

AGENDA
 IRVINE RANCH WATER DISTRICT
 WATER RESOURCES POLICY AND COMMUNICATIONS
 COMMITTEE MEETING
 WEDNESDAY, FEBRUARY 7, 2024

This meeting will be held in-person at the District’s headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Webex: <https://irwd.webex.com/irwd/j.php?MTID=mb2700f0bc2f15486706bb45842edb3b4>
 Meeting Number (Access Code): 2494 988 6255
 Meeting Password: 7FwUMxi8ah3

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

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

CALL TO ORDER 3:00 p.m.

ATTENDANCE Committee Chair: Steve LaMar _____
 Member: Karen McLaughlin _____

ALSO PRESENT

Paul Cook _____	Paul Weghorst _____
Wendy Chambers _____	Neveen Adly _____
Kevin Burton _____	Fiona Sanchez _____
Christine Compton _____	Jim Colston _____
John Fabris _____	Kellie Welch _____
Mark Tettermer _____	Amy McNulty _____
_____ _____	_____ _____
_____ _____	_____ _____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the “chat” feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. Public comments are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 8:00 a.m. on February 7, 2024.

COMMUNICATIONS

1. Notes: Weghorst
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted; and determine which items may be approved without discussion.

INFORMATION

4. ANNUAL WATER LOSS AUDIT RESULTS – MROCZEK / MCNULTY / SANCHEZ / WEGHORST
Recommendation: Receive and file.
5. CLIMATE ACTION PLAN PHASE 1 REPORT – HUANG / WELCH / SANCHEZ / WEGHORST
Recommendation: Receive and file.
6. 2023 COMMUNICATIONS OUTREACH RESULTS – FABRIS / COMPTON
Recommendation: Receive and file.
7. 2023 CUSTOMER SATISFACTION SURVEY RESULTS – COMPTON
Recommendation: Receive and file.

ACTION

8. 2024 LEGISLATIVE AND REGULATORY UPDATE – COMPTON
Recommendation: The Board adopt a “sponsor/support” position on AB 1827 (Papan), a “seek amendments” position on AB 805 (Arambula) and SB 937 (Weiner), and a “watch” position on AB 1820 (Schiavo).

ACTION, continued

9. WATER SUPPLY ASSESSMENTS FOR TUSTIN LEGACY SPECIFIC PLAN AMENDMENT AND TUSTIN MARKET PLACE PROJECT – LINDSAY / PALACIO / WELCH / AKIYOSHI / SANCHEZ / WEGHORST


Recommendation: That the Board approve the Water Supply Assessment for the Tustin Legacy Specific Plan Amendment and the Water Supply Assessment for the Tustin Market Place Project.

OTHER BUSINESS

10. Directors' Comments
11. 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 Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. 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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February 7, 2024
Prepared by: M. Mroczek / A. McNulty
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook 

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

ANNUAL WATER LOSS AUDIT RESULTS

SUMMARY:

Each year, urban retail water suppliers are required to submit a validated Water Loss Audit Report to the California Department of Water Resources (DWR). The State Water Resources Control Board will use information from the reports as baseline data to determine each supplier's water loss performance. At the meeting, staff will present an overview of the State's water loss performance standards and IRWD's Fiscal Year (FY) 2022-23 validated Water Loss Audit results.

BACKGROUND:

In 2023, IRWD produced its first Water Loss Control Plan to describe the District's activities related to water loss reporting, loss control programs, and to capture the baseline water balance data that was used by the State Board to determine IRWD's water loss standard. The suite of water loss control programs described in the plan minimize leakage from the IRWD distribution system, limits water theft, ensures accuracy in customer billing, and demonstrate IRWD's commitment to responsible resource management. The positive impact of the District's water loss control programs and access to high quality data are evident in IRWD's Water Loss Audit results for FY 2022-23. IRWD audit results consistently report low levels of water loss.

Water Loss Performance Standards:

Enacted in 2015, California Senate Bill 555 requires each urban retail water supplier to submit a third-party validated Water Loss Audit Report to DWR and the State Board for use in adopting water loss performance standards. In October 2022, the State Board adopted new water loss performance standards. Data from the 2017, 2018, 2019, and 2020 Water Loss Audit Reports submitted to DWR serve as baseline data to establish each supplier's water loss performance standard. Compliance will be on a three-year rolling average basis. Compliance with IRWD's water loss standard of 20 gallons per connection per day (gpcd) begins in 2028 and will be based on the average of the FY 2025 through FY 2027 audit results.

Water Loss Audit Results:

Staff recently prepared and submitted IRWD's validated FY 2022-23 Water Loss Audit Report to DWR. This report was prepared by a multi-disciplinary team of IRWD staff utilizing the audit procedures outlined in the American Water Works Association M36 Water Audits and Loss Control Programs manual and associated software.

The M36 procedures call for estimating total water losses that are comprised of two categories: Real Losses and Apparent Losses. Real Losses include leaks, line breaks, and overflows that occur anywhere in the distribution system upstream of customer meters. IRWD's Real Losses have decreased from 19.2 gpcd in FY 2021-22 to 10.2 gpcd in FY 2022-23, which is well below the District's standard of 20 gpcd. Apparent Losses include unauthorized use of water, metering inaccuracies, and systematic data handling errors.

An overview of water loss performance indicators is provided as Exhibit "A". IRWD's Water Loss Audit Report summary for FY 2022-23 is provided as Exhibit "B". The corresponding third-party validation certificate is provided as Exhibit "C". At the meeting, staff will present a summary of the results of IRWD's Water Loss Audit Report for FY 2022-23. The draft presentation is provided as Exhibit "D".

Required Questionnaires:

In addition to submitting a Water Loss Audit Report, all urban retail water suppliers were required to complete two questionnaires administered by the State Board. The first was a data quality questionnaire asking for information on flow testing of production meters, electronic calibration, and flow testing of customer meters. The second was a pressure management questionnaire that asked for information on pressure control devices and high leakage zones. Staff has completed both questionnaires.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – Overview of Water Loss Audit Performance Indicators
Exhibit "B" – Summary of IRWD's FY 2022-23 Water Loss Audit Report
Exhibit "C" – IRWD Data Validation Certificate for FY 2022-23
Exhibit "D" – FY 2022-23 Water Loss Audit Presentation Draft

EXHIBIT “A”

Overview of Water Loss Audit Performance Indicators

The water loss audit provides a basic water balance and several performance indicators for the reporting period. These indicators include the Infrastructure Leakage Index (ILI), Real and Apparent Losses as well as a percentage of non-revenue water and a data validity grade. These indicators are explained in more detail below.

Infrastructure Leakage Index:

The Infrastructure Leakage Index is calculated as follows:

$$\text{Infrastructure Leakage Index} = \frac{\text{Current Annual Real Losses}}{\text{Unavoidable Annual Real Losses}}$$

A perfect ILI score is 1.00 indicating a very tight potable water distribution system with loss volumes that are equal to the Unavoidable Annual Real Losses. These unavoidable losses are calculated for each system and represent a minimum level of leakage expected based on the size of system, pressure and number of connections.

Real and Apparent Losses and Non-Revenue Water:

Two metrics are used to report on real loss. One is total current annual Real Losses, which varies based on the size of the utility and other factors. The second metric is gallons per connection per day, which helps to normalize the results. Apparent Loss is reported as a total volume and on a per connection per day basis. Non-revenue water includes both Real and Apparent Losses. It is represented as a percentage of the total potable supply and as a percentage of the total operating costs.

Data Validity Grade:

All data that are entered into the AWWA Water Loss Audit report software are evaluated and assigned a Data Validity Grade. The Data Validity Grade is a measure of audit data accuracy and ranges from zero to 100, with a score of 100 representing the highest level achievable. The scale does not represent 100 being the best because there are measures that would improve a utility's Data Validity Grade but may not actually save water, may not be cost-effective or simply may not be appropriate for the utility.

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Exhibit "B"

Water Audit Report for: **Irvine Ranch Water District**
 Audit Year: **2023** Jul 01 2022 - Jun 30 2023 Fiscal

To access definitions, click the **input name** Click 'n' to add notes To edit water system info: [go to start page](#)
Click 'g' to determine data validity grade
 All volumes to be entered as: **ACRE-FEET PER YEAR**

WATER SUPPLIED

Water Supplied Error Adjustments

VOS WI WE	Volume from Own Sources: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="7"/> <input type="text" value="39,808.924"/> Acre-ft/Yr	<input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="8"/> <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="10"/> <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/>	choose entry option: <input type="text" value="volume"/> <input type="text" value="16.860"/> acre-ft/yr <input type="text" value="volume"/> <input type="text" value=""/> acre-ft/yr <input type="text" value="percent"/> <input type="text" value=""/>	<input type="text" value="over-registration"/> VOSEA <input type="text" value=""/> WIEA <input type="text" value=""/> WEEA
WATER IMPORTED: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="7"/> <input type="text" value="12,967.283"/> Acre-ft/Yr				
WATER EXPORTED: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="7"/> <input type="text" value="261.319"/> Acre-ft/Yr				
WATER SUPPLIED: 52,498.027 Acre-ft/Yr				

AUTHORIZED CONSUMPTION

BMAC BUAC UMAC UUAC	Billed Metered: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="9"/> <input type="text" value="49,540.573"/> Acre-ft/Yr Billed Unmetered: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="n/a"/> <input type="text" value="0.000"/> Acre-ft/Yr Unbilled Metered: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="4"/> <input type="text" value="686.429"/> Acre-ft/Yr Unbilled Unmetered: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="6"/> <input type="text" value="36.020"/> Acre-ft/Yr	choose entry option: <input type="text" value="custom"/> <input type="text" value="36.020"/> acre-ft/yr	
AUTHORIZED CONSUMPTION: 50,263.022 Acre-ft/Yr			

WATER LOSSES

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3				
SDHE CMI UC	Systematic Data Handling Errors: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/> <input type="text" value="123.851"/> Acre-ft/Yr Customer Metering Inaccuracies: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="7"/> <input type="text" value="485.360"/> Acre-ft/Yr Unauthorized Consumption: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/> <input type="text" value="123.851"/> Acre-ft/Yr	choose entry option: <input type="text" value="0.25%"/> <input type="text" value="default"/> <input type="text" value="volume"/> <input type="text" value="485.360"/> acre-ft/yr <input type="text" value="0.25%"/> <input type="text" value="default"/>	<input type="text" value="under-registration"/>	
Default option selected for Unauthorized Consumption, with automatic data grading of 3				
Apparent Losses: 733.063 Acre-ft/Yr				

Real Losses

Real Losses: Acre-ft/Yr
WATER LOSSES: 2,235.005 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: Acre-ft/Yr

SYSTEM DATA

Lm Nc	Length of mains: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="10"/> <input type="text" value="1,740.9"/> miles Number of service connections: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="10"/> <input type="text" value="124,836"/>	(including fire hydrant lead lengths) (active and inactive)	
Service connection density: <input type="text" value="72"/> conn./mile main			
Lp AOP	Are customer meters typically located at the curbstops/property line? <input type="text" value="Yes"/> Average length of customer service line has been set to zero and a data grading of 10 has been applied Average Operating Pressure: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="10"/> <input type="text" value="88.3"/> psi		

COST DATA

CRUC VPC	Customer Retail Unit Charge: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="7"/> <input type="text" value="\$2.79"/> \$/100 cubic feet (ccf) Variable Production Cost: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="9"/> <input type="text" value="\$1,225.12"/> \$/acre-ft	Total Annual Operating Cost <input type="text" value="\$47,374,287"/> \$/yr (optional input)	
Retail costs are less than (or equal to) production costs; please review and correct if necessary			

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. ***** [go to dashboard](#)

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

- 1: Volume from Own Sources (VOS)
- 2: Unauthorized Consumption (UC)
- 3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:	<input type="text"/>	gal/conn/day
Unit Apparent Losses:	<input type="text"/>	gal/conn/day
Unit Real Losses ^a :	<input type="text"/>	gal/conn/day
Unit Real Losses ^b :	<input type="text"/>	gal/mile/day

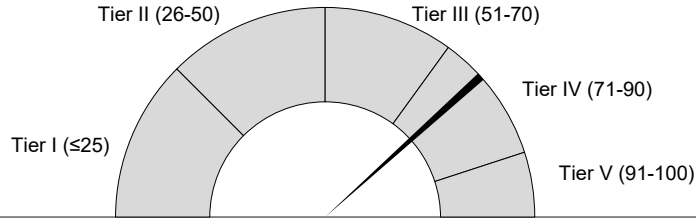
If entered above by user, targets will display on KPI gauges (see Dashboard)



Data Validity

Data Validity Score: **76** Data Validity Tier: **Tier IV (71-90)**

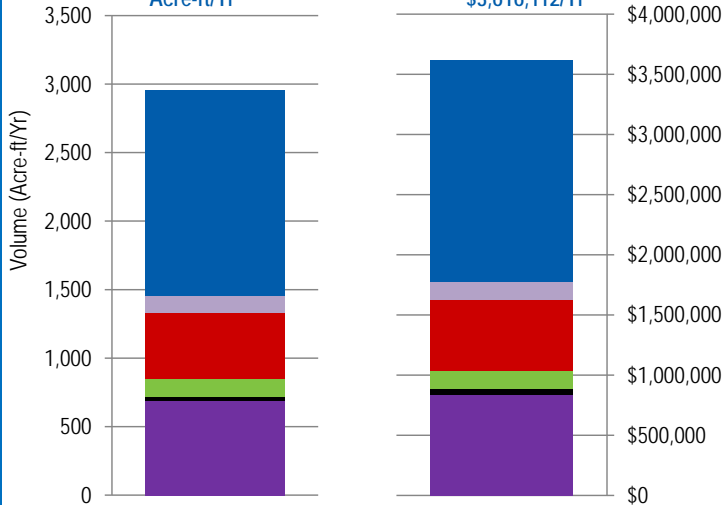
See [Loss Control Planning](#) for Tier Details



NRW Components Summary

Total Volume of NRW = 2,951 Acre-ft/Yr

Total Cost of NRW = \$3,616,112/Yr

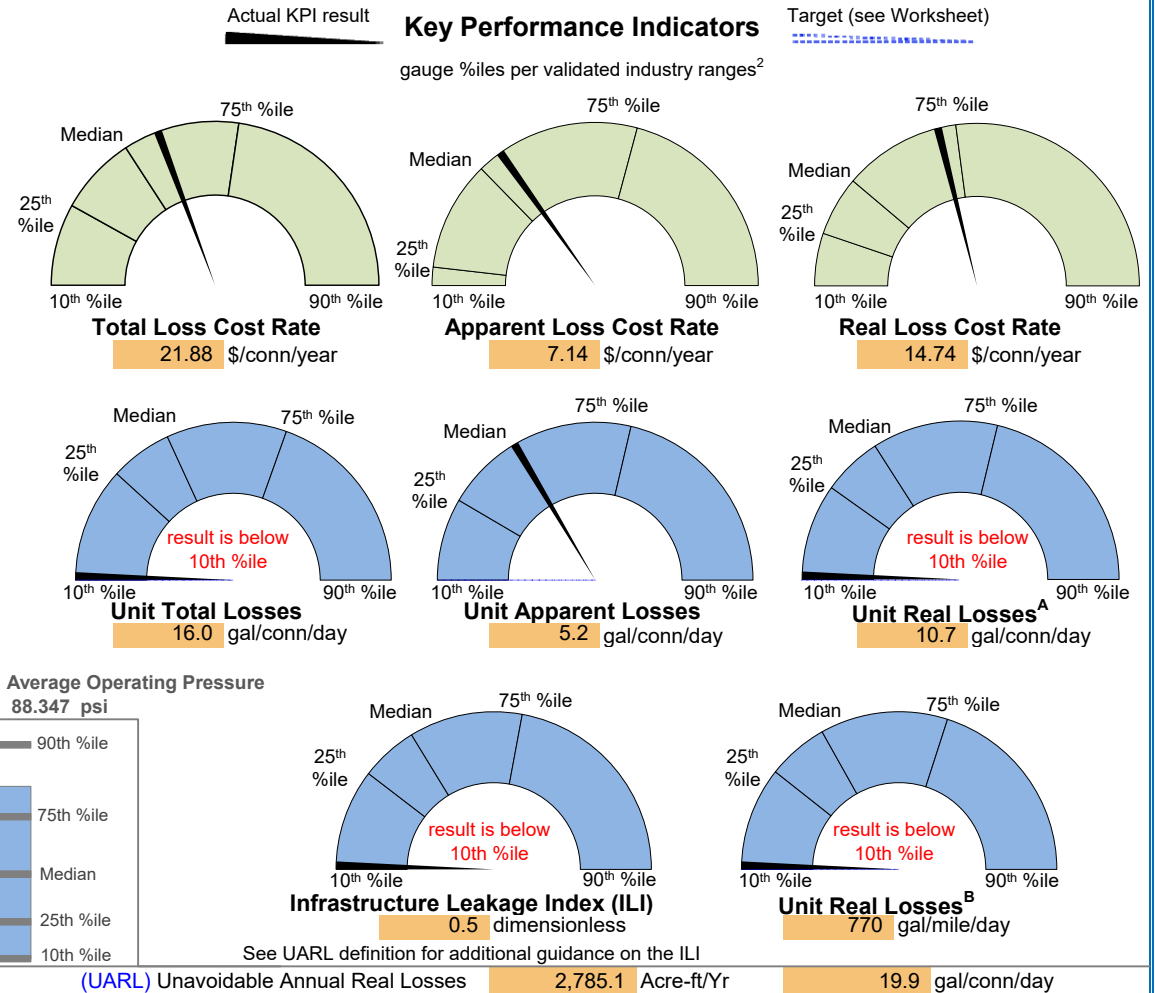


	Volume Acre-ft/Yr	Value \$/Yr	Basis of Valuation
Real Losses			
Systematic Data Handling Errors			
Customer Metering Inaccuracies			
Unauthorized Consumption			
Unbilled Unmetered Auth Cons			
Unbilled Metered Authorized Cons			

	Volume Acre-ft/Yr	Value \$/Yr	Basis of Valuation
Apparent Losses	733.1	\$890,974	CRUC
Real Losses	1,501.9	\$1,840,054	VPC
Unbilled Authorized Cons	722.4	\$885,084	VPC
Non-Revenue Water	2,957.5	\$3,616,112	Blended

Key Performance Indicators

gauge %iles per validated industry ranges²



Guidance Information for Key Performance Indicators

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs¹.
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)², with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)².
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4895 Guidance Manual, Appendix B (2019)³.
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by use for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

Table 1

Source: AWWA Water Loss Control Committee Report (2020)¹, with naming conventions updated

2020 AWWA Water Audit Method – Water Audit Outputs and Key Performance Indicators: Uses and Limitations

Type	Indicator	Description	Suitable Purposes					Uses and Limitations	Principal Users
			Assessment	Bench-Marking	Target-Setting	Planning	Tracking		
Attribute	Apparent Loss Volume	Calculated by Free Water Audit Software	✓				✓	Assess loss level	Utility, Regulators
	Apparent Loss Cost	Calculated by Free Water Audit Software	✓				✓	Assess cost loss level	Utility, Regulators
	Real Loss Volume	Calculated by Free Water Audit Software	✓				✓	Assess loss level	Utility, Regulators
	Real Loss Cost	Calculated by Free Water Audit Software	✓				✓	Assess loss cost level	Utility, Regulators
	Unavoidable Annual Real Loss (UARL)	Calculated by Free Water Audit Software	✓				✓	Reveal theoretical technical low level of leakage	Utility, Regulators
Volume	Unit Apparent Losses (vol/conn/day)	Strong and understandable indicator for multiple users.	✓	✓	✓	✓	✓	Used for performance tracking and target-setting	Utility, Regulators
	Unit Real Losses ^A (vol/conn/day)	Strong and understandable indicator for multiple users.	✓	✓	✓	✓	✓	Used for performance tracking and target-setting	Utility, Regulators, Policy Makers
	Unit Real Losses ^B (vol/pipeline length/day)	Strong and understandable indicator for use by utilities with low connection density.	✓	✓	✓	✓	✓	Data collection and assessment of systems with “low” connection density	Utility, Regulators, Policy Makers
	Unit Total Losses (vol/conn/day) New KPI	Strong and understandable indicator, suitable for high-level performance measurement.	✓				✓	High level indicator for trending analysis. Not appropriate for target-setting or benchmarking	Utilities, Customers
	Infrastructure Leakage Index (ILI)	Robust, specialized ratio KPI; can be influenced by pressure and connection density.	✓	✓			✓	Benchmarking after pressure management is implemented	Utilities
Value	Apparent Loss Cost Rate (value/conn/year) New KPI	Indicators with sufficient technical rigor. Provide the unit financial value of each type of loss, which is useful for planning and assessment of cost efficiency of water loss reduction and control interventions and programs.	✓			✓	✓	Data collection and assessment on AWWA indicators or contextual parameters to use in conjunction with Loss Cost Rates	Utilities, Regulators, Customers
	Real Loss Cost Rate (value/conn/year) New KPI		✓			✓	✓		Utilities, Regulators, Customers
Validity	Data Validity Tier (DVT)	Strong indicator of water loss audit data quality, if data has been validated. Tier provides guidance on priority areas of activity.	✓	✓		✓	✓	Assess caliber of data inputs of the water audit	Regulators, Utilities

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Exhibit "C"

Insert Logo (Optional)



Certified Validation Report Template, Part A: Provided by Validator

Audit Information

Water System Name: Irvine Ranch Water District

Public Water System Identification (PWSID)¹: CA3010092

¹List only 1 PWSID, which should match the PWSID on the FWAS Instructions Tab. For Special cases where multiple water systems are connected with permanent two-way interties, list those additional PWSIDs in the Notes below and describe the water distribution system(s) configuration.

PWSID and Special Water System Configuration Notes (Provided to Validator by Water System):

Audit Period Start Date: 7/1/2022

Validation Date: 10/31/2023

Water System Representatives

Amy McNulty,
Bryan Clinton,
Christopher
Smithson,
David
Paulson,
Debra
Pardee,
Enrique
Zanetti, Gus
Barreto, Kevin
Reideler,
Mike Mroczek

Sufficient Supporting Documents Provided: Yes

Validation Findings & Confirmation Statement

Key Audit Metrics:

Data Validity Score: 76

Non-revenue water as percent of cost of operating system: 7.63%

Data Validity Tier IV (71-90)

Real Loss: 10.741 gal/conn/day or gal/mile/day

Apparent Loss: 5.2424 gal/conn/day

ILI: 0.5393

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit: Yes

If not, rejected recommendations are included here:

Validator Information

Water Audit Validator Name: Kim Manago

CA-NV AWWA WAV Certification Expiration Date: 8/19/2024

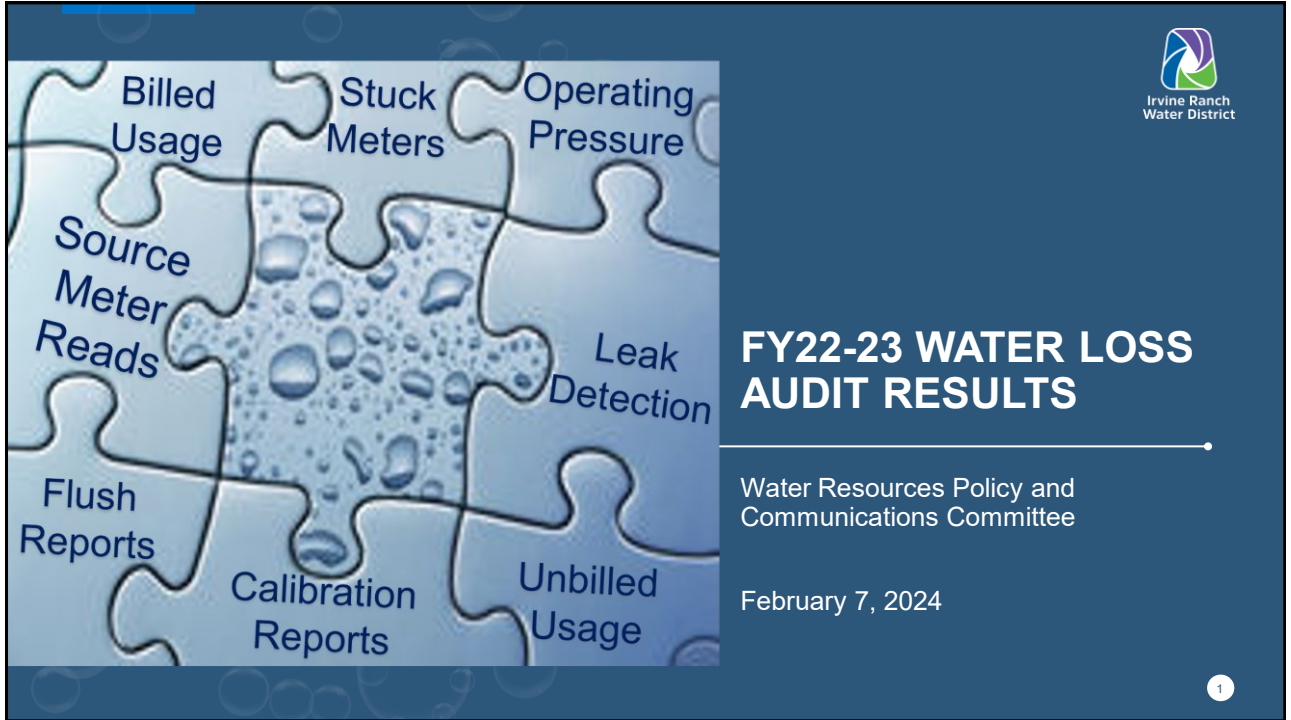
Email: kim_manago@esource.com

Qualifications: Water Audit Validator Certificate issued by the CA-NV Section of the AWWA

Validator Provided

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EXHIBIT "D"



Irvine Ranch Water District

FY22-23 WATER LOSS AUDIT RESULTS

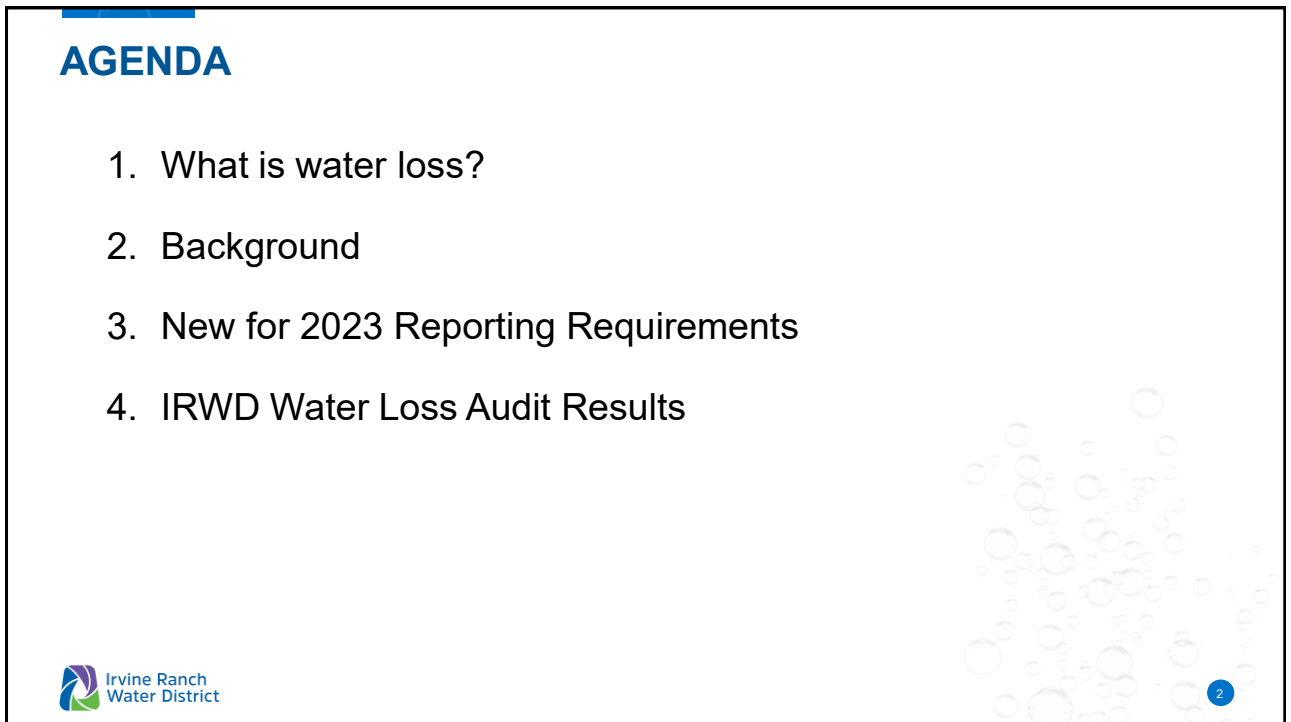
Water Resources Policy and Communications Committee

February 7, 2024

1

The cover page features a central graphic of interlocking puzzle pieces. The pieces are light blue and contain various water loss audit categories: 'Billed Usage', 'Stuck Meters', 'Operating Pressure', 'Source Meter Reads', 'Leak Detection', 'Flush Reports', 'Calibration Reports', and 'Unbilled Usage'. The puzzle pieces are arranged in a circular pattern around a central area filled with water droplets. The background is a dark blue gradient.

1



AGENDA

1. What is water loss?
2. Background
3. New for 2023 Reporting Requirements
4. IRWD Water Loss Audit Results

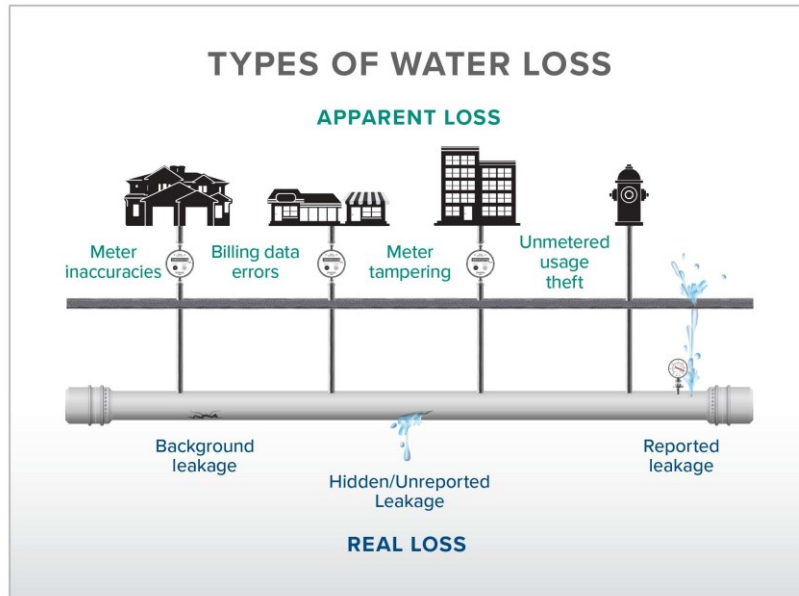
Irvine Ranch Water District

2

The agenda page has a white background with a decorative pattern of light blue water droplets in the bottom right corner. The Irvine Ranch Water District logo is in the bottom left corner.

