Energy and GHG Master Plan. Proposals were received from TerraVerde Energy, AECOM and NV5 Global, Inc. NV5 originally proposed the project as a joint venture with Sage Energy Consulting, but the two firms have since formally merged under NV5. After completing a thorough evaluation of the written proposals and conducting interviews with each firm, staff recommends the selection of NV5 to complete the work. Key strengths of NV5's proposal are as follows:

- NV5 has deep knowledge of the solar, battery storage and microgrid markets with significant experience in distributed energy generation projects in California;
- NV5 demonstrated the ability to develop and recommend project opportunities for IRWD, as well as identify and overcome challenges based on NV5's extensive knowledge of the water and wastewater industry;
- NV5 proposes to develop a real-time and historic energy use database that will assist IRWD with identifying and evaluating potential projects;
- NV5 will use industry-leading financial tools and Monte Carlo analysis to evaluate the financial performance and risks associated with potential projects;
- The NV5 team brings resources with specialized expertise in energy efficiency, renewables, water and wastewater infrastructure, water engineering, hydraulic analysis and design as well as mechanical and electrical systems;
- NV5 will utilize its active engagement and depth of experience in state and federal legislation, as well its understanding of energy rates and tariffs, to ensure IRWD is able to optimize and maximize the long-term benefits of energy projects; and
- NV5's scope of work and level of effort is consistent with staff expectations.

Staff has prepared a consultant selection matrix, which is provided as Exhibit "A". NV5's scope of work is provided as Exhibit "B".

FISCAL IMPACTS:

IRWD's Board-approved Fiscal Year 2021-22 budget includes Project 11799, which provides for water and energy studies. The existing budget is sufficient to fund preparation of an update to IRWD's Energy and Greenhouse Gas Master Plan.

ENVIRONMENTAL COMPLIANCE:

This study 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 exemption for planning studies.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on September 22, 2021.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH NV5 GLOBAL, INC. IN THE AMOUNT OF \$307,995 TO PREPARE AN UPDATE TO IRWD'S ENERGY AND GREENHOUSE GAS MASTER PLAN.

LIST OF EXHIBITS:

Exhibit "A" – Consultant Selection Matrix
Exhibit "B" – NV5 Global Inc. Scope of Work

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EXHIBIT "A"

Energy & Greenhouse Gas Master Plan Consultant Selection Matrix					
Item	Description	Weights	TerraVerde	AECOM	NV5
A	<u>TECHNICAL APPROACH</u>	60%			
1	Project Approach	20%	3	2	1
2	Scope of Work	15%	3	2	1
3	Proposal Completeness	15%	3	2	1
4	Schedule	10%	3	1	2
	<u>Weighted Score (Technical Approach)</u>		1.80	1.10	0.70
B	<u>QUALIFICATIONS AND EXPERIENCE</u>	40%			
			1	2	3
1	Project Manager		Jen Petherick, P.E. Not Stated	Li Luan, LEED AP 18 yrs Exp	Ilan Fuss 11 yrs Exp
2	Principal-in-Charge		Kevin Ross Not Stated	Calum Thompson, P.E. 12 yrs Exp	Chris Halpin, P.E. 36 yrs Exp
3	Project Team	25%	3	2	1
4	Similar Projects	10%	3	2	1
5	Firm's Relevant Experience	10%	3	1	2
	<u>Weighted Score (Experience)</u>		1.05	1	0.45
	<u>COMBINED WEIGHTED SCORE</u>		1.50	0.90	0.60
Ranking of Consultants					
C	<u>SCOPE OF WORK</u>				
TASK			FEE	FEE	FEE
1.1	Phase 1 Management		\$17,513	\$25,510	\$12,840
1.2	Phase 1 Meetings		\$13,525	\$16,940	\$24,838
1.3	Data Collection		\$24,825	\$19,920	\$39,702
1.4	Historic and Future Energy Use and GHG Emissions		\$13,530	\$22,040	\$6,840
1.5	Project Funding Sources		\$2,735	\$18,400	\$6,145
1.6	Regulatory Constraints and Opportunities		\$7,705	\$12,360	\$7,235
1.7	Potential Projects		\$11,825	\$50,770	\$37,480
1.8	Phase 1 Report		\$4,835	\$29,380	\$17,820
1.9	Updated Phase 2 Scope of Work		\$1,660	\$9,300	\$9,500
	SUB-TOTAL PHASE 1		\$98,153	\$204,620	\$162,400
2.1	Phase 2 Management		\$8,757	\$15,100	\$9,850
2.2	Phase 2 Meetings		\$4,625	\$11,610	\$16,785
2.3	Project Evaluation		\$54,345	\$65,320	\$97,320
2.4	2021 Energy and GHG Master Plan Report		\$9,065	\$34,210	\$21,640
	SUB-TOTAL PHASE 2		\$76,792	\$126,240	\$145,595
	TOTAL PROFESSIONAL SERVICES, FEES		\$174,945	\$330,860	\$307,995
	Total Hours		1,112	2,118	1,464
		Avg \$/hr	\$157	\$156	\$210
D	<u>OTHER</u>				
	Conflict of Interest		No	No	No
	Joint Venture		No	No	No
	Exceptions taken to IRWD Std. Contract		No	No	No
	Insurance (Professional & General Liability)		Yes	Yes	Yes

Note: This page is intentionally left blank.

EXHIBIT "B"

NV5 PROPOSAL FOR: IRVINE RANCH WATER DISTRICT 2021 ENERGY AND GREEN HOUSE GAS MASTER PLAN

DUE BY DATE: JULY 22, 2021, 3:00 P.M.

Prepared for:

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July 22, 2021



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**Re: Request for Proposals – 2021 Energy and Green House Gas Master Plan
NV5 Proposal No. P63021-0005184.00**

Dear Mr. Weghorst:

NV5 Energy Efficiency Services (NV5EES) (JBA Consulting Engineers, Inc. dba NV5 Consultants is our legal name) and Sage Energy Consulting (Sage), the NV5 Team, is pleased to present this proposal in response to Irvine Ranch Water District's (IRWD) referenced Energy and GHG Master Plan RFP. Our team's core business is working as owner's representative to public agencies, providing energy planning, feasibility analysis, procurement, implementation, and operational support on energy efficiency, renewable energy, and resilience projects.

NV5 has been helping Federal, State, and local governments and utilities develop, implement, and manage successful energy programs since 2000. We are experts in the technologies utilized in water and wastewater treatment facilities, and also in the leading-edge business models being used to maximize the value of Owner's assets, such as Energy Savings Performance Contracts, Public Private partnerships, Solar PPAs, etc. and achieving carbon reduction targets. Since 2009, Sage has been trusted by more than 120 California public agencies and has developed unmatched expertise in distributed energy projects in California. Our conservative approach, financial acumen, market knowledge, and end to end project services are unique and were developed over the last decade to meet our client's needs for low-risk, high performing projects.

We are confident that our combination of experience and technical and financial expertise make the NV5 team the perfect partner for the District's energy projects. We encourage you to contact any of our clients as references and look forward to the opportunity to work with you. Should you need any additional clarity or have any questions, please do not hesitate to contact me at 860.328.0535 or Chris.halpin@nv5.com.

Best Regards,

Chris Halpin

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SCOPE OF WORK

The NV5 team has extensive experience performing feasibility reviews and investment-grade feasibility studies to evaluate the technical and financial aspects of proposed projects. We typically begin with a desktop Feasibility Review (much of the work in Phase 1 of this effort aligns with work that we perform during the Feasibility Review) to establish project criteria and identify fatal flaws at potential sites or for potential project types, before committing significant evaluation time and resources in a detailed study. The following Investment-Grade Feasibility Study (IGFS), which aligns with Task 3 of Phase 2, is a deep dive into site energy usage and potential for energy services and assets at candidate sites. The IGFS provides the technical and financial detail necessary to make informed decisions about whether to pursue a project and forms the basis of a following competitive procurement request for qualifications/proposal.

PHASE 1

Task 1: Phase 1 Project Management

1.1 Produce monthly progress report that summarize progress and costs associated with that month’s activity. The progress report will include each task with an estimate of the percent completed along with any issues or concerns that may impact the consultant’s ability to deliver the scoped activities within the contracted budget and schedule.

The NV5 Team has assigned Ilan Fuss as Project Manager. Mr. Fuss has 11 years of experience in renewable energy with a focus on project management, solar asset management, project finance, and financial modeling. He will be assisted by Dave Wyllie, P.E., CEM, LEED AP, USDOE PF. Dave has over 26 years of experience in the energy efficiency industry managing many multi-million-dollar projects for NV5. He is currently leading our efforts for the LA County Sanitation Districts, City of Phoenix, VA hospitals in Los Angeles, Las Vegas, Shreveport, LA, and several municipalities and school districts in the west.

1.2. NV5 will prepare the monthly progress report, as well as submit meeting minutes on a weekly basis for IRWD’s review and concurrence.

Task 2: Phase 1 Project Meetings

2.1 Schedule and hold monthly meetings with the District to discuss monthly progress report and upcoming scheduled items. As described above, the NV5 PM will facilitate the formal monthly meeting with the District to discuss progress and imminent items. However, we feel that more frequent interactions always deliver a superior quality deliverable. We will discuss these proposed communication protocols and other critical aspects of setting proper expectations for all stakeholders at the kickoff meeting. It is of paramount importance that all IRWD’s internal stakeholders, especially those with “veto” authority over capital projects, are involved from the very beginning of the project.

We recommend weekly for the first few months, and then go to bi-weekly calls/meetings for the remainder of the project development phase. It is imperative that IRWD and the NV5 Team closely monitor the progress during the development of the plan, as there will be many internal and external stakeholders, who all have different perspectives, needs, objectives, and motivations. There are many opportunities to make interim decisions that will ensure a successful project. It will also allow for continuous review of the proposed scope of work, energy savings calculations, etc.

Task 3: Data Collection

Approach: Our overall approach to data collection is to begin with a thorough review of relevant past studies and reports and then hold a project kickoff meeting with IRWD staff to discuss project goals, constraints, criteria, etc. and identify key IRWD staff who will be engaged in the project and be available to provide further background information on the potential projects. As part of the review of past studies, we will identify any key assumptions or informational needs that may require validation or updating.

Following the project kickoff meeting, we will conduct site walks with IRWD staff to assess existing equipment and facilities as well as siting constraints for future electrical equipment.

SCOPE

The project kickoff meeting and site walks will provide us with a significant amount of information as well as help us identify further informational needs. We've developed a comprehensive data needs form that will be customized based on the identified project parameters and will assist in tracking the receipt of this information.

The NV5 team will then begin a series of interview with IRWD staff members to complete a deeper dive into understanding specific project goals and constraints.

Collecting detailed historical energy consumption data is critical to establishing baseline energy profiles and identifying trends, with 15-minute interval data as the gold standard for conducting investment grade energy analyses. The accuracy of our analysis improves with the quantity of historical data we have and different sources may have differing quantities of data. We can access this data directly from SCE, through a third-party such as UtilityAPI, or directly from IRWD if this data is stored on IRWD servers. This multi-pronged approach will ensure we are gathering as much energy data as possible.

3.1 Discrete tasks are noted below:

- Review reports, including the Energy and Green House Gas Master Plan (July 2012), Southern California Edison Water-Energy Pilot with IRWD- Phase 1 Report (March 2017), Green House Gas Inventory for 2019 (December 2020), Green House Gas Inventory for 2020 (expected to be completed by July 2021), Embedded Energy Plan 2019 Update (February 2020), Water Resources Master Plan, 2020 Urban Water Management Plan, Energy Efficiency Master Plan and Biosolids Handling Energy Audit (October 2009), Sewage Treatment Master Plan (2021), and IRWD Demand Forecast (information to be provided as needed);
- Conduct site visits to evaluate potential system component locations/limitations and to investigate electrical infrastructure
- Prepare and submit data needs form
- Perform personnel interviews to discuss goals, needs, constraints, preferences, potential changes in energy consumption, and other issues that might affect projects
- Prepare and submit utility authorization forms

Task 4: Evaluation of Historic and Future Energy Use and GHG Emissions

Approach: The NV5 team evaluates historical consumption data to establish trends in energy use. Future consumption, including any increases or decreases in load that can be expected from planned improvement projects or changes in facility use, are used to adjust historical consumption to account for expected future consumption. This analysis is preferably done with 15-minute interval level data to accurately model peak demand. In the absence of 15-minute data, 60-minute data can be used but is inherently less precise. Where sites have more than one meter, this exercise will be repeated for each meter (either hourly or 15-minute). Efficiency measures should also be explored and considered in the future load where applicable. The historic and future energy use, along with assumptions regarding expected changes in use, will be compiled into a workbook use for use in evaluating potential projects. With the future consumption established, the initial size of energy systems to offset and/or “shape” the load at the site can then be estimated to inform the next scope item. For instance, a PV system sized to offset 90% of the annual site load or a BESS sized near the max demand for the site are helpful rules of thumb to assess the upper end of potential energy projects at a site. Discrete tasks are noted below.

4.1 Collect and review IRWD’s historic (2010-2019) power use and GHG estimates. The NV5 Team will collect IRWD’s historic (2010-2019) power, and fossil fuel use and GHG estimates, and review them to learn about the District’s energy use profile baseline and changes over time. NV5 will ensure all GHG estimates meet all California Environmental Quality Act (CEQA) guidelines for GHG accounting and reporting. This review will give NV5 a better idea of the nature of IRWD’s future “carbon risk”, which can focus our efforts during the development of a plan to mitigate and then eliminate that risk over time.

SCOPE

4.2 Summarize IRWD’s total historic energy use for each of the facilities identified in the table below.

#	Table 1.1: Energy and GHG Facility Types
1	Michelson Water Reclamation Plant (MWRP)
2	Los Alisos Reclamation Plant (LAWRP)
3	Sewage Lift Stations
4	Deep Aquifer Treatment Plant (DATS)
5	Irvine Desalter Plant (IDP-PTP)
6	Wells 21 & 22 Desalter (Wells 21 & 22)
7	Baker Water Treatment Plant (Baker)
8	Dyer Road Well Field (DRWF)
9	Other Potable Supply (Well OPA-1, Well 115, Manning WTP, etc.)
10	Irvine Desalter Plant Non-Potable (IDP-NP)
11	Other Non-potable supply (ET-1, ET-2, etc.)
12	El Toro Shallow Groundwater Unit (SGU)
13	Vehicles
14	IRWD HQ (Sand Canyon Ave)
15	IRWD Operations (Riparian Way)
16	IRWD Investment Properties
17	San Joaquin Marsh
18	Peters Canyon Diversion Project
19	Other Natural Treatment Systems
20	Michelson Biosolids Plant (Biosolids)

4.3 Based on the results of Task 3: Data Collection, identify near-term planned projects and system operations that are approved and currently planned for the future.

Once the energy use data have been analyzed, the NV5 team will review the previous reports that IWRD commissioned, to learn more about the energy using systems in IRWD’s portfolio. We will conduct focused site investigations of all IRWD energy using assets to help understand existing conditions, chronic problems and operational challenges, etc. We will interview IRWD facilities, operations, and maintenance personnel to gain their input into the analysis. Depending on the amount and quality of the data that has been gathered from the initial task and the site visits, NV5 may request interval data from the electric utility in order to understand the variations in the load profiles across the portfolio of assets. NV5 may also deploy data loggers to get more granular operational and energy use data to inform our development of near, and long term projects. If appropriate, NV5 will also apply AI based analytics to the systems to detect faults, and determine short term savings opportunities.

In close consultation with IRWD staff, NV5 will develop a list of energy saving operational changes and near term projects that the District can pursue. If IRWD staff have already identified energy projects, we will review them for the technical and financial accuracy. We will also work closely with SCE, and other utility providers, and State agencies to incorporate incentives and rebates into the technical and financial planning for the measures.

4.4 The NV5 Team will use the information from the previous task to estimate current and future (2020-2035) energy use and GHG emissions for the existing and near-term planned projects and system operations. We will use the same approach for new measures and projects as described above. The NV5 Team will leverage our decades of experience collaborating closely with our clients to develop leading edge ideas, approaches, and potential projects that meet technical and financial objectives. In order to optimize the project development planning process NV5 will assist IRWD select the business models that will be used for detailed development and implementation.

They may include:

- Traditional design/bid/build (D/B/B)
- Design/build (D/B)
- Design/bid/build/own/operate/manage (DBOOMB)
- Energy Savings Performance Contracting (ESPC)
- Energy as a Service (EaaS)
- Other P3 delivery vehicles

4.5 Document the results of Tasks 3 and 4 in a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.

4.6 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 5: Identification of Project Funding Sources

Approach: With the broad range of projects under consideration, there are many potential sources of funding for both project development and ongoing project support. The NV5 team frequently assists with obtaining financing, grants, and incentives for clients and is comfortable taking the lead in identifying and securing funding sources.

For energy projects, federal, state, and local grants are available from time to time for specific technologies. At the federal level, the EPA and DOE have intermittent grant programs, though nothing is active at the moment. At the state level, California provides direct project development funding through the Self Generation Incentive Program (SGIP) for approved renewable energy generation and storage technologies such as solar thermal, wind, fuel cells, and battery energy storage. The California Energy Commission also has a limited 1% revolving loan program that could be used by IRWD to finance energy efficiency and generation projects. For Electric Vehicle (EV) fleet transitions and charging infrastructure (EVSE), there are multiple grant opportunities including CEC, CARB, HVIP, utility, and local air board grants. In addition, EV charging coupled with local renewable generation such as solar PV, can increase the production of Low Carbon Fuel Standard (LCFS – a California carbon market for transportation fuels and vehicles) that can be used to significantly lower the cost of ongoing operations, at least through 2030.

The primary source of project funding comes from project financing. The most common financing sources for public agency energy projects are third-party financing structures, such as PPAs and leases. The NV5 team regularly procures and negotiates these contracts for clients, which indirectly leverage federal investment tax credits and accelerated depreciation for public entities. The NV5 team has developed financing contract term sheets for public clients to assist in negotiating these arrangements. Similarly, the NV5 team has assisted with municipal lease arrangements, tax exempt bonds, CEC loans, ESCO contracts, and other financing mechanisms.