2

WHAT IS WATER LOSS?



3

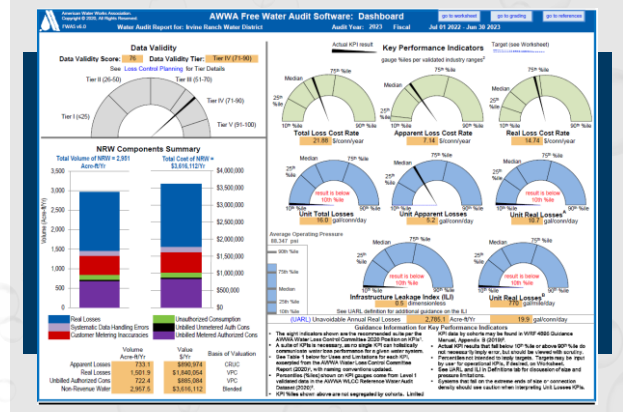
BACKGROUND

- Water suppliers are required to submit a validated Water Loss Audit Report to the California Department of Water Resources (DWR) annually.
- State Water Loss Standard (SB 555)
 - IRWD's water loss standards:
 - Real Loss: 20 gallons per connection per day
 - Apparent Loss: 6.4 gallons per connection per day
 - Based on average of the 2017 – 2020 audits
- Compliance begins 2028
 - Three-year average from 2025, 2026 and 2027 audits

4

NEW 2023 REPORTING REQUIREMENTS

- Use of Version 6 of the AWWA Water Audit software
 - Updated Data Grading criteria
 - New user interface and output visuals
- Two questionnaires:
 - a. Data Quality
 - b. Pressure Management



AUDIT RESULTS


Indicator	Baseline Average	Fiscal Year 2021-22	Fiscal Year 2022-23
Unavoidable Annual Real Loss	2,508 AF	2,793 AF	2,785 AF
- per connection per day	19.2 gal	20.2 gal	19.9 gal
Total Real Loss	2,595 AF	2,658 AF	1,502 AF
- per connection per day	20 gal	19.2 gal	10.7 gal
Apparent Loss	826 AF	634 AF	733 AF
- per connection per day	6.4 gal	4.6 gal	5.2 gal
Non-Revenue Water by Volume of Supply	7.3%	6.9%	5.6%
Non-Revenue Water by Operating Cost	12.7%	11.3%	7.6%
Data Validity Grade	78	74	76

IRWD Standards:
 Real Loss = 20 gpcd
 Apparent Loss = 6.4 gpcd





QUESTIONS?

February 7, 2024
Prepared by: R. Huang / K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook 

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

CLIMATE ACTION PLAN PHASE 1 REPORT

SUMMARY:

In September 2021, IRWD retained NV5 Global, Inc. to prepare the District's Climate Action Plan (CAP). The CAP, which will be completed in two phases, will provide a comprehensive roadmap for IRWD to cost-effectively reduce energy use and greenhouse gas emissions while addressing potential climate change impacts to IRWD's water supplies. Phase 1 work associated with the development of the plan is complete. In this phase, NV5 identified a portfolio of potential projects that would reduce the District's existing and future energy costs and greenhouse gas (GHG) emissions. At the meeting, staff will present an overview of the Phase 1 work and the next steps in completing the CAP.

BACKGROUND:

In 2012, IRWD prepared an Energy and GHG Master Plan that identified and recommended a portfolio of cost-effective projects to reduce the District's energy use and GHG emissions. Since that time, IRWD has implemented various large-scale energy projects that include to address IRWD's energy goals, such as the District's multiple battery energy storage systems, a large solar array at the Baker Water Treatment Plant, and the Biosolids Energy Recovery Project. In September 2021, the Board authorized the General Manager to execute a Professional Services Agreement with NV5 to update the master plan. Since that time, the effort has been recharacterized as the development of the District's CAP, which is occurring in two phases. The following is an overview of work accomplished in Phase 1 and the next steps regarding Phase 2 in the development of the CAP.

Climate Action Plan Phase 1:

Consistent with the District's Goals and Target Activities, consultants at NV5 have completed Phase 1 of the District's CAP. In Phase 1, NV5 conducted significant data collection associated with IRWD's facilities and operations to evaluate IRWD's energy use and GHG emissions. Based on this work, NV5 provided:

- An overview of regulatory considerations;
- GHG Inventory projections;
- A list of potential projects to reduce GHG emissions and energy costs; and
- An overview of project funding sources (e.g., utility, state, federal sources).

NV5 submitted the draft Phase 1 CAP report that is provided as Exhibit "A". In its Phase 1 report, NV5 recommends six projects for further evaluation and refinement under Phase 2 of the CAP including five solar projects and development of a fleet electrification plan.

Next Steps – Climate Action Plan Phase 2:

Phase 2 of the preparation of the District’s CAP is expected to incorporate development of the following elements:

- Financial modeling and feasibility studies of five priority solar projects;
- A fleet electrification plan;
- A water supply related climate change impact analysis and vulnerability assessment;
- Expansion of IRWD’s understanding of GHG emissions;
- An examination of IRWD renewable resources;
- Consideration of reasonable and voluntary GHG reduction goals; and
- Recommendations for IRWD policy, program, and operational changes.

Phase 2 work will rely on the results of IRWD’s 2024 Water Supply Reliability Study, 2023 GHG Inventory, and 2024 Embedded Energy Study. At the meeting, staff will present a summary of the Phase 1 CAP report and its recommendations, as well as the next steps to complete Phase 2 of the CAP. The draft presentation is provided as Exhibit “B”.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – Phase 1 of the Climate Action Plan Report

Exhibit “B” – Phase 1 of the Climate Action Plan Presentation Draft

Exhibit "A"

DRAFT

Phase 1
Climate Action Plan
Irvine Ranch Water District



January 2024



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Table of Contents

Table of Contents	ii
Executive Summary	1
1. Introduction	3
1.1 Climate Action Plan Overview	3
1.2 Introduction to Climate Change Science.....	4
1.3 California Regulatory Summary	5
2. Identification of Project Funding Sources	5
2.1 Power Purchase Agreement vs. IRWD Ownership.....	6
2.2 Incentives and Credits	7
3. Regulatory Constraints and Opportunities	10
4. Baseline GHG Inventory	12
4.1 Setting the Baseline Inventory.....	13
4.2 2021 Energy Use and GHG Emissions	13
5. Preliminary Project Screening	15
5.1 Project Screening Process.....	15
5.2 Preliminary Solar and Battery Project Cost Analysis	19
5.3 Fleet Electrification.....	20
5.4 Emissions Projections.....	21
5.5 Alternative Fuels.....	23
6. Next Steps – Phase 2 Recommendations	24
6.1 Solar Project Investment Grade Feasibility Studies (IGFS).....	27
6.2 Fleet Electrification Planning.....	31
6.3 Alternative Fuel Market Analysis	31
Appendix - A	35
Solar Projects Evaluated.....	35
Appendix – B	41
December 2022 Workshop Notes	41
Appendix - C	45
Potential Project Screening List	45
Appendix – D	51
Fleet Data	51
Appendix – E	53
Solar PV and BESS analysis.....	53
Appendix - F	56
Solar PV Design Reports.....	56

Table 1. 2021 IRWD Total Energy Consumption & GHG Emissions 13

Table 2. 2021 Scope 1-3 Emissions for each Facility..... 14

Table 3. Project Screening List..... 18

Table 4. Preliminary Solar Project Cost Analysis..... 20

Table 5. Example Fleet Transition Plan..... 21

Table 6. Estimated GHG forecast and Project Impact for 2025 & 2030..... 23

Table 7. IRWD Final Phase 2 Recommendations..... 25

Table 8. Example Cashflow Table - Rattlesnake Baseball Field Cash Purchase; Solar PV Only 30

Figure 1. 2021 Total GHG Emissions for each Facility 15

Figure 2. GHG Emissions Forecast with and without (BAU) Project implementation. 22

Figure 3. Example Sensitivity Analysis Model..... 28

Figure 4. Example Cashflow Graph - Rattlesnake Baseball Field Cash Purchase; Solar PV only..... 30

Figure 5. Carbon Intensity of Transportation Fuels..... 33



Definition of Terms	
AB	Assembly Bill
AC	Alternating current
BAU	Business-as-Usual
BESS	Battery Energy Storage Systems
BIO	Biogas
BTM	Behind-the-meter
CARB	California Air Resources Board
CH ₄	Methane
CNG	Compressed Natural Gas
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
DC	Direct Current
DOE	Department of Energy
DR	Demand Reduction
ELRP	Emergency Load Reduction Program
EPA	Environmental Protection Agency
EV	Electric Vehicle
EVSE	Electric Vehicle Service Equipment
GHG	Greenhouse Gas
GHGRP	Greenhouse Gas Reporting Program
GW	Gigawatt
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
ICE	Internal combustion engine
IGFS	Investment Grade Feasibility Study
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act
IRWD	Irvine Ranch Water District
ITC	Investment Tax Credit
kW	Kilowatt
kWh	Kilowatt-hour
LAWRP	Los Alisos Water Recycling Plant
LCFS	Low Carbon Fuel Standard
LNG	Liquefied Natural Gas
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
MTCO ₂ e	Metric Tons of carbon dioxide equivalent

Definition of Terms (cont'd)	
MW	Megawatt
MWh	Megawatt-hour
MWRP	Michelson Water Recycling Plant
N ₂ O	Nitrous oxide
NBT	Net Billing Tariff
NEM	Net Energy Metering
NEM-A	Net Energy Metering Aggregation
NPV	Net Present Value
O&M	Operations & Maintenance
PFCs	Perfluorocarbons
PPA	Power Purchase Agreement
PPIC	Public Policy Institute of California
PTC	Production Tax Credit
PV	Photovoltaic
RECs	Renewable Energy Credits
RES-BCT	Renewable Energy Self-generation Bill Credit Transfer
RNG	Renewable Natural Gas
RPS	Renewable Portfolio Standard
SB	Senate Bill
SCE	Southern California Edison
SETO	Solar Energy Technologies Office
SF ₆	Sulfur hexafluoride
SGIP	Self-Generation Incentive Program
TCR	The Climate Registry
TOU	Time-Of-Use
US-ITC	United States International Trade Commission
WREGIS	Western Renewable Generation Information System

Executive Summary

In 2021, Irvine Ranch Water District (IRWD) contracted with NV5 to review facility operations, identify potential projects for energy and Greenhouse Gas (GHG) reduction, and outline a course of action for future planning. The Public Policy Institute of California (PPIC) states that the average temperature in California has been between 2-4 degrees Fahrenheit above normal every year since 2012. California is already experiencing the effects of global climate change and warming temperatures. To address the concerning effects of climate change, Governor Brown signed Senate Bill (SB) 32 into law in 2016. SB32 established a GHG reduction target of 40 percent below 1990 levels by 2030. This Phase 1 report is a first step to refreshing IRWD's 2012 Energy and GHG Master plan to incorporate new IRWD facilities that have come online since 2012, and to recommend potential projects to reduce IRWD's energy use and GHG emissions.

The Phase 1 Report of the Climate Action Plan provides a high-level overview of the existing regulatory environment and IRWD's current emission profile, while proposing potential projects for further GHG reduction. A subsequent Phase 2 effort will consider further evaluation of a refined list of potential projects to help provide additional energy consumption and GHG emissions reductions. Phase 2 of the Climate Action Plan will also incorporate results of IRWD's 2024 Water Supply Reliability Study, 2023 GHG Inventory, and 2024 Embedded Energy Study. How the refined list of projects may be chosen for further evaluation will be at IRWD's discretion, based on cost-effectiveness and District resources.

Sources of GHG emissions are separated into three scopes. Scope 1 emissions include all GHG emissions from sources that IRWD controls directly, such as direct emissions from wastewater processing. Scope 2 emissions come from indirect sources related to IRWD actions and includes purchased energy from the grid. Scope 3 emissions come from sources outside IRWD's direct or indirect control, including the emissions associated with purchased goods and services. IRWD's primary source of GHG emissions is electricity. Electricity provided by the utility grid is a Scope 2 GHG emission source, meaning it is purchased from the grid and used to support IRWD operations. Implementing Solar Photovoltaics (PV) or other sources of renewable energy generation can decrease Scope 2 electricity requirements. The largest contributors to Scope 1 GHG emissions are methane produced by the Los Alisos Water Recycling Plant (LAWRP) and the Michelson Water Recycling Plant (MWRP). Vehicle use (fuel consumption) is the third largest source of Scope 1 emissions.

Fleet Electrification could significantly reduce Scope 1 GHG emissions by replacing gasoline and diesel fueling sources with electric batteries. There are four current facilities with fleet vehicles proposed for transition to electric vehicles over the next 10 years. Based on IRWD's internal priorities, the vehicle electrification timeline can be adjusted to reflect capital planning and take advantage of existing incentives for vehicle transition and charging infrastructure.

25-year GHG reductions are calculated based on the expected rate of renewable adoption of the utility grid. As the grid adopts the renewable portfolio standard (RPS), the carbon intensity of grid produced electricity reduces over time.

Project Type	Project Location(s)	Capacity	Estimated 25-Year Lifetime GHG Reductions (MTCO _{2e}) ¹
Rooftop Solar	Zone A North Reservoir	310 kW-DC	600
Floating Solar and Battery Energy Storage	San Joaquin Reservoir	5 MW AC solar; 5 MW/20 MWh battery	10,400
Ground-Mount Solar	Rattlesnake Canyon Baseball Field	635 kW-DC	1,300
Canopy/ Ground-Mount Solar	Michelson Water Recycling Plant (MWRP)	2,400 kW-DC	4,800
Fleet Electrification	MWRP, Sand Canyon HQ, Baker, LAWRP	Roughly 300 IRWD fleet vehicles	7,000
Ground-Mount Solar	Baker Water Treatment Plant	281 kW-DC	600

Overall, NV5 recommends six projects (shown above) for further evaluation and refinement under Phase 2 of the Climate Action Plan. NV5 estimates that if proposed projects are implemented by 2030, IRWD could realize an 8% reduction in emissions reductions compared to the Business-As-Usual estimate, and a 12% reduction from 2021 values. Additional review and modelling under Phase 2 may provide additional guidance on best projects to cost-effectively implement to reduce IRWD’s energy consumption and GHG emissions. Phase 2 of the Climate Action Plan will include a climate change impact analysis and vulnerability assessment, an expansion of IRWD’s understanding of GHG emissions, examination of IRWD renewable resources, consideration of reasonable and voluntary GHG reduction goals, and recommendations for IRWD policy, program, and procedure changes.

¹ Metric Tons Carbon Dioxide equivalent, a unit used to measure GHG emissions.

1. Introduction

1.1 Climate Action Plan Overview

A Climate Action Plan serves as a comprehensive roadmap outlining specific activities and projects that an organization can implement to cost-effectively reduce energy consumption, costs, and Greenhouse Gas (GHG) emissions. In developing a Climate Action Plan, organizations evaluate the aggregate energy consumption and volume of GHGs emitted during a baseline year to determine emissions reduction potential.

In 2021, Irvine Ranch Water District (IRWD) contracted with NV5 to prepare a Climate Action Plan update. IRWD previously developed an Energy and GHG Master Plan in 2012 (2012 Plan) based on IRWD's 2009 baseline inventory. Since then, IRWD has constructed several major facilities and there have been numerous changes in available technologies, market conditions, and even the operations and equipment within IRWD's facilities. The current Climate Action Plan represents an opportunity for IRWD to voluntarily reduce greenhouse gas emissions while simultaneously addressing energy consumption and operational efficiencies in a cost-effective manner. This report uses a third-party verified GHG inventory from 2021 as the baseline for data estimates.

High-level regulatory considerations and market conditions in California are reviewed in this report to provide context for future project screening and selection. IRWD's baseline emissions inventory formed the basis for potential voluntary reduction targets for 2025 and 2030 resulting from the projects outlined in this report². Development and potential project screening included site visits, monthly meetings, and workshops. The recommended list of projects was further analyzed to provide projected costs and savings, energy production, and estimated GHG reductions. Overall, the list of potential GHG reduction projects shall be refined in Phase 2 of the project and report.

Climate Action Plan Goals

The 2023 Climate Action Plan outlines a course of action for IRWD to voluntarily reduce energy consumption and GHG emissions. The goal of the Phase 1 Climate Action Plan is to identify potential energy and GHG emissions reduction opportunities in targeted renewable energy projects and process improvements. Renewable energy projects include installation of Solar Photovoltaic (PV) systems, converting from convention fossil fuel sources to biogas or electric sources, using wind power or hydroelectric, among others.

IRWD developed an Energy and GHG Master Plan in 2012 (2012 Plan) with the purpose of identifying a portfolio of cost-effective projects to reduce existing and future energy costs, and reduce future

² Initial GHG reduction assessments assume certain projects are implemented in 2024. Actual implementation schedules and subsequent annual GHG reductions will be determined through project procurement.

GHG emissions, as required under anticipated regulatory conditions. The 2012 Plan outlined several potential projects that IRWD could pursue to reduce energy consumption and GHG emissions.

The development of the Phase 1 Plan included a workshop process for internal stakeholders to have an opportunity to consider potential energy projects, brainstorm ideas, and provide feedback. The goal of the workshop was to promote internal engagement, resulting in a more streamlined project identification and analysis process, and a more comprehensive plan serving the needs of multiple IRWD departments.

As part of the Climate Action Plan implementation, each proposed project that is undertaken should be periodically assessed and monitored. Reporting on the status of projects, periodic updates to the GHG emissions inventory, and other monitoring activities will help to ensure that the Climate Action Plan is progressing steadily to reduced GHG emissions.

1.2 Introduction to Climate Change Science

Over the past two decades, human activities (e.g., the burning of fossil fuels for transportation and energy, increasing rates of deforestation and development) have contributed to elevated concentrations of greenhouse gases in the atmosphere. Human-caused (i.e., anthropogenic) emissions of GHGs have resulted in above-normal ambient concentrations of GHGs, intensifying the greenhouse effect, and leading to a trend of abnormal warming of the Earth's climate known as global climate change. Human activities and associated GHG emissions have caused global warming, with global surface temperature reaching 1.1°C above 1850-1900 levels in 2011-2020 (Intergovernmental Panel on Climate Change [IPCC] 2023).

Global climate change, in turn, is a main driver behind changes in precipitation patterns, rising temperatures, shrinking polar ice caps, sea-level rise, more severe natural disasters, and other impacts to biological resources and humans. The 6 years with the highest average global temperature on record have all happened after 2015. According to the Paris Agreement, in order to keep global temperature-rise to 1.5 degrees Celsius (2.7 Fahrenheit), global emissions need to be reduced by 45% by 2030, and to net zero by 2050.

The Public Policy Institute of California (PPIC) states that the average temperature in California has been between 2-4 degrees Fahrenheit above normal every year since 2012. Fourteen (14) of the 20 most destructive wildfires in the state of California have happened since 2015. The average precipitation since 2012 has been 5-10% below normal in all but 2 years. California is already experiencing the effects of global climate change and warming temperatures; adding to a local sense of urgency to develop solutions.

1.3 California Regulatory Summary

In 2006, the California Global Warming Solutions Act (Assembly Bill [AB] 32) established the State's first target to reduce GHG emissions, which established a goal of lowering emissions to 1990 levels by 2020. However, in 2016, Governor Brown signed Senate Bill (SB) 32 into law, which established a new mid-term GHG reduction target of 40 percent below 1990 levels by 2030. This target aligns with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. The new 2030 target places California on a trajectory towards meeting its longer-term goal, which is to bring emissions down to 80 percent below 1990 levels by 2050.

In its Scoping Plan, the California Air Resources Board (CARB) recognized local governments as "essential partners" in achieving California's goals to reduce GHG emissions. Local governments and utilities can implement climate strategies to address local conditions and issues and can engage citizens more effectively than the State. Municipalities and utility districts have broad jurisdiction and, in some cases, unique authorities through community-scale planning and permitting processes, discretionary actions, local codes and ordinances, outreach and education efforts, and operations. CARB contends that local efforts are critical to supporting the State's efforts to reduce emissions and can ultimately deliver additional emissions reductions beyond what State policy can, along with local economic benefits (CARB 2017). Climate Action Plans are an effective way to support the State in its GHG reduction efforts.

2. Identification of Project Funding Sources

When exploring sources of funding for renewables projects, there are numerous support programs available at the utility, state, and federal level. Available funding sources can help buy-down the initial cost or reduce the cashflow burden and amortization schedule of the project. Examples include rebates offered through utility retail programs (such as load-shifting or energy export programs offered through Southern California Edison [SCE]) or state and federal grant programs. Credits may be applied in many forms, such as utility bill credits, state tax incentives, or renewable energy and low carbon fuel standard credits. Also, under the Inflation Reduction Act (IRA) direct pay and transfer options allow public agencies to utilize federal tax incentives to reduce initial costs or improve cash flows on renewable energy projects. In addition to incentives and credits, there are revenue streams available to IRWD through wholesale market participation, selling excess energy and capacity into wholesale markets through third party aggregators.

Some of these options have been factored into the preliminary project screenings. When included in financial analyses, potential funding opportunities are indicated in relevant tables throughout the report. Additional opportunities require greater project detail to develop values and could be researched during the Phase 2.

2.1 Power Purchase Agreement vs. IRWD Ownership

Ownership models should be carefully reviewed and considered for renewable energy projects. If IRWD wishes to own and operate the asset at project completion, traditional debt financing can be an option to consider. If IRWD were to rely on a third-party to own and operate the asset (often this is the project developer), that third-party will typically finance the project and lease the asset back to IRWD through a Power Purchase Agreement (PPA). There are costs and benefits associated with each option:

Power Purchase Agreement (PPA): A third party finances, owns, and operates the PV system, then sells electricity back to the District.

- PPA financing requires minimal upfront out-of-pocket costs.
- Set term of contract; typically, 20-25 years.
- Set PPA escalator rate (can be 0%).
- Predictable monthly/annual costs based on electricity usage.
- Operations and Maintenance (O&M) are covered by the system owner, rather than the District.
- Option to buy-out the system after 7 or 21 years.
- IRWD would not be eligible to receive Investment Tax Credit (ITC) directly.

Cash Purchase: The District owns and operates the Solar PV system.

- The District would own, operate, and maintain the system from installation through removal.
- Separate O&M contract will be required.
 - District would be responsible for replacing components and ensuring performance.
- Eligible to receive ITC direct payment of 30-40% the total Solar PV system cost in year 1.
- Option to leverage applicable State Tax Credits.
- Often associated with higher Net Present Value (NPV) over the System lifetime.

Generally, PPAs guarantee a certain energy rate (typically \$/kWh), often with an escalation factor built in, and are offered for a fixed amount of time. In the case of a renewable project, a PPA provider would charge IRWD a fixed rate per kWh produced over the term of the contract. Many renewable project PPAs are timed to terminate at or near the end of the depreciation schedule of the asset, at which point the lessee often has an option to buy the asset back.

In the direct owner-operator scenario, IRWD would be able to claim available incentives and credits (such as the ITC for renewable energy systems) and could provide a lower total cost of ownership depending on IRWD's cost of capital. Alternatively, a PPA typically offers minimal upfront costs while alleviating operations and maintenance burdens. IRWD would not be eligible to claim many of the incentives and credits available to the project under a PPA Scenario (most go to the project owner). Ownership model consideration factors include:

- **Use case(s)**
 - Reliability/outage management
 - Onsite gen/cost savings
 - GHG reductions
 - Energy arbitrage³ via wholesale markets
 - Retail program participation (e.g. Demand Response)
- **Production capacity**
 - Overnight cost
 - Financing costs
 - Incentive and credit availability
 - Site considerations
 - Equipment availability
 - Project timelines

Determining the ideal financing option and ownership model will depend on initial feasibility study results, as well as reviewing IRWD’s internal resources and capital financing capacity. Additional review during Phase 2 will identify various factors in a comparable context for an ownership vs. PPA decision.

2.2 Incentives and Credits

There are several different incentives and credits available to IRWD when considering these projects. As mentioned, some have been factored into the preliminary analysis, some will require more details about the projects before accurate analysis can be provided. In general, these can come from the utility, the state, or the federal government.

Utility Programs – Southern California Edison

Southern California Edison (SCE) offers incentive programs and credits for renewable energy projects. The Renewable Energy Self-generation Bill Credit Transfer (RES-BCT) program allows IRWD to generate energy for its own use. Any excess can be exported to the grid for “generation credit” at the Time-of-Use (TOU) rate schedule. Credits can be applied to bills at any of IRWD’s other facilities. This program requires that any project must be under 5 MW in size. The RES-BCT program has a total capacity limit. The SCE capacity limit is set at 124.6 MW. The SCE program website shows 55 MW of available capacity unallocated⁴. Currently the program is accepting new applications. It is

³ Energy arbitrage is the practice of buying or storing energy when prices are cheapest and using the energy during peak time-of-use periods.

⁴ <https://www.sce.com/business/generating-your-own-power/renewable-energy-self-generation-bill-credit-transfer>

recommended that IRWD engage with SCE early to ensure there is available capacity remaining for any given project.

Load shifting and reduction programs exist for battery and microgrid projects. Eligibility typically requires that the asset can reliably reduce or shift facility load during times of grid stress (peak events, planned outages, etc.). These programs require a commitment to participate for a certain number of events to receive incentives and some include penalties for non-compliance. SCE currently offers approximately 12 demand response (DR) programs for businesses. One example of a DR program is the Emergency Load Reduction Program (ELRP). The ELRP currently provides a bill credit of \$2,000/MWh of reduction with no penalty for non-compliance, and a minimum commitment of 1kW of capacity. Other program options allow for higher incentives, although they carry a non-compliance policy. In addition, some options require less frequent participation or even voluntary participation for lower paid incentives.

SCE also offers the Charge Ready Transport Program, which offers incentives and support for the installation of charging infrastructure for fleet vehicles, as well as support with electric vehicle (EV) deployments, tariff management, and identifying additional funding opportunities. The program requires a minimal investment in fleet EVs and a 10-year commitment to operate the charging infrastructure. The Charge Ready Transport Program can cover up to 80% of the total cost of charging infrastructure.

State Programs

The State of California, through the public utilities commission (CPUC), offers the Self-Generation Incentive Program (SGIP). This program is directed at battery energy storage system (BESS) projects and offers up to \$850/kW. The SGIP program has a funding cap which is updated annually. An application needs to be filed with the CPUC before funding can be accurately projected.

Another CPUC program is the Net Billing Tariff (NBT) program (formerly Net Energy Metering, NEM). Under NBT, IRWD would receive a bill credit for any excess generation delivered to the grid. The bill credit is tied to the avoided cost for power (marginal cost of supply) rather than the retail rate. Avoided costs are derived through extremely complicated calculations but suffice to say they should almost always be lower than the retail rate. As well, a customer who wishes to participate in the NBT program must accept a TOU rate. Generally, TOU rates include higher demand charges between peak usage hours of 4 PM to 9 PM. This policy change has made the NBT program generally less lucrative than previous iterations and now requires a more thorough investment grade analysis to properly evaluate the benefits of participation.

Renewable Energy Credits (RECs) and Low Carbon Fuel Standard (LCFS) credits are available in California as well. Solar PV projects and EV projects can receive incentive payments directly related to the value of the GHG reductions the projects provide.

The REC market in California is tied to the Renewable Portfolio Standard (RPS). Credits are generated by reducing GHG through renewable generation installations and are verified and tracked by the Western Renewable Generation Information System (WREGIS). RECs are associated with the environmental attributes of the energy produced and one REC is 1,000 kWh, or 1MWh, of renewable energy generation. Once the RECs are sold, the IRWD can no longer claim it is being powered by on-site renewable energy.

There are voluntary RECs and compliance RECs, with the latter being mostly relevant to large industrial customers and utilities and being the far more lucrative market. In 2022 voluntary RECs sold for approximately \$3/ MTCO_{2e}, while compliance RECs sold for over \$33/ MTCO_{2e}. Arbitrage in the RECs market is dependent on timing, total available RECs, and the generation fuel mix of any given utility in California. The value of RECs can be significantly enhanced when paired with LCFS credits associated with IRWD-owned EV charging stations.

The LCFS market would allow IRWD to realize and trade credits based on the carbon intensity of fuels used compared to the alternative benchmark fuels. For example, fleet vehicles that switch to EVs would be able to realize the credits for zero emissions compared to the carbon standard for vehicle gasoline or diesel. Similarly, vehicles that switch from conventional diesel to renewable diesel would receive credits for the differential in carbon intensity. The value of the credits varies based on the current fuel benchmarks and the carbon intensity of the alternative fuel. LCFS credits are often monetized to partially offset the cost of fuel conversion.

Federal Programs

At the federal level, there are two key provisions of the Inflation Reduction Act (IRA), signed into law in late 2022, which are relevant.

- Investment Tax Credit (ITC) – The ITC allows a dollar-for-dollar tax credit of up to 30-50% of the cost of renewable systems.
- Production Tax Credit (PTC) – The PTC provides a credit of up to \$0.0235/kWh for 10 years.

Both options have a base rate (30% of project cost or \$0.0275/kWh, respectively) with a 10% or \$0.003/kWh adder for domestic production of system components (annually escalating percentage starting at 40% for panels and gear, and 100% of steel and iron), and development in low-income communities or brownfield sites. The credits also allow 50% of the total credit value to be used as a multiplier for accelerated depreciation. Determining which option is preferable depends on factors such as productivity of the system, income earned from the project, or available rebates and credits (e.g. SGIP, RES-BCT, etc.).

The Department of Energy (DOE) through the Solar Energy Technologies Office (SETO) offers grants for Solar PV projects. While the grant awards can be substantial, typically there are strategic resources, research, or other policy objective requirements attached to these grants. The additional requirements associated with SETO grants often makes pursuit of these opportunities inappropriate

for most standard PV projects. Other DOE grants and incentive opportunities exist for both Solar and non-Solar PV projects. Given the onerous nature of most federal grant applications, it is recommended to narrow the project list before pursuing current funding opportunities.

3. Regulatory Constraints and Opportunities

In addition to the market-based approaches, there are several regulatory considerations that IRWD could consider when planning energy and GHG reduction projects.

California Renewable Portfolio Standard (RPS)

The California RPS, established in 2002 by Senate Bill (SB) 1078, requires that California utilities increase their sales of renewable electricity. The initial RPS requirement stated that 20% of electricity retail sales must be served by renewable resources by 2017. The program was accelerated in 2006 under SB 107, which required that the 20% mandate be met by 2010. In 2015, SB 350 mandated a 50% RPS by December 31, 2030. In 2018, SB 100 increased the RPS to 60% by Dec 31, 2030, with interim targets of 44% by Dec 31, 2024, and 52% by Dec 31, 2027. SB 100 also requires 100% of California’s retail electricity sales are generated by carbon-free sources by 2045.

SB 350

- Sector GHG target of 38 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) in 2030 and 30 MMTCO_{2e} in 2035.
- Retail sales load coverage.
- 20 gigawatts (GW) of offshore wind by 2045.
- Minimum 50% renewable generation by 2031

SB 100

- Increased the RPS to 60% by Dec 31, 2030, with interim targets of 44% by Dec 31, 2024, and 52% by Dec 31, 2027.
- All the state’s electricity is “carbon-free” by 2045.

The avoided emissions from projects that IRWD implements will diminish over time as the electric utility input fuel mix continues to decarbonize. Even under a Business-as-Usual scenario (no projects undertaken and no significant load growth by IRWD), GHG emissions from electricity consumption would continue to fall. For comparison, from 2012 through 2023, the average CO_{2e} emissions per kWh for SCE have fallen by almost 40%. Even so, there are numerous benefits to accelerating implementation of projects. While transitioning from fossil fuels will continue to result in cost and emissions reductions over time, reducing electricity consumption can include significant financial savings and further emissions reductions.

California Air Resources Board (CARB) Regulations

There are a few CARB regulations that are relevant to the fleet electrification and alternative fuels projects outlined in this report. In particular, the Advanced Clean Trucks regulations and the Advanced Clean Fleets regulations outline diesel emissions controls for trucks, buses, and tractors. Starting in 2023, all new diesel trucks must have a 2010 or newer model year engine, and new fleet purchases must be zero-emission vehicles starting in 2024. Advanced Clean Cars II regulations mandate that 100% of new passenger vehicles and light duty trucks sold in California will be zero-emission by 2035 (with a ramp up period starting in 2026).

CARB also implements the GHG Cap-and-Trade program. The Cap-and-Trade program establishes a declining limit on major sources of GHG emissions throughout California. CARB creates allowances equal to the total amount of permissible emissions (i.e., the “cap”). One allowance equals one MTCO_{2e} and each year, fewer allowances are created. In tandem, CARB also sets an increasing annual auction reserve (or floor) price for allowances. The combination of declining annual allowances and an increasing annual floor price creates a steady and sustained carbon price signal to prompt action to reduce GHG emissions. All covered entities in the Cap-and-Trade Program are still subject to existing air quality permit limits for criteria and toxic air pollutants. The current threshold for participation in the program is 25,000 MTCO_{2e}. Based on the current threshold, IRWD is ineligible to participate in the CARB Cap-and-Trade program at this time.

United States Anti-Dumping Tariffs

The United States International Trade Commission (US-ITC) has noted that China currently produces over 70% of PV panels on the market and has accused Chinese companies of selling panels into the domestic US market at rates below the cost of production, with the goal of undercutting domestic manufacturing. Furthermore, as the US-ITC applies pressure through a steep tariff on panel imports from China; the US-ITC has accused China of routing manufacturing and shipments through other southeast Asian countries to circumvent the applied tariffs and continue to artificially depress prices in the US market.

In 2018, Congress moved to impose tariffs to combat the dumping of artificially low-priced PV panels into the US market with a 30% tariff on Chinese manufactured PV panels. In 2023, Congress again moved to impose a similar tariff, this time on a host of southeast Asian countries.

The future of anti-dumping tariffs is unclear. On one hand they promote domestic manufacturing of renewable energy technologies, a clear policy goal promoted in federal bills like the IRA and the Infrastructure Investment and Jobs Act. On the other hand, the tariffs conflict with GHG reduction goals. United States manufacturing cannot currently meet the demand for PV panels required to achieve the United States’ aggressive decarbonization goals. In 2021, imports outpaced domestic production by a factor of nearly 6:1. Experts have noted that PV panel imports have fallen with the imposition of tariffs, netting a loss of nearly \$19 billion in solar investment (over 10 GW of total project capacity that hasn’t been made up by domestic manufacturing since 2018). NV5 recommends

that IRWD use more conservative economic assumptions and pricing metrics when analyzing PV projects in the next phase of this report until more clear guidance on anti-dumping tariffs is provided by the US-ITC.

United States Environmental Protection Agency (EPA) Mandatory GHG Reporting (40 CFR part 98)

The EPA published the Greenhouse Gas Reporting Program (GHGRP) rule in 2009. The rule states that any facility directly emitting more than 25,000 MTCO_{2e} per year must report emissions to the program. The rule has been revised and amended several times, the latest being in 2011. Most of the revisions have been minor clarifications of technical requirements and confidentiality determinations for certain types of data, and there are no planned future revisions currently. IRWD does not have any facilities that exceed the regulated threshold, and therefore does not have a reporting requirement at this time.

4. Baseline GHG Inventory

IRWD, with consultant Brown and Caldwell, first developed a portfolio GHG inventory to assess the concentration and volume of greenhouse gases emitted across IRWD facilities and sites in 2009. IRWD conducts an annual GHG inventory for voluntary submission to The Climate Registry (TCR). The inventory is based on a service area boundary for Scope 1, Scope 2, and Scope 3 emissions, first established in 2008, and is independently verified each year. This inventory forms the basis of the energy and GHG projections and potential reduction strategies associated with each of the NV5 proposed projects.

Scope 1 emissions include all GHG emissions from sources that IRWD controls directly. An example of Scope 1 emissions is fuel burned in fleet vehicles or direct emissions from wastewater processing. Scope 2 emissions come from indirect sources related to IRWD actions and includes purchased energy from the grid. An example of Scope 2 emissions would be emissions from power plants that provide electricity that IRWD uses to power equipment or facilities. Scope 3 emissions come from sources outside IRWD's direct or indirect control. Scope 3 emissions are either upstream or downstream of IRWD's direct operations. Scope 3 emissions may include employee commuting, or the emissions associated with purchased goods and services.

The GHG emissions inventory accounts for six primary GHGs: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) – in compliance with the water-energy nexus guidelines and General Reporting Protocol version 3.0 as administered by TCR. However, each GHG has varying levels of potency in the atmosphere. To facilitate an “apples-to-apples” comparison of different emissions across different emissions vectors and industries, GHG inventories use a measurement referred to as carbon dioxide equivalent (CO_{2e}).

CO₂e translates each GHG to an equivalent volume of CO₂ by weighting it by its relative global warming potential (GWP). For example, per IPCC’s Sixth Assessment Report, CH₄ and N₂O are 28 and 273 times more potent, respectively, than CO₂ in their ability to trap heat in the atmosphere (IPCC 2021). Converting these gases into CO₂e allows consideration of all the gases in comparable terms standardize the climate effects of various GHGs. A metric ton of CO₂e (MTCO₂e) is the standard measurement of GHG emissions.

4.1 Setting the Baseline Inventory

A GHG inventory was conducted for IRWD’s facilities for the 2008 calendar year and later updated for the 2009 calendar year. IRWD’s 2012 Plan utilized the initial GHG inventory for the year 2009 as the baseline. The 2009 baseline totaled 62,565 MTCO₂e per year. Under a business-as-usual (BAU) scenario, which assumes the continuation of conventional behaviors without the inclusion of any additional efforts or legislative actions to reduce GHG emissions, the 2012 Plan determined that IRWD’s GHG inventory for 2020 would be 90,300 MTCO₂e per year. The 2012 Plan was organized by the following emissions sectors: Transportation (2% of total emissions), Electricity (97% of total emissions), and Natural Gas (1% of total emissions).

4.2 2021 Energy Use and GHG Emissions

IRWD provided NV5 with facility-wide emissions data collected from a third party. This data was used to examine the existing GHG contributors and determine optimal paths for future GHG reductions. Table 1 shows total energy consumption in electricity, natural gas, and transportation fuel, and emissions from the three fuel types as well as a catch-all category for all other emissions. Electricity (Scope 2) still accounts for the majority of total GHG emissions across all IRWD facilities.

Table 1. 2021 IRWD Total Energy Consumption & GHG Emissions

	Electricity	Natural Gas	Vehicle Fuel	All Other Sources
Energy Consumption	131,558 MWh	280,004 therms	158,450 Gall	N/A
GHG Emissions	34,735 MTCO ₂ e	1,329 MTCO ₂ e	1,411 MTCO ₂ e	11,592 MTCO ₂ e

Scope 2 emissions associated with purchased electricity comprises the largest source of emissions. Although natural gas consumption is quantitatively the largest value for energy consumption, once therms are converted to CO₂-equivalent emissions, it is no longer the largest value. This is due to the difference in units and potency of associated emissions. One therm of natural gas is approximately 29.3 kWh. Natural gas consumption of 280,004 therms is equivalent to 8,204 MWh. Emissions from natural gas include CO₂, CH₄, and N₂O, with CO₂ accounting for the largest share of emissions (1,326 of the total 1,329 MTCO₂e). Total emissions for each site were calculated by determining the CO₂e for

each Scope. The Scope 1,2, and 3 emissions associated with each IRWD facility are shown in Table 2, below.

Table 2. 2021 Scope 1-3 Emissions for each Facility⁵

Site Name	Scope 1 MTCO ₂ e	Scope 2 MTCO ₂ e	Scope 3 MTCO ₂ e	Total MTCO ₂ e Emissions
Baker WTP	-	3,799	-	3,799
Biosolids Plant	0	1,790	-	1,790
Buildings	99	258	-	356
Dyer Road Well Field	-	6,473	-	6,473
El Toro Shallow Groundwater Unit (SGU)	-	0.2	-	0.2
Los Alisos Recycling (LAWRP)	3,792	1,687	7	5,486
Michelson Recycling (MWRP)	2,557	6,645	-	9,202
Natural Treatment System	-	22	-	22
Non-Potable Supply Other	568	3,529	721	4,818
Other Wastewater	2	196	3,665	3,862
Potable Supply DATS	1,941	368	-	2,310
Potable Supply IDP	91	1,308	-	1,399
Potable Supply Other	45	4,013	2,333	6,391
Potable Supply Wells 21 & 22	96	670	-	766
Vehicles	2,395	-	-	2,395
TOTAL	11,585	30,756	6,726	49,068

The largest contributors to IRWD’s Scope 1 emissions are Los Alisos Water Recycling Plant (LAWRP) and Michelson Water Recycling Plant (MWRP). Methane (CH₄) emissions from LAWRP wastewater processing are calculated as 2,630 MTCO₂e, and N₂O contribute an additional 1,102 MTCO₂e to the site’s overall contribution to emissions. MWRP emissions sources are primarily N₂O (1,319 MTCO₂e) and emissions from natural gas use (946.5 MTCO₂e). Vehicle fuel consumption (2,395 MTCO₂e) is the third largest Scope 1 emissions source. While altering LAWRP and MWRP operations may reduce emissions, targeting vehicle electrification can be a cost-effective solution to immediate emissions reductions due to the various state and federal incentives currently available. Figure 1 uses data from IRWD’s 2021 GHG inventory to show total GHG emissions across individual IRWD facilities.

⁵ Categories marked as “Other” include any remaining facilities used for conveyance and delivery of that system supply-type including but not limited to imported water, small electrical accounts, pump stations, and control boxes separate from the indicated treatment plants and facilities already reported.

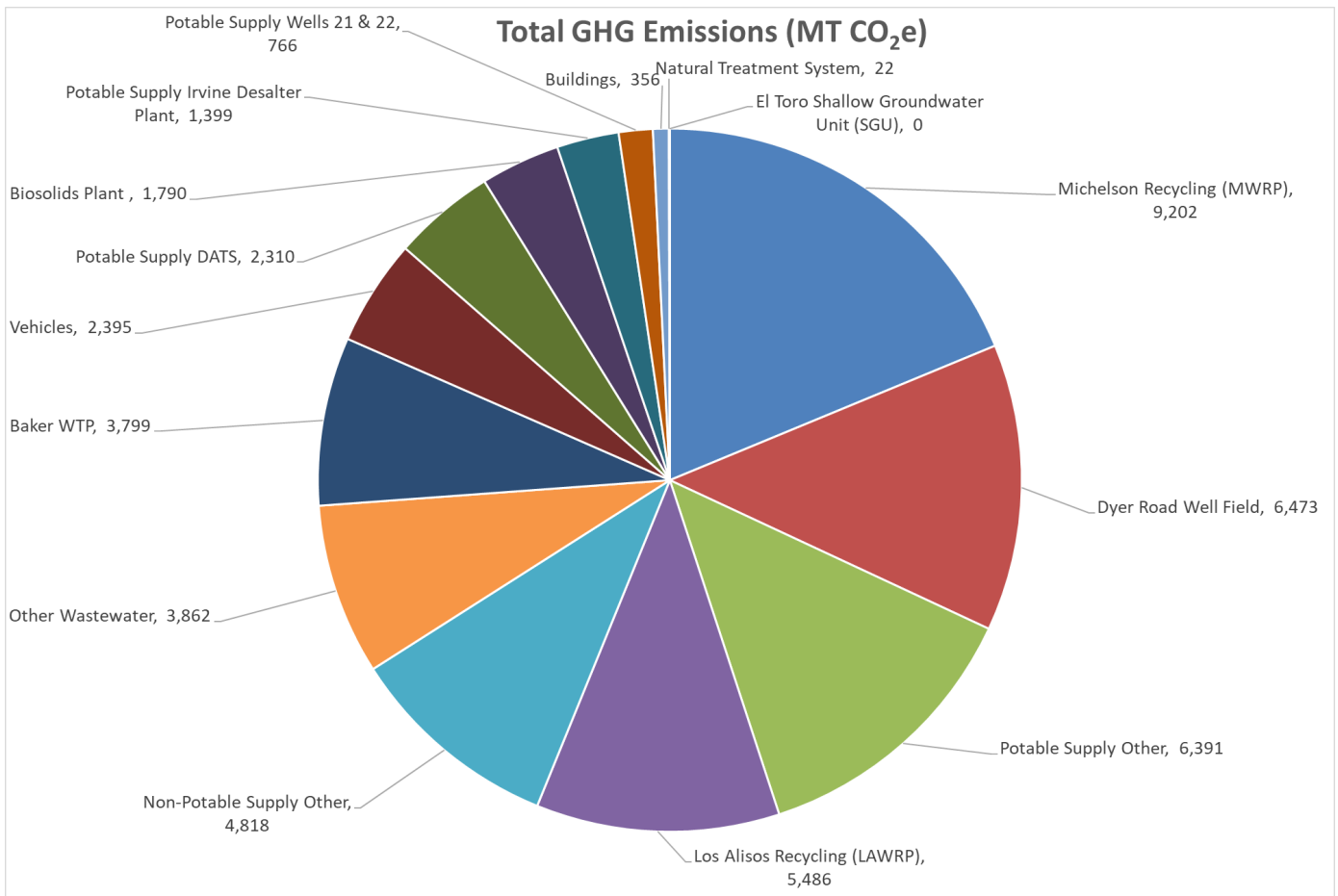


Figure 1. 2021 Total GHG Emissions for each Facility

5. Preliminary Project Screening

The 2012 Energy and GHG Master Plan examined 32 measures from the transportation, electricity, natural gas, and offset/credit options designed to reduce emissions through the incorporation of renewable energy; increased energy, fuel, and water efficiency; zero-emission vehicle infrastructure; and more. The Phase 1 Climate Action Plan accounts for existing plans, programs, and activities that IRWD has undertaken to reduce energy use, energy costs, and emissions by acknowledging these efforts and, in some cases, building or expanding upon them. This section outlines the strategies and specific actions that IRWD can implement to achieve energy and GHG reductions.

5.1 Project Screening Process

This section outlines the projects and strategies that IRWD has determined could be beneficial in reducing energy consumption and GHG emissions over the coming years. IRWD is considering a

variety of energy and GHG reduction projects: including solar PV, battery energy storage systems (BESS), fleet electrification and electric vehicle service equipment (EVSE) infrastructure, and alternative fuels. An initial list of potential projects (see Table 3) was developed based upon:

- Multiple meetings with IRWD water resources and operational staff.
- Two NV5 site visits of IRWD facilities, conducted in March 2022 and October 2022.
- A December 2022 workshop with IRWD senior staff (see Appendix B).
- Post-workshop meetings to clarify workshop feedback and expand presented projects.

Regarding the December 2022 workshop, NV5 presented a high-level overview of potential GHG mitigation projects to IRWD senior management for feedback and insight. Workshop attendees included:

- Paul Weghorst, Executive Director of Water Policy
- Wendy Chambers, Executive Director of Operations
- Kevin Burton, Executive Director of Technical Services
- Cheryl Clary, Executive Director of Finance and Administration
- Jason Manning, Director of Maintenance Operations
- Fiona Sanchez, Director of Water Resources
- Jose Zepeda, Director of Recycling Operations
- Eric Akiyoshi, Engineering Manager
- Ken Pfister, Water Operations Manager
- Christopher Smithson, Manager of Strategic Planning and Analysis
- Richard Mori, Engineering Manager
- Kellie Welch, Water Resources Manager
- Frank Prewoznik, Legislative Analyst
- Corte Gaspar, Management Analyst
- Robert Huang, Senior Energy and Water Resources Planner
- Marina Lindsay, Water Resources Planner

Workshop feedback gathered from senior management (Appendix B) included common themes such as:

- Political Feasibility
 - Such as competing development goals, potential for "Not in My Backyard" complaints
- Technical Feasibility
 - Has Mainspring Energy's linear generator been widely used and tested? Would additional solar at treatment plants conflict with minimum load requirements of the leased battery operations?
- Economic Impact

- Are proposed project benefits enough to justify indirect costs – such as the cost of IRWD internal planning, engineering, and management expertise?
- Policy Appropriateness
 - Which Southern California Edison solar programs (e.g., Net Energy Metering, Renewable Energy Self Generation Bill Credit Transfer, Behind the Meter) would these projects fall under?

Table 4 offers an overview of the screening of the projects. Projects reviewed are organized by technology type and potential location. The listed system capacity is based on modelling results and system sizing estimates from the Phase 1 study. The “screening result” field indicates if the project was selected to move forward for further analysis. A narrative “description/considerations” section that offers additional project detail and the considerations that went into the screening decision can be found in an expanded table located in Appendix C.

Table 3. Project Screening List

IRWD Potential Project Screening				
Project Type	Project Location	Capacity	Screening Result	Notes
Ground-Mount Solar	Baker Water Treatment Plant	281 kW DC	Yes	Requires REC-BCT participation
Ground-Mount Solar	Irvine Lake (Santiago Creek Dam)	984 kW DC	No	Protected habitat adjacent
Ground-Mount Solar	Los Alisos Recycling Plant (LAWRP)	2,540 kW DC	No	Uncertainty of future development
Rooftop Solar	Lomas Valley Zone 3 Reservoir	296 kW DC	Yes	Low on-site load; Requires REC-BCT participation
Rooftop Solar	Zone A South Reservoir	552 kW DC	Yes	NEM-A or RES-BCT programs
Rooftop Solar	Zone A North Reservoir	310 kW DC	Yes	NEM-A or RES-BCT programs
Rooftop Solar	Coastal Zone G and Coastal Zone 6 Reservoirs	146 kW DC	Yes	NEM-A or RES-BCT programs
Canopy/ Ground-Mount Solar	Michelson Water Recycling Plant (MWRP)	2,400 kW DC	Yes	Must be integrated with MWRP long-term planning, on-site batteries until 2028
Ground-Mount Solar	Rattlesnake Reservoir Baseball Field	635 kW DC	Yes	
Floating Solar and Battery Energy Storage	San Joaquin Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	Yes	Requires REC-BCT participation
Floating Solar and Battery Energy Storage	Rattlesnake Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	Yes	Requires REC-BCT participation
Floating Solar and Battery Energy Storage	Sand Canyon Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	Yes	Requires REC-BCT participation
Battery Energy Storage System	Eastwood Zone A-C Pump Station	1,200 kW/ 2,400 kWh	No	Easement and existing site constraints
Battery Energy Storage System	Zone A to Rattlesnake Reservoir Pump Station	500 kW/ 1000 kWh	No	Limited space available
Battery Energy Storage System	Portola Springs A-C Pump Station	500 kW/ 1000 kWh	No	Property constraints
Main Spring Energy In-line Generator	Michelson Water Recycling Plant	440 kW to 3080 kW	No	Proposed generator not compatible with existing microturbine
In Pipe micro-hydro turbines	Pressure Reducing Valves (PRVs)	30 kW	No	Head differential requirements conflicted with design
Fleet Electrification	MWRP, Sand Canyon HQ, Baker, LAWRP	Roughly 300 IRWD fleet vehicles	Yes	CARB regulation requirements
Alt Fuels	MWRP Biogas for CNG	Need further analysis	Yes	Need to review costs
Alt Fuels	MWRP Renewable Natural Gas for Pipeline Injection	Need further analysis	Yes	Need to review costs
Alt Fuels	Renewable Diesel	23,000 gallons diesel annually	Yes	Need to review costs

5.2 Preliminary Solar and Battery Project Cost Analysis

A concept-level cost analysis was prepared for each solar project that was selected for further analysis. All Solar PV system designs are included in Appendix A of this report, with the individual Solar PV design reports also provided in Appendix F. The solar projects would result in a power purchase agreement (PPA). In a PPA, a third-party developer owns and operates the solar facility and charges IRWD a discounted PPA rate for the solar generated electricity. The PPA rate is less than the value of the solar electricity generated. Depending on the existing load at the generation site, the value of the solar generated electricity can be:

- On-site electricity costs for a solar facility that generates electricity less than the on-site load (aka behind the meter (BTM) portion of the solar facility generation). Solar generation at MWRP would be completely BTM (no exported electricity) and would simply directly lower the MWRP electric bill.
- Bill credits earned through the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program. In RES-BCT, public agencies can generate renewable electricity at a site with minimal on-site load and earn bill credits for exported electricity at another agency site with load.
- Bill credits earned through the Net Billing Tarriff (NBT) or Net Energy Metering Aggregation (NEM-A). In these programs, participants earn bill credits for exported electricity at the generation site or the generation site plus adjacent properties, respectively. NBT sites allow exported electricity to be a maximum of 50% of BTM solar electricity generated.
- PPA benefits can be enhanced with the addition of on-site battery storage.

Table 4 presents rough approximation of monetary and GHS reduction benefits of solar generated electricity based on estimates of:

- PPA rates based upon solar facility type (solar only or combined solar/battery) and size.
- Value of solar generated electricity based on applicable SCE rate schedules that establish bill credit values for NEM and RES-BCT.
- Estimated solar energy generation using solar modelling software (e.g., PV Watt, Helioscope).
- SCE estimates of GHG generated per kWh.

Table 4. Preliminary Solar Project Cost Analysis

IRWD Solar Projects Concept-Level Cost Analysis						
Project	Solar PV System Size (kW-DC)	BESS Size (MW/MWh)	Estimated PPA Rate (\$/kWh)	Average Annual PV Generation (kWh/yr.)	Average Annual GHG Reduction (MTCO ₂ e/yr.)	PPA purchase 25-Year NPV (4%DR)
Coastal Zone G and Coastal Zone 6 Reservoirs	146	N/A	\$0.16	235,000	39	(\$575,000)
Baker Water Treatment Plant	281	N/A	\$0.21	465,000	77	\$47,000
Lomas Valley Zone 3 Reservoir	296	N/A	\$0.14	475,000	78	(\$444,000)
Zone A North Reservoir	310	N/A	\$0.14	489,000	81	\$134,000
Zone A South Reservoir	552	N/A	\$0.12	899,000	149	(\$150,000)
Rattlesnake Reservoir Baseball Field	635	2,000 / 8,000	\$0.12	967,000	1,254	\$21,000
MWRP	2,400	N/A	\$0.10	3,712,000	614	\$2,076,000
San Joaquin Reservoir	5,000	5,000 / 20,000	\$0.19	11,520,000	1,906	\$843,000
Rattlesnake Reservoir	5,000	5,000 / 20,000	\$0.19	11,520,000	1,906	\$791,000
Sand Canyon Reservoir	5,000	5,000 / 20,000	\$0.15	11,520,000	1,906	\$870,000

Estimated PPA purchase 25-Year NPV values were modelled using a 4% discount rate (DR) and an ITC of 40%, as shown in Appendix E. Values are subject to change and refinement. Phase 2 project modelling will refresh energy values and perform more rigorous calculations for NPV estimation. Current values provide a high-level overview of project financials based on system type and size.

5.3 Fleet Electrification

Fleet electrification identifies the energy and GHG reduction associated with transitioning the composition of IRWD’s vehicle fleet to electric vehicles (EVs). IRWD’s current vehicle fleet includes 268 vehicles residing at five locations. The Michelson Water Recycling Plant (MWRP) has the most associated vehicles (n=234). All vehicles were evaluated for potential transition to EVs, with the exception of 11 vehicles using compressed natural gas (CNG). Fleet electrification calculations are available in Appendix D.

Beginning in 2025, NV5 estimated the vehicle transition schedule from internal combustion engines (ICE) to EVs. Vehicle transition scheduling is currently based on vehicle purchase date, assuming vehicles are kept in service for 25-years. CARB mandates and regulations were also considered in the estimated fleet electrification schedule. Table 5, below, is an example fleet transition plan showing

the number of new EVs added at each site per year. This does not represent IRWD’s plan for near-term vehicle replacement, but rather provides a visual representation of a potential EV transition plan.

Table 5. Example Fleet Transition Plan

	Sand Canyon Headquarters	Michelson Water Recycling Plant	Baker Water Treatment Plant	Los Alisos Water Recycling Plant	TOTAL
2026	3	22	1	2	28
2027	2	23	0	0	25
2028	2	18	0	0	20
2029	1	23	0	1	25
2030	2	36	0	0	38
2031	2	19	0	0	21
2032	2	5	0	0	7
2033	0	10	0	0	10
2034	1	7	0	1	9
Beyond 2034	13	60	1	0	74
Total EVs	28	223	2	4	257

The fleet transition plan informs potential GHG reduction from vehicle fuel consumption. Although electricity use will increase with vehicle charging, gasoline and diesel consumption will greatly reduce associated GHGs.

Quantifying the potential benefit associated with changing IRWD’s vehicle fleet requires a detailed analysis of future technology, electricity costs and maintenance requirements. IRWD staff estimated the capital cost of switching from internal combustion engine (ICE) vehicles to EVs over 25 years would be approximately \$18,900,000.

Based on the proposed replacement dates in IRWD’s vehicle data, a more detailed and representative roadmap would need to be developed in Phase 2 of preparing the 2023 plan to account for capital planning cycles, market factors and availability of viable replacements, as well as any infrastructure upgrades necessary to operate and maintain an EV fleet.

5.4 Emissions Projections

The following GHG emissions projections represent a business-as-usual (BAU) scenario, which assumes the continuation of conventional behaviors without the inclusion of any additional efforts or legislative actions beyond what has already been adopted at the time of the baseline year (i.e., 2021), and includes all 3 Scopes of emissions to display the total GHG footprint. GHG emissions projections provide an estimate for future levels based on a continuation of current trends in activity.

In a BAU scenario, the continued ramp up of the California RPS requirements will cause a reduction in total emissions across IRWD operations, as shown in Figure 2. Table 6 displays the projection for emissions in 2025 and 2030. The reduction in emissions for the BAU scenario is due to the fuel mix targets outlined in the RPS and the corresponding reduction in emissions from electricity generation at SCE. For 2025, NV5 estimated a 3% reduction in Scope 2 emissions across IRWD facilities and an 8% reduction for 2030 based on 2021 values.

NV5 utilized GHG reductions targets in the 2022 scoping plan scenario for SB350 (part of SB 32 GHG inventory project), which corresponds to renewables deployment targets outlined in SB 100, to develop an annual reduction forecast to apply to IRWD’s GHG inventory. Further, the analysis cross-referenced the annual reduction forecast with SCE’s current emissions scorecard to set a baseline. Then, projected reductions were calculated for Scope 2 emissions across IRWD’s operations.