The NV5 team has extensive experience identifying project funding sources for renewable, efficiency, and resilience projects. There are many incentives, rebates, grants, and loans available to public entities like IRWD. The funding sources that may be good matches for this project include:

- Southern California Edison (SCE) energy efficiency programs for businesses, Net Energy Metering for solar business customers, Self-Generation Incentive Program (SGIP) offers battery storage rebates for businesses, and the Charge Ready Program offers EV charging equipment incentives.
- California Infrastructure Bank CLEEN Program. The CLEEN Center provides direct public financing to Municipalities, Universities, Schools and Hospitals (MUSH borrowers) to help meet the State's goals for greenhouse gas reduction, water conservation and environmental preservation. The CLEEN Center offers two programs: the Statewide Energy Efficiency Program (SWEEP) and the Light Emitting Diode Street Lighting Program (LED). Financing can be through a direct loan from IBank in amounts from \$500 thousand to \$30 million.
- Federal Emergency Management Agency Building Resilient Infrastructure and Communities (BRIC) Program. Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.

SCOPE

- US Environmental Protection Agency Clean Water State Revolving Fund (CWSRF).
The CWSRF will provide low interest loans for Green Infrastructure Projects. Released in December of 2015, the policy promotes CWSRF investment in green infrastructure projects and broadly encourages investment in sustainable infrastructure. Amongst the variety of sustainable projects that CWSRF programs finance, green infrastructure offers flexible, innovative solutions for stormwater management.
- CARB Fleet Vehicle Incentives
- California Air Resources Board offers fleet vehicle point-of-sale incentives up to \$198,000 per truck, or up to 90% of vehicle costs through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). On August 10, the program funding status is up to \$83 million will be available.
- Many Third-Party Financing opportunities are available for energy efficiency, renewables, and resilience projects IRWD is interested in implementing. They include:
 - o Tax Exempt Lease Purchase (TELP) financing which is used to fund over 90% of municipal and school district ESPC projects in the US.
 - o Public Private Partnership (P3) financing is available for comprehensive projects such as design/build/own/operate/manage (DBOOM) and other styles of transferring the financial risk from IRWD to a third party's balance sheet. The third party would develop, finance, implement, and manage a major infrastructure upgrade such as bio-gas digester power plant, solar +Battery Energy Storage (BESS) plant, etc. asset. IRWD would only have an "Availability Payment" to pay every year, avoiding a downgrade to its financial health score for the rating agencies such as Fitch, Standard & Poors, etc.

The NV5 team analyzes and optimizes incentives for each project, taking into account ITC tax treatment for third-party-financed projects and managing incentive and interconnection applications to secure grandfathering and funding levels for various incentive types. As a Qualified Reporting Entity (QRE) with WREGIS, we also assist with REC and LCFS management for our clients. The NV5 team can register RECs on behalf of clients and advise/assist clients in monetizing or retiring RECs, obtaining LCFS credits, or pursuing Green-E swaps for RECs.

During project feasibility, the NV5 team examines existing, potential, and upcoming tariffs to optimize energy costs with current consumption trends and with all adopted energy measures. The team constantly monitors working groups and proceedings at the California Public Utilities Commission (CPUC) for anticipated changes to energy tariffs over time. Two examples of this are:

1. The ongoing NEM 3.0 proceeding which is currently scheduled for final decision by the Commission in January 2022. The team has modeled various party proposals as they have been put forward (as well as potentially impactful legislation such as AB 1139) and has run models with the CPUC's recently updated Avoided Cost Calculator (ACC). From this ongoing work and rebuttal testimonies submitted the week of July 11, the team believes that NEM 3.0 will result in a dramatic reduction in the value of behind the meter solar generated energy, reducing its value to 50% or less of current NEM 2.0. The team is advising our clients to grandfather upcoming solar PV projects on the NEM 2.0 tariff by submitting interconnection applications in the early November timeframe to allow time for the applications to be deemed complete by the utility. The team stands ready to support this effort.
2. For three years prior to the PG&E 2017 GRC Phase 2 proceeding, the team anticipated and modeled in solar avoided cost reductions stemming from changes to time of use (TOU) periods and rate tariffs. During that proceeding, team members represented RES-BCT customers as lead technical consultant in a successful protest and hearings which resulting in RES-BCT customers (public agencies) being grandfathered on legacy rates to ensure that financial returns targets could be met.

- 5.1 Identify external funding sources such as grants, loans, and subsidies that IRWD should consider for projects to reduce current and future energy use and GHG emissions. Rank the funding sources according to their potential benefit and likelihood of eligibility.
- 5.2 Perform high-level tariff modeling using consumption and production data. Review avoided value of energy generated on available and future tariffs (if known) within the range of potential system sizes. Determine optimal sizing, locations and tariff(s).

- 5.3 Perform high-level financial modeling with multiple financing scenarios as determined with IRWD.
- 5.4 Document results and provide a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.
- 5.5 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 6: Identification of Regulatory Constraints and Opportunities

The NV5 team actively follows incentive discussions and state and federal legislation to ensure that our clients make informed decisions to maximize the long term benefits of their energy projects. As mentioned in Task 5 above, the current NEM 2.0 scheme is scheduled to be superseded by NEM 3.0 within the next year, which we anticipate will significantly reduce the value of behind-the-meter retail solar PV generation. The NV5 team will aggressively manage interconnection applications to ensure that our clients are grandfathered on NEM 2.0 if possible. You can read more about the NEM 3.0 transition on Sage Energy Consulting's website at www.sagerenew.com/NEM.

Over the longer term, the NV5 team expects a continued flattening of TOU rate tariff differentials and novel pilot locational tariff programs, as well as tariffs, such as PG&E's Option S tariffs, that are targeted toward energy storage. We also anticipate, based on proposed legislation, discussions at the CPUC, and trends in other energy markets around the US, to see more storage-based demand response and other value stream (such as RA) tariffs being introduced in the short to medium term.

There has been a shift in funding traditionally allocated to Energy Efficiency programs that is now dedicated to programs that reduce GHG emissions. For example, the California Investor-Owned Utilities (CA IOUs) will fund programs such as the Technology and Equipment Clean Heating Program and the Statewide Market Transformation Programs with Energy Efficiency funding. The CEC and CPUC are approving new methodology to assess the cost effectiveness and viability of Energy Efficiency measures with a focus on fuel substitution (removing gas and replacing with electric) and GHG emissions reductions. These changes will make additional incentives and funding available for IRWD to reduce energy costs and GHG emissions.

Lastly, at the federal level, significant incentives for renewables, such as ITC application to battery storage introduced by California Representative Panetta, will likely have a greater chance of adoption if the 2022 midterm elections result in Democrats retaining control of both chambers.

- 6.1 Identify proposed regulatory constraints and potential future legislation that may impact the District's current and future energy use and GHG emissions, including the forthcoming CPUC Net Energy Metering decision.
- 6.2 Document results and provide a rough draft chapter to the Phase 1 Report (Task 8) and provide to IRWD for review.
- 6.3 Revise the rough draft chapter based on IRWD comments and provide a revised draft chapter.

Task 7: Identification of Potential Projects

The NV5 team has exceptionally broad expertise across energy generation and efficiency technologies, allowing us to analyze the full spectrum of project opportunities and optimize project delivery for maximum financial and environmental outcomes. The team starts by identifying and prioritizing client goals. We then look for energy efficiency measures by drilling down into fuel types and usage patterns, identifying where operational and technological efficiencies can be effectively implemented. Efficiency measures can be coupled with renewable generation and used to offset GHG as well as enhance LCFS carbon market credits. The team's broad experience allows us to look for opportunities to capture waste and reuse it to improve process efficiencies, for instance through anaerobic digestion and capture of biogas and biosolids. The team has experience optimizing the value of biogas through both onsite usage in cogeneration that would qualify for NEM interconnection, as well as gas pipeline injection and sale to optimize both LCFS and RINS credits.

Lastly, the NV5 team has deep experience with EV fleet transition planning and implementation, having worked with large transit agencies and retail truck dealerships to help them plan for a transition to EVs.

SCOPE

This work centers on identifying vehicle usage patterns which drive charging system design and placement, which in turn requires close interaction with serving electrical utilities to manage significantly increasing distribution system loads over time, and finally charge management system (CMS) specification to allow for cost/grid optimized vehicle charging loads.

7.1 Identify and develop, at a conceptual planning level, up to 20 potential project types as identified in the Table 1.2 from the RFP that IRWD should consider that will save energy, reduce GHG emissions, and/or position IRWD for future regulatory constraints and opportunities. The conceptual planning level evaluation performed in this task shall include sufficient information to perform an initial screening of potential projects, a brief description of each project, concept-level cost estimates, estimated energy savings, and GHG emission reductions and estimated schedule.

#	Table 1.2: Potential Project Types
1	MWRP Electric Load Study
2	Future SCE regarding billing rates and demand response participation
3	Develop a real-time and historic energy use database
4	Vehicle Fleet Electrification
5	Switch gear to provide a secondary power source to MWRP
6	Energy Efficient Water Supply Sources
7	Energy Efficient Waste Water Treatment Processes
8	Energy Efficient Water Reuse Processes
9	Alternative Biosolids Processes
10	Energy Efficiency Building Improvements
11	Additional Renewable Energy Projects
12	GHG Offset Projects
13	Other

NV5 expects to collaboratively develop ideas for additional project types, including solar PV+ BESS, among others.

7.2 Conduct Workshop #1 for IRWD’s senior staff to present the results of the prior tasks and discuss each potential project type.

7.3 Develop and apply a simple ranking system and, in cooperation with IRWD staff, rank and select up to ten potential project types for additional analysis in Phase 2.

7.4 Document results, address IRWD comments, and provide a draft chapter to the Phase 1 Report.

Task 8: Phase 1 Report

8.1 Prepare a Phase 1 2021 Energy and GHG draft report that consolidates and refines the draft documents prepared in previous tasks. The report should make recommendations for approximately five projects for further analysis and evaluation under Phase 2.

8.2 Incorporate any additional IRWD comments into a final Phase 1 Report and provide three hard copies and one digital copy in both pdf and Word format.

Task 9: Updated Phase 2 Scope of Work

9.1 After completion of Task 8: Phase 1 Report, update the Phase 2 scope of work, budget, and schedule included in this RFP to include the final potential projects recommended in the Phase 1 Report. The updated Phase 2 scope of work, budget, and schedule are expected to incorporate IRWD review and comments.

PHASE 2

Task 1: Phase 2 Project Management

- 1.1 Monthly progress report that summarizes progress and cost associated with that month's activity. The progress report will include each task with an estimate of the percent completed along with any issues or concerns that may impact the consultant's ability to deliver the scoped activities within the contracted budget and schedule.

Task 2: Phase 2 Project Meetings

- 2.1 Monthly meetings with the District to discuss monthly progress report and upcoming scheduled items.

Task 3: Project Evaluation

Approach to MWRP Electric Load Study: The scope of this project task is assumed to be the electrical modeling of MWRP for the sake of performing a load flow study. For a task of this nature, the first item to be completed is collection of data for the existing electrical system and equipment at MWRP. NV5 would request any existing system documentation such as one-line drawings, panel schedules, cable schedules, etc. We would then coordinate with personnel at the plant to collect any other information in order to create a complete picture of the electrical system. Typically, we provide equipment data collection forms to plant electricians or personnel that are familiar with the system, to record the data. This process generally takes time and several rounds of data collection depending on how accurate and complete the drawings and documentation are for the given facility. Additional information will be needed such as fault current contribution from the providing electrical utility provider and modeling of any on-site generation that may contribute to a given fault.

The second task is building the electrical model. This proposal assumes that an existing model does not exist, and that it will need to be built from scratch. The model building will be performed using SKM PowerTools, which is a common software tool used in the industry. This process will take time and many times elicits further data collection to make the model complete and allow the study to run properly. When the model is completed, a load flow study will be run within the software to determine any existing deficiencies or equipment that may require further analysis within the system.

Finally, a Summary Report will be created that highlights the overall status of the existing electrical system. This will be provided in a draft format for client review. Any questions that come up in the review can be addressed in the final version of the summary report.

Approach to SCE Billing Rates and Demand Response Participation: We will use a mix of commercially available software and proprietary tools to analyze whether any change in utility rates or participation in demand response programs will result in utility savings for each SCE service based on current and future energy use. This will be followed up with interviews with IRWD staff to quantify the potential demand impact from operational changes that would further enhance the benefit of participation in demand response or rate changes. This analysis would form the basis of Year-1 savings from rate changes or participation in demand response programs.

We have developed industry-leading financial and risk modeling tools to provide more realistic estimates of energy project savings. In our financial analysis, we input key assumptions to more accurately model risk. These include, but are not limited to energy rate escalators, demand rate escalators, utility tariff degradation, and responsiveness to demand response periods. We then perform a sensitivity analysis to identify the input variables that have the greatest impact on financial performance and multi-variable Monte Carlo analysis with sophisticated variable distributions to create a "probability envelope" which clearly shows potential financial performance upside as well as risk. Discrete tasks necessary to complete this scope of work are described below.

1. Collect historical energy consumption data and information on future changes to site usage/energy efficiency measures to estimate future energy consumption.
2. Meet with IRWD to investigate and quantify potential operational changes that would reduce peak demand during typical demand response periods.
3. Conduct tariff analysis to determine potential savings from SCE rate changes or demand response programs.

4. Conduct detailed financial and risk modeling to determine expected savings over time.
5. Conduct workshop #2 for IRWD's senior staff to present the results of the Phase 2 tasks and discuss each selected project.
6. Document results, address IRWD comments, and provide a draft chapter to the Phase 2 Report.

Approach to Developing a Real-Time and Historic Energy Use Database: The development of the historic energy use database can be adequately completed in Phase 1 and is critical to informing subsequent project evaluation. It can be easily updated in Phase 2 with the most recent data. The development of a real-time energy use database is significantly more involved and will necessitate a deep understanding of IRWD's intended usage of this database. Some key considerations that will inform the basis of design and accompanying costs of implementing the database include assessment of existing energy management system(s), required instrumentation level (e.g. sensors at meter level or at the equipment level), and whether integration with existing energy management systems/SCADA is required. Discrete tasks necessary to complete this scope of work are described below.

1. Update historical energy consumption data and information on future changes to site usage/energy efficiency measures to estimate future energy consumption.
2. Meet with IRWD to determine needs, goals, and constraints for a real-time energy use database.
3. Review potential solutions that best meet IRWD's stated goals and constraints, including technical and financial assessments.
4. Review findings with IRWD staff to determine recommended solution(s).
5. Generate a basis of design that includes a project description, conceptual drawings (site plan, typical section, schematic), refined cost estimates, and implementation schedule.
6. Conduct workshop #2 for IRWD's senior staff to present the results of the Phase 2 tasks and discuss each selected project.
7. Document results, address IRWD comments, and provide a draft chapter to the Phase 2 Report.

Approach to Energy Generation and Battery Energy Storage Projects: While these project types are not currently included in the Phase 2 scope, it is quite likely that generation projects such as solar PV will be selected for Phase 2. Our approach to conducting an investment-grade feasibility study for these projects is discussed below.

Once project goals are established, and energy efficiency measures and future energy usage requirements identified, the NV5 team will develop system design options and work with IRWD to determine appropriate equipment siting, considering clear heights for solar arrays, public sight lines, storage and electrical equipment footprints, fire access and safety issues, etc. We will produce detailed energy system designs using industry-leading design tools to develop conceptual layouts that make it easy for IRWD stakeholders to visualize and discuss the access requirements, physical footprint, logistics, and schedule of implementation of the project. The preliminary designs and implementation schedules are fine-tuned to ensure coordinated planning and clear, well-informed, and streamlined decision-making that align with public administration meeting schedules. The NV5 team will model financial outcomes for multiple financing and ownership options, such as cash purchase, leases, bonds, grants, and PPAs. Our financial modeling will include all upfront soft costs incurred and ongoing project costs such as insurance, maintenance, equipment replacement, asset management, and decommissioning.

To assess the impacts of key variables on the economic outcomes of projects, we conduct both a sensitivity analysis and a probability distribution risk analysis. The sensitivity analysis allows us to identify which variables have the most significant impact on the financial performance of the project. We then run a multivariable Monte Carlo analysis to establish a 90-percent-probability envelope for financial performance over the lifetime of the project.

The NV5 team will provide detailed findings on the cost of power to IRWD under multiple financing and build scenarios. After reviewing our feasibility study results, IRWD will have a clear understanding of the various options available for financing a renewable energy system, as well as the net costs of energy under each arrangement. We will clearly report the total lifetime cost of the system, as well as the energy and financial savings.

The value of behind-the-meter energy projects is highly dependent on tariff rates and structures. These tariffs are entering a period of rapid change that significantly impacts project economics. The NV5 Team is intimately familiar with the negotiations that are ongoing between SCE, the CPUC, and interested parties. Sage is providing expert testimony for the California Solar and Storage Industry Association (CALSSA), which represents the solar and storage industries, in these negotiations. We are at the cutting edge of these discussions and can advise IRWD about upcoming changes and represent IRWD's interests.

The feasibility study will clearly present options for conceptual systems, tariff arrangements, financing options, constraints, financial performance projections, and steps necessary to implement a successful project. For each of these project scenarios, we provide estimated industry pricing, schedules, financing options, and financial and risk modeling in a well-organized and understandable feasibility analysis. Our Feasibility Study is investment grade and will enable IRWD to make well informed decisions. Details provided in the feasibility study will form the basis of a competitive procurement RFP bid package. We will state anticipated returns in simple payback period, nominal dollars, net present value (NPV), and environmental impact in both numeric and graphical form to give a simple and accurate representations of the project outcomes.

As mentioned earlier, the level of detail in the basis of design NV5 provides in this section will vary depending on the implementation model IRWD selects for each project.