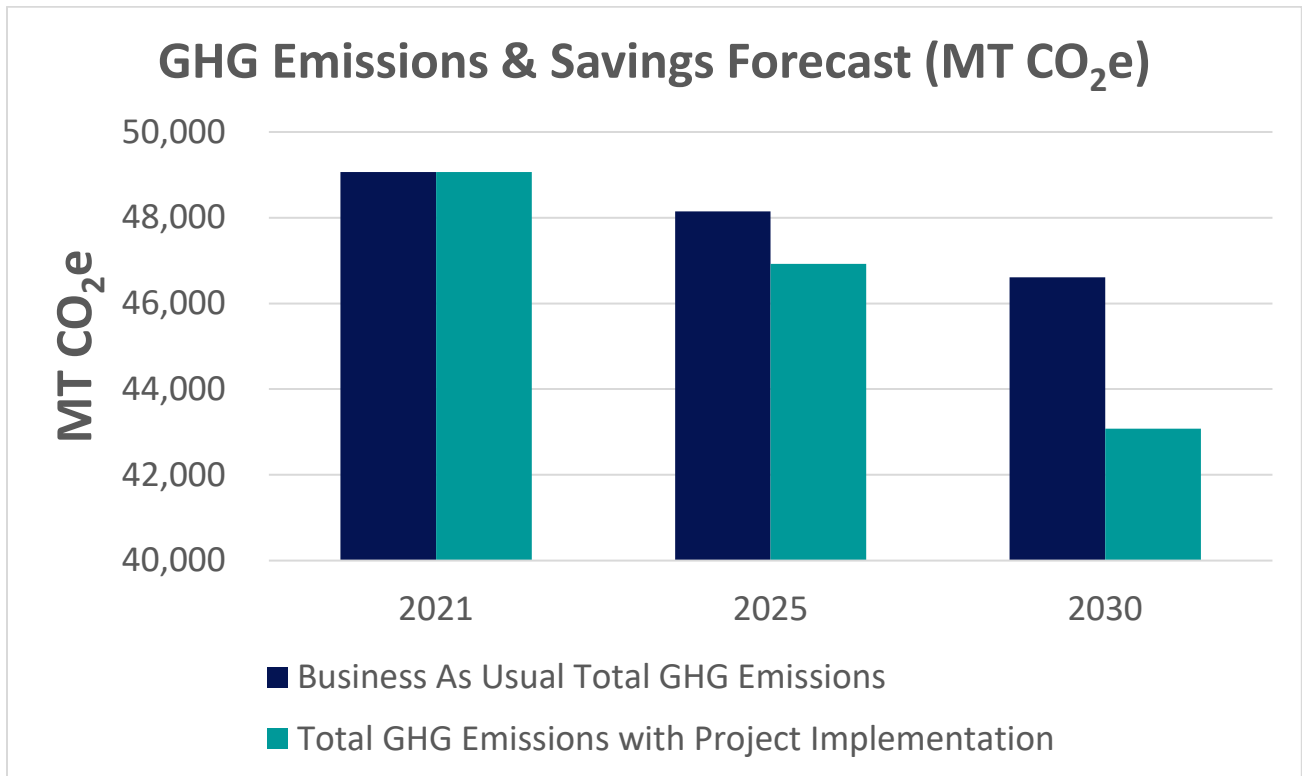


Figure 2. GHG Emissions Forecast with and without (BAU) Project implementation.

To project potential GHG reduction effects of the proposed set of projects, we overlaid the emissions reduction potential generated from the desktop audit of each project onto the BAU forecast. Based on the preliminary analysis of the complexity of the projects and site constraints, NV5 only estimated project completion for the Baker and Michelson projects before 2025, while the remaining projects would not be completed until after 2025.

Table 6. Estimated GHG forecast and Project Impact for 2025 & 2030.

Facility	2021	2025	2030
Michelson Recycling (MWRP)	9,202	9,003	8,671
Los Alisos Recycling (LAWRP)	5,486	5,435	5,351
Other Wastewater	3,862	3,856	3,846
Potable Supply DATS	2,310	2,298	2,280
Potable Supply Irvine Desalter Plant	1,399	1,359	1,294
Potable Supply Wells 21 & 22	766	745	712
Potable Supply Other	6,391	6,270	6,070
Non-Potable Supply Other	4,818	4,713	4,536
El Toro Shallow Groundwater Unit (SGU)	0	0	0
Vehicles	2,395	2,395	2,395
Buildings	356	349	336
Natural Treatment System	22	21	20
Baker WTP	3,799	3,685	3,495
Biosolids Plant	1,790	1,736	1,647
Dyer Road Well Field	6,473	6,279	5,955
Business As Usual Total GHG Emissions	49,068	48,145	46,607
Proposed Project GHG Savings:	2021	2025	2030
Michelson Recycling (MWRP) Solar PV		614	614
Vehicle Electrification		534	1,197
Baker WTP Solar PV		77	77
San Joaquin Reservoir Floating Solar PV & BESS			1,322
Zone A North Reservoir Rooftop Solar			148
Rattlesnake Canyon Baseball Field Solar PV			171
Estimated Total GHG Emissions Reduction		1,225	3,529
Net IRWD GHG Emissions	49,068	46,920	43,078

Table 6 presents the 2021 GHG emissions report provided by IRWD by facility for total emissions. The facility-level values for 2025 and 2030 include an estimated reduction in Scope 2 GHG emissions due to SCE’s planned fuel mix. Proposed projects represent the recommended and best value options for IRWD to consider. If the six projects are implemented by 2030, IRWD could realize an 8% reduction in emissions reductions compared to the BAU estimate, and a 12% reduction from 2021 values. Solar PV project designs are included as Appendix A.

5.5 Alternative Fuels

This project identifies the energy and GHG reductions associated with changing the input liquid fuel for IRWD’s vehicle fleet and generation equipment (e.g., diesel generators, class 5 vehicles, etc.) to “renewable” fuels. As well, IRWD is interested in exploring the viability of scrubbing natural gas at the

MWRP site and selling it back to the gas grid. Quantifying the potential benefit associated with changing IRWD’s liquid fuels portfolio requires a detailed analysis of future technology, fuel costs, and maintenance requirements by equipment type.

The MWRP natural gas injection project would require a detailed understanding of both the costs to bring the methane percentage to 85%-90% (required for sale on the grid) and the forecasted value of natural gas. While these projects would represent an opportunity for IRWD to reduce GHG emissions by pursuing fuels that are potentially carbon neutral, it is unclear if there would be any energy savings. Furthermore, alternative fuels, such as renewable diesel and CNG, are very costly to produce now. Scrubbing natural gas is also very expensive. Technology improvements may improve the alternative fuel financials in the future, but currently there are several unknown and untested variables for IRWD. At this time, further research into alternative fuels mentioned above is not recommended for Phase 2.

6. Next Steps – Phase 2 Recommendations

Below are recommended solar projects that have been selected for further analysis:

- Baker Water Treatment Plant: Ground-Mount Solar – 281 kW DC
- Lomas Valley Zone 3 Reservoir: Rooftop Solar – 296 kW DC
- Zone A South Reservoir: Rooftop Solar – 552 kW DC
- Zone A North Reservoir: Rooftop Solar – 310 kW DC
- Coastal Zone G and Coastal Zone 6 Reservoirs: Rooftop Solar – 146 kW DC
- MWRP: Canopy/ Ground-Mount Solar – 2,400 kW DC
- San Joaquin Reservoir: Floating Solar and BESS – 5 MW AC solar; 5 MW/ 20 MWh battery
- Rattlesnake Reservoir: Floating Solar and BESS – 5 MW AC solar; 5 MW/ 20 MWh battery
- Sand Canyon Reservoir: Floating Solar and BESS – 5 MW AC solar; 5 MW/ 20 MWh battery
- Rattlesnake Reservoir Baseball Field: Ground-Mount Solar – 635 kW DC solar

In addition, four other projects were identified as needing further study:

- Fleet Electrification
- Alternative Fuels:
 - MWRP Biogas (BIO) for CNG
 - MWRP Renewable Natural Gas for Pipeline Injection
 - Renewable Diesel

NV5 recognizes that not all the recommended projects will need a similar level of analysis in Phase 2. Starting in 2007, IRWD has installed over 1 MW of solar panels and over 6 MWs of battery energy storage systems. Therefore, an Investment Grade Feasibility Study (IGFS) of potential solar projects is recommended. The objective of an IGFS analysis is to conceptualize the siting and sizing of renewable energy systems and estimate financial performance under proposed financing

mechanisms. The IGFS provides a deeper analysis than the Phase 1 study. The IGFS includes site assessments, conceptual designs of Solar PV systems, and a financial analysis of proposed projects using sensitivity analyses and probability distribution risk analyses.

Alternative renewable fuels are an emerging market burdened by newly established suppliers and regulation. A market assessment may be a more suitable tool guide IRWD’s path forward with regards to alternative fuel options. At this time, further research into alternative fuels has been deprioritized. Table 7 presents the final Phase 2 recommendations by priority and project type.

Table 7. IRWD Final Phase 2 Recommendations

Priority	Project Type	Project Location(s)	Capacity	25-Year Lifetime GHG Reductions (MTCO _{2e})	Phase 2 Study to be Performed
1	Rooftop Solar	Zone A North Reservoir	310 kW-DC	600	Investment Grade Feasibility Study
	Floating Solar and Battery Energy Storage	San Joaquin Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	10,400	Investment Grade Feasibility Study
	Ground-Mount Solar	Rattlesnake Canyon Baseball Field	635 kW-DC	1,300	Investment Grade Feasibility Study
	Canopy/ Ground-Mount Solar	Michelson Water Recycling Plant (MWRP)	2,400 kW-DC	4,800	Investment Grade Feasibility Study
	Fleet Electrification	MWRP, Sand Canyon HQ, Baker, LAWRP	Roughly 300 IRWD fleet vehicles	7,000	Fleet Electrification Plan
	Ground-Mount Solar	Baker Water Treatment Plant	281 kW-DC	600	Investment Grade Feasibility Study
2	Rooftop Solar	Coastal Zone G and Coastal Zone 6 Reservoirs	146 kW DC	300	Investment Grade Feasibility Study
	Floating Solar and Battery Energy Storage	Rattlesnake Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	10,100	Investment Grade Feasibility Study
	Rooftop Solar	Lomas Valley Zone 3 Reservoir	296 kW-DC	600	Investment Grade Feasibility Study
	Floating Solar and Battery Energy Storage	Sand Canyon Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	10,100	Investment Grade Feasibility Study

Priority	Project Type	Project Location(s)	Capacity	25-Year Lifetime GHG Reductions (MTCO _{2e})	Phase 2 Study to be Performed
	Rooftop Solar	Zone A South Reservoir	552 kW-DC	1,200	Investment Grade Feasibility Study
3	Alt Fuels	MWRP Biogas used as Compressed Natural Gas	Need further analysis	TBD	Market Analysis
	Alt Fuels	MWRP Renewable Natural Gas for Pipeline Injection	Need further analysis	TBD	Market Analysis
	Alt Fuels	Renewable Diesel	23,000 Gall per year diesel	TBD	Market Analysis

Estimated 25-Year GHG emissions reductions are also included to further compare projects. The 25-year GHG reductions are calculated based on the expected rate of renewable adoption of the utility grid. As the grid adopts the renewable portfolio standard (RPS), the carbon intensity of grid produced electricity reduces over time. To forecast the 25-year GHG savings for each project, NV5 calculated the annual GHG savings and used a conversion factor of 7.84 times the Year-1 calculated GHG savings to reflect the changing carbon intensity of the grid.

The final list of projects recommended based on Phase 1 screening were further separated by priority. The six projects in Priority 1 include Solar PV projects with positive NPV in initial modelling, Solar PV projects modelled under RES-BCT tariff structure, and Fleet Electrification planning. Although the financial modelling and proposed project savings estimates are likely to change once the data has been refreshed for 2023 values, initial NPV results can indicate projects that are more likely to improve financially. Solar PV projects modelled under NEM or NEM-A will need to be revised to scale system design to maximize the Net Billing Tariff rate structure. Those projects are currently in Priority 2, along with negative NPV solar projects, and projects IRWD has identified as politically sensitive or likely to be met with negative public concern.

NV5 has reviewed the GHG inventory and emissions sources for IRWD. Given existing technology and beneficial grants and incentives for both Solar-PV and Fleet electrification, those types of projects are recommended for Phase 2. Alternative fuels should be researched in more detail at a future time and are noted as Priority 3. There are many unknowns associated with alternative fuel sources and implementation. NV5 recommends IRWD keep these as a future option and focus presently on projects with proven history of implementation and cost-effectiveness.

In addition to five Priority 1 solar project IGFS analyses and a fleet electrification plan (see further details below), Phase 2 of the CAP will include the following:

- Comprehensive climate change impact analysis and vulnerability assessment;
- Revised GHG inventory and energy use projections that account for future water use estimates;
- Consideration of reasonable and voluntary GHG reduction goals;
- Development of potential GHG reduction strategies that focus on fossil fuel use and treatment plant emissions while considering expected GHG emission reductions in the context of a 100% clean California electricity supply by 2045, and the potential benefits of carbon credit purchases;
- Analysis of the value of IRWD solar arrays and digester gas (e.g., energy savings, GHG reduction, potential renewable energy credit sales); and
- Recommended changes to IRWD policies, programs and procedures needed to implement CAP initiatives.

Phase 2 of the CAP will incorporate the results of the following IRWD ongoing planning studies:

- IRWD’s 2023 GHG inventory will be used to improve the accuracy of IRWD GHG inventory projections and to aid in development of GHG reduction strategies.
- IRWD’s 2024 Water Supply Reliability Study, which assesses potable water supply reliability under different climate change scenarios, will provide the foundation of the CAP’s climate change vulnerability assessment and impact analysis. It will also assist in making estimates of long-term energy use and GHG emissions associated with water use in IRWD’s service area.
- A 2024 Embedded Energy Study, which will contain in-depth energy use and cost intensity data across IRWD’s operations.

6.1 Solar Project Investment Grade Feasibility Studies (IGFS)

A feasibility study is a detailed analysis of a proposed project. Phase 1 included a high-level feasibility study where multiple projects were reviewed and screened for political, financial, and physical feasibility. To fully develop a project path for each of the identified solar projects, including 90% designs, total cost of ownership and budgeting assumptions, and technical specifications sufficient for effective procurement, a more thorough IGFS analysis should be conducted. As an example, NV5’s IGFS process will be used in Phase 2 evaluations as summarized below.

Key Assumptions and Model Inputs

NV5 uses conservative pricing assumptions based on market knowledge from similar projects, current industry trends, and utility escalation rates based on historical averages over the past thirty years. Modeling assumptions account for risks associated with utility rate changes that are proposed by the utility or expected based on NV5’s understanding of historical trends and forecasts.

To assess the impacts of key project variables on the economic outcomes of projects, NV5 conducts both a sensitivity analysis and a probability distribution risk analysis. The sensitivity analysis identifies which variables have the most significant impact on the financial performance of the project. NV5 then performs a multivariable Monte Carlo analysis to establish a 90 percent probability for financial performance over the lifetime of the project. Due to uncertainties related to the demand response (DR) programs and their support by potential project partners, NV5 does not include DR incentives in the project risk analysis.

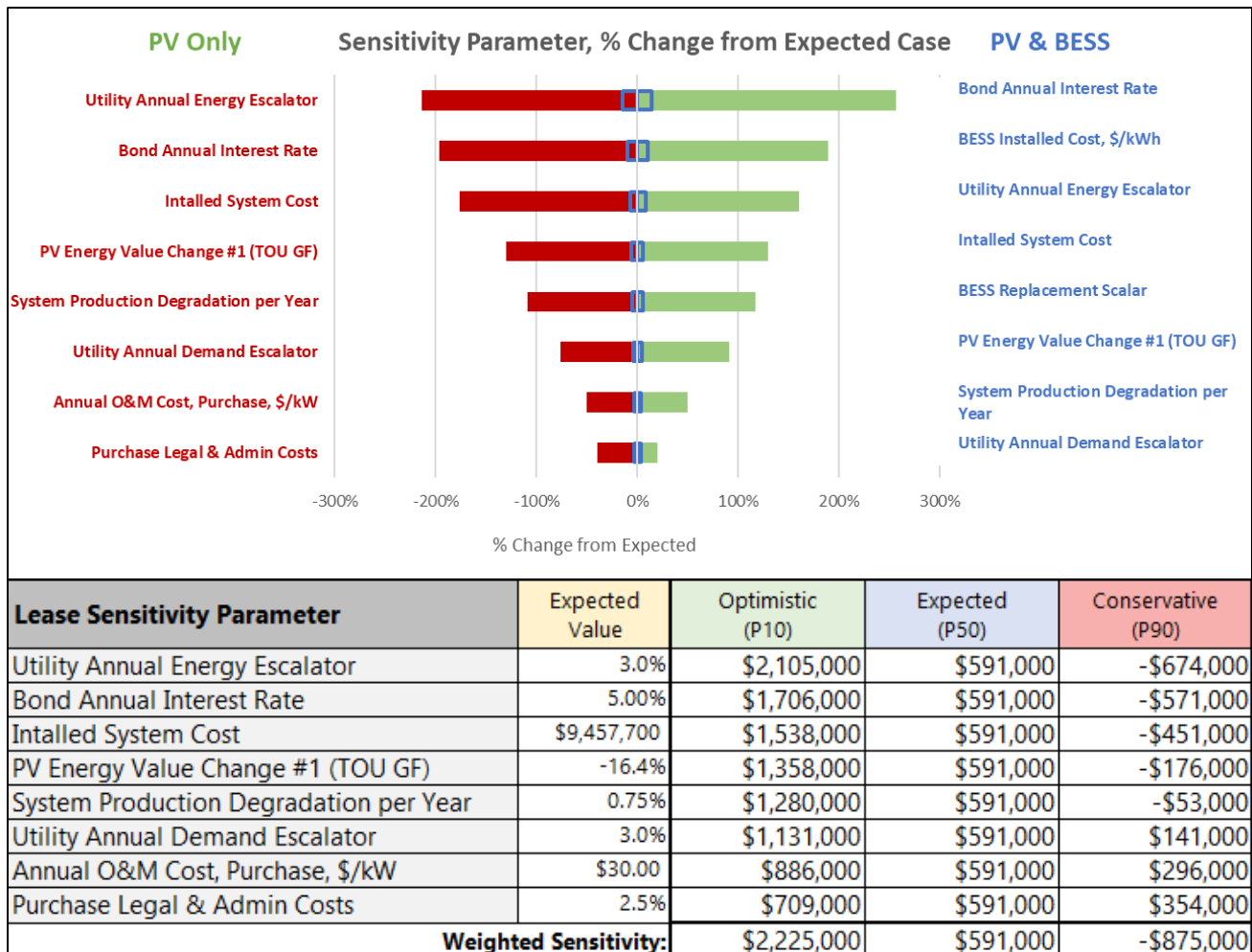


Figure 3. Example Sensitivity Analysis Model

Figure 3 shows an example sensitivity modelling result. The red and green bars represent PV-Only sensitivity results, while the blue outline bars are PV & BESS sensitivity results. The descriptors on the left side of the bar chart include the top 8 inputs that the model is most sensitive for on the PV financial analysis. Those indicators are also listed below in the table. Similarly, the right side are the top 8 inputs that the model is most sensitive to for the PV & BESS financial analysis. This is the

combined graph of PV and PV & BESS sensitivity results. The results are ordered from greatest impact (most sensitive) to lowest.

The sensitivity model reviews changes from the expected value as potentially impacted by variable inputs. The expected, or P(50), column represents the median values. Optimistic values are P(10), meaning that 10% of calculated values will meet or exceed the P10 estimate. Alternately, conservative P(90) estimate is a lower value and is expected to be exceeded in 90% of scenarios.

Project Modeling Cash Flows and Graphs

Investment grade feasibility studies (IGFS) include cash flow tables and graphs. These figures can be used to compare ownership models (PPA vs Cash), system components (varying sizes or technologies), as well as portfolio wide versus site specific options. With this type of analysis IRWD can get a more comparable comparison to a potential Power Purchase Agreement (PPA) than a developer might propose through a procurement process. IGFS output models may include:

- Sensitivity Analysis Tornado Chart (Figure 3)– depicting the eight (8) most significant variables assuming 2 standard deviation normal distribution. This chart is based on the net present value (NPV) of project lifetime financial performance.
- Project Cash Flow table (Table 8) – 25-year cash flow showing important project parameters.
- Project Cash Flow graph (Figure 4) – Expected values are represented in the blue bars. Optimistic results are shown with green lines on the graphs, Conservative results are shown with red lines. Based on project assumptions, Optimistic and Conservative parameters are adjusted to reflect potential outcomes.

The estimates in a final analysis will be based on industry benchmarks and the econometrics developed through cashflow analyses. Ultimately, a PPA rate will be determined through negotiations with the vendor(s) IRWD selects to implement a solar PV project, or projects. IRWD may be able to secure more favorable PPA rates by leveraging economies of scale in procurement. material costs, site conditions, and scheduling constraints may be coordinated across multiple projects to improve the PPA rate a vendor might offer.

Table 8. Example Cashflow Table - Rattlesnake Baseball Field Cash Purchase; Solar PV Only

Year	Estimated Utility Usage (kWh)	Annual Estimated Utility Cost w/o PV	Utility Energy Cost w/ PV	PV Operating Costs	Incentives	Net Annual Savings	Cumulative Project Cash Flow
0	-	\$ -	\$ -	\$ -	\$ -	\$(1,588,000)	\$(1,588,000)
1	46,000	\$ 24,000	\$ (192,000)	\$ 24,000	\$ (635,000)	\$ 827,000	\$ (761,000)
2	46,000	\$ 25,000	\$ (195,000)	\$ 24,000	\$ -	\$ 196,000	\$ (565,000)
3	46,000	\$ 25,000	\$ (200,000)	\$ 25,000	\$ -	\$ 200,000	\$ (365,000)
4	46,000	\$ 26,000	\$ (204,000)	\$ 26,000	\$ -	\$ 204,000	\$ (161,000)
5	46,000	\$ 27,000	\$ (207,000)	\$ 26,000	\$ -	\$ 208,000	\$ 47,000
6	46,000	\$ 28,000	\$ (211,000)	\$ 24,000	\$ -	\$ 215,000	\$ 262,000
7	46,000	\$ 28,000	\$ (217,000)	\$ 25,000	\$ -	\$ 220,000	\$ 482,000
8	46,000	\$ 29,000	\$ (221,000)	\$ 26,000	\$ -	\$ 224,000	\$ 706,000
9	46,000	\$ 30,000	\$ (225,000)	\$ 26,000	\$ -	\$ 229,000	\$ 935,000
10	46,000	\$ 31,000	\$ (229,000)	\$ 27,000	\$ -	\$ 233,000	\$ 1,168,000
11	46,000	\$ 32,000	\$ (234,000)	\$ 28,000	\$ -	\$ 238,000	\$ 1,406,000
12	46,000	\$ 33,000	\$ (239,000)	\$ 91,000	\$ -	\$ 180,000	\$ 1,586,000
13	46,000	\$ 34,000	\$ (243,000)	\$ 30,000	\$ -	\$ 248,000	\$ 1,834,000
14	46,000	\$ 35,000	\$ (248,000)	\$ 31,000	\$ -	\$ 253,000	\$ 2,087,000
15	46,000	\$ 36,000	\$ (253,000)	\$ 32,000	\$ -	\$ 258,000	\$ 2,345,000
16	46,000	\$ 37,000	\$ (258,000)	\$ 32,000	\$ -	\$ 263,000	\$ 2,608,000
17	46,000	\$ 38,000	\$ (264,000)	\$ 33,000	\$ -	\$ 268,000	\$ 2,876,000
18	46,000	\$ 39,000	\$ (269,000)	\$ 34,000	\$ -	\$ 274,000	\$ 3,150,000
19	46,000	\$ 41,000	\$ (274,000)	\$ 35,000	\$ -	\$ 279,000	\$ 3,429,000
20	46,000	\$ 42,000	\$ (279,000)	\$ 37,000	\$ -	\$ 285,000	\$ 3,714,000

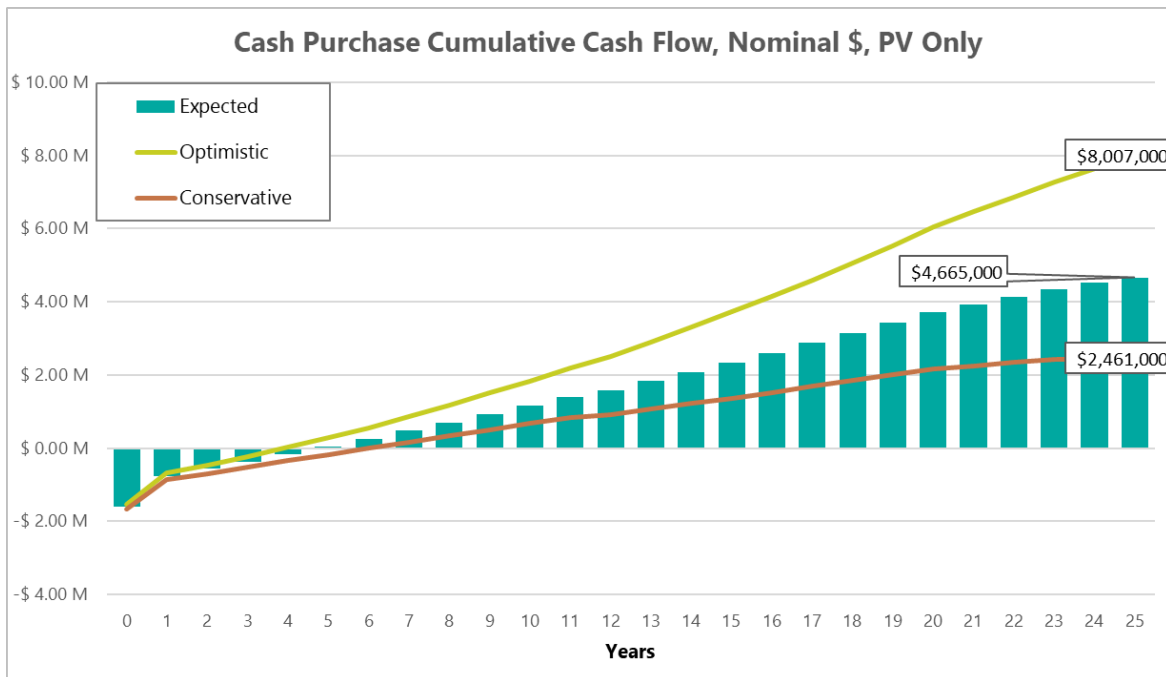


Figure 4. Example Cashflow Graph - Rattlesnake Baseball Field Cash Purchase; Solar PV only

6.2 Fleet Electrification Planning

IRWD has begun to explore vehicle electrification, including engagement with SCE to install chargers through the Charge Ready program. That relationship can be leveraged to explore electric vehicle and charging infrastructure for IRWD’s fleet. IRWD has approximately 270 fleet vehicles, with over half classified as light duty trucks. This ratio represents a significant challenge in navigating CARB Advanced Clean Cars II, and CARB Clean Fleet regulations, which mandate 100% of passenger cars and light duty trucks be zero emissions by 2035, and new fleet vehicles must be zero emissions starting in 2024, respectively.

One strategy is to develop a fleet electrification plan. Three key components to develop an electrification plan include:

1. **Fleet Transition** - IRWD maintains a complete fleet inventory and to develop a transition plan, a market analysis is required to determine the availability of replacement vehicles, their eligibility within CARB regulations (including for diesel engines), usage patterns, and other IRWD considerations for purchasing and amortizing vehicle purchases and O&M. With a fleet transition plan, IRWD can more accurately quantify the emissions reductions per vehicle.
2. **Charging Infrastructure** - The second piece, once a fleet transition plan has been developed, is to develop a charging infrastructure and EVSE plan. To operate and maintain a fleet of electric vehicles, IRWD will need to procure an adequate number and type (Level 2 or Level 3) of vehicle charging stations, as well as all of the required EVSE (the hardware, software, and utility-side infrastructure, some of which IRWD may be responsible for procuring).
3. **Total Cost of Ownership** - IRWD should also perform a total cost of ownership of an electrified fleet and the EVSE in order to understand the cost implications of the transition. Ideally the analysis should be granular enough on a per-vehicle basis to identify which vehicles make sense to transition and which do not compared to other zero emission alternatives. As part of this analysis, IRWD would compare hardware and software costs, operations and maintenance costs, any available credits and incentives, tariff structures, and other relevant market data to compare costs and benefits of implementing the transition plan vs. a null case.

6.3 Alternative Fuel Market Analysis

There are a variety of renewable liquid fuels commercially available or under development. The following sections describe a methodology for further exploring the viability of the key options:

MWRP Biogas for Compressed Natural Gas

IRWD expressed interest in evaluating the feasibility of the biogas at the MWRP site to convert to renewable natural gas for use in IRWD processes or potentially to compress the Renewable Natural Gas (RNG) to Compressed Natural Gas (CNG) for use as a transportation fuel. One key advantage of a biogas (BIO)-RNG project is that it locks in fuel costs over the amortization schedule of the project, which can produce significant financial savings compared to more volatile, wholesale market alternatives. Another possible advantage is the ability to monetize LCFS credits, depending on the feasibility of using the biogas as a transportation fuel, and the overall quality of the product (e.g., RNG or CNG). Figure 5 shows the relative carbon intensity of BIO-CNG and BIO-Liquefied Natural Gas (LNG) compared to traditional diesel and gasoline.

Key considerations that affect the viability of a biogas-RNG/CNG project:

1. **Biogas Quality** – The quality of the biogas has a significant impact on the opportunity cost and O&M of a purification strategy. Further study is needed to determine the overnight cost of this project, as well as the energy content of the RNG/CNG outputs to compare those costs to the commodity fuel alternatives.
2. **Emissions Reduction** – According to the California Air Resources Board (CARB), conversions to RNG/CNG offers some of the lowest emissions of any of the common diesel alternatives. This assumes the biogas input fuel requires moderate cleaning. To accurately project the economic benefits derived from producing CNG locally, the energy content of the CNG produced will need to be determined specific to the MWRP biogas. This will determine the potential GHG reductions compared to conventional fuel alternatives as well as the values of LCFS credits derived.

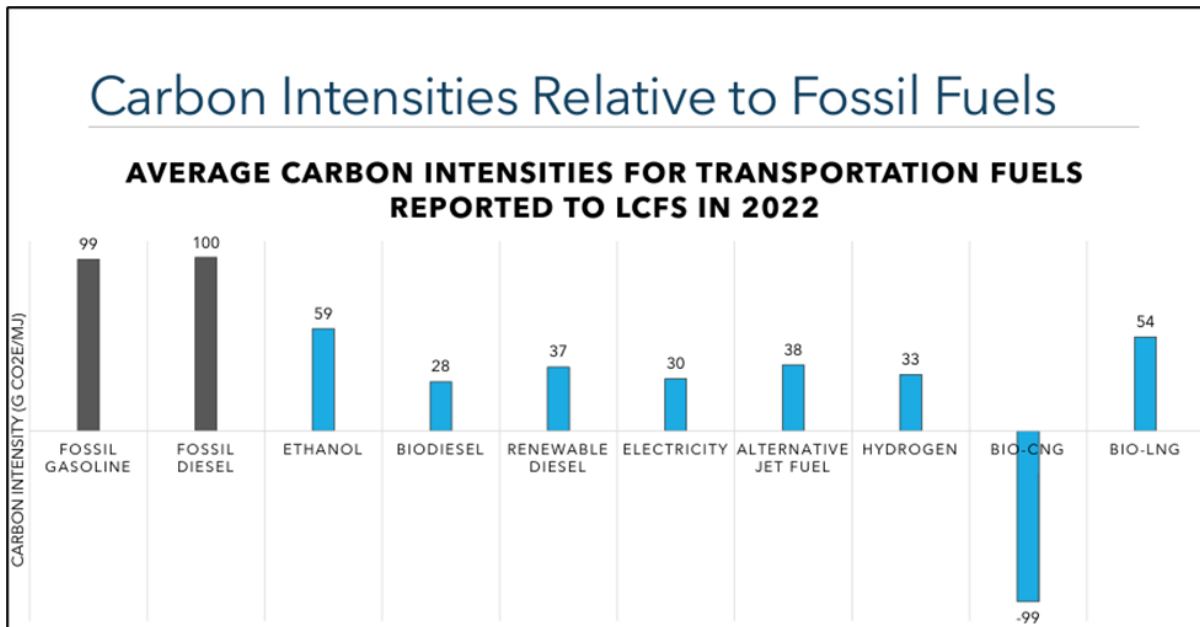


Figure 5. Carbon Intensity of Transportation Fuels⁶

MWRP Renewable Natural Gas (RNG) for Pipeline Injection

RNG for pipeline injection, sometimes referred to as biomethane, is a proven use for biogas. But, of the nearly 16,000 wastewater treatment facilities in the US, only about 850 have equipment to turn biogas into biomethane on-site. Most of those sites use biomethane to generate electricity.

The next step for reviewing RNG for pipeline injection is to examine the viability of a RNG conversion project and determine whether the quality of the biomethane is sufficient to cost-effectively meet the 85-90% methane content threshold for pipeline injection. NV5 recommends that IRWD engage with the United States Biomethane Council, the main trade organization, to solicit input from a larger group of experts and potential solution providers. Given the market uncertainty for this technology, NV5 recommends waiting to explore RNG options until a later date.

Renewable Diesel

Renewable diesel is a fuel made from fats and oils, such as soybean oil or canola oil, and is processed to be chemically the same as petroleum diesel. This fuel meets the ASTM D975 specification for petroleum in the United States, which is the same as conventional diesel. Renewable diesel can be used as a replacement fuel or blended with any amount of petroleum diesel, and when used as a full replacement can achieve up to an 80% reduction in GHG emissions. Nearly all domestically produced

⁶ LCFS Quarterly Data Summary Spreadsheet: <https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries>

and imported renewable diesel is used in California due to economic benefits under the Low Carbon Fuel Standard.

Renewable diesel and biodiesel are different fuels. Renewable diesel, previously known as green diesel, is a hydrocarbon produced most often by hydrotreating or via gasification, pyrolysis, and other biochemical and thermochemical technologies. Whereas biodiesel is a mono-alkyl ester produced via transesterification. Biodiesel is also approved for blending with petroleum diesel.

There are currently 4 major producers of renewable diesel in California (three of which are in the Los Angeles area). Renewable diesel is currently expensive, retailing at nearly double the cost of conventional diesel in California. Future analysis could include a thorough cost-benefit analysis to determine if the GHG reductions and cost implications of purchasing renewable diesel are favorable compared to other zero emission alternatives. Given the current incentives and grants available for fleet electrification, NV5 recommends proceeding with a fleet electrification plan rather than conversion to renewable diesel at this time.

Appendix - A

Solar Projects Evaluated

The following images are outputs derived with the Helioscope platform. Helioscope is a solar PV design tool that utilizes site photos and diagrams and overlays fully customizable PV system designs. The platform can then run energy simulation algorithms to simulate system performance and forecast energy output.

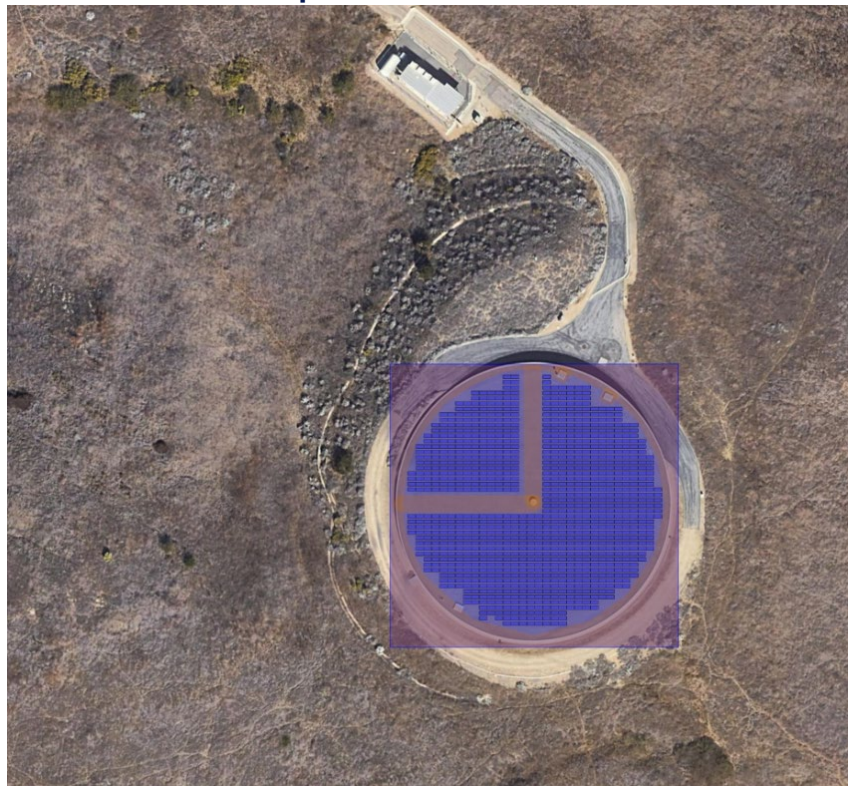
1. Baker Water Treatment Plant: Ground-Mount Solar - 281 kW DC



2. Lomas Valley Zone 3 Reservoir: Rooftop Solar - 296 kW DC



3. Zone A South Reservoir: Rooftop Solar - 552 kW DC



4. Zone A North Reservoir: Rooftop Solar - 310 kW DC



5. Coastal Zone G and Coastal Zone 6 Reservoirs: Rooftop Solar - 146 kW DC



6. MWRP: Canopy/ Ground-Mount Solar - 2,400 kW DC



7. San Joaquin Reservoir: Floating Solar and BESS - 5 MW AC solar; 5 MW/ 20 MWh battery



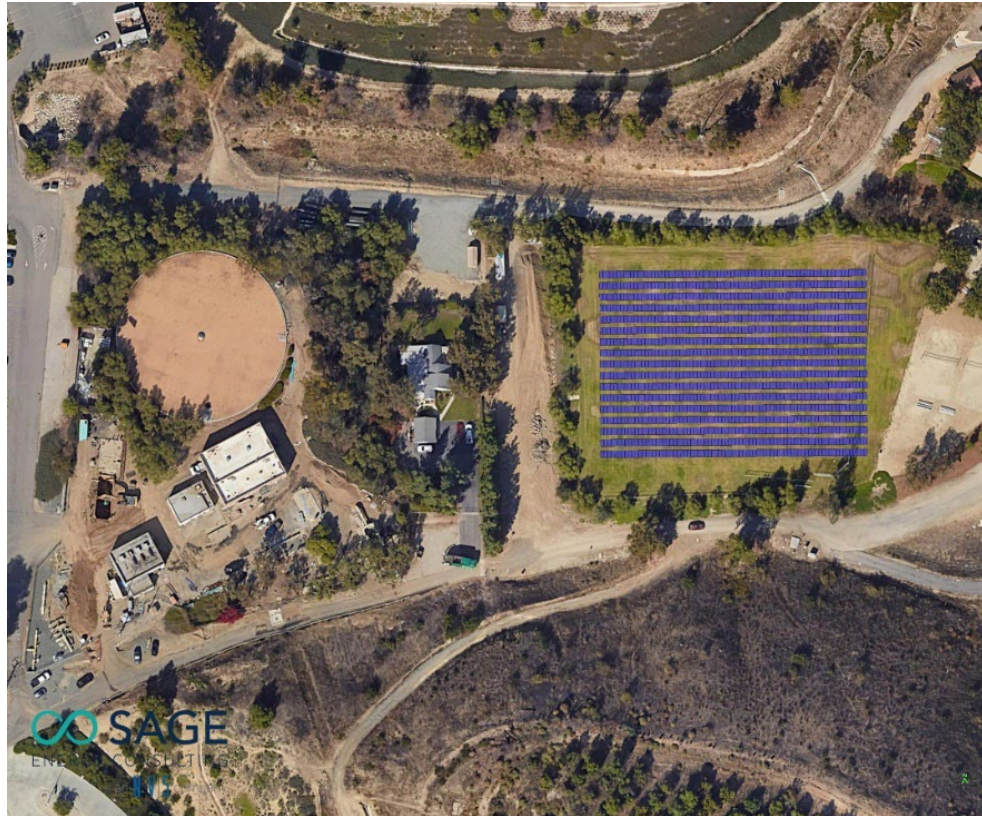
8. Rattlesnake Reservoir: Floating Solar and BESS - 5 MW AC solar; 5 MW/ 20 MWh battery



9. Sand Canyon Reservoir: Floating Solar and BESS - 5 MW AC solar; 5 MW/ 20 MWh battery



**10. Rattlesnake Reservoir Baseball Field: Ground-Mount Solar and BESS - 635 kW DC solar;
2MW/8 MWh battery**



○

Appendix – B

December 2022 Workshop Notes

1. **MWRP Solar**

Workshop Vote: **YES**

Comments:

- PV Canopy is more expensive, ground-mount is considered the cheapest option.
- Solar over parking roof, potentially considered.
- Questions for net metering – EV charging options.
- Complex and multi-rate structure concerns presented.
- Expansions & increased power demands
 - Jose – “phase-in” or further out projects.
 - Timing considerations are key & land.
 - Load at MWRP is a limiting factor.
- Potential (Phase 3) – fleet/CNG station area
- Size needs/economies of scale concern & min? No
- IRWD vs. SCE power use
- Timing/Load/Other MWRP project
- No to Marsh parking

2. **Lomas Canyon**

Workshop Vote: **MAYBE**

Comments:

- Can select the benefit.
- Credits: can/should IRWD keep/sell RECs
- Is a certain voltage needed? Does that mean equipment upgrades are required? Due diligence is needed here.
- Reservoirs and open spaces will need full access for contractors.
- Are work staging or other logistical challenges included.
- Where will the power be used?
- Finance and maintenance solution are the main issues to resolve.

3. **Northwood Zone 2**

Workshop Vote: **YES**

Comments:

- Is access possible to Portola Pump Stations (SCE road check)
- Is it possible to enter a collective PPA option – e.g. include Baker Plant project?

- Assume 25-30% less personnel coverage for work access needs.
- NEMA program participation will help NPV of project.

4. Mainspring

Workshop Vote: **MAYBE**

Comments:

- More information or engineering deep dive required to understand the project (RNG)
- MT now, expand another 3 MT?
 - What are the implications for NG/BG Methane GHG emissions concerns?
 - Can this be run as a pilot down the road? Maybe
- Biogas is already committed.
- Is this a long-term project? Estimate is 10 years out.
 - Turbines are Self Generation Incentive Program eligible but come with a 5-10 yrs. commitment.
 - Is there an alternative/pilot through another program?
 - Could this be used to replace backup generators?
 - Better than turbines?
 - Other questions:
 - Size
 - NG/Digester (NG but scale differences to consider)
 - Reaction present
 - Timing
 - High level, etc.
- In-Pipe
 - 18 in pipe is needed , must have vanes.
 - 60 ft of head, other engineering specs
 - Offer to have assessment and spot-metering for free w/ In-Pipe (as needed)
 - 3-5 psi higher than existing system valves, this may require upgrades.

5. Rattlesnake

Workshop Vote: **MAYBE**

Comments:

- Is this eligible for the RES-BCT program?
- Is it possible to do both generation for onsite use and capture credits?
- What are storage/battery needs?
- Should this be a PPA? Yes
- Total: 10 MW (combined)
- See analysis w/ changing water levels, etc.

6. Sand Canyon

Workshop Vote: **MAYBE**

Comments:

- Project is roughly 1 MW.
- Project pitch is too high level, needs further analysis.

7. Baker GM Solar

Workshop Vote: **MAYBE**

Comments:

- Need existing solar analysis to understand total site load needs.
- IRWD is already buying back land here.
- Check LCR/SCE for potential RES-BCT program availability?
- Does IRWD use their own meter? Does IRWD need to apply for new service?
- Existing plans need to show a greater payback.

8. Irvine Lake RES-BCT

Workshop Vote: **MAYBE**

Comments:

- Need to dive deeper into permitting requirements and dam considerations.
- Are there habitat impact questions?
 - Check maps and exact locations.

9. LAWRP GM Solar

Workshop Vote: **MAYBE (NO?)**

Comments:

- There are site load considerations.
- What happens if site is abandoned – no power there.
- Only option would be RES-BCT program.
- IRWD may sell land off, will need to perform a cost-benefit on sale vs. project.

10. Eastwood PS Battery

Workshop Vote: **MAYBE**

Comments:

- Is this project SGIP eligible? (5yr performance, 3yrs O&M)
 - Check if SGIP credit value is included in analysis.
 - Investment Tax Credit not included for NPV (direct pay 30% back if IRWD builds project)
- Open space requirements – site has storm drain/easement.
 - Cannot build or place anything on that location.
- Where will IRWD use the power? Good overall site; cannot place in certain locations.

- Need to make a constraints map request for a maybe option.

11. Portola PS Battery

Workshop Vote: **MAYBE**

Comments:

- There are options to build outside the wall.
- This project was previously considered 5-6 years ago.
- Request constraints map and mark facility options
 - Time of use rates or shutdowns w/ programmed battery?
 - Some GHG reductions for off-peak uses?
- Is a battery feasible? maybe; need to review map constraints?
 - #10 and #11 – Rattlesnake sites across the street are possibilities.

12. MWRP CNG

Workshop Vote: **MAYBE**

Comment: Need both project cost analysis and understanding of the quality of gas from the scrubbers

13. RNG Pipeline Injection

Workshop Vote: **NO**

14. MWRP/OPS EV Charging

Workshop Vote: **YES**

Comments:

- Consider the projects as a hedge for future regulations.
- Maybe hold development while legislative considerations & timeline are worked out.
 - too much regulatory uncertainty
- Board questions analysis or potential assessment of:
 - What regulations does this help IRWD with?
 - What incentive/grant money is available?

15. Sand Canyon EV Charging

Workshop Vote: **YES**

Comments:

- Need analysis w/ considerations of pending regulations specific to
 - fleet purchasing
 - power needs
- Need to plan for staff and fleet costs.
- Need to consider heavy-duty vehicles, ability to scale up, etc.

Appendix - C

Potential Project Screening List

IRWD Potential Project Screening				
Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Ground-Mount Solar	Baker Water Treatment Plant	281 kW DC	<p>Agreement with battery owner/operator at Baker stipulates that a minimum load is maintained so battery owner can demonstrate a load reduction when battery discharges. Therefore, the existing Baker 1 MW solar array had to be limited in size to accommodate this agreement.</p> <p>The property of this proposed ground-mount site, located south of current Baker Solar arrays, is currently being purchased from IRWD by the City of Lake Forest. With no more capacity for behind the meter solar at Baker, this new ground-mount solar array would require a new separate electric service.</p> <p>The project would require participation in the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program whereby public agencies can generate renewable electricity at a site with minimal load and earn bill credits at another site with load. RES-BCT tariff structure may make battery necessary.</p>	Yes
Ground-Mount Solar	Irvine Lake (Santiago Creek Dam)	984 kW DC	<p>Large stretch of IRWD-owned land located north of the Santiago Creek Dam was mainly comprised of “annual grassland” and appeared well-suited for ground-mount solar. Review of 2022 report entitled “Biological Technical Report: Santiago Creek Dam Outlet Tower and Spillway Improvements Project” revealed mitigation would be required.</p> <p>Unfortunately, the annual grassland is adjacent to California Gnatcatcher coastal sage scrub, a component of the gnatcatcher habitat, making this protected habitat. Mitigation requirement did not allow this project to move forward.</p>	No

Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Ground-Mount Solar	Los Alisos Recycling Plant (LAWRP)	2,540 kW DC	Agreement with battery owner/operator at LAWRP stipulates that a minimum load is maintained so battery owner can demonstrate a load reduction when battery discharges. Therefore, analysis of LAWRP available load was required. LAWRP's two large settling ponds located at the property's south end are proposed as the site for ground mount solar. Uncertainty on the future of LAWRP did not allow this project to move forward.	No
Rooftop Solar	Lomas Valley Zone 3 Reservoir	296 kW DC	Due to low on-site load, the project would require participation in the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program whereby public agencies can generate renewable electricity at a site with minimal load and earn bill credits at another site with load. Based on experience past reservoir rooftop solar at Baker and East Irvine Zone 3, the number of solar panels may need to be reduced by as much as 25% to provide worker access to key rooftop structures. RES-BCT tariff structure may make battery necessary. Different RES-BCT payment structures from solar developers should be examined -- including a power purchase agreement (PPA) and bill credit discount options.	Yes
Battery Energy Storage System	Eastwood Zone A-C Pump Station	1,200 kW/ 2,400 kWh	For this battery energy storage system, the Eastwood Zone A-C Pump Station site plans were reviewed. A large City of Irvine storm drain easement runs across much of the available property. With this easement, the remainder of the property is limited to use for driving around the building and providing crane access. Property constraints did not allow this project to move forward.	No

Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Rooftop Solar	Zone A South Reservoir	552 kW DC	<p>These sites may be eligible for the Net Energy Metering Aggregation (NEM-A) program that allows customers with multiple meters on a property (or contiguous properties) to reduce the electric load of the aggregated meters using one generating system. If such load cannot be found, the RES-BCT presents another option.</p> <p>Contiguous NEM-A properties include Shady Canyon Zone A-B Pump Station for Zone A South Reservoir; Portola Springs A-C or Zone A Rattlesnake pump stations for Zone A North Reservoir; Coastal Zone G-H and Coastal Zone 6-7 Pump Stations for Coastal Zone G and Coastal Zone 6 Reservoirs.</p>	Yes
Rooftop Solar	Zone A North Reservoir	310 kW DC	<p>Based on reservoir rooftop solar installations at Baker and East Irvine Zone 3, the number of solar panels may need to be reduced by as much as 25% to provide worker access to key rooftop structures. A power purchase agreement (PPA), like that for the Baker solar array, would be the most likely option (instead of IRWD as owners/operators).</p>	Yes
Rooftop Solar	Coastal Zone G and Coastal Zone 6 Reservoirs	146 kW DC		Yes
Canopy/ Ground-Mount Solar	Michelson Water Recycling Plant (MWRP)	2,400 kW DC		<p>Agreement with battery owner/operator at MWRP stipulates that a minimum load is maintained so battery owner can demonstrate a load reduction when battery discharges. A solar array of the proposed size, through a combination of rooftop, canopies, and ground-mount, would clearly violate that agreement.</p> <p>However, the potential behind-the-meter (BTM) solar arrays need to be assessed for a variety of reasons: The battery agreement ends in 2028 potentially freeing up available load for solar; The solar arrays could be staged over time as MWRP plant load increases due to fleet electrification, CNG plant completion, treatment train improvements, or increased wastewater treatment.</p>

Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Floating Solar and Battery Energy Storage	San Joaquin Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	The floating projects would require participation in the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program whereby public agencies can generate renewable electricity at a site with minimal load and earn bill credits at another site with load. RES-BCT tariff structure makes a battery necessary to maximize generation from 4 pm to 9 pm. All floating solar was sized at the maximum capacity, 5 MW-AC, allowed under the RES-BCT program.	Yes
Floating Solar and Battery Energy Storage	Rattlesnake Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	Different RES-BCT payment structures from solar developers should be examined -- including a power purchase agreement (PPA) and bill credit discount options.	Yes
Floating Solar and Battery Energy Storage	Sand Canyon Reservoir	5 MW AC solar; 5 MW/ 20 MWh battery	Not needing Irvine Company approvals and constructed with a flat basin bottom, San Joaquin Reservoir will have the fewest potential development issues. A major benefit of floating solar is a reduction in algae and evaporation.	Yes
Battery Energy Storage System	Zone A to Rattlesnake Reservoir Pump Station	500 kW/ 1000 kWh	For battery energy storage system, the proposed site plan for the site (under construction) was reviewed and revealed limited room on the western side of the property for battery installation. However, further examination revealed a baseball field adjacent to the Zone A to Rattlesnake Pump Station that would be an excellent site for ground mount solar with battery. The ball field may be eligible for the Net Energy Metering Aggregation (NEM-A) program that allows customers with multiple meters on a property (or contiguous properties) reduce the electric load of the aggregated meters using one generating system. The contiguous property would be the Zone A to Rattlesnake Reservoir Pump Station.	Yes, but for baseball field ground-mount solar not a pump station battery.

Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Battery Energy Storage System	Portola Springs A-C Pump Station	500 kW/ 1000 kWh	Site plan review indicated that IRWD only owns the property within the boundaries of the fence. Areas outside the fence were owned by the Irvine Company, who would balk at building additional infrastructure on their property. Areas inside the fence were limited by the concrete pad (beneath which are underground pumps), driveway access, and room for cranes. Property constraints did not allow this project to move forward.	No
Main Spring Energy In-line Generator	Michelson Water Recycling Plant	440 kW to 3080 kW	Linear generators are low-emissions, low-cost, fuel agnostic, dispatchable, and resilient options for IRWD to consider. A generator could use digester gas to remain carbon neutral. The generator manufacturer was unwilling to share details and data on how the technology worked, and the linear generator had limited installations. The digester-gas fed microturbines at Michelson Water Recycling Plant has just begun working. Although interesting, the generator was still in the testing phase, conflicted with micro-turbine, and combusted fossil fuels. For these reasons, the project did not move forward.	No
In Pipe micro-hydro turbines	Pressure Reducing Valves (PRVs)	30 kW	Micro-hydro turbines use the wasted energy in pressure control valves to generate electricity. Ideal PRV configurations included at least 18-inch pipe diameter and 60 feet of head. Because head differential requirements could not be met and PRVs sometime run intermittently, the project did not move forward.	No
Fleet Electrification	MWRP, Sand Canyon HQ, Baker, LAWRP	Roughly 300 IRWD fleet vehicles	Over 85% of IRWD fleet vehicles are located at MWRP. Advanced Clean Fleet regulation requires fleet electrification for public agencies (all vehicles larger than F-250 fall under regulation). EV charging infrastructure plans, which may include solar carports, must be part of MWRP long-term planning process.	Yes

Project Type	Project Location	Capacity	Description/Considerations	Screening Result
Alt Fuels	MWRP Biogas for CNG	Need further analysis	Biogas currently used in microturbines could be used to supplement compressed natural gas (CNG) used in some fleet vehicles. Biogas fueled vehicles could help IRWD comply with Advanced Clean Fleet regulations	Yes
Alt Fuels	MWRP Renewable Natural Gas for Pipeline Injection	Need further analysis	Biogas currently used in microturbines would be further processed for injection into natural gas pipeline as a source of revenue. This opportunity deserves further analysis to better understand the renewable natural gas price points that would warrant additional digester gas processing and infrastructure required for pipeline injection.	Yes
Alt Fuels	Renewable Diesel	23,000 gallons diesel used annually at IRWD	Renewable diesel allows IRWD to reduce GHG gas emission from petroleum diesel generators (9,000 gallons/year). Renewable diesel, unlike biodiesel, can be used in engines and generators at 100% concentration and is a direct substitute for petroleum diesel. The Advanced Clean Fleet rule does not credit fleets using renewable diesel fuel. IRWD vehicles use about 14,000 gallons of petroleum diesel annually. The cost of renewable diesel and its ability to help IRWD reduce its GHG emissions should be explored.	Yes

Appendix – D

Fleet Data

Fleet Summary

Fuel Type	Count
Gasoline	227
<i>Gasoline-Hybrid</i>	<i>11</i>
Diesel	30
CNG	11
Unknown	0
Total	268

Vehicle Class	Count
1	55
2a	32
2b	83
3	29
4	35
5	4
6	1
7	2
8	27
	268

Vintage	Count
>10 years old	151

Vintage	Count
1990	1
1993	2
1995	1
1996	1
1997	4
1998	5
1999	9
2000	8
2001	1
2002	3
2003	4
2004	5
2005	13
2006	11
2007	13
2008	40
2009	14
2010	9
2011	7
2012	5
2013	8
2014	1
2015	17
2016	9
2017	23
2018	1
2019	32
2020	9
2021	10
2022	2

Top Vehicles

Make	Model	Count	Percent
Ford	F-Series	153	57%
Toyota	Tacoma	29	11%

Appendix – E

Solar PV and BESS analysis

Site Name	Solar PV System Size (kWp)	BESS Size (kW/kWh)	Interconnection Strategy	Installation Type	Yr-1 PV Generation (kWh)
Rattlesnake Res	5,000	5,000 / 20,000	RES-BCT	Floating	6,138,042
Sand Canyon Reservoir	5,000	5,000 / 20,000	RES-BCT	Floating	7,809,802
Irvine Lake Reservoir (Santiago Creek Dam)	984	-	RES-BCT	Groundmount	1,629,161
Lomas Valley Zone 3 Reservoir	296	-	RES-BCT	Rooftop	474,635
Zone A North Reservoir	310	-	NEMA	Rooftop	489,395
Michelson Water Reclamation Plant (MWRP)	2,400	-	NEM	Canopies & Rooftop	3,712,229
Los Alisos Reclamation Plant (LAWRP)	2,540	-	NEM	Groundmount	4,138,468
Baker Water Treatment Plant (Baker)	281	-	NEM	Groundmount	465,230
Zone A South Reservoir	552	-	NEM	Rooftop	899,254
Coastal Zone G Reservoir	146	-	NEM	Rooftop	234,898
Read Reservoir	-	25 / 50	BESS-only non-export		
Eastwood Zone A-C Pump Station	-	1,200 / 2,400	BESS-only non-export		
Well 115	-		BESS-only non-export		
Well 76	-	50 / 100	BESS-only non-export		
CLS010, Newport Coast Drive Lift Station	-	50 / 100	BESS-only non-export		
PORTOLA 3-5 & A-C PUMP STATION	-	500 / 1,000	BESS-only non-export		
El Toro Shallow Groundwater Unit	-	50 / 100	BESS-only non-export		
San Joaquin Reservoir	5,000	5,000 / 20,000	RES-BCT	Floating	8,000,000
Rattlesnake Canyon Baseball (PV)	635		RES-BCT	Groundmount	1,038,000
Rattlesnake Canyon Baseball (PV+BESS)	635	2,000 / 8,000	RES-BCT	Groundmount	967,000



Site Name	25-yr PV Generation (kWh)	PV \$/W Install	PV PPA Price (\$/kWh)	BESS \$/kWh Install	BESS Capacity Payment (\$/kW-month)	Cash Purchase
Rattlesnake Res	140,402,814	\$2.92	\$0.191	\$516	\$11.03	\$975,000
Sand Canyon Reservoir	178,642,991	\$2.30	\$0.150	\$516	\$11.03	\$1,394,000
Irvine Lake Reservoir (Santiago Creek Dam)	37,265,758	\$2.16	\$0.115			\$310,000
Lomas Valley Zone 3 Reservoir	10,856,897	\$2.58	\$0.139			(\$125,000)
Zone A North Reservoir	11,194,520	\$2.57	\$0.137			\$343,000
Michelson Water Reclamation Plant (MWRP)	84,914,277	\$2.90	\$0.101			\$1,675,000
Los Alisos Reclamation Plant (LAWRP)	94,664,154	\$1.77	\$0.086			\$6,383,000
Baker Water Treatment Plant (Baker)	10,641,765	\$4.55	\$0.206			\$276,000
Zone A South Reservoir	20,569,718	\$2.46	\$0.118			\$70,000
Coastal Zone G Reservoir	5,373,104	\$2.70	\$0.162			(\$378,000)
Read Reservoir				\$1,904	\$20.07	(\$82,000)
Eastwood Zone A-C Pump Station				\$586	\$6.25	\$353,000
Well 115				\$1,432	\$15.12	
Well 76				\$1,668	\$17.60	(\$160,000)
CLS010, Newport Coast Drive Lift Station				\$1,668	\$17.60	(\$146,000)
PORTOLA 3-5 & A-C PUMP STATION				\$884	\$9.37	\$754,000
El Toro Shallow Groundwater Unit				\$1,668	\$17.60	(\$155,000)
San Joaquin Reservoir	182,992,182	2.92	\$0.191	\$516	\$11.03	\$982,000
Rattlesnake Canyon Baseball (PV)	23,746,000	\$2.34	\$0.119			\$483,000
Rattlesnake Canyon Baseball (PV+BESS)	22,112,000	\$2.34	\$0.119	\$516		(\$2,788,000)

Site Name	PPA	Incentives (ITC)	Yr-1 GHG Savings (Added), MTCO2e	25-Year Lifetime GHG Savings (Added), MTCO2e
Rattlesnake Res	\$791,000	\$6,630,000	1,906	14,949
Sand Canyon Reservoir	\$870,000	\$5,011,000	1,906	14,949
Irvine Lake Reservoir (Santiago Creek Dam)	(\$337,000)	\$1,009,000	269	2,112
Lomas Valley Zone 3 Reservoir	(\$444,000)	\$426,000	78	615
Zone A North Reservoir	\$134,000	\$340,000	81	635
Michelson Water Reclamation Plant (MWRP)	\$2,076,000	\$3,072,000	614	4,813
Los Alisos Reclamation Plant (LAWRP)	\$6,080,000	\$2,023,000	684	5,366
Baker Water Treatment Plant (Baker)	(\$57,000)	\$545,000	77	603
Zone A South Reservoir	(\$150,000)	\$581,000	149	1,166
Coastal Zone G Reservoir	(\$575,000)	\$169,000	39	305
Read Reservoir	(\$98,000)	\$38,000	0	0
Eastwood Zone A-C Pump Station	\$389,000	\$562,000	0	0
Well 115			0	0
Well 76	(\$186,000)	\$67,000	0	0
CLS010, Newport Coast Drive Lift Station	(\$173,000)	\$67,000	0	0
PORTOLA 3-5 & A-C PUMP STATION	\$694,000	\$353,000	0	0
El Toro Shallow Groundwater Unit	(\$181,000)	\$67,000	0	0
San Joaquin Reservoir	\$843,000		1,906	14,949
Rattlesnake Canyon Baseball (PV)	\$21,000	\$595,200	172	1,346
Rattlesnake Canyon Baseball (PV+BESS)	(\$2,856,000)	\$2,246,000	160	1,254