Task 4: 2021 Energy and GHG Master Plan Report

- 4.1 Prepare a Draft 2021 Energy and GHG Master Plan that summarizes the key results from previous tasks. Include appendices will as appropriate to provide supplemental detail.
- 4.2 Present results to District staff and incorporate comments into a final report. Deliver three hard copies and one digital copy in both pdf and Word formats of the final 2021 Energy and GHG Master Plan.

TEAM

NV5'S PROPOSED TEAM

Name/% Project Contribution (%PC)	Project Roles and Responsibilities	Experience
NV5		
Chris Halpin, PE, CEM, CMVP, LEED AP USDOE PF Vice President, NV5EES %PC: 3	Assistant PIC for Energy Efficiency	36 years in energy efficiency 10 years in renewable energy and resilience 4 years experience as a Global Energy Manager for a Fortune 500 company 31 years experience in utility DSM 25 years experience in ESPC projects
Dave Wyllie, PE, CEM, CMVP, LEED AP BD+C, USDOE PF Senior Project Manager, NV5EES %PC: 6	Assistant PM focusing on energy efficiency project identification, development, and analysis.	25+ years experience in energy efficiency 10 years experience as electric utility EE Program Manager Managing \$75+ M in wastewater ESPC projects for LA County Sanitation Districts
Francis Mahony Associate Principal, NV5EES %PC: 3	Building and process automation, and utility usage analysis. Application of AI analytics.	10 years experience in energy efficiency and controls PM for BAS and building analytics projects for Glendale College, CA Based in NV5's Irvine, CA office
Dan Kolimar Project Manager %PC: 5	Mechanical and energy systems analysis and report development.	8 years experience in mechanical systems and energy efficiency Repowering Santa Catalina Island Study for SCE with solar+BESS
Brad Willers, PE Electrical Engineer %PC: 17	Electrical Systems	17 years of Power Delivery experience
James Owens, PE, LEED AP Associate/Engineering Manager %PC: 2	Hydraulic Analysis and Design	19 years of water and wastewater projects
Julian Palacios, PE Senior Project Manager %PC: 2	Water and Infrastructure	20 years of water and wastewater treatment, water distribution, wastewater collection, and hydraulic modeling of water and wastewater systems
SAGE		
Brent Johnson, PE, LEED AP Managing Principal %PC: 6	Principal In Charge for Sage – Overall responsibility for Sage's work on the project	23 years in energy and water engineering Water engineering background
Ilan Fuss Associate Principal %PC: 19	Senior Project Manager for Sage – Directs project work; primary point of contact for the Sage team; primary responsibility for schedule and deliverables	12 years in renewable energy, PM for many of Sage's water clients, including ACWD, SFPUC, Rancho Water, Regional San
Tom Williard Managing Principal/CEO %PC: 1	Modeling Oversight and Regulatory Specialist	18 years in renewable energy 20 years in electrical & software engineering
Megan Dawe Senior Data Scientist %PC: 21	Data Analysis and Modeling – Data acquisition and modeling of energy data	8 years in building energy analysis 6 years in energy code research and consulting 3 years in quantitative analysis

*NV5 and Sage Analyst and Administrative Staff %PC: 16

The qualities that make our team exceptionally qualified to guide and assist IRWD with their energy projects include:

- **Deep knowledge of the solar PV and battery storage/microgrid markets.** The NV5 team has managed projects with all of the major California market solar/battery contractors on public projects for contract negotiations, design, installation, and operation of these systems. No other consulting firm can match the NV5 Team's resume on California distributed generation projects. Our team provides industry-leading planning and evaluation services, identifying potential project challenges and unique opportunities. Our market knowledge extends from state policy level through detailed understanding of the financing mechanisms and grant opportunities available for advanced energy projects. This exceptionally broad knowledge informs our feasibility studies, project specifications and provides us a deep database of market pricing.
- **Highly vetted approach and process.** The NV5 team's approach to planning, procuring, and managing energy projects has been vetted and refined over many projects. Our innovative RFP templates and submittal forms provide the basis for a transparent comparison of proposals and are familiar to the major developers. Over the last two decades, our approach has been continually improved by our close working relationships with the legal, financial and construction management teams that serve our clients.
- **Full project management services.** The NV5 team provides a comprehensive suite of energy project management services, from feasibility assessments through operational phase asset management. Our services are tailored to the specific goals and requirements of each client, providing project controls and hands-on project management to move efficiently through the process of assessing, procuring, implementing and operating an energy project.
- **A focus on finance.** We are well versed in all forms of energy project finance and grant programs, providing the technical and conservative financial analysis needed for decision-makers to evaluate a project. Our team regularly evaluates and helps clients procure projects with CA Code Chapter 3.2. Energy Conservation Contracts [4217.10 - 4217.18], Power Purchase Agreements (PPAs), tax equity and debt financing, GO and muni bonds, Tax-Exempt Municipal Leases, and other financing mechanisms. Our financial analysis includes lifecycle cost and savings estimates, operating and finance costs, as well as detailed utility tariff analyses, including RES BCT, Community Renewables Programs, and storage/microgrid incentives.
- **Fleet Electrification.** With more than a dozen active large EV transition projects, ranging from passenger to light-duty to Class 8 trucks, the NV5 Team is at the forefront of fleet electrification across California. As part of these efforts, we are heavily involved in vehicle modeling and selection, identifying and leveraging incentives, assisting with charging infrastructure, pairing solar and storage with electrification efforts and assisting with LCFS credits.
- **We're team players.** The NV5 Team often works as part of a larger project development team to bring expertise and financial efficiency to the energy planning, procurement, and implementation of advanced energy systems. We work closely with engineers, architects, legal counsel, construction managers, and other project stakeholders to integrate energy projects that meet goals and reduce cost.
- **The NV5 Team is scrupulously independent.** We are not associated with equipment manufacturers, vendors or contractors. Our independence guarantees our objectivity, and we properly align our incentives to put our client's goals and interests first. We take deep pride in the objectivity, accuracy, and integrity of our work.

Christopher F. Halpin, PE, CEM, CMVP, DOE PF, LEED AP, Since 1985, Chris has worked for several premiere energy consulting firms and ESCOs in engineering, management, and sales, and is a former Global Energy Manager for NCR. He is a nationally known expert in, and acts as an Owner's Rep for ESPC, PPA, and P3 projects. Since 2003, he has managed over \$2.5 Billion in energy projects for the Federal, MUSH, higher ed, and commercial markets. He is currently working on over \$500 million of P3 energy/resilience projects for several clients. Chris has a BSME and is a registered P.E. in nine states. He is on the Society of American Military Engineers Energy and Sustainability Committee, Board of Directors of the Energy Services Coalition, and is a technical reviewer for the USDOE Solar Technology Office's Small Business Innovation and Technology Transfer grant program.

Dave Wyllie, PE, CEM, CMVP, LEED AP BD+C, Dave is a Senior Project Manager for NV5's Energy Efficiency Services Group. Recent project responsibilities include oversight of two ESPC projects for Los Angeles County Sanitation Districts (LACSD) totaling \$75M+ focusing on process equipment renewal, a \$165M ESPC project at military housing owned by Island Palm Communities at several U.S. Army facilities on the Island of Oahu, HI; managing ESPC projects at the Washoe County School District (Reno, NV) totaling \$34M including interior and exterior lighting upgrades, HVAC equipment replacements and control system improvements.

TEAM

Daniel Kolimar, Daniel Kolimar has seven years of engineering practice in the building services industry and has been responsible for the design of projects ranging from casinos, commercial retail properties, entertainment precincts and large residential complexes. Daniel's experience of complex projects has provided him with a broad knowledge of mechanical and technology systems. He has worked on numerous projects as part of a multi-disciplinary team which has provided him insight into other services and the opportunities associated with large teams. Daniel's recent experience is in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. This has led to a focus on cost effective measures to reduce his client's energy spend through the use of MBCx, and measurement and verification studies to confirm the achieved energy savings.

Francis Mahony, PE, PMP, Francis Mahony excels in providing custom turnkey energy and technology solutions and services. He has remarkable success working with building owners to optimize complex multi-functional systems including high-rise office buildings, hospitals, chemical and electronic laboratories, pharmaceutical facilities, K-12, colleges, high security federal and state facilities, and military level R&D and production clean rooms. Francis has extensive experience in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. His comprehensive knowledge of mechanical systems, controls architecture and sequence optimization, energy analysis and modeling, measurement & verification, and construction management have led to the successful identification and implementation of cost effective enhancements.

Brent Johnson, PE, LEED AP, is a Founding Principal at Sage and a Civil-Environmental P.E. with over 22 years of experience in the renewable energy and water sectors. Mr. Johnson brings years of experience scoping, designing, and managing projects for water agencies and currently serves as a board member of his local water and fire district. His past work includes analysis of solar, battery energy storage, wind, and hydropower projects. Mr. Johnson will have overall project responsibility for Sage, including strategy, work-product oversight, and interface with stakeholders. He is Principal in Charge for Sage's work with Alameda County Water District (6 MW solar), the City of Manteca Wastewater Facility (3 MW solar, 2 MWh battery) and the San Francisco Public Utilities Commission (SFPUC) on-call renewable energy consulting contract. Previous project leadership includes Regional San (4.2 MW solar), Las Gallinas Valley Sanitary District (7.5 MW solar/wind Feasibility), and Petaluma Recycled Water Feasibility (4 MW floating solar and battery). Mr. Johnson holds an M.S. in Civil-Environmental Engineering from UC Berkeley, is a registered Professional Engineer (PE) in California, and has his LEED accreditation from the U.S. Green Building Council. He also serves as a director for his local water and fire district.

Ilan Fuss is an Associate Principal at Sage and will serve as Project Manager, acting as the primary point of contact for all project work. He has managed over 20 projects at Sage, including several projects with water agency clients, and recently performed a forensic technical and financial analysis for Rancho California Water District's PV project, including a RES-BCT arrangement. Mr. Fuss has also been integral to the negotiation of several recent PPA contracts for Sage's clients and is currently the PM for the Alameda County Water District Project (6 MW solar) project. He earned his B.A. in Economics from the University of Washington at Seattle and he holds a PV Design & Installation certification from the Solar Living Institute.

Tom Williard is a Founding Principal at Sage and will contribute technical guidance, market insights, microgrid expertise, and financial modeling oversight. He has 16 years of experience in renewable energy and 20 years in electrical engineering and software. Tom has a background in hardware and software modeling and is Sage's in-house expert for financial and risk analysis. Tom has developed most of Sage's in-house models, including those that will be used to assess financial feasibility and complicated tariff arrangements, such as RES-BCT. Tom regularly presents to trade groups on advanced energy topics, including battery energy storage and microgrids.

Megan Dawe is a skilled data scientist with experience in energy savings analysis, model development, and energy efficiency. At Sage, she performs energy modeling, financial modeling, field assessments, and geospatial analysis, and also manages certain projects. Ms. Dawe also performs the analyses for feasibility studies, to assess the full range of technical and financial options for each energy project. She earned an M.S. in Architecture, Building Science, and Technology from the University of California at Berkeley and a B.S. in Environmental Studies from the University of California at Santa Barbara. She is also a LEED Green Associate.



NV5 - EES | ENERGY

Las Vegas, NV
 chris.halpin@NV5.com
 860.328.0535

EDUCATION

University of South Florida, B.S.,
 Mechanical Engineering

EXPERIENCE

36 Years

REGISTRATIONS

Registered Professional Engineer
 CT# PEN-0018200, AZ# 51620,
 ME# 13001, NC# 036672,
 NV# 020996, RI# 9502,
 AEE Certified Measurement and
 Verification Professional CMVP,
 Certified Energy Manager CEM,
 LEED Accredited Professional AP,
 DOE Approved & FEMP Certified,
 ESPC Project Facilitator

AFFILIATIONS

American Society of Heating,
 Refrigeration and Air Conditioning
 Engineers (ASHRAE)
 Association of Energy Engineers
 (AEE)
 Energy Services Coalition (ESC)

CHRIS HALPIN, PE, CEM, CMVP, LEED AP VICE PRESIDENT | DOE APPROVED & FEMP CERTIFIED ESPC PROJECT FACILITATOR

Chris is the Vice President for NV5's Energy Efficiency Services Group (EES). With over 36 years of experience in developing comprehensive energy management, renewable energy, and resilience programs, Chris succeeded at establishing a nationally recognized energy consulting firm, which was acquired by NV5 in 2018. He has focused on helping end-users, utility, and finance clients with their long-term goals of managing energy costs in today's highly volatile energy markets. He is also a nationally known expert, speaker, and trainer on multiple energy efficiency related subjects. In 2019 and 2020, he was selected by the US Department of Energy's Solar Energy Technologies Office as a technical reviewer for the SunShot Program.

PROJECT EXPERIENCE

LOS ANGELES COUNTY SANITATION DISTRICTS TWO PROJECT PILOT ESPC PROGRAMS

PRINCIPAL IN CHARGE
 Los Angeles, CA

UNIVERSITY OF NEW HAVEN PPA REVIEW/NET METERING

PRINCIPAL IN CHARGE
 West Haven, CT

U.S. NAVY/DLA, PPA REVIEW/150 MW WIND TURBINE

PRINCIPAL IN CHARGE
 Grant County, WV

MICROGRID PROGRAM PLANNING PROJECT STATE OF RHODE ISLAND

PRINCIPAL IN CHARGE
 Providence, RI

K-12 MICROGRID/RESILIENCE CITY OF STAMFORD

PM- ESPC OWNERS REP
 Stamford, CT

DELAWARE DEPT. OF CORRECTIONS ESPC PROJECT

PRINCIPAL IN CHARGE
 Various Locations, DE

UNIVERSITY OF MAINE SYSTEM WIDE ESPC PROGRAM

PRINCIPAL IN CHARGE
 Orone, ME

PPA/VIRTUAL NET METERING CT STATE COLLEGES AND UNIVERSITIES

PRINCIPAL IN CHARGE
 Hartford, CT

RESILIENT ENERGY DEMONSTRATION INITIATIVE U.S. AIR FORCE

ESPC PROJECT FACILITATOR
 Multiple Bases Worldwide

ENERGY SURETY/MICROGRID CONSULTING USFDA

ESPC OR-FORESIC ANALYSIS
 Silver Springs, MD

UMD IBBR ESPC PROJECT

PROJECT MANAGER
 College Park, MD

NC DOT ESPC 1 AND 2 PROJECT

PRINCIPAL IN CHARGE
 Various Locations, NC



DAVID WYLLIE

**SENIOR PROJECT MANAGER, DOE APPROVED & FEMP
CERTIFIED ESPC PROJECT FACILITATOR**

Dave is a Senior Project Manager for NV5's Energy Efficiency Services Group. Recent project responsibilities include oversight of a \$165M ESPC project at military housing owned by Island Palm Communities at several U.S. Army facilities on the Island of Oahu, HI; managing ESPC projects at the Clark County School District totaling \$20M including interior and exterior lighting upgrades, HVAC equipment replacements and control system improvements.

PROJECT EXPERIENCE

NV5 - EES | ENERGY

Reno, NV
dave.wyllie@nv5.com
775.357.2655

EDUCATION

Mechanical Engineering
University of Utah, UT

EXPERIENCE

28 Years

CERTIFICATIONS

Registered Professional Engineer
CA # 29119, NV # 014644
WA # 42259

AEE Certified Measurement and
Verification Professional (CMVP)

DOE Approved and FEMP
Certified ESPC Project Facilitator
(PF)

Certified Energy Manager (CEM)

LEED Accredited Professional

AFFILIATIONS

American Society of Heating,
Refrigeration and Air Conditioning
Engineers (ASHRAE), Northern
Nevada Chapter Board of
Governors, 2012-present

Association of Energy Engineers
Board of Directors, NV Chapter
2012-2019

WASHOE COUNTY SCHOOL DISTRICT EDUCATION ESPC OWNERS REP ONGOING

SR. PROJECT MANAGER
Reno, NV

CLARK COUNTY SCHOOL DISTRICT EDUCATION ESPC OWNERS REP 2017

SR. PROJECT MANAGER
Clark County, NV

CARSON CITY SCHOOL DISTRICT EDUCATION ESPC ADVISORY-2017

SR. PROJECT MANAGER
Carson City, NV

ISLAND PALMS COMMUNITIES FEDERAL PROJECT FACILITATOR ONGOING

SR. PROJECT MANAGER
OAHU, HI

DEPARTMENT OF VETERAN AFFAIRS GOVERNMENT ESPC/UESC SERVICES- ONGOING

SR. PROJECT MANAGER
Various Locations

CITY OF PHOENIX MUNICIPALITY ESPC OWNERS REP 2019

SR. PROJECT MANAGER
Phoenix, AZ

LOS ANGELES COUNTY SANITATION DISTRICT MUNICIPALITY ESPC OWNERS REP 2018

SR. PROJECT MANAGER
Los Angeles, CA

CITY OF HENDERSON MUNICIPALITY ESPC OWNERS REP-2017

SR. PROJECT MANAGER
Henderson, NV



BRAD WILLERS, PE ELECTRICAL ENGINEER

Bradley brings more than 17 years of wide-ranging experience in the power delivery industry, including design, project management, owner’s engineering, equipment procurement assistance, specification development, construction administration, commissioning and start-up activities, and EPC project delivery.

He has experience with substation and power plant control and relay protection design, protective relay settings, relay panel replacements, plus coordination, power flow, voltage drop, arc flash, grounding, and short circuit studies. His expertise also includes SCADA system, indoor substation, gas-insulated switchgear, medium- and high-voltage, and substation physical design in addition to wind and solar feasibility and design.

POWER DELIVERY

St. Paul, MN
Brad.Willers@NV5.com
651.634.7252

EDUCATION

BS, Electrical Engineering,
University of Minnesota, 2004

EXPERIENCE

17 years

REGISTRATIONS

Registered Professional Engineer,
Electrical: CT #PEN.0029006,
IA #20564, MN #47192,
NJ #24GE05135900, VT
#018.0077116

AFFILIATIONS

Institute of Electrical and
Electronics Engineers (IEEE)

Institute of Electrical and
Electronics Engineers Power &
Energy Society (IEEE PES)

Project Experience

PUMP STATION 4 RELAY SETTINGS MINNEAPOLIS WATER WORKS

ENGINEERING - DESIGN ENGINEER
Minneapolis, MN

PUMP STATION 5 RELAY SETTINGS MINNEAPOLIS WATER WORKS

ENGINEERING - DESIGN ENGINEER
Minneapolis, MN

WIND TURBINE INSTALLATION HENNEPIN COUNTY

ENGINEERING - DESIGN ENGINEER
Hennepin County, MN

PENTAGON US DEPARTMENT OF DEFENSE

COMMISSIONING - COMMISSIONING
AGENT
Arlington, VA

DIESEL ELECTRICAL GENERATORS MINNEAPOLIS PUBLIC WORKS

ENGINEERING - PROJECT ENGINEER
Fridley, MN

ARTESIAN RANCH SUBSTATION 230 KV EXPANSION EPC

SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

BAY BOULEVARD SUBSTATION TL23042 ADDITION

SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

JAMACHA SUBSTATION 12 KV REBUILD

SAN DIEGO GAS & ELECTRIC
ENGINEERING - PROJECT ENGINEER
San Diego, CA

FREEMAN & MOUNTAIN VIEW SUBSTATION TRANSFORMER REPLACEMENTS

**CITY OF RIVERSIDE PUBLIC
UTILITIES DEPARTMENT**
ENGINEERING - PROJECT ENGINEER
Riverside, CA

HARE - MILAGRO PRIMARY LINE RELAY REPLACEMENT

CITY OF FARMINGTON
ENGINEERING - PROJECT ENGINEER
Farmington, CA

SPRINGBROOK SUBSTATION ARC FLASH UPGRADE

PORTLAND GENERAL ELECTRIC
ENGINEERING - DESIGN ENGINEER
Portland, OR



WATER | INFRASTRUCTURE

San Diego, CA
james.owens@nv5.com

EDUCATION

Masters of Business Administration - University of California, Riverside, Palm Desert Graduate Center

BS Civil Engineering - California Polytechnic State University San Luis Obispo

Foreign Study - Universidad de Granada, Spain

EXPERIENCE

19 Years

REGISTRATIONS

Professional Engineer:
CA #C66067

LEED Accredited Professional

JAMES OWENS, PE, LEED AP

Associate/Engineering Manager

James leads a variety of water and wastewater projects during the troubleshooting, conceptual design, planning, financing, and design phases. James is experienced in performing population and demand projections, hydraulic analysis and design, project, and system financial analysis, and planning and design of facilities. He has extensive knowledge of software tools such as AutoCAD, WaterCAD, SewerCAD, H2OMap, Flowmaster, and MS Office.

James is fluent in Spanish and has had great success in acquiring funding for small and rural communities to improve their water and wastewater systems. He has prepared numerous planning and design projects for CDBG, SRF, BECC, NADBank, Proposition 50, Proposition 84, and USDA for numerous communities along the California/Mexico border and elsewhere in Southern California.

Project Experience

WASTEWATER COLLECTION SYSTEM ANALYSIS

BISHOP PAIUTE TRIBE | BISHOP, INYO COUNTY, CA

Project manager. Project manager for the preliminary analysis, environmental documentation, and preliminary design of wastewater collection system improvements. The Bishop Paiute Tribe plans to construct a conference center and residential housing on the reservation. As a result of this development, the Tribe will generate additional wastewater, exceeding the existing excess capacity at the Eastern Sierra CSD wastewater treatment facility.

WASTEWATER TREATMENT FACILITY IMPROVEMENTS NAVAL AIR FACILITY, EL CENTRO

KELLOGG, BROWN AND ROOT | IMPERIAL COUNTY, CA

Lead engineer for two sets of construction plans and specifications for improvements to the existing wastewater treatment facility at the Naval Air Facility, El Centro. The first set of improvements included a chlorine contact chamber, pressure filtration system, submersible pump station, additional chlorine disinfection capacity, and sodium bisulfite addition for chlorine removal. The second set of improvements was for an equalization basin at the headworks of the plant to allow for an attenuated flow to enter the treatment processes, thereby eliminating the spikes in flows when the two main pump stations were activated.

The improvements were based on a design flow of 180,000 gallons per day, taking into consideration daily and seasonal flow variations due to the on-base population fluctuation, abnormal work schedules, and the large percentage of non-base residing employees.

PRELIMINARY ENGINEERING REPORT, FINANCIAL ANALYSIS, AND WASTEWATER DESIGN

SALTON COMMUNITY SERVICES DISTRICT | SALTON CITY/DESERT SHORES, IMPERIAL COUNTY, CA

Project Engineer. Developed a preliminary engineering report to address recurring wastewater treatment facility violations that impacted local groundwater quality. The report included geographic and demographic information on the community, data collection, and analysis on wastewater characteristics, creation and evaluation of solution alternatives to brackish groundwater discharges. James identified the sources of the violations and developed solutions to rectify the problem areas. Infiltration into the wastewater collection system from the adjacent Salton Sea contained high concentrations total dissolved solids,



JULIAN PALACIOS, PE Senior Project Manager

Julian provides planning, engineering design, construction services and feasibility studies for water and wastewater treatment, water distribution, wastewater collection, and hydraulic modeling of water and wastewater systems. Julian has 20 years of experience completing water and wastewater infrastructure projects for local public agencies, including the City of Oceanside, City of Carlsbad, City of Vista, Vallecitos Water District, Olivenhain Municipal Water District, Ramona Municipal Water District and the San Diego County Water Authority.

WATER | INFRASTRUCTURE

SAN DIEGO, CA
julian.palacios@nv5.com

EDUCATION

MS Environmental Engineering - ITESM - Monterrey Tech – Mexico

BS Civil Engineering - ITESM - Monterrey Tech – Mexico

EXPERIENCE

20 Years

REGISTRATIONS

Professional Engineer - CA No. 67735

Professional Engineer (Mexico) Cedula Profesional - No. 2760774

Certificate Urban Water Management Plan Training

AFFILIATIONS

American Society of Civil Engineers (ASCE), Member

Project Experience

SAN VICENTE WASTEWATER TREATMENT PLANT IMPROVEMENTS RAMONA MUNICIPAL WATER DISTRICT | RAMONA, CA

Project manager. Project manager for pre-design report and final construction documents to upgrade the headworks and two secondary clarifiers. The improvements included replacing the existing screenings conveyance system at the headworks with a washer/compactor unit to remove excess organics and water, including a continuous bagger accessory to minimize contact and exposure to the screenings. Upgrades to two of the existing secondary clarifiers include replacing a suction type sludge removal mechanism in Clarifier No. 1 with a scraper system to eliminate clogging and installation of a skimmer and scum baffle at the effluent weirs for both Clarifiers No. 1 and 2.

WASTEWATER TREATMENT FACILITY EVALUATION NILAND SANITARY DISTRICT | NILAND, CA

Project engineer. Project engineer for the preliminary engineering report which evaluated the facility's performance and reliability. Developed alternatives and layouts for the lift stations, aeration ponds, and disinfection system. Worked with the Regional Water Quality Control Board to verify upcoming water quality requirements, including the California Toxics Rule and Ammonia requirements. Oversaw the sampling of wastewater within the collection system, treatment facility, and nearby water bodies to test ammonia and copper concentrations in an attempt to determine sources of each constituent.

SEELEY WASTEWATER TREATMENT FACILITY IMPROVEMENTS SEELEY COUNTY WATER DISTRICT OR BORDER ENVIRONMENT COOPERATION COMMISSION | SEELEY, CA

Project engineer. Project engineer for new 250,000 gpd wastewater treatment facility. Prepared grading plans for the treatment lagoons, demolition plans, filtration/UV disinfection facility, hydraulic profile, and mechanical drawings for two pumping stations. Coordinated efforts with geotechnical and electrical subconsultants and approvals from USDA Rural Development, Imperial County Community and Economic Development Department, and the Regional Water Quality Control Board.

EL CENTRO WWTP UPGRADES CITY OF EL CENTRO | EL CENTRO, CA

Project manager. Project manager for preparing final construction documents to install a new bar screen, replace existing constant speed aeration blowers,

TEAM



EDUCATION

BS, Mechanical Engineering
University of Technology Sydney

EXPERIENCE

9 years

DANIEL KOLIMAR

PROGRAM MANAGER

Daniel Kolimar has nine years of engineering practice in the building services industry and has been responsible for the design of projects ranging from casinos, commercial retail properties, entertainment precincts and large residential complexes. Daniel's recent experience is in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and control systems integration. This has led to a focus on cost effective measures to reduce his client's energy spend through the use of MBCx, and measurement and verification studies to confirm the achieved energy savings.

Project Experience

GLENDALE COMMUNITY COLLEGE

EDUCATION
Glendale, CA

LOS ANGELES VALLEY COLLEGE

EDUCATION
Valley Glen, CA

CITY OF HENDERSON

CONTROLS UPGRADE
Henderson, NV

LA MESA POLICE STATION

GOVERNMENT | PUBLIC WORKS
ENERGY EFFICIENCY/DEMAND
RESPONSE
La Mesa, CA



EDUCATION

BSc in Mechanical Engineering
and Material Science, University
of California, Los Angeles

MSc in Mechanical Engineering,
University of California, Irvine

EXPERIENCE

10 years

FRANCIS MAHONY BS, MS, PM, PMP

PROJECT MANAGER/LEAD TECHNICIAN

Francis Mahony excels in providing custom turnkey energy solutions. He has remarkable success working with building owners to optimize complex multi-functional systems including high-rise office buildings, hospitals, chemical and electronic laboratories, pharmaceutical facilities, K-12, colleges, high security federal and state facilities, and military level R&D and production clean rooms. Francis has extensive experience in providing solutions addressing each customer's unique needs including energy efficiency, occupant comfort, data acquisition, and enhancement of employee productivity. His comprehensive knowledge of mechanical systems, design review, controls architecture and sequence optimization, energy analysis and modeling, and construction management have led to the successful identification and implementation of cost effective enhancements.

Project Experience

GLENDALE COMMUNITY COLLEGE

EDUCATION
Glendale, CA

CITY OF HENDERSON

GOVERNMENT
Henderson, NV

UNIVERSITY OF IOWA BOWEN

BUILDING
EDUCATION
Iowa City, IA

CAESARS ENTERTAINMENT

CASINO
Various Locations



Brent Johnson PE, LEED AP

Managing Principal

PROFESSIONAL HISTORY

- 11 Years Renewable Energy
- 22 Years Civil Environmental Engineering



Sage Energy Consulting
 Founder
 2009 — Present

EDUCATION

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

B.S. Civil Environmental Engineering
 Worcester Polytechnic Institute (WPI)

REGISTRATIONS

Professional Engineer (PE)
 Civil Engineering, CA Reg. No. C62137

LEED AP
 U.S. Green Building Council

AFFILIATIONS

California Solar and Storage Association (CalSSA)

Association of California Water Agencies (ACWA)

Center for Transportation and the Environment (CTE)

CALSTART

UC Berkeley Guest Lecturer

Mr. Johnson has 22 years of experience as a Civil-Environmental Engineer, with 11 years in the renewable energy sector. During his time at Sage, he has developed custom financial and energy modeling tools and managed all aspects of renewable generation and storage projects including feasibility studies, system design, project bids and construction, commissioning, asset management, and environmental credits management. Brent has worked on over 200MW of renewable projects encompassing a number of technologies such as solar PV, energy storage, EV infrastructure, microgrids, wind, and hydropower.

His previous experience in the U.S. and overseas includes design of large municipal facilities, computer modeling, construction management, operational support, and environmental permitting. He has overseen all aspects of project development from concept to commissioned facilities, including serving as a construction manager on a complex, \$170M multi-year linear project. Brent holds an M.S. in Civil-Environmental Engineering from UC Berkeley, is a registered Professional Engineer (PE) in California and has his LEED certification from the US Green Building Council. He also currently serves as a director for his local water and fire district.

AREAS OF EXPERTISE

- Planning/Feasibility for Solar, Batteries, Microgrids and Electric Vehicles
- Energy Usage and Generation Modeling
- Financial and Tariff Modeling
- Renewable Energy Incentives Management
- Design, Construction and Commissioning of Energy Projects
- Environmental Permitting

REPRESENTATIVE PROJECT EXPERIENCE

Sacramento Regional County Sanitation District (Regional San)
 Elk Grove, CA • 2015 - 2019

- 4 MWp Solar Single-Axis Tracker
- Multi-Site PV/Wind Analysis
- Green Tariff Financial Analysis

Mr. Johnson has overseen all work for Regional San, including full project services for a 4-MWp solar PPA project. The project was sized to meet environmental mitigation targets as part of a \$1.6B plant upgrade. Sage also assisted with reviewing other District sites for renewable generation and assessed the financial performance of a green tariff with the local utility, SMUD.

Steve Nebozuk, Program Manager, 916.876-6118, nebozucs@sacsewer.com





Ilan Fuss

Associate Principal

PROFESSIONAL HISTORY

11 Years Renewable Energy

WORK EXPERIENCE



Sage Energy Consulting
Associate Principal
2015 — Present

Sun Light & Power
Finance and Business
Development Executive
2013 — 2014

Sungevity
Solar Consultant
2012 — 2013

Sunergy Systems
Senior Solar Design Consultant
2009 — 2011

EDUCATION

B.A. Economics
University of Washington, Seattle

CERTIFICATIONS

Solar Living Institute
PV Design & Installation

Mr. Fuss has 11 years of experience in renewable energy with a focus on project management, solar asset management, project finance, and financial modeling. Mr. Fuss joined Sage in 2015 and has led the development of Sage’s Solar Asset Management division, which focuses on auditing and improving the operational and financial performance of existing renewable energy projects. Mr. Fuss manages large and complex energy projects for clients including Alameda County Water District, Brentwood Unified School District, Vista Unified School District, and San Mateo County.

Prior to joining Sage, Mr. Fuss worked for a leading solar contractor and focused on providing financing solutions for his clients through a network of strategic relationships and managed the RFP response team. His previous work experience includes several years of solar design and project development. As a Sage Associate Principal, he leads Solar Asset Management, manages projects in multiple phases, and provides oversight and review for the project management team.

AREAS OF EXPERTISE

- Renewable Energy Project Management
- Solar Asset Management
- Utility Tariff Modeling
- Financial Modeling & Project Finance
- Renewable Energy Resource Assessments & Feasibility Studies
- Design & Construction Oversight

REPRESENTATIVE PROJECT EXPERIENCE

Rancho California Water District — Solar PV Asset Management

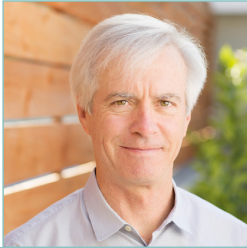
Temecula, CA • 2015 - Present

- 7.9 MW Solar PV at 4 Sites

In 2017, Sage was selected by the Rancho California Water District to provide asset management of 8 MW of existing solar energy generation systems at 4 District sites, including a RES-BCT analysis of benefiting accounts. Sage performed a comprehensive assessment of the technical and financial performance of these systems and compared the findings against the original projections. For sites where the realized savings did not meet the projections, Sage conducted a forensic analysis to determine the root cause of the discrepancies. Sage also modeled multiple tariff scenarios and determined that tariff optimization at two sites would lead to an immediate increase in savings. Sage reviewed the O&M activities provided by the vendor and made recommendations to improve system performance, which resulted in a significant increase in utility savings.

Eva Plajzer, PE, Assistant GM, 951.296.6910, plajzere@ranchowater.com





Tom Williard

Managing Principal and CEO

PROFESSIONAL HISTORY

- 18 Years Renewable Energy
- 8 Years Engineering Management
- 20 Years Electrical Engineering

WORK EXPERIENCE



Sage Energy Consulting
 Founder, CEO
 2009 — Present

SolEd Benefit Corporation
 Founder, COO/CTO
 2013 — 2014

Solmetric Corporation
 Founder, Director of Engineering
 2005 — 2008

Sustainergy Systems
 Renewable Energy Consultancy
 Principal
 2005 — 2009

System Design
 Renewable Energy Consultancy
 Founder and Principal
 2001 — 2005

**Engineering Management
 Consultant**
 2000 — 2002

Electrical Engineering:
Ascend Communications
Hayes Microcomputer /
Softcom Digital Microsystems
Dunn Instruments
 Senior Electronics Hardware and
 Software Engineer, Director of
 Engineering, Senior Technologist
 1980 — 2000

Mr. Williard has more than 18 years of experience in energy consulting and development of energy sector businesses, with a focus on the development of technical and financial models to predict potential energy asset allocation and financial performance, and has served as CEO since Sage's inception. In 2013, Mr. Williard cofounded SolEd Benefit Corporation and wrote the project financial models used to structure PPA and lease financings that reduced the cost of renewable energy projects for public schools. In 2005, he cofounded Solmetric, a company that developed the SunEye, a high precision instrument now widely used in the solar industry to measure shade characteristics. In 2001 he cofounded System Design, a renewable energy system design and due diligence company.

Prior to 2001, Mr. Williard worked in electronics engineering in senior hardware and software engineering positions, as senior technologist, and in engineering management. Mr. Williard also provided engineering management consulting to startup and early stage companies and served for seven years as an elected public school trustee in Marin County. As a Sage Principal, he provides financial, policy, and technical oversight for all company projects, and provides expert testimony for clients and industry groups.

AREAS OF EXPERTISE

Modeling Tool Development for Solar PV, Wind, Biogas, and Microgrids
 Financial Modeling & System Finance
 Engineering & Business Development
 Renewable Energy Resource Assessments & Feasibility Studies
 Renewable Energy Systems Commissioning Certification & Support
 Renewable Energy Policy Support and Expert Testimony

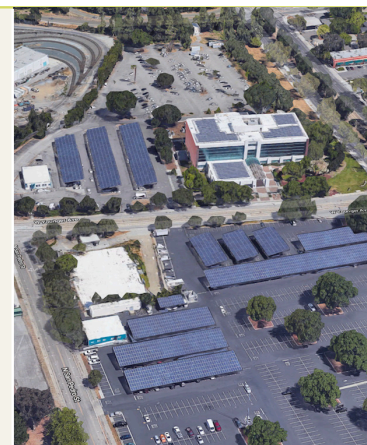
REPRESENTATIVE PROJECT EXPERIENCE

County of Santa Clara

San Jose, CA • 2010-2017

- Zero Net Energy (ZNE) Study
- 2.4 MWp Fuel Cells
- 11.4 MWp Solar PV PPA RES-BCT
- CPUC Policy Guidance

As a leader in implementing ZNE and renewable energy policies, the County's work with Sage included a 400,000 sq.ft. government building retrofit. Over 7 years, Tom led a team providing planning, analysis and advisory support for the County's successful projects.