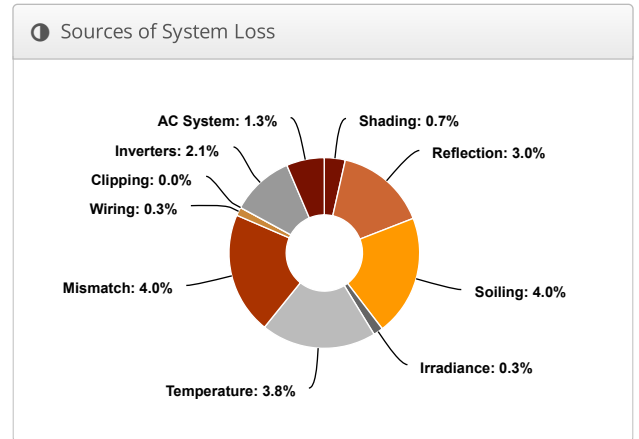
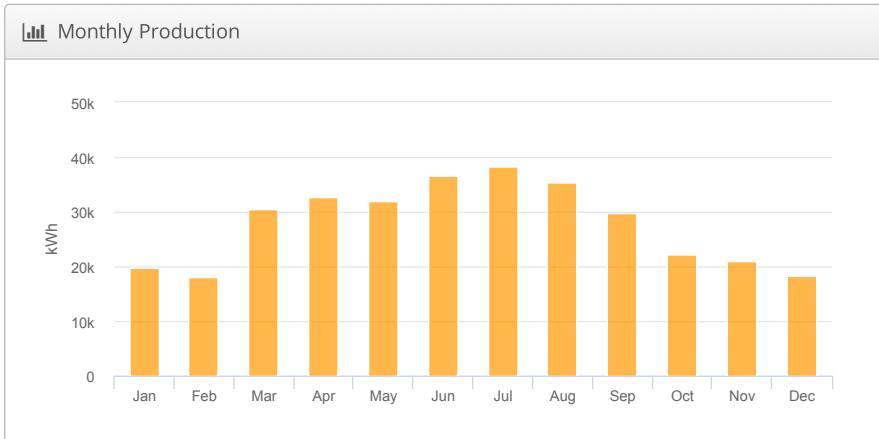
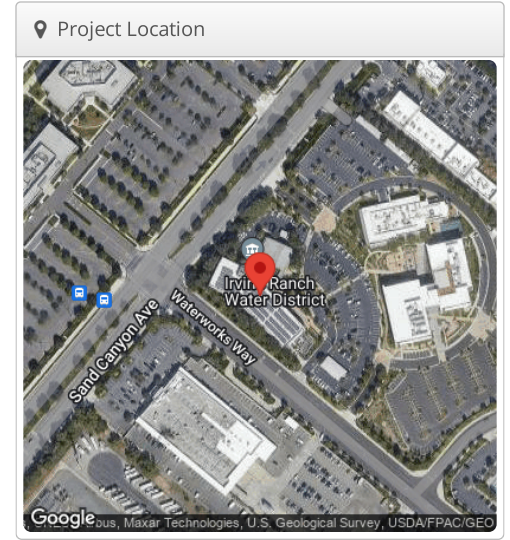
Appendix - F

Solar PV Design Reports

Zone A North Res rev 2023.12.15 Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Zone A North Res rev 2023.12.15
Module DC Nameplate	205.2 kW
Inverter AC Nameplate	250.0 kW Load Ratio: 0.82
Annual Production	334.2 MWh
Performance Ratio	82.6%
kWh/kWp	1,629.2
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a- c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,973.6	7.2%
	Shaded Irradiance	1,960.0	-0.7%
	Irradiance after Reflection	1,900.6	-3.0%
	Irradiance after Soiling	1,824.6	-4.0%
	Total Collector Irradiance	1,824.6	0.0%
Energy (kWh)	Nameplate	376,696.4	
	Output at Irradiance Levels	375,487.4	-0.3%
	Output at Cell Temperature Derate	361,188.8	-3.8%
	Output After Mismatch	346,626.5	-4.0%
	Optimal DC Output	345,668.1	-0.3%
	Constrained DC Output	345,662.4	0.0%
	Inverter Output	338,473.9	-2.1%
	Energy to Grid	334,242.9	-1.3%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.5 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.Peak DUO XL-G10.3/BFG 485 (Hanwha Q Cells)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope			Default Characterization		

🗑 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	2 (250.0 kW)
Strings	10 AWG (Copper)	18 (1,957.4 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.3/BFG 485 (485W)	423 (205.2 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
R1	Fixed Tilt	Landscape (Horizontal)	10°	192.99461°	1.6 ft	1x1	423	423	205.2 kW

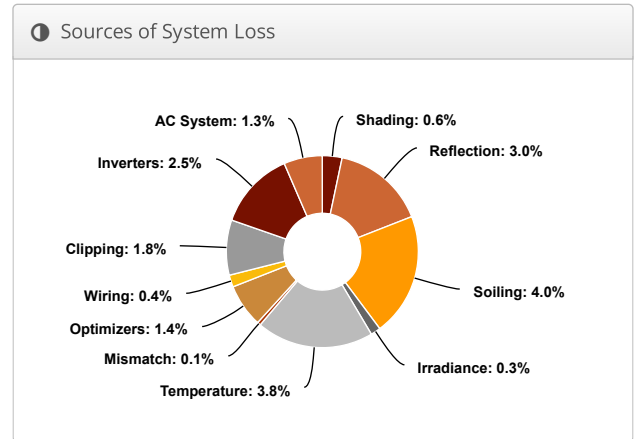
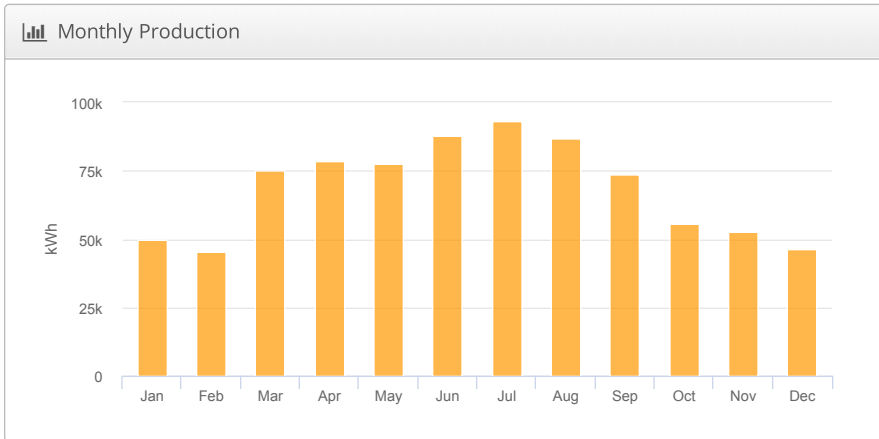
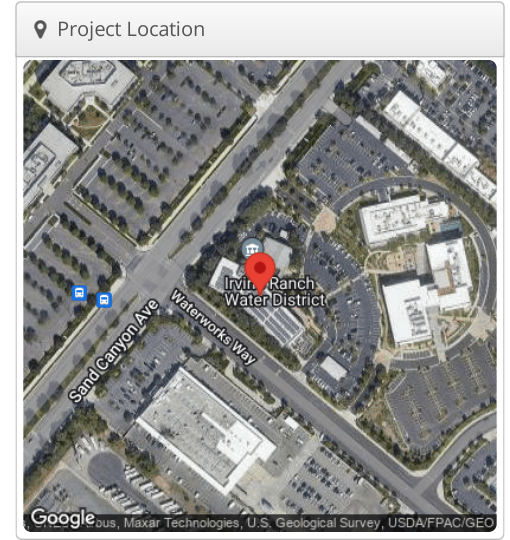
Detailed Layout



Zone A South Reservoir_2023.12.15 rev Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Zone A South Reservoir_2023.12.15 rev
Module DC Nameplate	504.4 kW
Inverter AC Nameplate	399.6 kW Load Ratio: 1.26
Annual Production	822.9 MWh
Performance Ratio	82.8%
kWh/kWp	1,631.4
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a-c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,971.4	7.1%
	Shaded Irradiance	1,958.8	-0.6%
	Irradiance after Reflection	1,899.3	-3.0%
	Irradiance after Soiling	1,823.3	-4.0%
	Total Collector Irradiance	1,823.3	0.0%
Energy (kWh)	Nameplate	925,527.3	
	Output at Irradiance Levels	922,544.5	-0.3%
	Output at Cell Temperature Derate	887,418.8	-3.8%
	Output After Mismatch	886,445.3	-0.1%
	Optimizer Output	874,027.9	-1.4%
	Optimal DC Output	870,646.1	-0.4%
	Constrained DC Output	855,062.4	-1.8%
	Inverter Output	833,312.4	-2.5%
	Energy to Grid	822,895.9	-1.3%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.5 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.Peak DUO XL-G10.3/BFG 485 (Hanwha Q Cells)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	SE33.3KUS (2020) (SolarEdge)						HelioScope			Spec Sheet		
	P1101 (SolarEdge)						HelioScope			Mfg Spec Sheet		

🗑 Components		
Component	Name	Count
Inverters	SE33.3KUS (2020) (SolarEdge)	12 (399.6 kW)
Strings	10 AWG (Copper)	34 (3,080.5 ft)
Optimizers	P1101 (SolarEdge)	530 (583.0 kW)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.3/BFG 485 (485W)	1,040 (504.4 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	13-31	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	180°	1.6 ft	1x1	1,040	1,040	504.4 kW

Detailed Layout

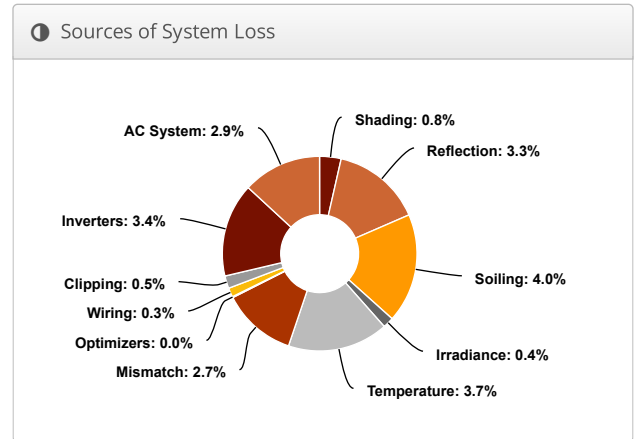
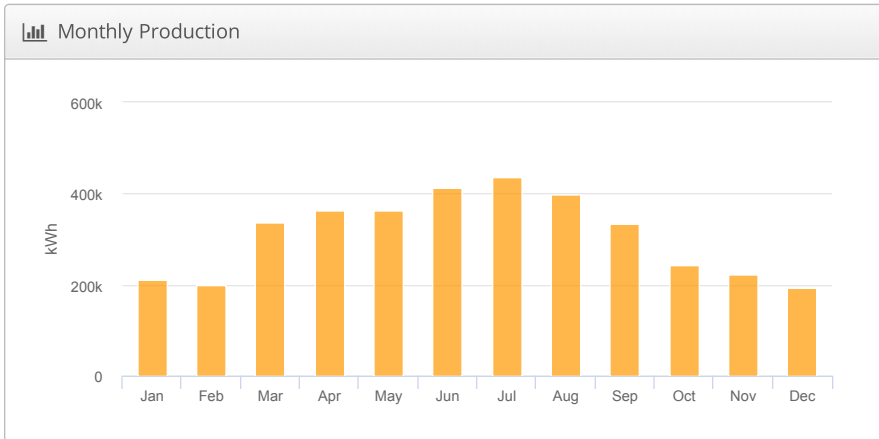
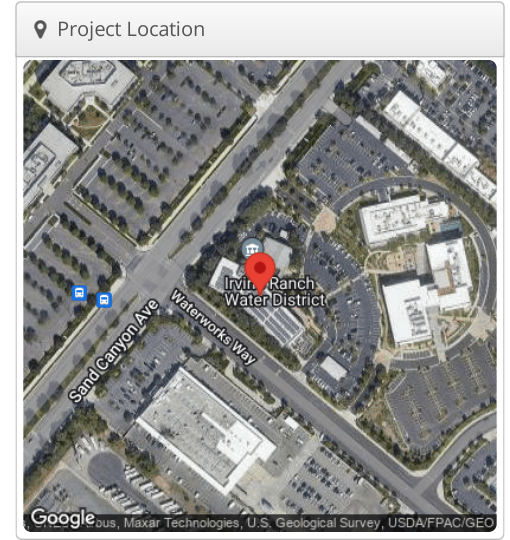


A - 67

MWRP_2022-11-14-(SunPower+) Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	MWRP_2022-11-14-(SunPower+)
Module DC Nameplate	2.40 MW
Inverter AC Nameplate	1.99 MW Load Ratio: 1.21
Annual Production	3.712 GWh
Performance Ratio	80.5%
kWh/kWp	1,544.3
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	b5bd97ac78-2713cb39a4-d9879d265b-a730698bd8



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,918.2	4.2%
	Shaded Irradiance	1,903.2	-0.8%
	Irradiance after Reflection	1,840.6	-3.3%
	Irradiance after Soiling	1,767.0	-4.0%
	Total Collector Irradiance	1,766.9	0.0%
Energy (kWh)	Nameplate	4,277,060.2	
	Output at Irradiance Levels	4,259,963.1	-0.4%
	Output at Cell Temperature Derate	4,103,126.8	-3.7%
	Output After Mismatch	3,991,275.4	-2.7%
	Optimizer Output	666,409.3	0.0%
	Optimal DC Output	3,976,623.8	-0.3%
	Constrained DC Output	3,958,384.4	-0.5%
	Inverter Output	3,822,727.0	-3.4%
		Energy to Grid	3,712,231.4
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.2 °C
Simulation Metrics			
	Operating Hours	4362	
	Solved Hours	4362	

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module		Uploaded By		Characterization							
	TSM-DEG19C.20 535 (Trina Solar)		HelioScope		Spec Sheet Characterization, PAN							
	Q.PEAK DUO XL-G10.3/BFG 485 (2021) (Hanwha)		HelioScope		Spec Sheet Characterization, PAN							
	Q.PEAK DUO ML-G10+ 415 (Hanwha Q Cells)		HelioScope		Spec Sheet Characterization, PAN							
Component Characterizations	Device		Uploaded By		Characterization							
	PVI 50KW (Yaskawa)		HelioScope		Spec Sheet							
	Sunny Tripower_Core1 50-US-41 (SMA)		HelioScope		Default Characterization							
	TS4-O (Tigo Energy)		HelioScope		Spec Sheet							
	Sunny Tripower CORE1 50-US (SMA)		HelioScope		Spec Sheet							
	TS4-A-O (Tigo Energy)		HelioScope		Spec Sheet							
	PVI 36TL-480 (2022) (Yaskawa Solectria Solar)		HelioScope		Spec Sheet							

Components		
Component	Name	Count
Inverters	PVI 50KW (Yaskawa)	27 (1.35 MW)
Inverters	Sunny Tripower_Core1 50-US-41 (SMA)	3 (150.0 kW)
Inverters	Sunny Tripower CORE1 50-US (SMA)	4 (200.0 kW)
Inverters	PVI 36TL-480 (2022) (Yaskawa Solectria Solar)	8 (288.0 kW)
AC Panels	2 input AC Panel	2
AC Panels	3 input AC Panel	2
AC Panels	4 input AC Panel	4
AC Panels	5 input AC Panel	2
AC Panels	6 input AC Panel	1
AC Home Runs	500 MCM (Copper)	11 (45,707.5 ft)
AC Home Runs	1/0 AWG (Copper)	42 (12,070.2 ft)
Home Runs	1/0 AWG (Copper)	78 (3,453.1 ft)
Combiners	2 input Combiner	8
Combiners	3 input Combiner	13
Combiners	4 input Combiner	12
Combiners	5 input Combiner	15
Combiners	6 input Combiner	11
Combiners	7 input Combiner	15
Combiners	9 input Combiner	4
Strings	10 AWG (Copper)	385 (26,441.0 ft)
Optimizers	TS4-O (Tigo Energy)	471 (223.7 kW)
Optimizers	TS4-A-O (Tigo Energy)	415 (290.5 kW)
Module	Canadian Solar, CS6W-520MB-AG (1000V) (2022) (520W)	2,953 (1.54 MW)
Module	Hanwha Q Cells, Q.PEAK DUO ML-G10+ 415 (415W)	415 (172.2 kW)
Module	Hanwha, Q.PEAK DUO XL-G10.3/BFG 485 (2021) (485W)	471 (228.4 kW)
Module	Trina Solar, TSM-DEG19C.20 535 (535W)	874 (467.6 kW)

🏠 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	10-15	Along Racking
Wiring Zone 2	12	8-11	Along Racking
Wiring Zone 3	12	8-11	Along Racking
Wiring Zone 4	12	8-11	Along Racking
Wiring Zone 5	12	5-20	Along Racking
Wiring Zone 6	12	12-17	Along Racking
Wiring Zone 7	12	14-19	Along Racking
Wiring Zone 8	12	8-11	Along Racking
Wiring Zone 9	12	14-19	Along Racking
Wiring Zone 10	12	8-11	Along Racking
Wiring Zone 11	12	10-15	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
C-09	Fixed Tilt	Portrait (Vertical)	7°	220.2205°	0.0 ft	6x1	30	180	93.6 kW
C-08	Fixed Tilt	Portrait (Vertical)	7°	220.2205°	0.0 ft	6x1	27	162	84.2 kW
C-07	Fixed Tilt	Portrait (Vertical)	7°	220.2205°	0.0 ft	6x1	27	162	84.2 kW
C-05	Fixed Tilt	Portrait (Vertical)	7°	220.2205°	0.0 ft	6x1	40	240	124.8 kW
C-05 (alt 1)	Fixed Tilt	Portrait (Vertical)	7°	175.10486°	0.0 ft	5x1	4	195	101.4 kW
C-10 (longspan)	Fixed Tilt	Portrait (Vertical)	5°	220.2205°	0.0 ft	8x1	33	264	137.3 kW
C-11 (longspan)	Fixed Tilt	Portrait (Vertical)	5°	220.2205°	0.0 ft	8x1	33	264	137.3 kW
C-05 (alt 2)	Fixed Tilt	Portrait (Vertical)	7°	175.10486°	0.0 ft	6x1	35	210	109.2 kW
R-03-04	Fixed Tilt	Portrait (Vertical)	5°	219.89421°	0.6 ft	1x1	305	305	126.6 kW
R-01-02	Fixed Tilt	Portrait (Vertical)	5°	219.2918°	0.6 ft	1x1	110	110	45.7 kW
C-01	Carport	Portrait (Vertical)	7°	129.47472°	0.0 ft	6x1	49	294	152.9 kW
C-02	Carport	Portrait (Vertical)	7°	129.47472°	0.0 ft	6x1	39	234	121.7 kW
C-03	Carport	Portrait (Vertical)	7°	129.47472°	0.0 ft	6x1	53	318	165.4 kW
C-04	Carport	Portrait (Vertical)	7°	129.47472°	0.0 ft	5x1	50	250	130.0 kW
C-06	Fixed Tilt	Portrait (Vertical)	7°	220.2205°	0.0 ft	6x1	30	180	93.6 kW
R-05	Fixed Tilt	Landscape (Horizontal)	5°	219.79355°	0.6 ft	1x1	471	471	228.4 kW
GF-01	Fixed Tilt	Portrait (Vertical)	20°	180°	5.7 ft	2x1	185	370	198.0 kW
C-12	Carport	Portrait (Vertical)	7°	139.84534°	0.0 ft	6x1	42	252	134.8 kW
C-13	Carport	Portrait (Vertical)	7°	139.84534°	0.0 ft	6x1	42	252	134.8 kW

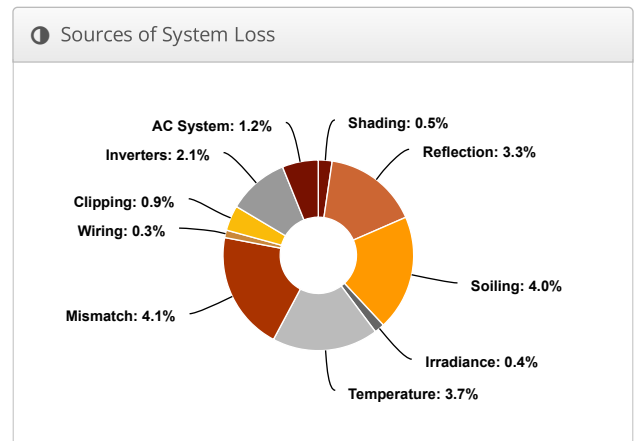
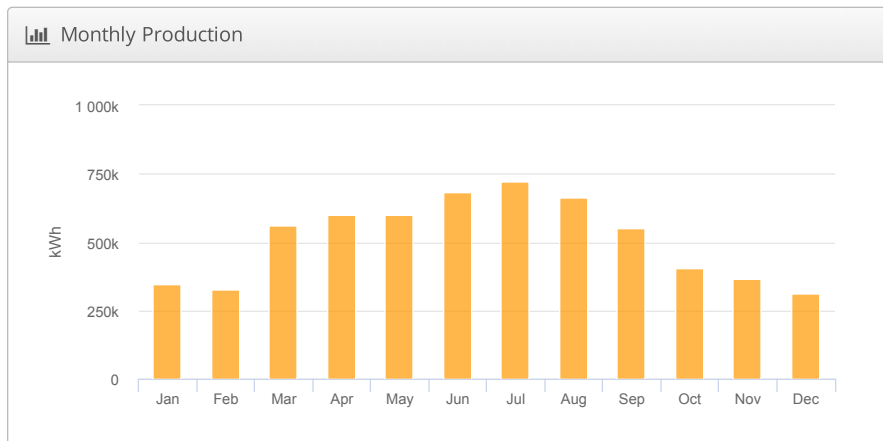
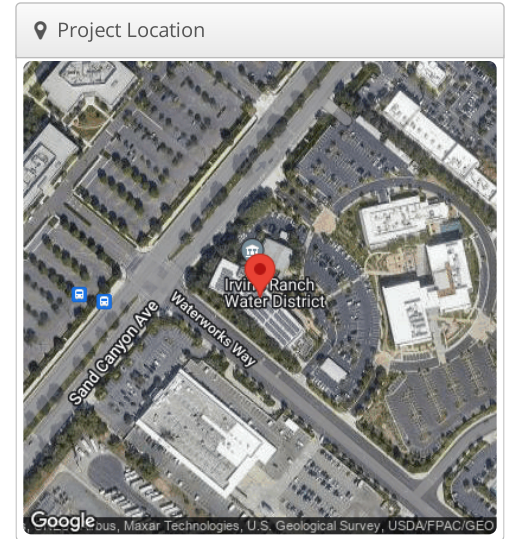
Detailed Layout



Rattlesnake Canyon Dam_2022-08-29_preliminary PV Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Rattlesnake Canyon Dam_2022-08-29_preliminary PV
Module DC Nameplate	3.93 MW
Inverter AC Nameplate	3.00 MW Load Ratio: 1.31
Annual Production	6.138 GWh
Performance Ratio	81.8%
kWh/kWp	1,563.1
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a-c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,911.3	3.9%
	Shaded Irradiance	1,902.1	-0.5%
	Irradiance after Reflection	1,839.5	-3.3%
	Irradiance after Soiling	1,765.9	-4.0%
	Total Collector Irradiance	1,765.9	0.0%
Energy (kWh)	Nameplate	6,978,094.2	
	Output at Irradiance Levels	6,953,629.2	-0.4%
	Output at Cell Temperature Derate	6,697,927.8	-3.7%
	Output After Mismatch	6,421,631.6	-4.1%
	Optimal DC Output	6,405,005.9	-0.3%
	Constrained DC Output	6,348,995.4	-0.9%
	Inverter Output	6,215,273.5	-2.1%
		Energy to Grid	6,137,582.6
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.2 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

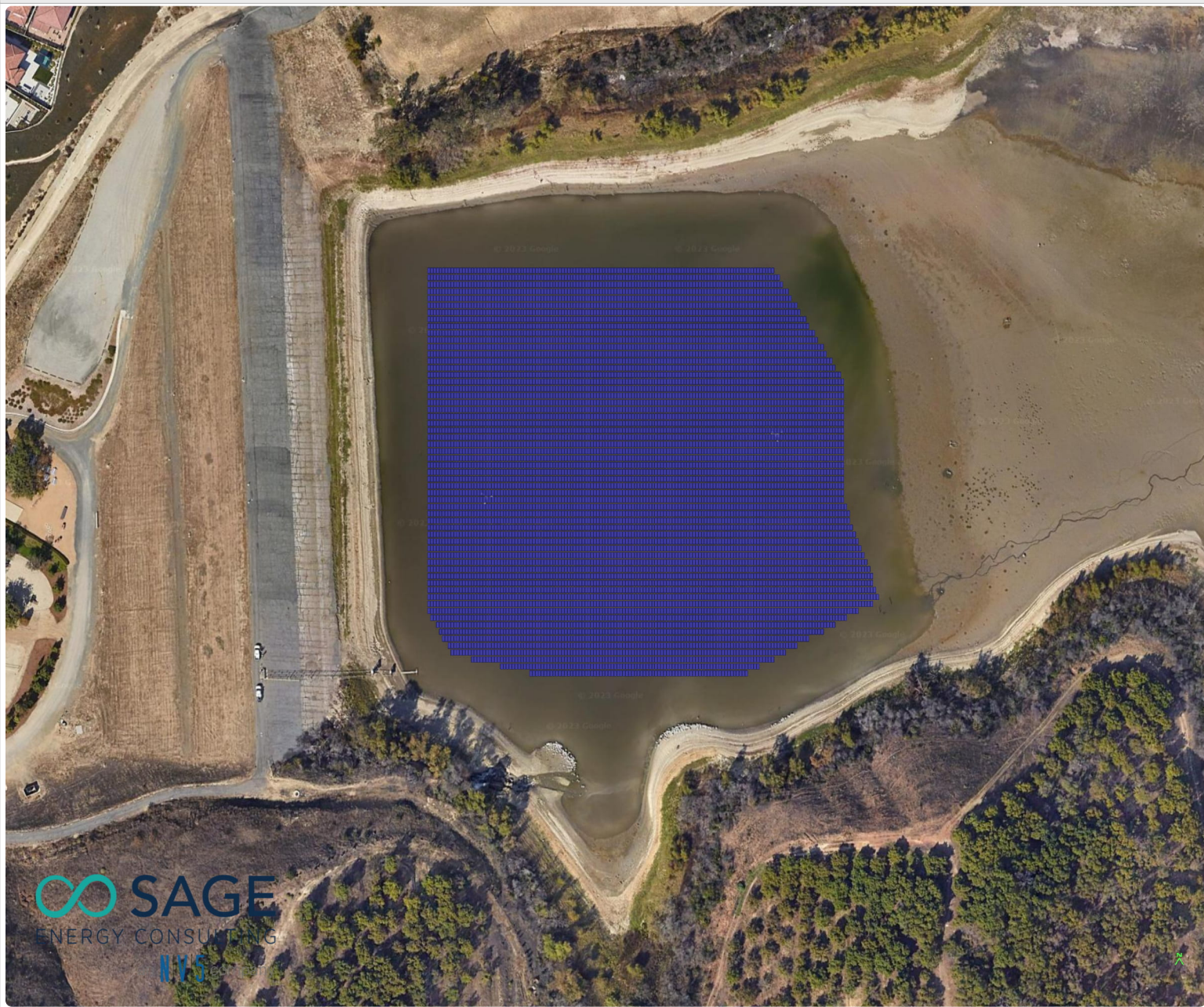
☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By		Characterization			
	Q.Peak DUO XL-G10.3/BFG 485 (Hanwha Q Cells)						HelioScope		Spec Sheet Characterization, PAN			
Component Characterizations	Device						Uploaded By		Characterization			
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope		Default Characterization			

📦 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	24 (3.00 MW)
Strings	10 AWG (Copper)	328 (89,417.6 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.3/BFG 485 (485W)	8,096 (3.93 MW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	5°	180°	1.7 ft	1x1	8,096	8,096	3.93 MW

Detailed Layout

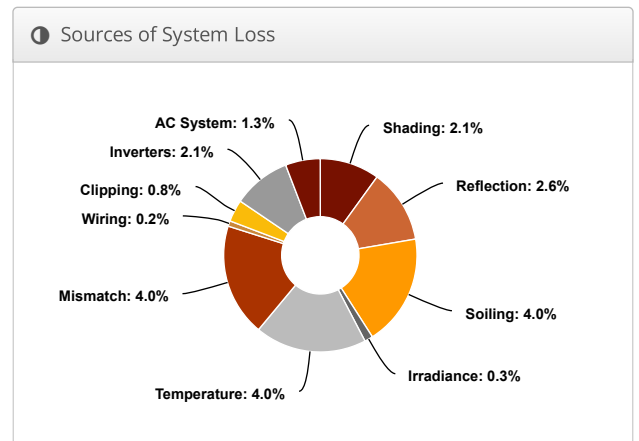
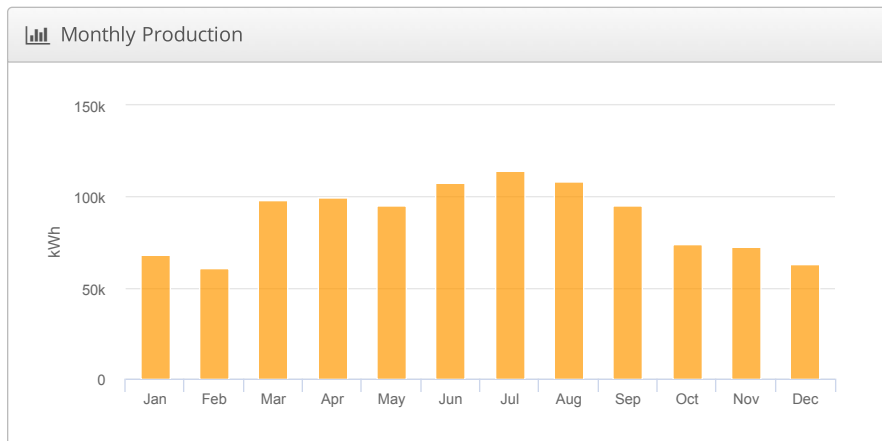
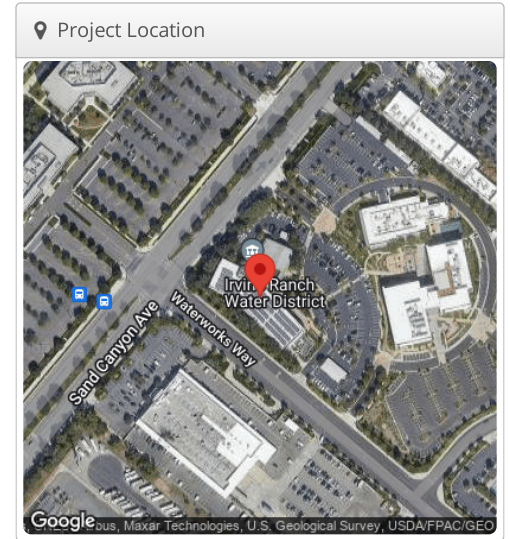