Megan Dawe LEED GA

Senior Data Scientist

PROFESSIONAL HISTORY

8 years in building energy analysis
6 years in energy code research and consulting
3 years in quantitative analysis

WORK EXPERIENCE



Sage Energy Consulting
Senior Data Scientist
2020–present

Carbon Lighthouse, Inc.
Quantitative Research Engineer
2019–2020

**Center for the Built Environment,
University of California, Berkeley**
Graduate Student Researcher
2017–2019

TRC Companies, Inc.
Research Associate,
Associate Project Manager
2012–2018

EDUCATION

**MS, Architecture, Building Science,
and Technology**
University of California, Berkeley

BS, Environmental Studies
University of California, Santa Barbara

CERTIFICATIONS AND LICENSES

LEED Green Associate

Megan Dawe is a skilled data scientist with experience in energy savings analysis, model development, and energy efficiency. At Sage, she performs energy modeling, financial modeling, field assessments, and geospatial analysis, and also manages certain projects.

Before starting at Sage, Ms. Dawe performed energy savings analyses and developed models for commercial building energy efficiency. She evaluates the effectiveness of energy efficiency measures using system data and utility bills. She also contributed to cost-effectiveness analyses for building energy code development, including Title 24 and local zero net energy codes. She has published research quantifying and analyzing outdoor and indoor air quality data gathered during California wildfires; evaluating industry claims about thermal comfort in commercial buildings; and assessing trends in commercial zero net energy buildings and integrated design processes.

AREAS OF EXPERTISE

Energy Savings Analysis Energy Efficiency
Model Development Quantitative Research

REPRESENTATIVE EXPERIENCE

Building Resilience to Fire-Generated PM_{2.5}

This project evaluated the ability of buildings to protect occupants from exposure to unhealthy concentrations of small particulate matter (PM_{2.5}) during the 2018 Camp Fire in Northern California. Ms. Dawe analyzed 15-minute PM_{2.5} data across different spatial and temporal scales, comparing levels to the World Health Organization's guideline for human exposure (below). The two buildings under study had differing ventilation strategies, one being primarily naturally ventilated and the other being mechanically ventilated with three stages of filtration, including MERV 8 and MERV 13 filters.

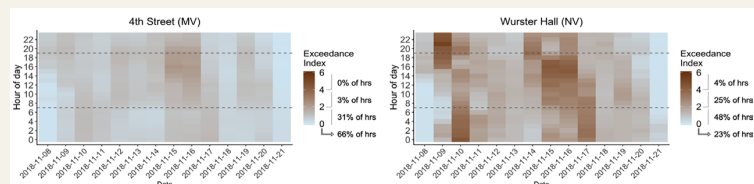


Wurster Hall



1608 4th Street

Ms. Dawe developed visualizations to convey the temporal patterns of PM_{2.5} concentration in each building throughout the wildfire. The study's findings point to the need to balance energy-efficient natural ventilation and mechanical ventilation with sufficient filtration, which continues to be an engineering challenge. Building designers and operators need to have flexible systems in order to maintain healthy indoor air quality under changing conditions, while minimizing the use of fossil fuels.



Sage's Water-Related Experience and References

- Assisting Alameda County Water District implement their clean energy plan, including over 6MW of solar (and potentially battery) on ground, roof, canopy and floating utilizing RES-BCT tariff structures and third-party finance.
- Providing asset management services to Rancho California Water District on their 6+ MW of installed solar, including forensic savings analysis, tariff optimization, and battery addition.
- Performed District-wide greenhouse gas emissions analysis and provided energy planning assistance for West County Wastewater District.
- Provided portfolio analysis of distributed solar projects for multiple San Francisco Public Utility Commission (SFPUC) properties, including assistance to the local CCA in developing a feed-in-tariff for distributed projects. Currently providing owner's representative services for the procurement of approximately 8 MW of solar PV + BESS on four SFPUC Water reservoir sites.
- Procured and managed the implementation of a 4.2 MW solar PPA for Sacramento Regional County Sanitation District (Regional San), including analysis of multiple other sites for solar and wind, as well as an economic analysis of the local utility's green tariff.
- Performed a detailed solar feasibility study and lifecycle cost analysis, inclusive of structural analysis of five water tank roofs, for the City of Bakersfield Water Resources Department.
- Performed a wind and solar feasibility study, both front and back-of-meter, for Las Gallinas Sanitary District, inclusive of wind resource modeling and turbine placement.
- Produced a detailed feasibility study and lifecycle cost analysis of a third-party financed 4 MW floating solar and battery PPA for the City of Petaluma's Water Recycling Facility.
- Performed feasibility, interconnect, procurement, and design review services for an approximately 3 MWp ground-mounted solar PV system and a potential battery energy storage system (BESS) at the City of Manteca's Wastewater Control Facility (WCF). Included securing Equity SGIP incentives for a 3 MWh battery.
- Performed analysis, negotiation, and contracting support for solar PPA project at the Coachella Valley Water District's Palm Desert Facility Campus.
- Provided solar PPA contract review/negotiations, review of battery, negotiations and ongoing owner's representation during design/construction of a solar project for the San Elijo Joint Powers Authority. Providing evaluation of backup emergency power system.



PERFORMANCE ANALYSIS, ASSET MANAGEMENT

RANCHO CALIFORNIA WATER DISTRICT | RANCHO, CA

- Developing district-wide energy strategy
- Solar, battery storage, and EV charging
- Brent Johnson (Principal In Charge)
- Emissions evaluation and carbon accounting

In 2017, Sage was selected by the Rancho California Water District to provide asset management of 8 MW of existing solar energy generation systems at 4 District sites, including a RES-BCT analysis of benefitting accounts. Sage performed a comprehensive assessment of the technical and financial performance of these systems and compared the findings against the original projections. For sites where the realized savings did not meet the projections, Sage conducted a forensic analysis to determine the root cause of the discrepancies.

Sage also modeled multiple tariff scenarios and determined that tariff optimization at two sites would lead to an immediate increase in savings to the District. Sage reviewed the operations and maintenance activities provided by the vendor and made recommendations to improve system performance, which resulted in a significant increase in utility savings.

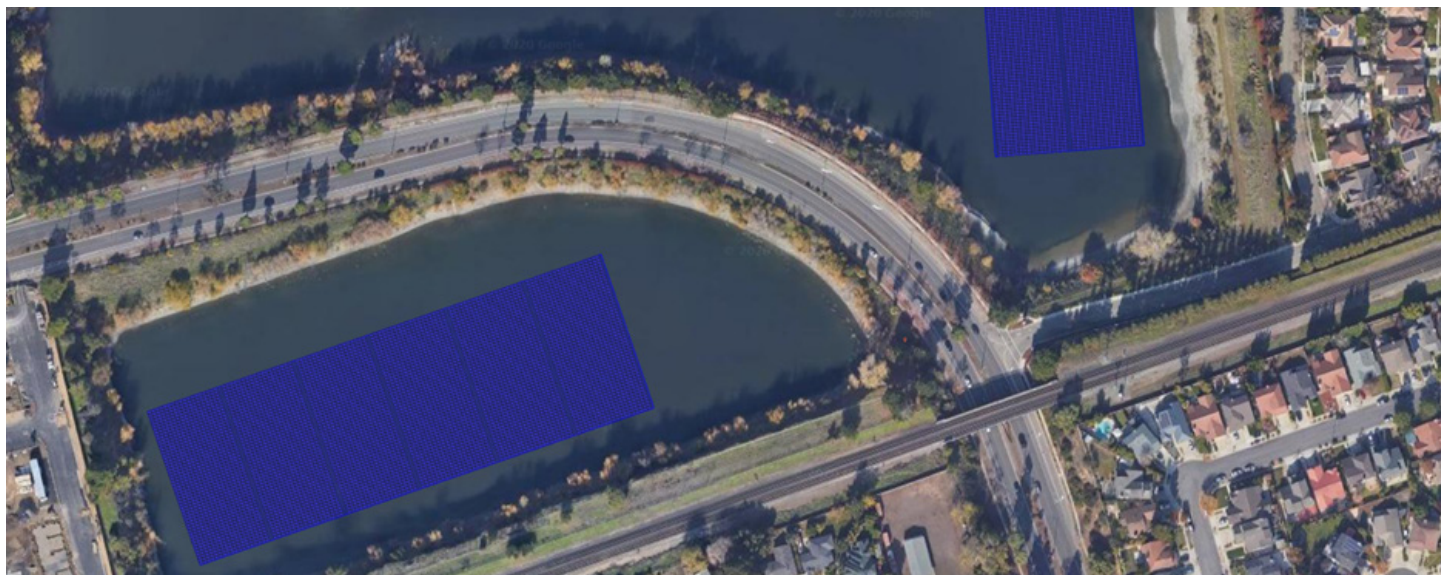
Sage is performing battery savings modeling for BESS being added to a site with existing solar, and assisting with contract negotiations for the energy storage services agreement.

SERVICES

- Technical and Financial Performance Assessments
- Tariff Modeling
- O&M Review
- Forensic Analysis
- Asset Management
- RES-BCT Analysis

CONTACT REFERENCE

Eva Plajzer, PE
 Assistant General Manager
 Engineering and Operations
 (951) 296-6910
plajzere@ranchowater.com



ALAMEDA COUNTY WATER DISTRICT PROJECT

ALAMEDA COUNTY WATER DISTRICT | ALAMEDA COUNTY, CA

- 6 MW Solar PV PPA on 7 Potential Sites, Optional BESS
- PV sites on reservoir roofs, ground-mount, canopy, and optional floating solar
- RES-BCT and NEM
- Project dates: 2019–present
- Project value: \$23.9M

Sage is assisting ACWD with implementation of a 6 MW PV/BESS energy project. Sage performed feasibility assessment of 9 District sites to conceptualize sizing and siting of PV systems, determine the preferred interconnection approach, map the target benefitting accounts to generating accounts under RES-BCT, and estimate financial performance of the PV systems under a PPA scenario. Sage interfaced with the local CCA to evaluate tariffs available through the CCA versus PG&E, and oversaw a structural evaluation of reservoir roofs and has been interfacing with the District’s environmental consultant on CEQA notices. Sage has also considered generation from the existing in-conduit hydropower system in developing the RES-BCT arrangement.

Sage developed an RFP in collaboration with the District and their legal counsel and managed the procurement process to find a vendor to build, own, and operate the solar PV project under a power purchase agreement (PPA). Sage is currently supporting the District with proposal review and vendor selection. As the project progresses, Sage will support the District by providing design review, construction management, and commissioning. After the project is built, Sage will provide asset management services to the District, to ensure that the project is operating as designed and yielding the expected financial outcomes.

SERVICES

- Feasibility Analysis
- Complex Tariff Analysis
- RFP, Procurement, and Contracting
- Design and Construction Support
- Commissioning
- Asset Management

CONTACT REFERENCE

Shane O’Nesky
 Project Engineer
 510-668-4489
 shane.onesky@acwd.com



ENERGY AND WATER EFFICIENCY

CITY OF MODESTO AND COUNTY OF STANISLAUS | MODESTO, CA

- City and County Energy Action Plans and Energy Services Procurement
- Wastewater Treatment Plant Solar PV PPA Analysis
- Project Dates: 2020–ongoing
- Sage Fee: \$230,000

Sage, as part of a team with the Center for Transportation and the Environment (CTE) and Stockton Unified School District (SUSD), was awarded a \$4.8M Clean Mobility in Schools Grant from the California Air Resources Board. Sage’s role, which began in April 2020, includes Equity SGIP incentive applications; developing District-wide energy strategy; assisting with solar, battery storage, and EV charging implementation; and performing carbon accounting and ongoing emissions evaluation. Charging strategy includes pairing onsite solar and stationary storage with a charge management platform to optimize the cost and carbon content of electricity used to charge the buses.

The grant allows SUSD to develop a zero-emissions roadmap and explore emission-reducing strategies across the District. The program includes electric school purchase and deployment, charging infrastructure, a charge management platform, student and staff transportation, zero-emissions ground maintenance and fleet vehicles, as well as generation and energy storage. The team will undertake outreach and education activities aimed at SUSD students, teachers and staff, the Stockton community and other school districts. The project also includes comprehensive data collection and reporting to measure the impact of the project components.

SERVICES

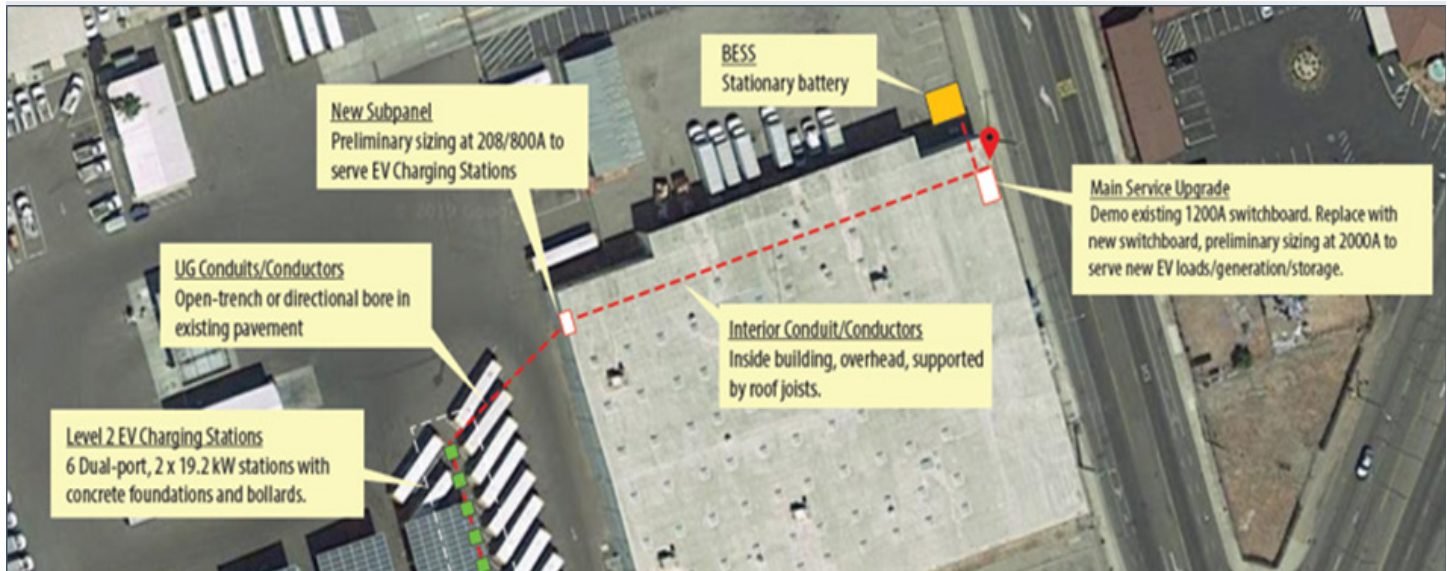
- Feasibility Studies
- Financial and Performance Modeling
- RFP Development
- Proposal Analysis
- Vendor Selection Support
- Interconnection
- PPA Analysis

CONTACT REFERENCE

Patrick Crowley, P.E., FMP,
 Facility Manager / Building
 Administration
 Public Works Building Services
 City of Modesto
 209.402.6812
 pcrowley@modestogov.com

Mark Loeser
 Deputy Director
 Stanislaus County General
 Services Agency
 209.525.6554
 loeserm@stancounty.com

REFERENCES



CARB CLEAN MOBILITY IN SCHOOLS AT STOCKTON USD

STOCKTON UNIFIED SCHOOL DISTRICT | STOCKTON, CA

- Asset management of 8 MW of solar PV at 4 sites
- Technical and financial performance assessments
- RES-BCT analysis
- Project dates: 2017–present
- Project value: \$21.3M
- Sage’s fees: \$85,000

Sage, as part of a team with the Center for Transportation and the Environment (CTE) and Stockton Unified School District (SUSD), was awarded a \$4.8M Clean Mobility in Schools Grant from the California Air Resources Board. Sage’s role, which began in April 2020, includes Equity SGIP incentive applications; developing District-wide energy strategy; assisting with solar, battery storage, and EV charging implementation; and performing carbon accounting and ongoing emissions evaluation. Charging strategy includes pairing onsite solar and stationary storage with a charge management platform to optimize the cost and carbon content of electricity used to charge the buses.

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SERVICES

- District-Wide Energy Strategy
- Solar/Stationary Storage Feasibility
- EV Infrastructure Recommendations
- Emissions Evaluation
- Carbon Accounting
- LCFS Modeling

CONTACT REFERENCE

Erik Bigelow
 Senior Engineering Consultant
 Center for Transportation and the Environment
 erik@cte.tv
 404.376.5390
 635 Fairview Ave N,
 St Paul, MN 55104

REFERENCES



CATALINA ISLAND MICROGRID FEASIBILITY STUDY

SOUTHERN CALIFORNIA EDISON | SANTA CATALINA, CA

Southern California Edison is required by the state of California to reduce its NOx emissions from its power generation fleet. The island of Santa Catalina is off the coast of Southern California and within SCE's service territory. It is currently powered by six diesel generators, 23, 65 kW propane microturbines, and a 1MW/7.2MWh NaS battery storage system. NV5 provided a feasibility study to explore three solutions to repower the island consisting of the island's existing electrical system, power generation resources, and top locations for renewable development and deployment including wind, solar, battery storage, and ocean power technologies. NV5 also evaluated the role of energy efficiency and demand response to achieve these goals, via metrics enabling an all-source common basis for evaluation of both supply and demand reduction options. The results of this study provided SCE a guide on how to update their existing power generation sources into an emissions-compliant system.

CHALLENGES & SOLUTIONS

The immense nature of the project scope led to a large project team with expertise in many different fields. Keeping these studies organized and consistent in a format that could be easily digested and referenced was a major challenge for this project. Another challenge involved the sheer number of stakeholders involved in the study process. Many different groups with various levels of expertise had to come together and provide input and information to the project narrative. It was an organizational and logistical challenge to receive, summarize, and digest input from the various parties involved in the project. To work through these challenges, NV5 coordinated closely with, and took in feedback from, all the team members and stakeholders involved. We stayed highly organized to control the incoming data and input from all involved. Most importantly, NV5 made sure that everyone felt heard and that all comments, suggestions, and requests were responded to. Ultimately, NV5 produced a detailed, cohesive report that took in input from a variety of stakeholders and a range of data sources.



SERVICES

- Environmental Services & Permitting
- Microgrid Optimization & Design
- Electric Distribution Impact Study
- Master Planning Infrastructure & Utilities
- Renewable Energy Facilities Siting & Design

CONTACT REFERENCE

Erik Bigelow
 Senior Engineering Consultant
 Center for Transportation and the Environment
 erik@cte.tv
 404.376.5390
 635 Fairview Ave N,
 St Paul, MN 55104

PROJECT SIZE: 15 MW, 12 KV
 CONSTRUCTION COST: TBD
 VALUE OF CONSULTANT SERVICES:
 \$448,610
 YEAR COMPLETED: 2020 (EST)



ENERGY SAVINGS PERFORMANCE CONTRACTS

LOS ANGELES COUNTY SANITATION DISTRICTS | LOS ANGELES, CA

In 2019 NV5EES was hired by LACSD to act as an Owner's Rep for their pilot ESPC projects at the Valencia Water Reclamation Plant and the Carson Water Reclamation Plant (CWRP). NV5 started by educating the LACSD management, finance, and engineering staff on the ESPC process, and how to comply with CA GS 4217. NV5 then worked with LACSD to develop the ESCO RFP, evaluated proposals, assisted with the shortlisting and interviews, and selection of Schneider Electric. The energy conservation measures (ECMS) include blower and air compressor replacements, premium efficiency motors, VFDs, lighting, and SCADA controls upgrades, worth over \$31 million.

NV5 helped the process run so smoothly that another LACSD plant wanted to start an ESPC project three months later. We followed the same process, and AECOM was selected as the ESCO for the \$45M+ ESPC project to replace obsolete oxygen generation systems at the Carson Joint Water Pollution Control Plant (JWPCP) with Vacuum Pressure Swing Adsorption (VPSA) technology. It is an excellent first step in reducing the energy consumption and carbon footprint of the facility, without compromising treatment capacity. The VPSA project will significantly reduce energy consumption as well as reduce operation and maintenance costs.

We then provided quality assurance services on the Investment Grade Audit, and Energy Services Agreement developed by the ESCO. We are currently providing QA services on the final design and construction of both projects

SERVICES

- Educate LACSD stakeholders on ESPC process
- Developed RFP in 10 days to meet fast-track project schedule
- Reviewed proposals, assisted in ESCO selection
- QA of Investment Grade Audits, energy services agreements, design, CX, M&V, and project acceptance

CONTACT REFERENCE

Joseph Chang
Supervising Engineer
Water Reclamation Plants
562-908-4288 ext. 3509
jchang@lacsd.org

SCHEDULE

The proposed schedule for Phases 1 and 2 of this project is shown in the Gantt chart below. The schedule for Phase 2 includes the three preliminary projects that are described in the scope. The schedule for additional projects will be developed once we are under contract and working closely with IRWD. This schedule is based on the following assumptions. If these conditions are not met, the schedule and budget may be impacted.

PHASE 1

- Combined Phase 1 and Phase 2 duration will be 14 months
- IRWD's personnel and sites are readily available for interviews and site visits
- IRWD's historic energy use data and GHG estimates are readily available
- IRWD provides comments on draft documents within one week of receipt
- Data collection will be conducted for 20 sites

PHASE 2

MWRP Electric Load Study

- Assumes up to 50 electrical buses. Models will be modeled down to 50hp. All other loads on panelboards will be modeled as block loads

SCE Billing Rates and Demand Response Participation

- SCE billing rates and demand response participation will be evaluated for 20 sites

Developing a Real-Time and Historic Energy Use Database

- A real-time and historic energy use database will be planned for 20 sites

Energy Generation and Battery Energy Storage Project Development

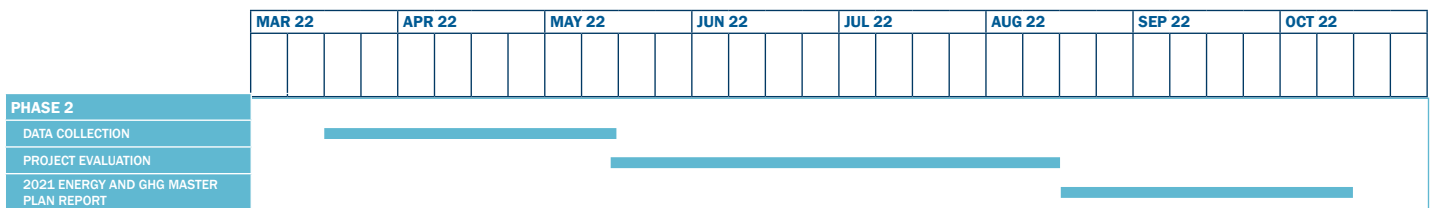
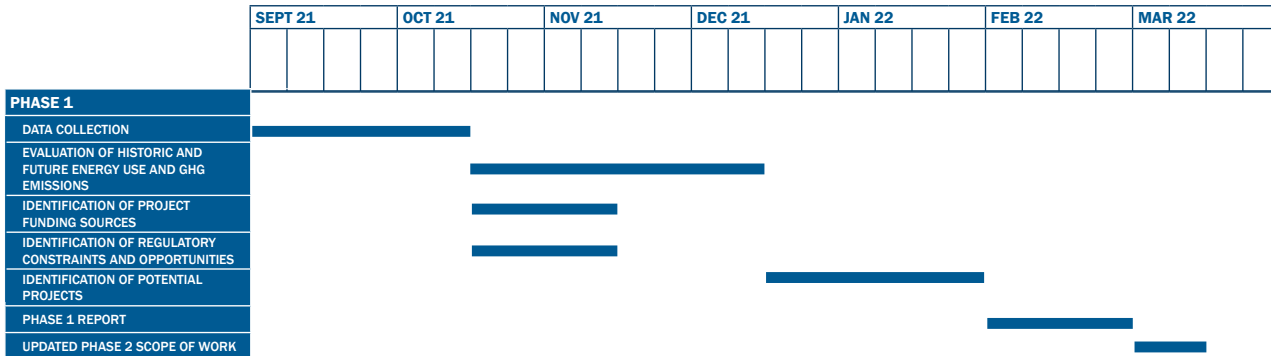
- Solar PV + BESS will be evaluated at up to 10 sites

Fleet Electrification Project Development

- Vehicle fleet electrification will consider planning for EV charging infrastructure at up to 2 sites

Energy Efficiency Project Identification, Analysis, and Development

- Portfolio utility spend is ~\$22 million in 2020
- Estimated 20% savings from EE projects, or \$4.4 million
- Typical fee for technical support (2%) of EE project costs, estimate our effort for IRWD will be about 2/3 of normal support
- Included \$6,000 in travel costs for our Nevada based staff for several on-site meetings, data collection, and site inspections. (Assuming the pandemic does not prevent in-person meetings)
- We have included only minimal time for Phase 2 for potential energy efficiency projects, as those budgets will be developed in Phase 1
- Since the Electrical Load Study is not a two phase endeavor, we have split it into a 20%/80% assumed effort to match the format of the rest of the total budget for Phases 1 and 2



BUDGET



The scope of this project includes a wide range of potential projects at up to twenty sites. The breadth of this potential scope and the level of effort needed to assess the different project types is not possible to predict without the investigations that will be performed in Phase 1 and the first few projects listed in Table 1.2 of the RFP. The NV5 team has put considerable thought into the expected hours and budget necessary to complete the proposed scope of work and has included key schedule and budget assumptions in the Schedule section of this proposal, above. If project scope or duration varies significantly from those assumptions, the NV5 team may request adjustments to the budget commensurate with the change in scope.

Sage							NV5											
Role	Principal	Principal	Sr. PM	Sr. Data Scientist	Analyst	Admin	Asst PIC	Asst PM	Sr Data Scientist	Sr PM	Electrical Engineer	Water/WWTP Expert	Water/WWTP Expert	Admin. Assistance	Energy Analyst	Total	Total	
Name	Brent Johnson	Tom Willard	Ilan Fuss	Megan Dawe	TBD	Mary West	Chris Halpin	Dave Wyllie	Francis Mahony	Dan Kolimar	Brad Willers	James Owen	Julian Palacios	TBD	TBD	Hours	Fee	
2021 Hourly Rates	\$250	\$250	\$230	\$205	\$145	\$80	\$300	\$210	\$180	\$190	\$195	\$225	\$225	\$100	\$89	Total	Total	
2022 Hourly Rates	\$285	\$285	\$235	\$215	\$155	\$85	\$300	\$215	\$185	\$195	\$201	\$230	\$230	\$105	\$95	Travel		
Tasks	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	\$	
Task 1 Phase 1	58	20	170	84	48	18	19	54	41	73	50	32	34	64	10	\$ 8,000	775	\$162,400
1.1 Phase 1 Project Management			26			14	2	12		7	2	2	2				67	\$12,840
1.2 Phase 1 Meetings	14		24				4	24	4	10	4	4	4	2	2	\$4,000	96	\$24,838
1.3 Data Collection	16		40	32	8			2	15	24	2	8	8	24	8	\$4,000	187	\$39,702
1.4 Evaluation of Historic and Future Energy Use and GHG Emissions								2	10	16	4						40	\$6,840
1.5 Identification of Project Funding Sources		4	8	8			2	2			1	2					27	\$6,145
1.6 Identification of Regulatory Constraints and Opportunities		16	8				1				1		4				30	\$7,235
1.7 Identification of Potential Projects	16		32	40	40		2	4			24	8	8	24			198	\$37,480
1.8 Phase 1 Report	8		24	4			4	4	12	8	8	4	4	4			84	\$17,820
1.9 Updated Phase 2 Scope of Work	4		8			4	4	4		8	4	4	4	2			46	\$9,500
Task 2 Phase 2	27	0	102	224	80	14	10	32	0	0	200	0	0			\$ 4,000	689	\$145,595
2.1 Phase 2 Project Management			20			14		4			16						54	\$9,850
2.2 Phase 2 Meetings	7		18				6	18			16					\$2,000	65	\$16,785
2.3 Project Evaluation	4		32	208	80			2			160						486	\$97,320
2.4 2021 Energy and GHG Master Plan Report	16		32	16			4	8			8					\$2,000	84	\$21,640
Total Estimated Project Hours	85	20	272	308	128	32	29	86	41	73	250	32	34	64	10	\$12,000	1,464	\$307,995

JOINT VENTURE

NV5 will be the Prime firm for this contract. Sage Energy Consulting will be the subcontractor to NV5.

CONFLICTS OF INTEREST PLAN

NV5 has no known conflicts of interest. Additionally, the following is an excerpt from NV5's employee Manual, which is signed by each employee and will be followed by our team on this project. This shows that NV5 takes this issue very seriously.

All employees, officers and directors must avoid any investments, business interests or other associations with third parties which interfere with or influence, or even appear to interfere with or influence, their objective judgment in furtherance of their responsibility to act in the Company's best interests. A conflict of interest arises when an employee's, officer's or director's judgment in acting on the Company's behalf is or may be influenced by an actual or potential personal benefit for the employee, officer or director, or a member of the employee's, officer's or director's family or household, from such an investment, business interest or some other association.

The benefits may be direct or indirect, financial or non-financial, through family connections, personal associations or otherwise. It is not possible to describe all the circumstances where a conflict of interest involving an employee, officer, director or a member of his or her family or household exists. The following examples are given only to guide employees, officers and directors in making judgments about possible sources of such conflicts:

- Owning an interest in the business of a supplier, competitor or customer.
- Acting as a consultant, employee, officer or director for a supplier, competitor or customer.
- Competing with, or aiding others in competing with, the Company in connection with the purchase, sale or other disposition of its property or products, or in connection with the Company's provision of products or services.
- Acting on behalf of the Company in any transaction with any supplier, competitor or customer in which a member of one's family or household is a principal, officer or representative.

If any employee, officer or director finds himself or herself in a situation where a conflict of interest exists, he or she immediately should bring the matter to the attention of his or her supervisor, or other directors or officers who will be responsible for contacting the Company's General Counsel or the Company's outside legal counsel for appropriate guidance.

CONTRACT CONCERNS

NV5 does not have any substantial contract concerns.

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September 27, 2021
Prepared and
submitted by: P. Weghorst
Approved by: Paul A. Cook *PAC*

ACTION CALENDAR

THIRD AMENDED AGREEMENT BETWEEN IRWD AND CITY OF ORANGE TO FACILITATE PFAS REMOVAL FROM GROUNDWATER

SUMMARY:

IRWD and Orange County Water District (OCWD) are currently designing treatment facilities at IRWD's Well OPA-1 that will be used to remove per- and poly-fluoroalkyl substance (PFAS) contamination in the Orange County Groundwater Basin. OCWD is also designing PFAS treatment facilities for two new wells to be constructed by the City of Orange. IRWD, the City of Orange, and OCWD have a common interest in removing PFAS from the basin. To facilitate this objective using a mutually beneficial approach, a third amendment to the existing agreement between IRWD and the City of Orange has been jointly prepared. Staff recommends the Board authorize the General Manager to execute the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service between IRWD and the City of Orange, subject to non-substantive changes.

BACKGROUND:

IRWD owns and operates Well OPA-1, located within the City of Orange. IRWD proposes to increase pumping at Well OPA-1 from 900 acre-feet per year (AFY) to approximately 3,200 AFY, or another amount approved by a joint IRWD and City technical staff committee or an amount that is demonstrated through environmental review that does not impact the City's Well No. 23. This will facilitate achieving OCWD's objective to construct and maximize groundwater treatment facilities to remove PFAS contamination from the Basin. The increased pumping would be used to serve IRWD's customers outside the City's sphere of influence and within IRWD's service area. To provide for the environmental review of the increased pumping and PFAS treatment at Well OPA-1, staff has prepared a final addendum to the Initial Study / Mitigated Negative Declaration (IS/MND) that was adopted by the Board in June 2012 for the Orange Park Acres Well Replacement Project.

The City of Orange is currently planning to construct two new wells in its service area. OCWD would construct PFAS treatment facilities at these new wells, which would then be operated by the City of Orange. The City's environmental review of the construction and operation of the new City wells and treatment facilities is anticipated to occur later this year.

OCWD Groundwater Modeling:

OCWD has modeled the well drawdown impacts of the proposed increased pumping at Well OPA-1. OCWD's modeling results demonstrate that the groundwater drawdown resulting from increased pumping of Well OPA-1 will have a less-than-significant impact on the City's wells. OCWD expects that modeling would demonstrate that the drawdown impacts from the City's new wells will also have a less-than-significant impact on Well OPA-1.

IRWD and City of Orange Agreement:

IRWD and the City entered into an agreement dated November 5, 1984, entitled “Water Supply and Service Agreement,” for the purpose of creating a joint water supply arrangement for areas within the City’s sphere of influence. The November 1984 agreement was superseded in its entirety in November 1994 through a First Amended Agreement which modified the joint water supply arrangements and incorporated arrangements concerning sewer and non-potable water service. The First Amended Agreement was amended and superseded in its entirety in August 2006 by a Second Amended Agreement.

Third Amended Agreement to Facilitate PFAS Treatment:

To facilitate the mutual interests of IRWD, the City, and OCWD of treating groundwater to remove PFAS contamination from the Basin, staff and IRWD’s legal counsel have worked with the City and its legal counsel to prepare the Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service and Natural Treatment System Service that is provided as Exhibit “A”. The revisions incorporated into the Third Amended Agreement include the following:

1. Pumping of the wells with PFAS treatment will have a less-than-significant impact;
2. The agencies will not challenge any aspect of their respective well and treatment projects or related CEQA documents;
3. Provisions to ensure that pumping of the wells and PFAS treatment can occur uninterrupted;
4. IRWD will pay to make certain feasible improvements at the City’s Well No. 23;
5. If the improvements at the City’s Well No. 23 are determined not to be feasible, then pumping from IRWD’s OPA Well-1 and the City’s Well No. 23 would be reduced incrementally at the same rate; and
6. IRWD’s additional pumping at Well OPA-1 could be used to serve water outside the sphere of influence of the City of Orange and inside IRWD’s service area.

FISCAL IMPACTS:

OCWD will pay for the capital facilities to treat for PFAS at Well OPA-1. IRWD and OCWD will share equally in the operations and maintenance costs of the treatment facilities. In accordance with the Third Amended Agreement, IRWD will pay for and conduct the preparation of a Feasibility Study regarding lowering the pump bowls on the City’s Well No. 23. If it is determined that the improvements are feasible, then IRWD will be pay for and conduct the preparation of a 30% design of the improvements. IRWD would then pay for the engineers’ estimate for the improvements in accordance with the terms of the agreement.

ENVIRONMENTAL COMPLIANCE:

To provide for the environmental review of the increased pumping and PFAS treatment at Well OPA-1, staff, with the assistance of environmental consultants, have prepared a final addendum to the IS/MND that was adopted by the Board in June 2012 for the Orange Park Acres Well Replacement Project.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on September 22, 2021.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE THE THIRD AMENDED AGREEMENT FOR WATER SUPPLY AND SERVICE, SEWER AND RECLAIMED WATER SUPPLY AND SERVICE, AND NATURAL TREATMENT SYSTEM SERVICE BETWEEN IRWD AND THE CITY OF ORANGE, SUBJECT TO NON-SUBSTANTIVE CHANGES.