Rattlesnake Canyon Baseball Field_2023-04-07_preliminary PV Irvine

Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Rattlesnake Canyon Baseball Field_2023-04-07_preliminary PV
Module DC Nameplate	634.9 kW
Inverter AC Nameplate	500.0 kW Load Ratio: 1.27
Annual Production	1.056 GWh
Performance Ratio	80.9%
kWh/kWp	1,663.6
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	d6ebecb2-501db596f8-14d920c904-8e170c7ec8



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	2,055.3	11.7%
	Shaded Irradiance	2,011.4	-2.1%
	Irradiance after Reflection	1,958.2	-2.6%
	Irradiance after Soiling	1,879.8	-4.0%
	Total Collector Irradiance	1,879.9	0.0%
Energy (kWh)	Nameplate	1,201,025.3	
	Output at Irradiance Levels	1,197,440.5	-0.3%
	Output at Cell Temperature Derate	1,149,463.6	-4.0%
	Output After Mismatch	1,103,020.9	-4.0%
	Optimal DC Output	1,100,873.0	-0.2%
	Constrained DC Output	1,092,197.0	-0.8%
	Inverter Output	1,069,508.0	-2.1%
	Energy to Grid	1,056,139.1	-1.3%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.9 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.Peak DUO XL-G10.3/BFG 485 (Hanwha Q Cells)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope			Default Characterization		

🗄 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	4 (500.0 kW)
Strings	10 AWG (Copper)	55 (8,608.4 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.3/BFG 485 (485W)	1,309 (634.9 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
GF1	Fixed Tilt	Portrait (Vertical)	20°	179.59665°	4.4 ft	1x1	1,309	1,309	634.9 kW

Detailed Layout

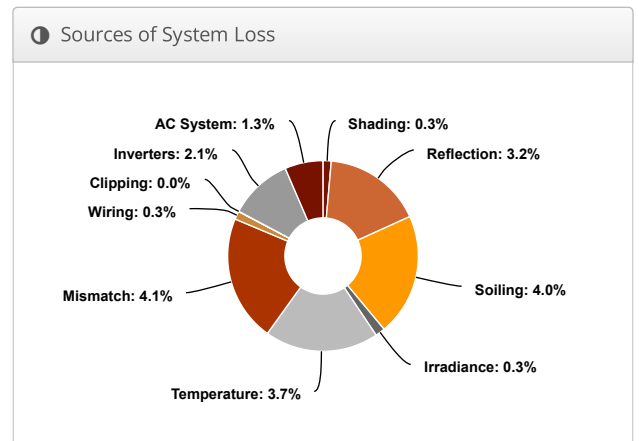
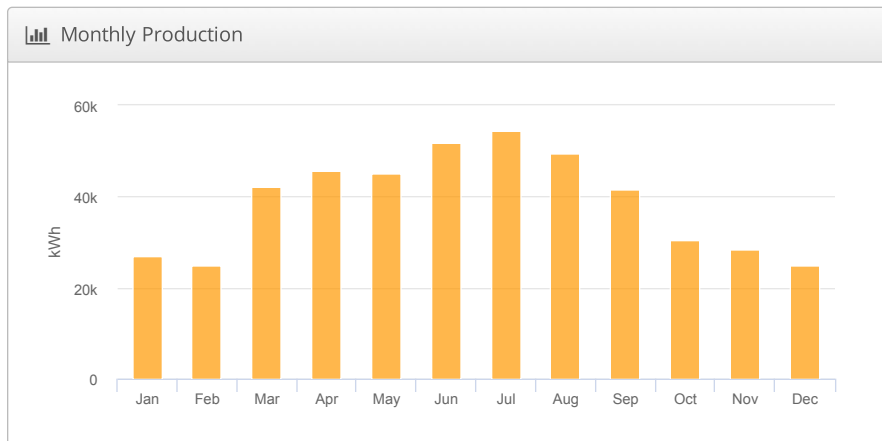
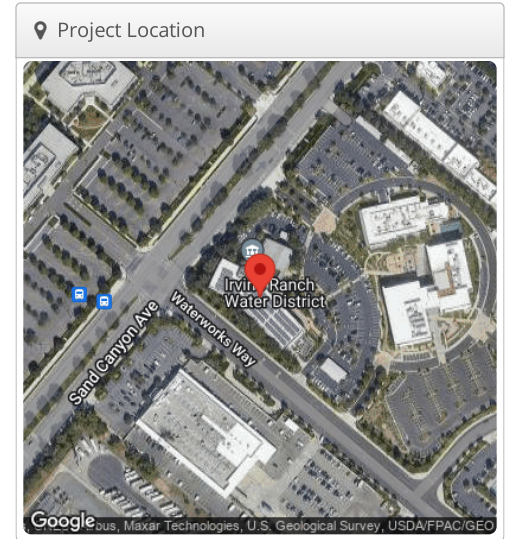


Lomas Valley Zone 3 Reservoir_2022-11-17_preliminary PV Irvine Ranch

WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Lomas Valley Zone 3 Reservoir_2022-11-17_preliminary PV
Module DC Nameplate	290.6 kW
Inverter AC Nameplate	250.0 kW Load Ratio: 1.16
Annual Production	465.9 MWh
Performance Ratio	82.8%
kWh/kWp	1,603.5
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a-c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,936.7	5.2%
	Shaded Irradiance	1,931.5	-0.3%
	Irradiance after Reflection	1,868.8	-3.2%
	Irradiance after Soiling	1,794.0	-4.0%
	Total Collector Irradiance	1,794.0	0.0%
Energy (kWh)	Nameplate	525,208.8	
	Output at Irradiance Levels	523,525.6	-0.3%
	Output at Cell Temperature Derate	504,012.7	-3.7%
	Output After Mismatch	483,162.3	-4.1%
	Optimal DC Output	481,871.1	-0.3%
	Constrained DC Output	481,833.3	0.0%
	Inverter Output	471,831.1	-2.1%
	Energy to Grid	465,933.3	-1.3%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.4 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

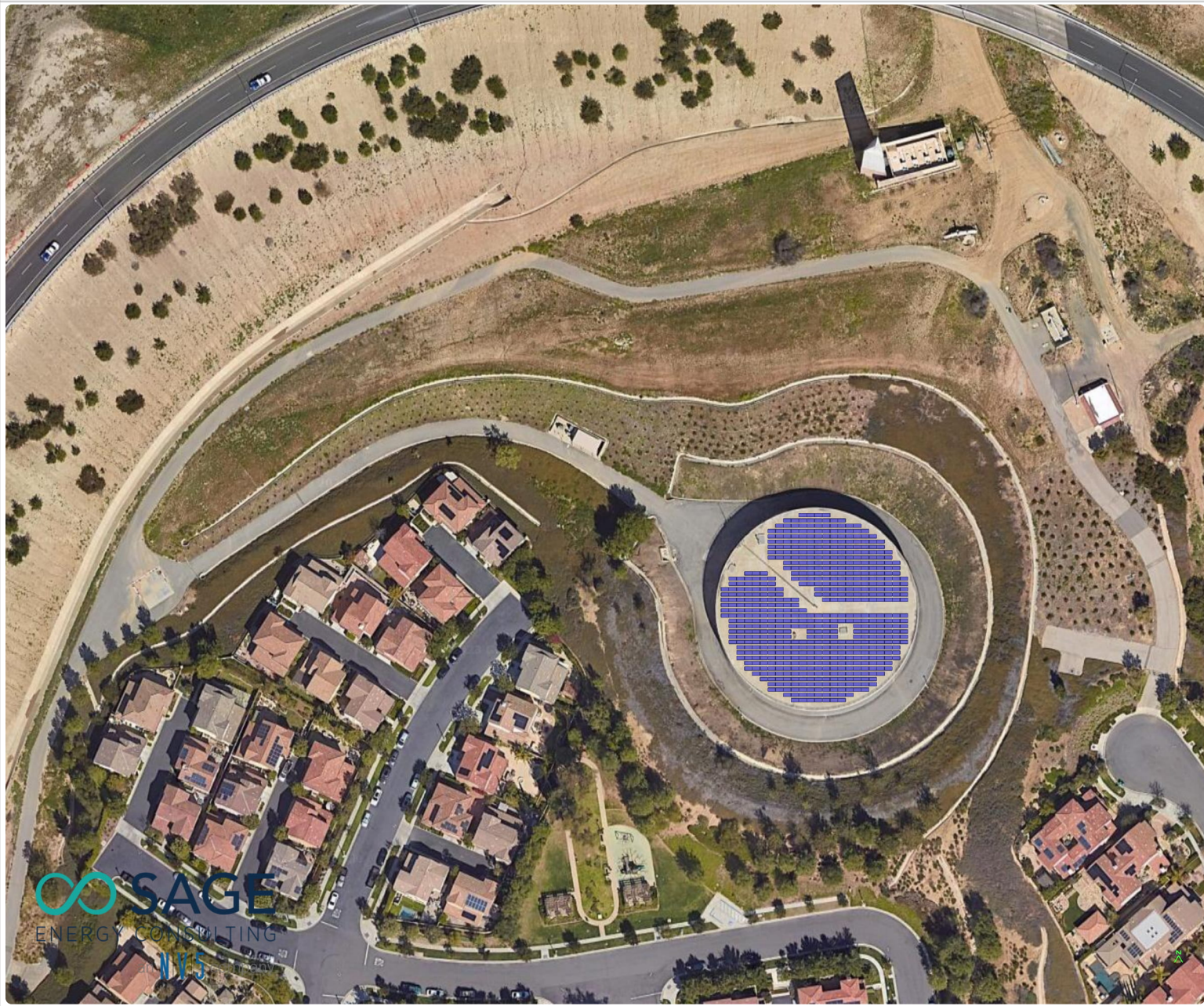
☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.Peak DUO XL-G10.2 495 (Hanwha Q Cells)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope			Default Characterization		

📦 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	2 (250.0 kW)
Strings	10 AWG (Copper)	24 (2,651.2 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.2 495 (495W)	587 (290.6 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	7°	180°	1.6 ft	1x1	587	587	290.6 kW

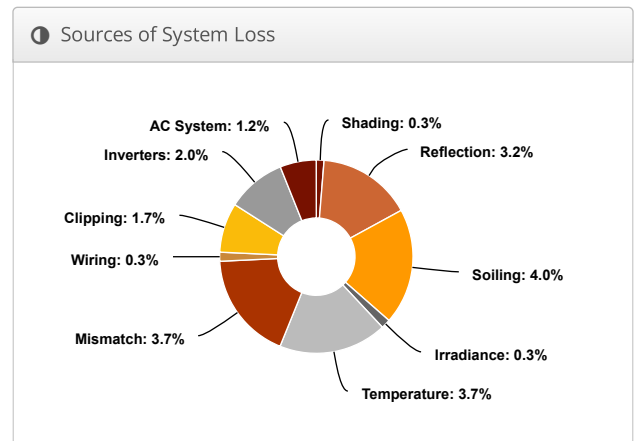
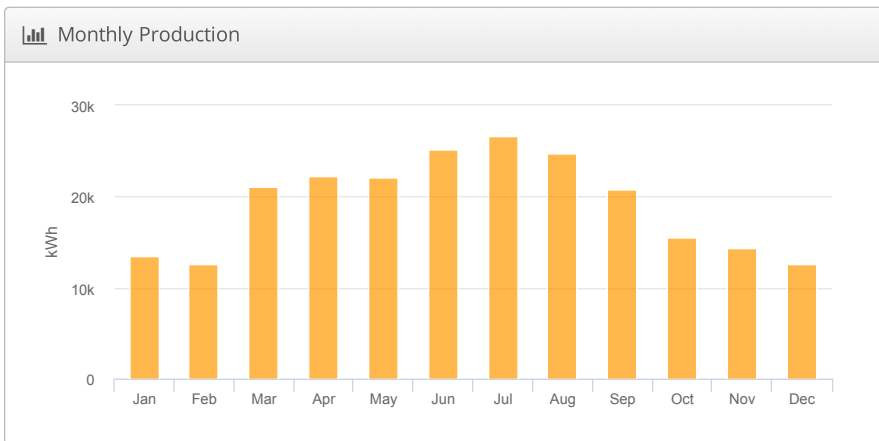
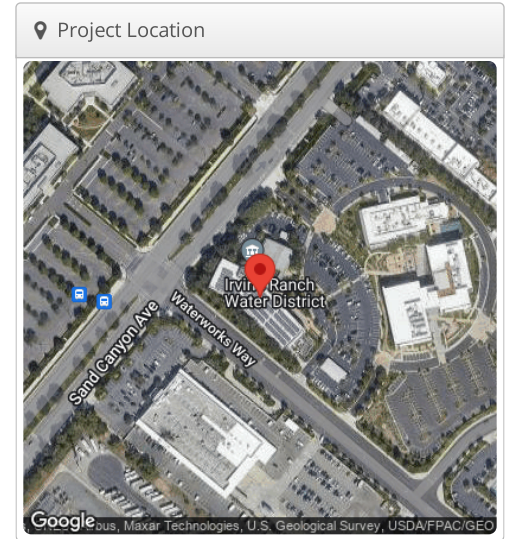
Detailed Layout



Costal Zone G Reservoir_2022-11-23_preliminary PV Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Costal Zone G Reservoir_2022-11-23_preliminary PV
Module DC Nameplate	146.0 kW
Inverter AC Nameplate	108.0 kW Load Ratio: 1.35
Annual Production	231.2 MWh
Performance Ratio	81.7%
kWh/kWp	1,583.0
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a-c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,936.7	5.2%
	Shaded Irradiance	1,931.6	-0.3%
	Irradiance after Reflection	1,868.9	-3.2%
	Irradiance after Soiling	1,794.1	-4.0%
	Total Collector Irradiance	1,794.1	0.0%
Energy (kWh)	Nameplate	263,956.2	
	Output at Irradiance Levels	263,110.3	-0.3%
	Output at Cell Temperature Derate	253,303.1	-3.7%
	Output After Mismatch	243,862.2	-3.7%
	Optimal DC Output	243,102.2	-0.3%
	Constrained DC Output	238,946.1	-1.7%
	Inverter Output	234,084.3	-2.0%
	Energy to Grid	231,158.3	-1.2%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.4 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

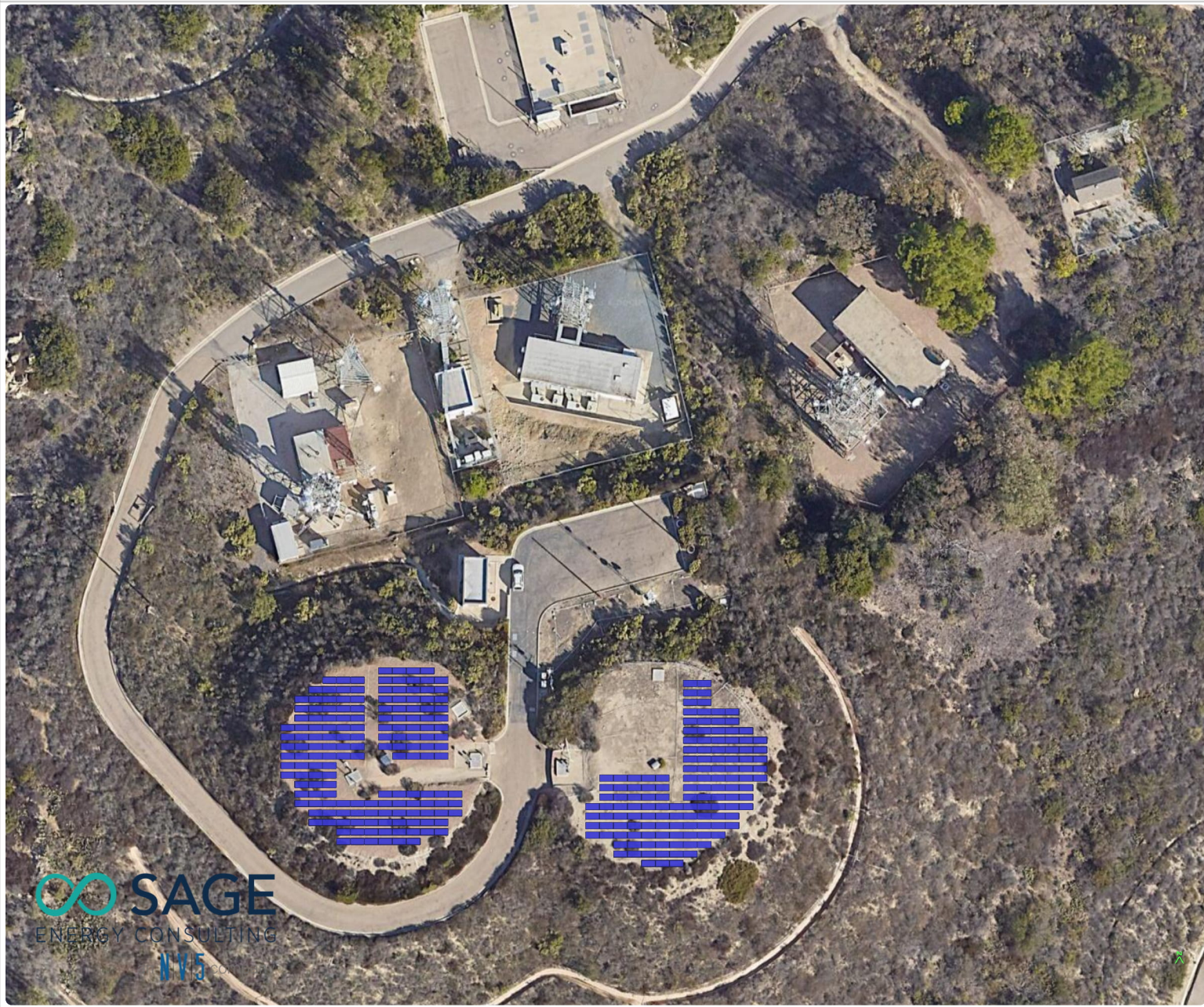
☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.Peak DUO XL-G10.2 495 (Hanwha Q Cells)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	PVI 36TL-480 (2022) (Yaskawa Solectria Solar)						HelioScope			Spec Sheet		

📦 Components		
Component	Name	Count
Inverters	PVI 36TL-480 (2022) (Yaskawa Solectria Solar)	3 (108.0 kW)
Strings	10 AWG (Copper)	18 (2,175.0 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.2 495 (495W)	295 (146.0 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	13-17	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	7°	180°	1.6 ft	1x1	134	134	66.3 kW
Field Segment 1 (copy)	Fixed Tilt	Landscape (Horizontal)	7°	180°	1.6 ft	1x1	161	161	79.7 kW

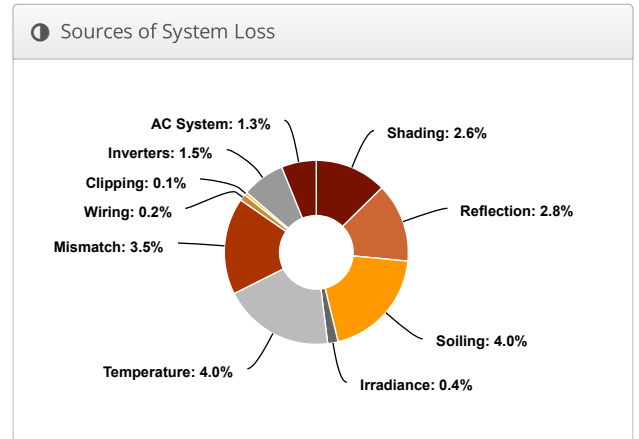
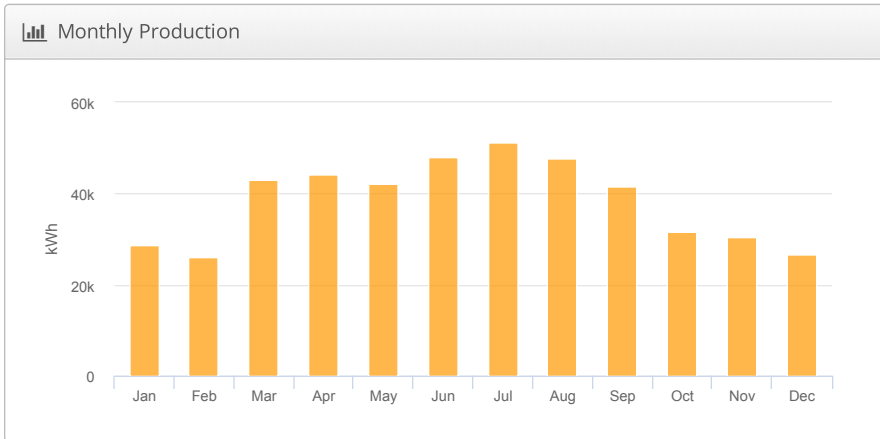
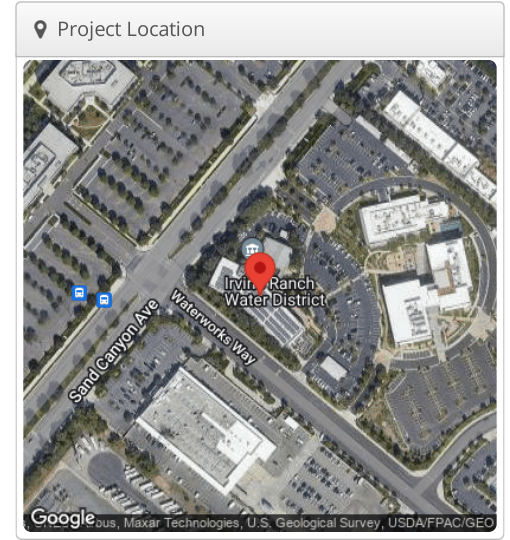
Detailed Layout



Baker_2022-11-14_preliminary PV Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Baker_2022-11-14_preliminary PV
Module DC Nameplate	280.6 kW
Inverter AC Nameplate	240.0 kW Load Ratio: 1.17
Annual Production	461.6 MWh
Performance Ratio	81.9%
kWh/kWp	1,645.1
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a- c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	2,009.5	9.2%
	Shaded Irradiance	1,957.9	-2.6%
	Irradiance after Reflection	1,902.4	-2.8%
	Irradiance after Soiling	1,826.3	-4.0%
	Total Collector Irradiance	1,826.3	0.0%
Energy (kWh)	Nameplate	515,902.3	
	Output at Irradiance Levels	513,966.7	-0.4%
	Output at Cell Temperature Derate	493,493.3	-4.0%
	Output After Mismatch	476,385.3	-3.5%
	Optimal DC Output	475,252.2	-0.2%
	Constrained DC Output	474,765.9	-0.1%
	Inverter Output	467,466.2	-1.6%
	Energy to Grid	461,622.9	-1.3%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.6 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set													
Description	Irvine TMY3_4pct soiling												
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)												
Solar Angle Location	Meteo Lat/Lng												
Transposition Model	Perez Model												
Temperature Model	Sandia Model												
Temperature Model Parameters	Rack Type	a	b	Temperature Delta									
	Fixed Tilt	-3.56	-0.075	3°C									
	Flush Mount	-2.81	-0.0455	0°C									
	East-West	-3.56	-0.075	3°C									
	Carport	-3.56	-0.075	3°C									
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D	
	4	4	4	4	4	4	4	4	4	4	4	4	
Irradiation Variance	5%												
Cell Temperature Spread	4° C												
Module Binning Range	0% to 1.25%												
AC System Derate	1.25%												
Trackers	Maximum Angle								Backtracking				
	60°								Enabled				
Module Characterizations	Module						Uploaded By		Characterization				
	LR4-72HBD-460M (2021) (Longi Solar)						HelioScope		Spec Sheet Characterization, PAN				
Component Characterizations	Device						Uploaded By		Characterization				
	PVI 60TL 2-21-2017 (Solectria (Yaskawa Solectria Solar))						HelioScope		Default Characterization				

📦 Components		
Component	Name	Count
Inverters	PVI 60TL 2-21-2017 (Solectria (Yaskawa Solectria Solar))	4 (240.0 kW)
Strings	10 AWG (Copper)	36 (4,346.2 ft)
Module	Longi Solar, LR4-72HBD-460M (2021) (460W)	610 (280.6 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	14-18	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
GF-01	Fixed Tilt	Portrait (Vertical)	20°	155.18224°	9.5 ft	2x1	305	610	280.6 kW

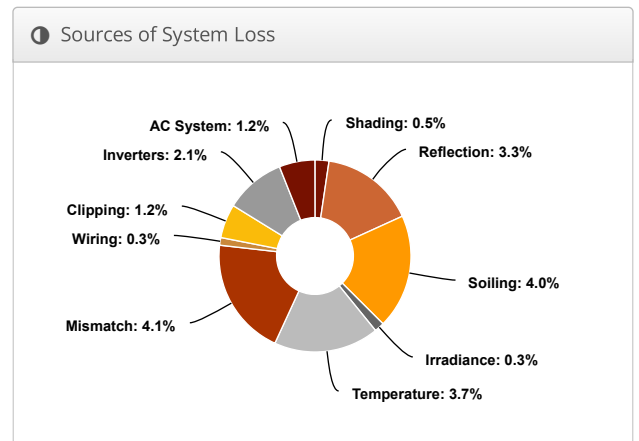
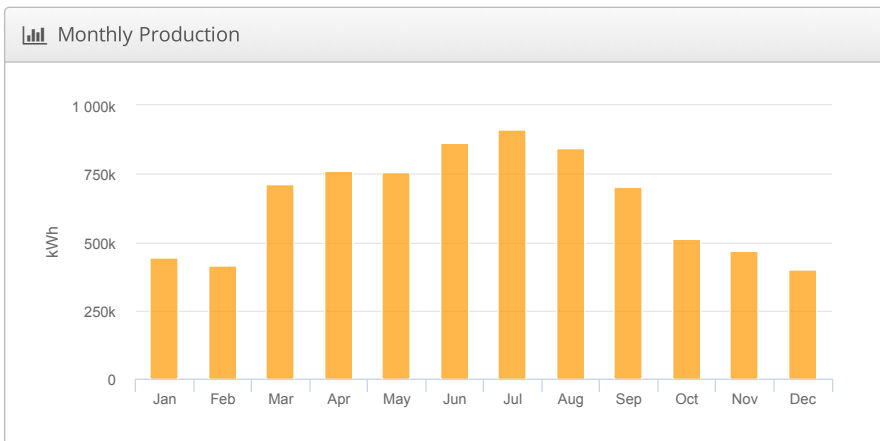
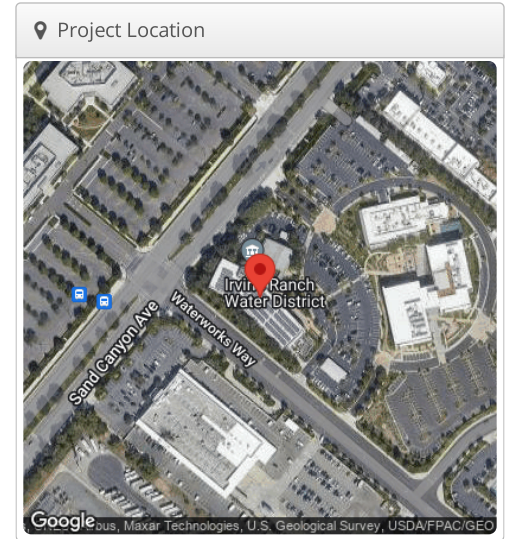
Detailed Layout



Sand Canyon Dam_2022-08-29_preliminary PV Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	Sand Canyon Dam_2022-08-29_preliminary PV
Module DC Nameplate	5.00 MW
Inverter AC Nameplate	3.75 MW Load Ratio: 1.33
Annual Production	7.788 GWh
Performance Ratio	81.5%
kWh/kWp	1,557.7
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a-c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,911.3	3.9%
	Shaded Irradiance	1,901.9	-0.5%
	Irradiance after Reflection	1,839.4	-3.3%
	Irradiance after Soiling	1,765.8	-4.0%
	Total Collector Irradiance	1,765.8	0.0%
Energy (kWh)	Nameplate	8,884,839.7	
	Output at Irradiance Levels	8,853,976.9	-0.3%
	Output at Cell Temperature Derate	8,528,424.8	-3.7%
	Output After Mismatch	8,175,463.9	-4.1%
	Optimal DC Output	8,153,401.7	-0.3%
	Constrained DC Output	8,057,197.1	-1.2%
	Inverter Output	7,886,764.0	-2.1%
		Energy to Grid	7,788,179.5
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.2 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.PEAK DUO XL-G10.3/BFG 485 (2021) (Hanwha)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope			Default Characterization		

🗑 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	30 (3.75 MW)
Strings	10 AWG (Copper)	420 (123,280.6 ft)
Module	Hanwha, Q.PEAK DUO XL-G10.3/BFG 485 (2021) (485W)	10,309 (5.00 MW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	5°	180°	1.7 ft	1x1	10,309	10,309	5.00 MW