LIST OF EXHIBITS:

Exhibit "A" – Third Amended Agreement for Water Supply and Service, Sewer and Reclaimed Water Supply and Service, and Natural Treatment System Service

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Exhibit "A"

THIRD AMENDED AGREEMENT

WATER SUPPLY AND SERVICE SEWER AND RECLAIMED WATER SUPPLY AND SERVICE NATURAL TREATMENT SYSTEM SERVICE

THIS THIRD AMENDED AGREEMENT (“**Agreement**”) is made as of the day of October 13, 2021, by and between the CITY OF ORANGE, a California municipal corporation (“**ORANGE**”), and the IRVINE RANCH WATER DISTRICT, a California water district formed and existing pursuant to Section 34000 et seq. of the California Water Code (“**IRWD**”).

A. ORANGE and IRWD entered into an agreement dated November 5, 1984, entitled “Water Supply and Service Agreement,” for the purpose of creating a joint water supply arrangement for that certain real property (the “**Property**”) located in Orange County, California, consisting of approximately 9,300 acres, as depicted on Exhibit “A” attached hereto. The November 5, 1984 agreement was amended and superseded in its entirety by the November 21, 1994 agreement between the Parties entitled “First Amended Water Supply and Service Agreement and Sewer and Reclaimed Water Supply and Service Agreement,” which provided for a modified joint water supply arrangement and also incorporated arrangements concerning sewer and nonpotable water service to the Property. The First Amended Agreement was amended and superseded in its entirety by the August 28, 2006 “Second Amended Agreement [regarding] Water Supply and Service, Sewer and Reclaimed Water Supply and Service[, and] Natural Treatment System Service” (“**Second Amended Agreement.**”)

B. It continues to be the Parties’ intent to provide for separate service and supply arrangements to apply to the areas depicted on Exhibit “B” as “**Santiago Hills I**” (comprising the portion of the Property referred to in the First Amended Agreement as the “Developed Area”) and in Exhibit “C” as “**Santiago Hills II**,” “**East Orange Area I**,” and “**East Orange Area II.**”

C. It is acknowledged that Santiago Hills I essentially comprises the portions of the Property which are within ORANGE’s 736 foot elevation zone (such 736 Zone is equivalent to IRWD’s Zone 5), for water service purposes, and the portions of the Property which are within the Consolidated Revenue Area of the Orange County Sanitation District (“**OCSD**”) (successor to the County Sanitation Districts of Orange County), for sewer service purposes. Similarly, it is acknowledged that Santiago Hills II, East Orange Area I and East Orange Area II are within elevation zones higher than the ORANGE 736 Zone (IRWD’s Zone 5) for water service purposes and are within (or subject to IRWD-SCWD consolidation, will be within) Revenue Area 14 of OCSD for sewer service purposes. The definitions of “Property,” “Santiago Hills I,” “Santiago Hills II,” “East Orange Area I,” “East Orange Area II,” “Future Development Area” and “SHII/East Orange Area” and Exhibits B and C notwithstanding, it is intended that the Joint Engineering and Management Committee described herein may make minor adjustments between the respective areas where appropriate to achieve efficiency in service arrangements.

D. Existing subarea service master planning for the Future Development Area has proceeded and reflects various changes to development and service plans that have occurred since the date of the Second Amended Agreement. In response to these changes, as well as the need to

modify the Second Amended Agreement to address areas adjacent to the Future Development Area that have become included in IRWD through consolidation, the Parties desire to implement the modified joint water, sewer and nonpotable water supply and service arrangements and natural treatment system service arrangements set forth herein, in order to maintain the most effective use of the Parties' sources of supply, facilities, financing and service and payment structure in the provision of services to the ultimate consumer.

E. The Parties, together with Orange County Water District ("OCWD"), have mutual interests relating to remediating per- and poly-fluoroalkyl substances ("PFAS") contamination in the Orange County Groundwater Basin, including coordinating and supporting the environmental review of the Parties' proposed well and PFAS treatment projects.

F. Each Party has near-term plans to construct wells or increase groundwater pumping and install PFAS treatment in areas that are hydrogeologically interconnected and impacted by PFAS contamination, as follows:

- IRWD plans to increase pumping at its Well OPA-1 from 900 acre feet per year ("AFY") to approximately 3,200 AFY for use in IRWD's service area, and to add wellhead PFAS treatment at this well ("**IRWD Project**").
- ORANGE plans to construct two additional wells in its service area ("**City Project**") to facilitate increased pumping at which the City will add PFAS treatment.
- Together the IRWD Project and the City Project are the "**Well Projects**".

G. OCWD has modeled the well drawdown impacts of the proposed increased pumping under the IRWD Project demonstrating that the groundwater drawdown resulting from the IRWD Project will have a less-than-significant impact on the City's existing wells. The Parties anticipate that the proposed City Project will have a less-than-significant impact on the IRWD Project.

H. The Parties intend by this Third Amended Agreement to facilitate the Parties' mutual interests in effectively pumping and treating groundwater under the Well Projects and thereby the Second Amended Agreement is superseded in its entirety.

NOW, THEREFORE, in consideration of the foregoing recitals and of the following mutual covenants and conditions, IRWD and ORANGE agree as follows:

1. Design Criteria. The Parties acknowledge that design criteria for developing and implementing the provision of water, sewer, nonpotable water and natural treatment system service to the "SHII/East Orange Area" will be as established by IRWD through its subarea master planning. The "SHII/East Orange Area" is depicted on Exhibit "C".

2. Potable Water, Sewer, Nonpotable Water and Natural Treatment System Service for SHII/East Orange Area.

a. Potable Water: IRWD will provide all retail and wholesale potable water service to the SHII/East Orange Area.

b. Nonpotable Water: IRWD will provide all nonpotable water service to the SHII/East Orange Area, to the extent the provision of such service to the SHII/East Orange Area is determined to be feasible by IRWD. Portions of the on-site water systems in the SHII/East Orange Area may be designed with dual-system capability so that it will be possible in the future to provide potable or nonpotable water for irrigation of parks, greenbelts, golf courses and such other uses as may be approved from time to time under applicable laws and regulations.

c. Sewage Collection, Treatment, and Disposal: The SHII/East Orange Area is tributary to and will receive service from IRWD by means of IRWD's Harvard Avenue Trunk Sewer ("HATS"). The collection systems within the SHII/East Orange Area shall be designed to deliver sewage to HATS. The SHII/East Orange Area is within Revenue Area 14 of OCSD, such that the SHII/East Orange Area may be served by the facilities of OCSD in addition to those of IRWD. Agreements among IRWD and OCSD provide that IRWD shall be the local sewerage agency within Revenue Area 14.

d. Natural Treatment System ("NTS"): IRWD will own, operate and maintain six NTS water quality basin facilities on four sites in Santiago Hills II and East Orange Area I. In addition, IRWD will conduct periodic inspections, and may perform maintenance and repairs subject to reimbursement by the homeowners' association in the event the association fails to perform the same, on up to 20 water quality basin facilities to be owned by homeowners' associations in Santiago Hills II and East Orange Area.

e. General: Subject to Section 8(b), IRWD will provide the retail services described in this Section under its rules and regulations applicable to each respective class of customers.

f. Re-Opener: In the event IRWD fails to provide adequate water, sewer, and non-potable water service to the SHII/East Orange Area consistent with applicable regulations, laws and industry standards, ORANGE shall notify IRWD in writing of the inadequacy. IRWD agrees to correct the inadequacy within 180 days of such notice or explain why the service level is consistent with applicable regulations, laws and industry standards. If IRWD fails to make the correction or provide such explanation, ORANGE may initiate negotiations to amend this Agreement such that ORANGE would become the service provider for the SHII/East Orange Area.

3. Potable Water, Sewer, and Nonpotable Water Service to Santiago Hills I.

a. Potable Water, Sewer, and Nonpotable Water Service: ORANGE will provide all retail and wholesale potable water and sewer service and all retail nonpotable water service to Santiago Hills I.

b. Nonpotable Water Supply: IRWD will provide all wholesale nonpotable water service to Santiago Hills I, to the extent the provision of such service to Santiago Hills I is determined to be feasible by IRWD.

c. General: ORANGE will provide the retail services described in this Section under its rules and regulations applicable to each respective class of customers.

4. Services to Other Areas.

a. Irvine Regional Park: The property owned by the County of Orange and known as “Irvine Regional Park” shall not be deemed included in Santiago Hills I or the Property for purposes of this Agreement. Potable water service to Irvine Regional Park shall be provided by ORANGE, and sewer service and nonpotable water service to Irvine Regional Park shall be provided by IRWD.

b. Nonpotable Water Service to Other Areas of ORANGE: IRWD agrees to cooperate with ORANGE to develop a source of nonpotable water (reclaimed or untreated water) for retail distribution within areas of ORANGE not addressed in Sections 2, 3 or 4(a) hereof.

5. Mutual Consent for Service. Each of the Parties hereby consents to service by the other within the consenting Party’s territory in accordance with this agreement.

6. Customer Service. Notwithstanding the above-described service structure or the provisions of Section 7, the Parties agree that the service structure is not intended to delay or encumber response to customer matters involving the Parties’ systems. Accordingly, the Party first contacted by a customer concerning, or otherwise learning of, a repair or other facilities situation needing attention will determine as soon as reasonably possible which Party is the responsible Party for the service requested and, if such contacted Party is not the responsible Party, will immediately inform the responsible Party. If the Party contacted deems the service request to be of such an emergency nature that the time taken in determining who is the responsible Party and/or informing that Party may be detrimental to the public’s health, safety or welfare, then the contacted Party may perform the necessary work or otherwise respond. If the responding Party is not the Party responsible under the service structure or Section 7, the responding Party will seek reimbursement of the costs incurred in responding, and the responsible Party shall promptly reimburse such amount within 30 days of receipt of an invoice from the responsible Party. Any disagreement regarding the amount of or entitlement to such reimbursement shall be resolved by the Parties pursuant to Section 10.

7. Financing, Construction and Ownership of Facilities.

a. SHII/East Orange Area: IRWD will finance and construct (or cause to be donated by the developer or property owner), and will own, operate and maintain, all facilities (other than regional water wholesaler or OCSD facilities) for provision of potable water, sewage collection, treatment and disposal, and nonpotable water service to the SHII/East Orange Area. IRWD’s financing will be provided through its Improvement District Nos. 105 and 250, and Nos.153 and 253, as applicable.

(i) Santiago Hills I: ORANGE will own, operate and maintain all facilities (other than regional water wholesaler or OCSD facilities) for provision of potable water and sewage collection, treatment and disposal service to Santiago Hills I; IRWD has financed and constructed (or caused to be donated by the developer) a portion of such water facilities through its Improvement District No. 105. IRWD will finance and construct (or cause to be donated by the developer or property owner), and will own, operate and maintain the wholesale and retail nonpotable water facilities to supply nonpotable water to Santiago Hills I. IRWD’s financing of

such nonpotable water facilities will be provided through its Improvement District No. 252. IRWD will use the existing tax receipts (ad valorem assessments levied for debt service on bonds of Improvement District No. 250) collected within Improvement District No. 252 to construct nonpotable water facilities or capacity therein serving only Santiago Hills I. IRWD will preserve and maintain its existing authority to collect ad valorem debt service taxes within Improvement District 252; provided no future taxes will be levied or collected by IRWD for Improvement District No. 252 without the explicit written consent of ORANGE. The subject non-potable facilities shall be constructed prior to issuance of the first Certificate of Occupancy issued by ORANGE in the Santiago Hills II development. If IRWD fails to construct the subject nonpotable facilities by the date of the first Certificate of Occupancy, then IRWD will refund the existing tax receipts.

b. Irrespective of facility ownership, all reasonable interconnections between ORANGE and IRWD facilities for operational efficiency and/or emergency purposes shall be allowed as determined by the Joint Engineering and Management Committee.

c. Design of all developer-donated facilities for potable water, sewage collection, non-potable water and natural treatment system service shall be in accordance with applicable design criteria of IRWD, and prior to construction thereof, ORANGE will require the developer to obtain IRWD's approval of the design. Following completion and prior to use of developer-donated facilities, ORANGE will require the developer to obtain IRWD's approval of the facilities.

8. Fees and Charges.

a. Connection Charges; Standby Charges; Taxes: IRWD will be entitled to collect all of its customary water and sewer connection charges from developers of the SHII/East Orange Area. Prior to issuance of certificates of occupancy, ORANGE will require the receipt from IRWD of an occupancy release letter in the form attached as Exhibit "D", as evidence of the payment of such connection charges to IRWD. In addition, IRWD will be entitled to collect taxes (ad valorem assessments for debt service on bonds) from property owners within Improvement District Nos. 105, 250, 252, 153 and 253, as applicable, and also will be entitled to collect potable and nonpotable water and sewer standby charges from property owners within the SHII/East Orange Area. No general tax rate (except for such assessments for debt service and IRWD's share of the general 1% property tax levy) is to be imposed by IRWD on the ultimate water or sewer service consumer.

b. User Rates: The rates collected by IRWD for water (including natural treatment system), sewer and non-potable water service in the SHII/East Orange Area shall be set in a manner consistent with the principles used in setting rates generally applicable in IRWD under its rules and regulations applicable to all classes of customers. (For this purpose, "rates generally applicable in IRWD" shall mean rates that IRWD sets generally, plus applicable pumping surcharges based on actual cost of pumping, but shall not mean the rates determined under special rate agreements governing all or portions of former service areas of water agencies that have become part of IRWD through reorganization). The foregoing notwithstanding, the cumulative total of IRWD water charges in the SHII/East Orange area, including fixed and water commodity charges but not including any pumping surcharges, sewer, natural treatment system, or non-potable

water charges, for an average residential customer using the IRWD median amount of water (“**Cumulative IRWD Charges**”) shall not exceed the cumulative total charges that would have been paid by an identical customer under the prevailing ORANGE water rate structure (“**Cumulative Cap**”). For purposes of making the foregoing comparison between the Cumulative IRWD Charges and the Cumulative Cap, the water charges for such average SHII/East Orange Area residential customer shall be aggregated for the most recently concluded IRWD billing period and all prior IRWD billing periods since the date of this Third Amended Agreement, using the applicable IRWD and ORANGE rate structures that were in effect during each such billing period. The ORANGE and IRWD water rates will be reviewed by the Joint Engineering and Management Committee as requested by ORANGE, but no more frequently than once per year. If the Committee finds that the Cumulative IRWD Charges have exceeded the Cumulative Cap, then prospective adjustments to the fixed and/or commodity water rates in the SHII/East Orange area will be applied by IRWD at the time of its next annual budget approval. Adjustments applied by IRWD to future fixed and/or commodity water charges shall be the sole method of bringing such charges back into conformance with the Cumulative Cap, and no retroactive adjustments or refunds for any period prior to adjustment will be required hereunder.

c. ORANGE Rates and Charges: ORANGE will not impose any connection charges or other rates and charges with respect to potable or nonpotable water service or sewer service to the SHII/East Orange Area.

d. OCSD Fees: IRWD shall be responsible for collecting and remitting any OCSD fees in the SHII/East Orange Area and shall defend and indemnify ORANGE against any claims by OCSD made after the date hereof that fees due OCSD from the SHII/East Orange Area have not been paid.

e. Collection of Rates and Charges: IRWD may, as permitted by law and upon taking proceedings as appropriate, collect sewer rates and charges within the SHII/East Orange Area by means of property tax bills. IRWD agrees to coordinate with ORANGE to include ORANGE’s fees for municipal services such as paramedic billing, trash collection and tree trimming, in IRWD’s retail water service bills for the SHII/East Orange Area.

9. Annexations.

a. ORANGE agrees not to oppose, or support any proposal inconsistent with, the annexation to OCWD of that portion of the SHII/East Orange area not currently within OCWD, for the purpose of supplying groundwater to the residents thereof.

b. If the Local Agency Formation Commission proposes a reorganization of the East Orange County Water District (“**EOCWD**”) and ORANGE seeks to retain the portion of the EOCWD service area that is currently within ORANGE’s city limits, IRWD agrees not to oppose ORANGE’s request or support any request inconsistent with ORANGE’s request.

10. Joint Engineering and Management Committee. The Parties shall continue in existence the Joint Engineering and Management Committee (the “**Joint Committee**”), and shall each continue to appoint one representative and one alternate representative to the Joint Committee. The primary purpose of the Joint Committee shall be to facilitate communication

between the Parties and aid in the administration of this Agreement. The Parties shall give full consideration to all recommendations of the Joint Committee. The Joint Committee shall meet periodically, but at least once a year, to perform such tasks as may be assigned to it by the Parties from time to time, including, but not limited to, the following:

a. Make minor adjustments between Santiago Hills I and the SHII/East Orange Area as may be necessary or appropriate from time to time to achieve the most efficient service arrangements based on facilities, system looping, continuity of neighborhoods, gravity flow and similar factors. Any such adjustments shall be depicted in addenda to Exhibits B and C or new exhibits which shall, upon approval by the Parties, supersede such exhibits;

b. Review the effect of the groundwater pumping by IRWD's OPA Well 1 and ORANGE Well 23 on groundwater levels, and suggest mitigation measures as necessary to provide for the continued pumping and treatment of PFAS at the Well Projects.

c. Resolve disagreements pursuant to Section 6 this Agreement;

d. Perform such other tasks as may be assigned by the Parties hereto.

11. CEQA. Each Party has determined that the other Party's Well Project and pumping as described above will have a less-than-significant impact on that Party's own project(s) and pumping identified above. Each Party will comply with the California Environmental Quality Act ("CEQA") in connection with its own project(s), including responding to all comments submitted by the other Party on CEQA documentation. The Parties acknowledge that each of their projects will proceed on different timelines, and in an effort to ensure both Parties' compliance with this provision and in order to discourage breach, the Parties hereby agree to toll the statute of limitations in connection with challenging any of the projects under CEQA until 36 days following the last Notice of Exemption or Notice of Determination filed for any of the projects.

12. Cooperation. ORANGE and IRWD will review and evaluate cooperative groundwater production opportunities. ORANGE hereby consents to and authorizes IRWD to serve additional water produced as part of the IRWD Project, to customers inside the IRWD service area but outside of the Sphere of Influence of ORANGE, subject to the following limitations:

a. Well OPA-1. The authorization is applicable to water produced from Well OPA-1 only.

b. Production Capacity. The authorization is for pumping approximately 3,200 AFY from Well OPA1, or such other substantially greater amount (i) approved by the Joint Committee or (ii) determined under a technical study or CEQA document that demonstrates no significant impacts on ORANGE Well 23.

c. Feasibility Study/Design. In order to facilitate both Parties' continued pumping and PFAS treatment, IRWD shall prepare a feasibility study of lowering the pump bowls in the Orange Well 23 without replacing the well. IRWD shall complete the feasibility study within one year of the Effective Date, using a consultant approved by the Joint Committee. IRWD shall provide the draft feasibility study to ORANGE, which will provide comments on the draft within 30 calendar days after receipt.

d. If Feasible: Design & Cost Estimate. If the Joint Committee determines that lowering the pump bowls is feasible, then IRWD shall prepare a 30% design and develop an engineer's estimate for finalizing design and construction for lowering the pump bowls in ORANGE Well 23. The Joint Committee shall review and approve the 30% design and engineer's estimate (which approval shall not be unreasonably withheld by the Joint Committee or either Party's members of the committee). Within 90 days of that approval, IRWD shall pay ORANGE the amount of the engineer's estimate of the costs to design and construct the improvements to lower the pump bowls of ORANGE Well 23 to facilitate ORANGE's continued extraction and treatment of groundwater when the pumping level is below 320 feet, as described in the feasibility study.

(i) If the bids received by ORANGE are more than one hundred ten percent (110%) of the engineer's estimate, ORANGE has the right to immediately confer with IRWD regarding additional contribution from IRWD for those costs exceeding one hundred ten percent (110%) of the engineer's estimate. If the Parties cannot reach mutual agreement on payment for those additional costs, ORANGE has the unilateral right to reject all bids and refund the amount paid by IRWD. In this event, the Parties will adhere to the provisions of Subsection e, below.

(ii) If the bids received, and amounts paid for completion of the project, are less than the engineer's estimate, ORANGE shall refund the difference to IRWD.

(iii) Lowering the pump bowls in ORANGE Well 23 is not intended to guarantee a flow rate at which the well will operate.

e. If Infeasible: Cooperative Pumping Reduction. If the Joint Committee determines that lowering the pump bowls is infeasible, then when the pumping water level in ORANGE Well 23 reaches 320 feet below ground surface, both Parties shall incrementally reduce pumping at the same rate to ensure that both PFAS systems may remain operational. Incrementally reduce means, for example, that both Parties would reduce pumping by 100 gallons per minute, or such other equal measurement as agreed to by the Parties that would ensure continued PFAS treatment but minimize adverse impacts to the Parties' facilities. The determination of incrementally reduced pumping rates will be determined by the Joint Committee.

f. Staff Costs. Each Party will pay all costs associated with its own staff time in connection with the Joint Committee, the feasibility study, or other actions contemplated in this Section 12.

g. Other Limitations. The Parties each acknowledge that their groundwater well pumping is subject to OCWD's Basin Production Limitation, Basin Production Percentage, any assessment and surcharge validly imposed by OCWD and other contractual obligations.

13. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original.

14. Modifications. This Agreement cannot be changed, amended, modified or supplemented except in writing signed by the Parties hereto.

15. Entire Agreement. This Agreement and its exhibits constitute the entire agreement between the Parties hereto pertaining to the subject matter hereof, and the final, complete and exclusive expression of the terms and conditions thereof. All prior agreements, representations, negotiations and understandings of the Parties hereto, oral or written, express or implied, including specifically the Second Amended Agreement, are hereby superseded and merged herein.

16. Notices. All notices and other communications given hereunder shall be in writing and shall be delivered or mailed by registered or certified mail, return receipt requested, and postage prepaid, addressed as follows:

If to IRWD: IRVINE RANCH WATER DISTRICT
 ATTENTION: GENERAL MANAGER
 P.O. Box 57000
 15600 Sand Canyon Avenue
 Irvine, California 92619-7000

If to ORANGE: CITY OF ORANGE
 ATTENTION: WATER MANAGER
 189 South Water
 Orange, California 92666

17. Term of Agreement. This Agreement shall continue in effect until terminated by mutual agreement of the Parties.

18. Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns.

19. Attorneys' Fees. In the event any declaratory or other legal or equitable action is instituted between ORANGE and IRWD in connection with this Agreement, then the prevailing Party shall be entitled to recover from the losing Party all of its costs and expenses, including court costs and reasonable attorneys' fees.

20. Exhibits. The following exhibits are incorporated into this Agreement by this reference:

- Exhibit "A" - Property
- Exhibit "B" - Santiago Hills I
- Exhibit "C" - SHII/East Orange Area
- Exhibit "D" - Form of Occupancy Release [Section 8a]

[Signatures appear on following page.]

The Parties hereto cause this Agreement to be executed on the day and year first above written.

CITY OF ORANGE

Mark A. Murphy, Mayor

ATTEST

Pamela A. Coleman, City Clerk

APPROVED AS TO FORM:

Mary E. Binning, Sr. Asst. City Attorney

IRVINE RANCH WATER DISTRICT

Paul A. Cook, General Manager

ATTEST

Secretary

APPROVED AS TO FORM:
HANSON BRIDGETT LLP

District Counsel

EXHIBITS

- A: Property
- B: Santiago Hills I
- C: SHII/East Orange Area
- D: Form of Occupancy Release

EXHIBIT "A"

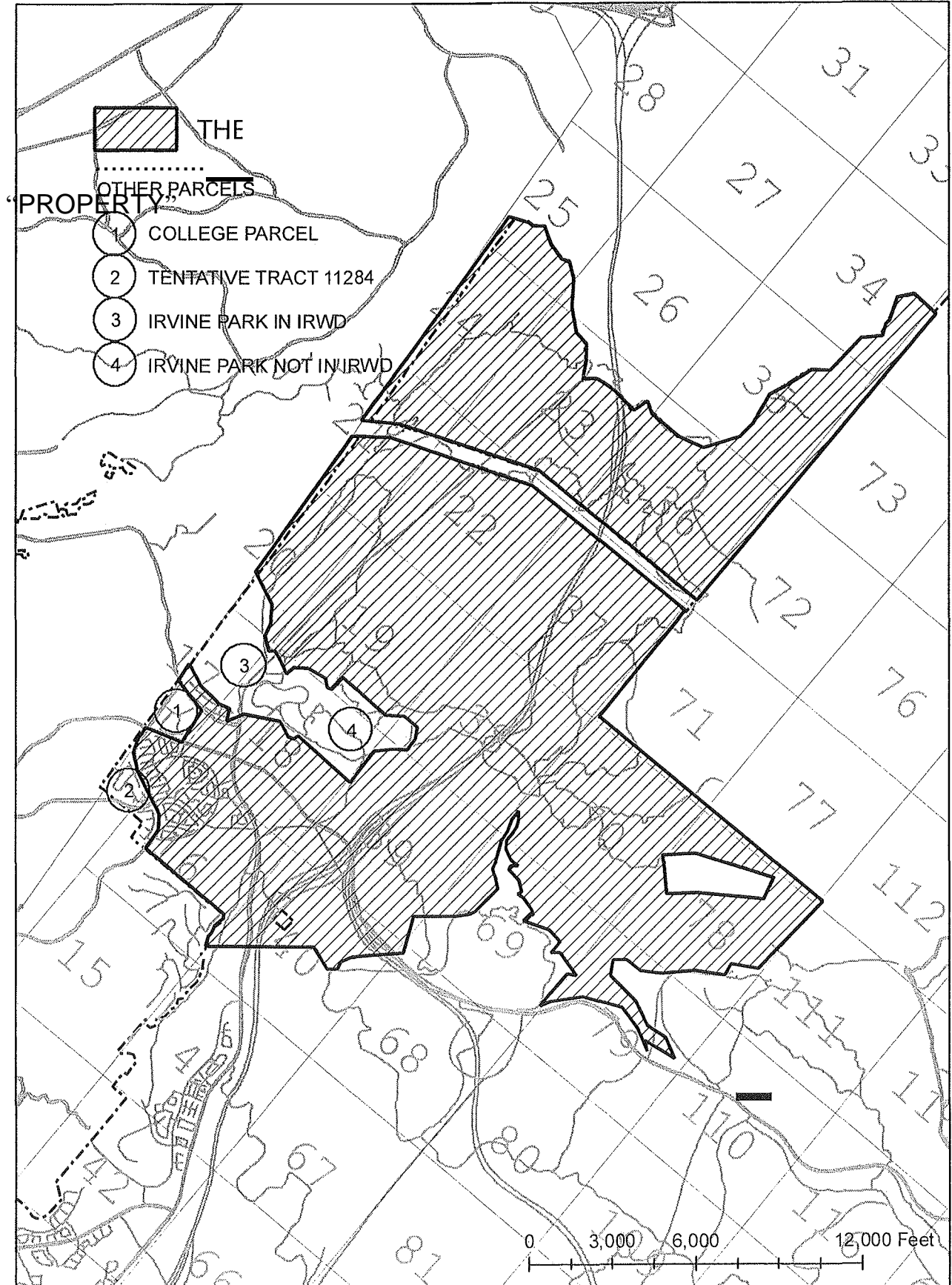


EXHIBIT "B"

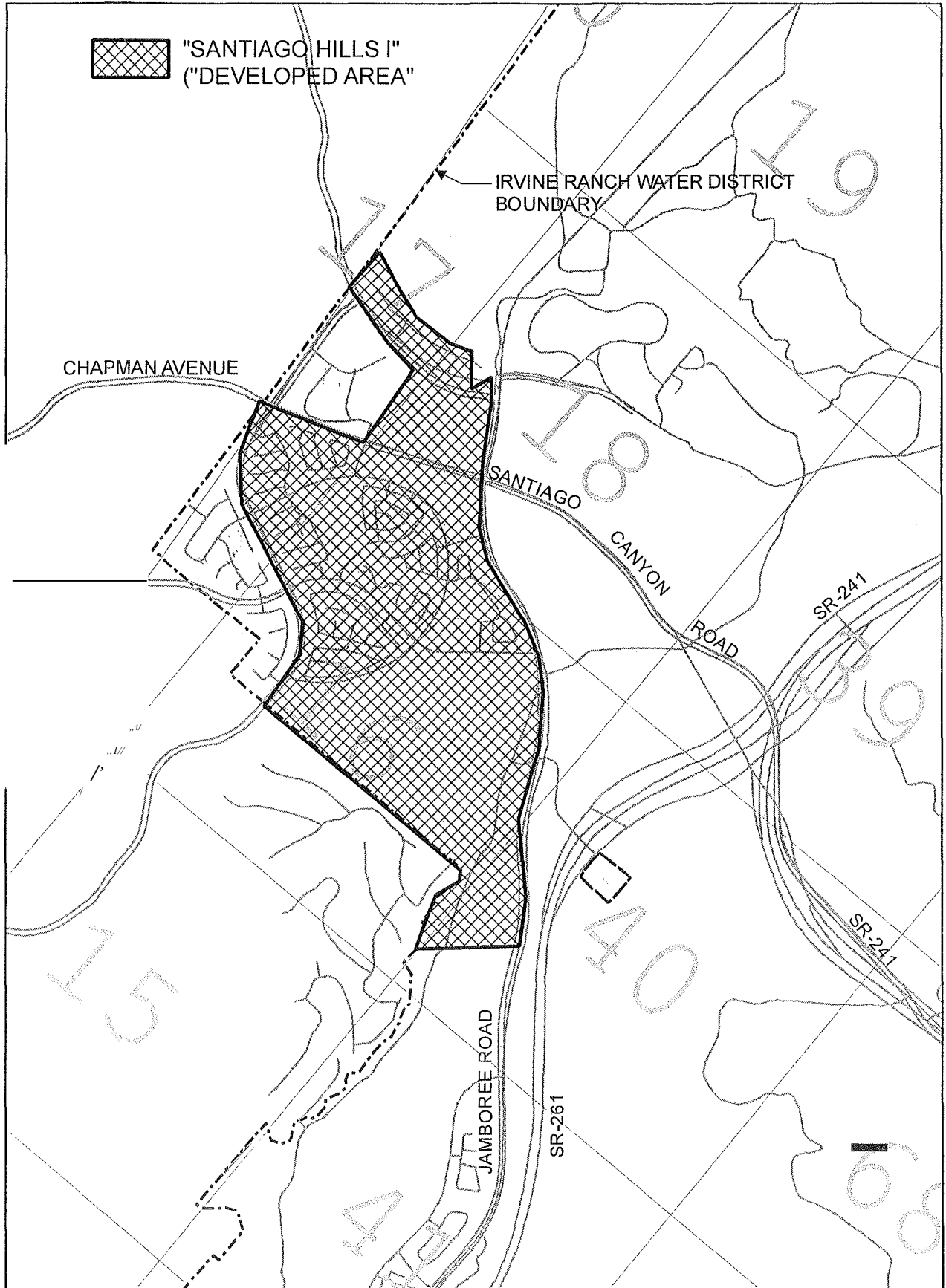


EXHIBIT "C"

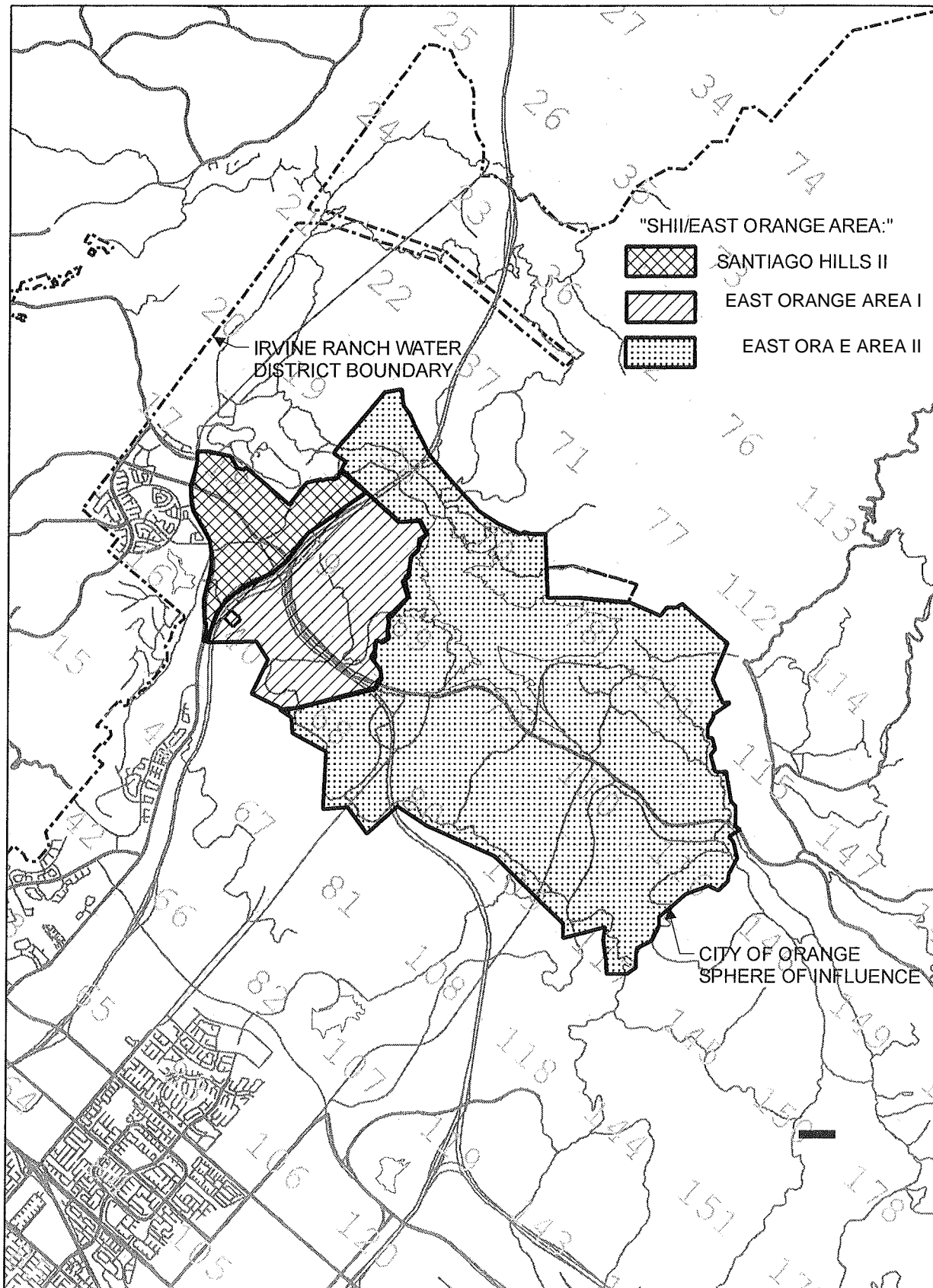


EXHIBIT D

FORM OF OCCUPANCY RELEASE



IRVINE RANCH WATER DISTRICT 15600 Sand Canyon Ave., P.O. Box 57000, Irvine,
CA 92619-7000 (949) 453-5300

Name
Building Official
City of Orange
300 East Chapman Avenue
Orange, CA 92866

Subject: Release for Residential Use

Dear Mr. Nguyen:

Irvine Ranch Water District hereby releases Lot Nos. _____ of Tract No. _____ for the following:

RELEASE FOR OCCUPANCY - Sewage can be accepted in sewer system. Water meter has been installed by developer.

Yours truly,

Mike Jack
Construction Inspection Manager

MJ/

cc: Developer -
IRWD Inspector -
IRWD Developmental Services
IRWD Customer Service (2)
IRWD Greg Springman FAX# 949-476-2854
Chron

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