Detailed Layout

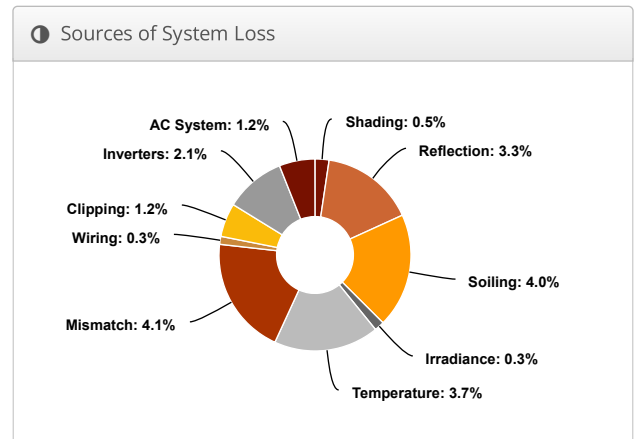
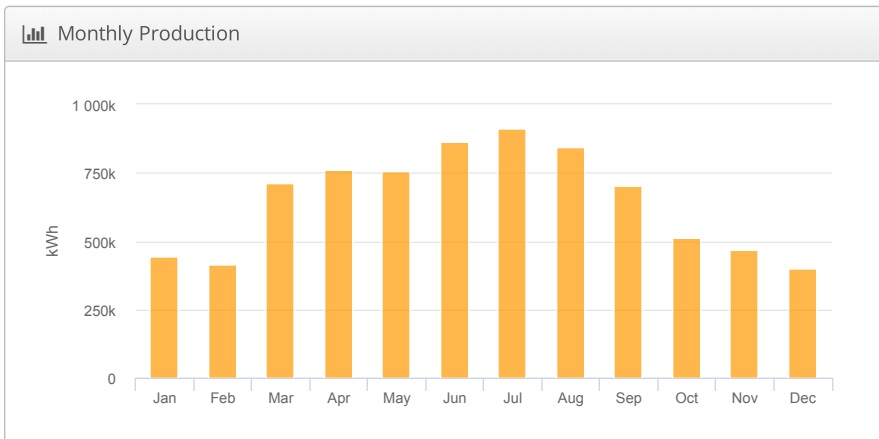
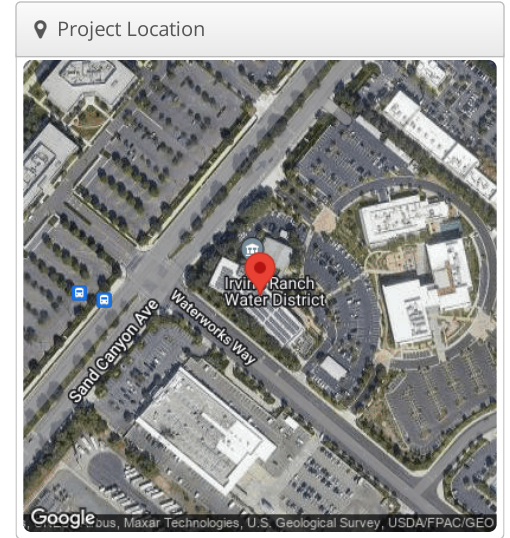


 **SAGE**
ENERGY CONSULTING
 **NVE**

San Joaquin Dam_2023-04-26 Irvine Ranch WD, 15600 sand canyon

Report	
Project Name	Irvine Ranch WD
Project Address	15600 sand canyon
Prepared By	Zoe Respondek zoe.respondek@nv5.com

System Metrics	
Design	San Joaquin Dam_2023-04-26
Module DC Nameplate	5.00 MW
Inverter AC Nameplate	3.75 MW Load Ratio: 1.33
Annual Production	7.788 GWh
Performance Ratio	81.5%
kWh/kWp	1,557.6
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)
Simulator Version	34dd91d93f-2d85c5c137-1646ec5f5a- c726c14e3e



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,840.3	
	POA Irradiance	1,911.3	3.9%
	Shaded Irradiance	1,901.9	-0.5%
	Irradiance after Reflection	1,839.3	-3.3%
	Irradiance after Soiling	1,765.8	-4.0%
	Total Collector Irradiance	1,765.8	0.0%
Energy (kWh)	Nameplate	8,884,674.7	
	Output at Irradiance Levels	8,853,809.2	-0.3%
	Output at Cell Temperature Derate	8,528,295.5	-3.7%
	Output After Mismatch	8,175,430.5	-4.1%
	Optimal DC Output	8,152,764.8	-0.3%
	Constrained DC Output	8,056,801.1	-1.2%
	Inverter Output	7,886,388.7	-2.1%
		Energy to Grid	7,787,809.0
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		29.2 °C
Simulation Metrics			
	Operating Hours		4362
	Solved Hours		4362

☁ Condition Set												
Description	Irvine TMY3_4pct soiling											
Weather Dataset	TMY, SANTA ANA JOHN WAYNE AP, NSRDB (tmy3, II)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
	East-West	-3.56	-0.075	3°C								
	Carport	-3.56	-0.075	3°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	4	4	4	4	4	4	4	4	4	4	4	4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	0% to 1.25%											
AC System Derate	1.25%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module Characterizations	Module						Uploaded By			Characterization		
	Q.PEAK DUO XL-G10.3/BFG 485 (2021) (Hanwha)						HelioScope			Spec Sheet Characterization, PAN		
Component Characterizations	Device						Uploaded By			Characterization		
	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)						HelioScope			Default Characterization		

🗑 Components		
Component	Name	Count
Inverters	Sunny Highpower PEAK3 SHP125-US (480Vac) (SMA)	30 (3.75 MW)
Strings	10 AWG (Copper)	420 (128,375.3 ft)
Module	Hanwha, Q.PEAK DUO XL-G10.3/BFG 485 (2021) (485W)	10,309 (5.00 MW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	17-26	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	5°	180°	1.7 ft	1x1	10,309	10,309	5.00 MW

Detailed Layout



Exhibit "B"



CLIMATE ACTION PLAN UPDATE

Water Resources Policy and Communications Committee

February 7, 2024

1

1

PRESENTATION OVERVIEW

1. Background
2. Findings of Phase 1 Climate Action Plan (CAP) work
 - Purpose, methodology and regulation
 - 2021 Greenhouse Gas (GHG) Inventory
 - Project recommendations
 - GHG emission forecasts
 - Funding sources
3. Future work for Phase 2



2

2

BACKGROUND

- IRWD Energy and Greenhouse Gas Master Plan 2012
 - Identified portfolio of cost-effective projects to reduce District's energy use and greenhouse gas (GHG) emissions
- Need for Update
 - Several major facilities constructed since 2012 (i.e., Baker Plant, Batteries, Biosolids)
 - Numerous changes in regulations, available technologies, market conditions, and operations and equipment within IRWD's facilities
- Climate Action Plan
 - In 2021 NV5 was retained to prepare the IRWD Climate Action Plan (CAP)
 - CAP To be developed in two phases



3

3

CLIMATE ACTION PLAN

PHASE 1 FINDINGS



4

CLIMATE ACTION PLAN - PHASE 1

- Purpose
 - Identify potential projects to reduce District’s future energy costs and GHG emissions
- Methodology
 - Researched key regulatory drivers
 - Examined baseline GHG inventory
 - Conducted workshops to identify and screen potential projects for Phase 2 analysis
 - Projected GHG inventories with and without project implementation
 - Identified potential funding opportunities

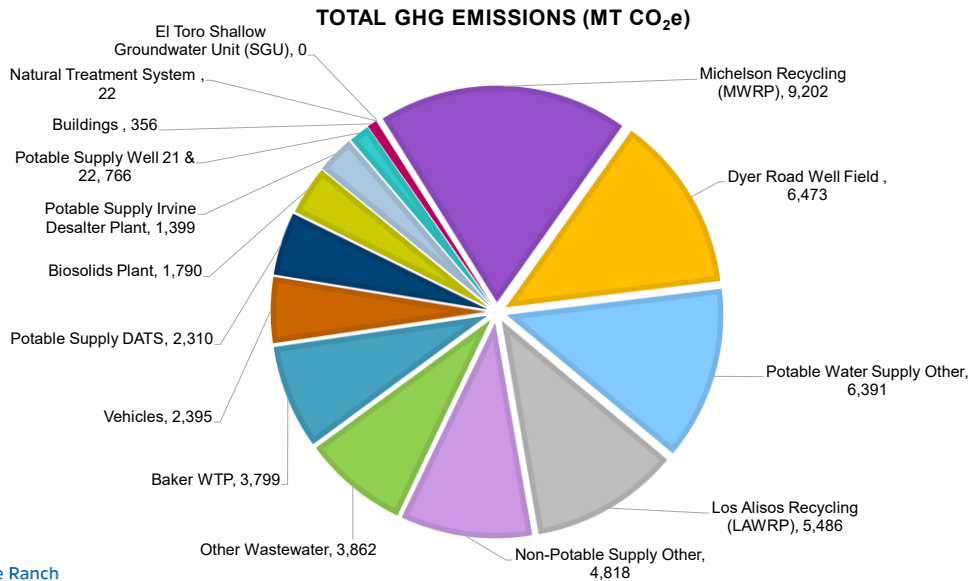


KEY REGULATORY DRIVERS

- California Global Warming Solutions Act
 - Established the state’s first GHG reduction targets
 - Long-term goal to reduce emissions to 80% below 1990 levels by 2050
- California Renewable Portfolio Standard (RPS)
 - Requires utilities move towards “carbon-free” electricity by 2045
- California Air Resources Board
 - Fleet electrification for certain vehicles by 2024
 - Only zero-emission passenger car and light-duty vehicles can be sold by 2035



2021 INVENTORY: GHG EMISSIONS BY IRWD FACILITY



7

7

POTENTIAL PROJECTS FOR PHASE 2 ANALYSIS

Project Type	Potential Project Location(s)	Capacity	25-Year Lifetime GHG Reductions (MTCO ₂ e)
Rooftop Solar	Zone A North Reservoir	310 kW-DC	600
Floating Solar and Battery Storage	San Joaquin Reservoir	5 MW AC solar; 5 MW / 20 MWh battery	10,400
Ground-Mount Solar	Rattlesnake Canyon Baseball Field	635 kW-DC	1,300
Canopy/ Ground-Mount Solar	MWRP	2,400 kW-DC	4,800
Ground-Mount Solar	Baker Water Treatment Plant	281 kW-DC	600
Fleet Electrification	MWRP, Sand Canyon HQ, Baker, LAWRP	Roughly 300 IRWD fleet vehicles	7,000



8

8

ROOFTOP SOLAR – ZONE A NORTH RESERVOIR

- Capacity: 310 kW-DC
- May be eligible for Net Energy Metering Aggregation (NEM-A) Program
- Use of generated energy at adjacent sites



FLOATING SOLAR & BATTERY – SAN JOAQUIN RESERVOIR

- Capacity: 5 MW AC solar, 20 MWh battery
- Participation in the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program
 - Generate renewable electricity for use at any site
 - Battery energy storage system allows for use from 4:00-9:00 pm
 - Benefits include a reduction in algae and evaporation



GROUND-MOUNT SOLAR – RATTLESNAKE FIELD

- Capacity: 635 kW-DC
- Potentially eligible for the Net Energy Metering Aggregation (NEM-A) Program
- Use of generated energy at adjacent sites



CANOPY / GROUND-MOUNT SOLAR – MWRP

- Capacity: 2,400 kW DC
- Behind-the-meter (BTM) solar arrays
 - Existing battery agreement ends in 2028 potentially freeing up available load for solar
 - Arrays could be staged over time as MWRP plant load increases due to fleet electrification
 - Facility planning considerations are important



GROUND-MOUNT SOLAR – BAKER PLANT

- Capacity: 281 kW-DC
- New ground-mount solar array would be on a separate electric service
- Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program
- Generate renewable electricity for use at other site

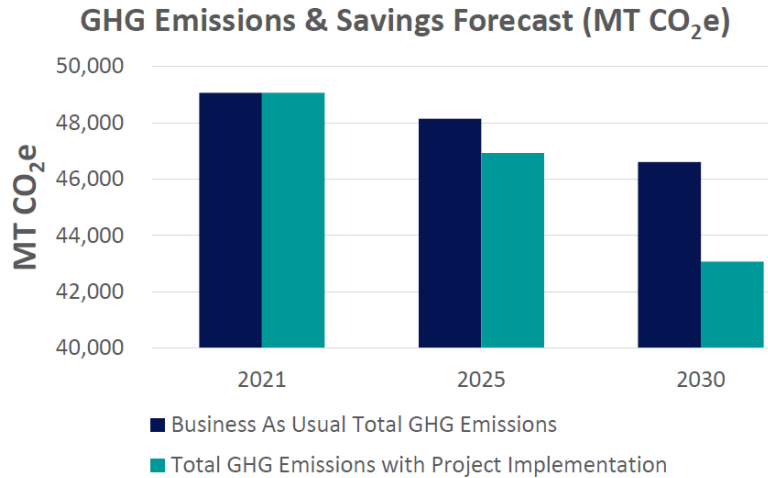


FLEET ELECTRIFICATION

- Capacity: ~300 IRWD Fleet Vehicles
- Over 85% of IRWD fleet vehicles are located at MWRP
- Advanced Clean Fleet regulation requires fleet electrification for public agencies
 - All vehicles larger than F-250 fall under regulation
 - EV charging infrastructure plans are necessary for MWRP long-term planning process



FORECASTED GHG INVENTORIES



POTENTIAL FUNDING SOURCES

- Southern California Edison
 - Renewable Energy Self-generation Bill Credit Transfer (RES-BCT) Program
 - Charge Ready Transport Program
- State of California
 - Self-Generation Incentive Program
 - Net Billing Tariff
 - Renewable Energy Certificates
 - Low Carbon Fuel Standard credits
- Federal
 - Investment Credits
 - Production Credits



CLIMATE ACTION PLAN

PHASE 2



17

PHASE 2 ACTIVITIES TO BE COMPLETE DECEMBER 2024

- Financial and feasibility evaluations of the Phase 1 projects
- Development of fleet electrification plan
- Incorporation of results from:
 - IRWD's 2024 Water Supply Reliability Study;
 - 2023 GHG Inventory; and
 - 2024 Embedded Energy Study
- Climate change impact analysis and vulnerability assessment
- Expansion of IRWD's understanding of GHG emissions
- Examination of IRWD existing renewable resources
- Consideration of reasonable and voluntary GHG reduction goals
- Recommendations for IRWD policy, program, and operational changes
- Preparation of CAP Report



18

18

QUESTIONS?



February 7, 2024
Prepared by: J. Fabris
Submitted by: C. Compton
Approved by: Paul A. Cook



WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

2023 COMMUNICATIONS OUTREACH RESULTS

SUMMARY:

The 2023 calendar year began with atmospheric rivers bringing a substantial amount of rain to California, and the urgency of California's drought receding from public consciousness. Despite above average rainfall statewide, IRWD continued to ask and teach its customers how to use water efficiently. As key part of that efforts was the 2023 communication and public outreach the District undertook. To maintain and improve IRWD customers' water efficiency, staff sought to:

- Cut through crisis fatigue and advertising clutter to reach customers;
- Change customers' perception of what constitutes a beautiful yard; and
- Inspire customers to take advantage of IRWD programs to help them transform their yards and use water more wisely.

Using video and targeted calls to action, IRWD captured and increased customers' attention using new tools and approaches on various digital communications platforms. This led to a new all-time high of 18.6 million digital impressions in 2023. Meanwhile, participation in rebate and water-efficiency programs increased significantly, and per-capita water usage was 14% lower than before the drought. At the Committee meeting, staff will recap the 2023 campaigns, present key metrics, and offer a look ahead to the District's 2024 campaigns.

BACKGROUND:

A year ago, staff provided the Committee with a recap of the District's digital customer outreach in 2022, a year in which IRWD increased its use of video and strategic social media campaigns, fine-tuned its email campaigns, grabbed customers' attention with humor, leveraged the popularity and expertise of IRWD's Water Efficiency staff, and built educational webpages to help customers transform their yards to save water. The first half of that year focused largely on education, but when a statewide drought emergency was declared, staff changed the outreach strategy to address the drought more directly and prioritized the delivery of drought messaging to customers as broadly and frequently as possible. The 2022 effort resulted in 9,951,445 digital impressions.

In 2023, with the drought ending due to extensive precipitation throughout the state, the District pivoted its customer outreach reach away from drought messaging. The outreach continued using video and strategic social media campaigns, fine-tuned email campaigns, humor, and leveraging the popularity and expertise of IRWD's Water Efficiency staff to reach IRWD customers. The outreach also continued to use greater audience segmentation and focused on delivering messages designed to inspire customers to act. The draft presentation is attached as Exhibit "A".

2023 Digital Outreach Approach:

IRWD remains committed to helping its customers become more and more efficient with their water use – particularly outside. To inspire tangible change in customer behavior, staff again focused the District’s 2023 outreach campaigns with clear calls to action (e.g., signing up for the Sprinkler Repair Program, attending water efficiency workshops, and participating in the turf-replacement and spray-to-drip-irrigation-conversion rebate programs) and used humor to cut through crisis and message fatigue.

To reach new and untapped audiences, the following approaches were implemented:

- *Outreach in Multiple Languages:* Episodes of The Shed Show were re-released with subtitles to reach IRWD’s Korean- and Chinese-speaking customers; and
- *New Platforms to Reach New Audience Segments:* In addition to the more traditional Facebook, Instagram, and YouTube platforms, IRWD’s humorous Sprinkler Repair Program campaign videos were delivered on Nextdoor and Basis TV, which includes connected TV platforms such as Roku, Apple, and FireTV. The quick 15-second video format helped ensure customers saw the entire message.

In social media parlance, an *impression* occurs when a user sees the content. The more impressions, the more the message is in front of customers’ eyes. In 2023, IRWD garnered 18,621,720 impressions from its digital communications outreach, nearly twice the 2022 number. The impressions yielded in IRWD’s 2023 campaigns are shown below:

Month(s) of Outreach	Communications Outreach (Event, Campaign, Program)	No. of Impressions
Jan	Shed Show 3: Watering Tips (English only)	854,912
Feb	Wastey, the World's Worst Water Mascot	5,787,404
Mar	Fix A Leak Sweepstakes	169,470
Jul	Fix Your Sprinklers Workshop	201,716
Jun-Sep	Shed Show 3: Watering Tips (reboot in English, Korean, Chinese)	1,919,701
Aug-Dec	Sprinkler Repair Program	4,309,676
Oct	Log a Leak tool	23,769
Jan-Dec	Community Tours	19,635
Jan-Dec	Mailchimp email opens (The Dirt, semi-monthly newsletter focusing on events including H2O Show 'n' Tell)	166,772
Jan-Dec	WaterInsight email opens (The Wave, event-specific emails focusing on Shed Show Road Shows, Fix Your Sprinklers, Don't Spring a Leak)	170,113
Jan-Dec	Plant Like a Local workshop series	118,931
Jan-Dec	UCI Fan 365 website display	1,594,283
Jan-Dec	Various informational and educational social media posts (organic)	3,285,338
TOTAL NUMBER OF IMPRESSIONS		18,621,720

Impact of 2023 Outreach:

Although it is impossible to quantify causation or identify one single cause for customers becoming more water efficient, there is a noticeable correlation between the District's 2023 outreach and customer water savings and engagement in IRWD's water efficiency programs. As IRWD's 2023 campaigns made more impressions, the District saw an increase in customers taking advantage of IRWD rebates and making gains in water efficiency. A few examples of the increase in customer participation are:

- *Sprinkler Repair Program:* Sprinkler Repair Program applications in June-December 2023 increased 91% compared to those same months the prior year;
- *Turf Removal Program:* With rebates from the District's Turf Removal Program, customers replaced 515,946 square feet of lawn with water-efficient landscape in 2023, which was 151% more than in 2022, and 18 times more than in 2021; and
- *Spray to Drip Program:* With rebates from the Spray to Drip Program, customers converted 287,530 square feet of landscape from sprinklers to efficient drip irrigation — 115% more than in 2022, and 19 times more than in 2021.

The District also continued to see customer water savings. Since June 2022, IRWD's residential gallons per capita per day (R-GPCD) level has remained more than 14% below 2020 levels.

Next Steps and 2024 Outreach:

Building on 2023's momentum, staff is developing a pair of digital campaigns for the first half of 2024, highlighting the beauty of California-friendly landscape and encouraging customers to consider replacing their grass lawns. This early 2024 outreach will lay the groundwork for a proposed long-term campaign, which is currently being developed. The goal of the long-term campaign will be to change perceptions and behaviors to make beautiful, functional, water-efficient outdoor spaces the trend and, in the long term, the norm within IRWD's service area.

Staff is currently gathering customer data to aid in development of a brand idea for this new campaign. Opportunities to reach a younger audience, including millennials, are also being explored. Staff expects that video and other digital messaging – designed for a wider variety of platforms – will also be key aspects of the long-term campaign.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Review and file.

LIST OF EXHIBITS:

Exhibit “A” – 2023 Digital Communications Outreach Presentation Draft

Exhibit "A"



2023 COMMUNICATIONS OUTREACH RESULTS

Water Resources Policy and
Communications Committee

February 7, 2024

1

1

AGENDA

- Recap of the year's key projects and campaigns
 - Video
 - Social media
 - Webpages
- A look at the data
- Correlations to water savings
- Sneak peek at what's in store for 2024



FIX YOUR SPRINKLERS WORKSHOP
JULY 12 | 6 P.M.



2

2023: A YEAR OF GROWTH AND TRANSFORMATION

- 2022 was a banner year for digital outreach, but 2023 was better
- 2023 built on winning strategies with a focus on video and audience segmentation

The result:

- ✓ Unsurpassed numbers on social media
- ✓ Unprecedented reach to new audiences via translations and new platforms
- ✓ Quality engagements with customers
- ✓ Promising correlations between our campaigns and customer water savings



3

3

THE SHED SHOW

A 3-episode landscaping series big on humor and graphics

- **Episode 1-** Pollinator Gardens (10 mins)
- **Episode 2-** Big Ideas, Small Spaces (10 mins)
- **Episode 3-** Landscaping (six 1-minute shorts)
 - Irrigation repairs & upgrades
 - Beautifying yards
 - Rebates for turf-replacement & drip-conversion
- **Episode 3 Reboot** (with Korean and Chinese subtitles/graphics)



IRWD.com/shedshow



4

2023 EPISODE IMPRESSIONS, VIDEO COMPLETIONS

Ep. 3: Landscaping Tips (6 x 1 min.)

- 854,912 impressions
- 238,907 video completions

Ep. 3: Reboot

- 1.9 million impressions
- 603,562 video completions

Platforms:



Facebook



YouTube



Instagram



Basis Connected TV



5

5

TOTAL 2022-2023 SHED SHOW IMPRESSIONS, COMPLETIONS

7.2 million
impressions

1.2 million
video completions

Immeasurable
impact



6

6

WASTHEY THE WORST WATER MASCOT

- **Campaign Period:**

February 2023

- **Results:**

- ✓ 5.8 million impressions
- ✓ Nearly 1,000 shares & retweets
- ✓ 578,893 engagements/video views



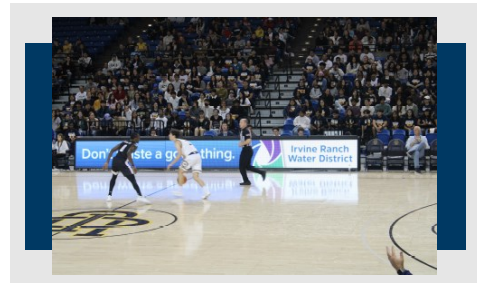
Wastey @TheRealWastey
#influencer #winning



7

UCI ATHLETICS PARTNERSHIP

- Courtside signs
- Featured on ESPN+
- Fan365 digital banner ads
- AM-830 radio commercial
- UCI Athletics newsletter ads
- Restroom signs
- Events
- Campaign video



8

PETER THE ANTEATER SAVES WATER



9

9

SPRINKLER REPAIR PROGRAM CAMPAIGN

- Three short videos and static images featuring Gary & Susan
- Use humor and “bad lip sync” voiceovers in melodramatic scenes about sprinkler repairs
- 18-week run (Aug. – Dec.)
- Focus:
 - Take advantage of the Sprinkler Repair Program
 - IRWD will send a professional to fix your sprinklers and pay half the cost



10

10

Irvine Ranch Water District
Published by Lily Lungren · August 7 · 🌐

We'll send a professional to fix your sprinklers, plus we'll pay half the repair cost.

IRWD.COM
IRWD Sprinkler Repair Program
We'll pay half.

Learn more

See insights and ads

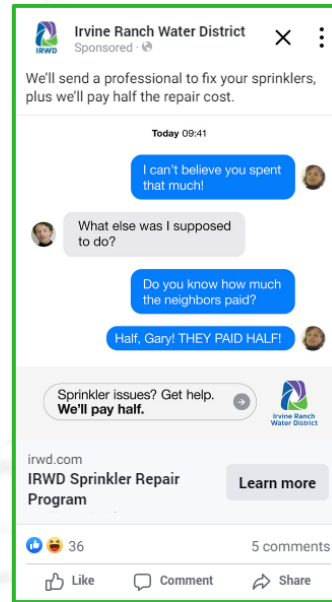
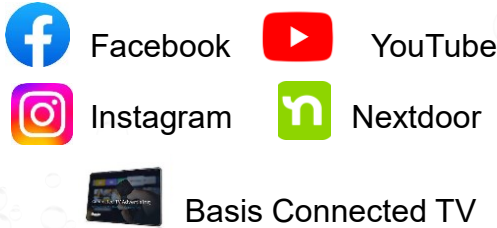
Boost post

SPRINKLER REPAIR PROGRAM CAMPAIGN

Impressions: 4,309,676

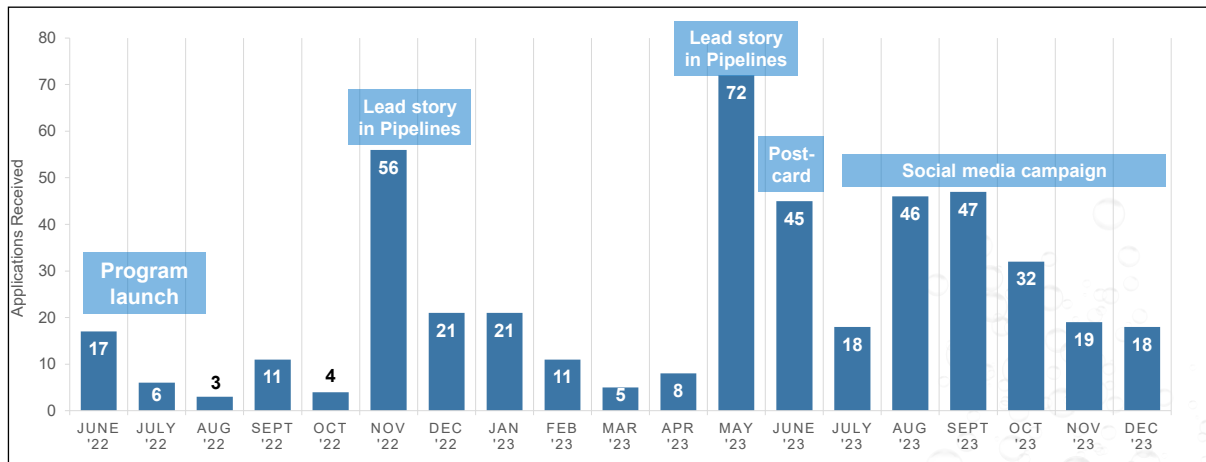
Meta Engagement Rate: 12.44%*
 (*Meta's average engagement rate is rarely over 3% in any industry)

Platforms:



SPRINKLER REPAIR PROGRAM PARTICIPATION

Program participation from June-December 2023 improved 91% vs. same months prior year



EVENT PROMOTIONS

- Fix Your Sprinklers workshop
- Don't Spring a Leak workshop
- Community Tours
- Plant Like a Local workshop series
 - Prep for Fall Planting (September)
 - Landscaping to Protect Our Ocean (October)
 - Time to Plant (November)

First time combining workshops into a series and promoting them as one.



13

13

EVENT PROMOTION METRICS

- Fix Your Sprinklers
 - Impressions: 202,328
 - Attendance: 25
- Don't Spring a Leak
 - Impressions: 15,820
 - Attendance: 52
- Community Tours
 - Impressions: 21,448
 - Attendance: 149
- Plant Like a Local series
 - Impressions: 176,397
 - Attendance: 68



14

14

2023 DIGITAL OUTREACH IMPRESSIONS

Time period	Event, Campaign, Program	Impressions
Jan	Shed Show 3: Watering Tips (English only)	854,912
Feb	Wastey, the World's Worst Water Mascot	5,787,404
Mar	Fix A Leak Sweepstakes	169,470
Jul	Fix Your Sprinklers Workshop	201,716
Jun-Sep	Shed Show 3: Watering Tips (reboot in English, Korean, Chinese)	1,919,701
Aug-Dec	Sprinkler Repair Program	4,309,676
Oct	Log a Leak tool	23,769
Jan-Dec	Community Tours	19,635
Jan-Dec	Mailchimp email opens (The Dirt, semi-monthly newsletter focusing on events including H2O Show 'n' Tell)	166,772
Jan-Dec	WaterInsight email opens (The Wave, event-specific emails focusing on Shed Show Road Shows, Fix Your Sprinklers, Don't Spring a Leak)	170,113
Jan-Dec	Plant Like a Local workshop series	118,931
Jan-Dec	UCI Fan 365 website display	1,594,283
Jan-Dec	Various informational and educational social media posts (organic)	3,285,338
	TOTAL	18,621,720

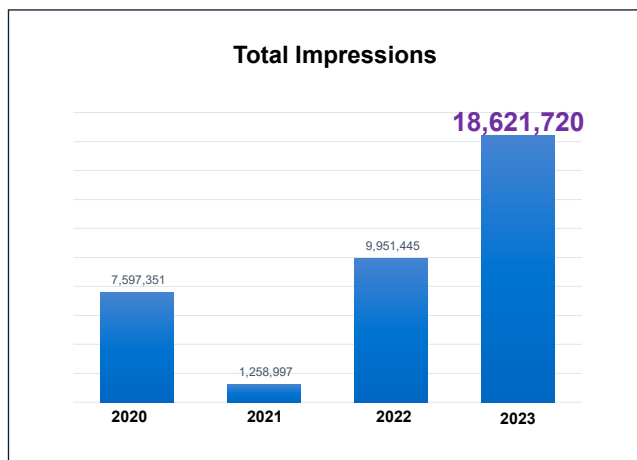


15

15

2023 DIGITAL OUTREACH LESSONS

- Content is king — customers expect us to be helpful and informative
- It's more important than ever to ensure messages are delivered the way customers want
 - All videos need captions
 - Engagement is valuable
- People love videos
- People love videos
- Have we mentioned that people love videos?



16

16

OUTREACH IS CREATING CHANGE

Turf replacement

	2021	2022	2023
Apps completed	23	86	133
Square feet	28,366	205,614	515,946

Vs. 2022, completions increased **55%**
and square footage increased **151%**

Square footage increased **18-fold** since 2021

Spray to drip

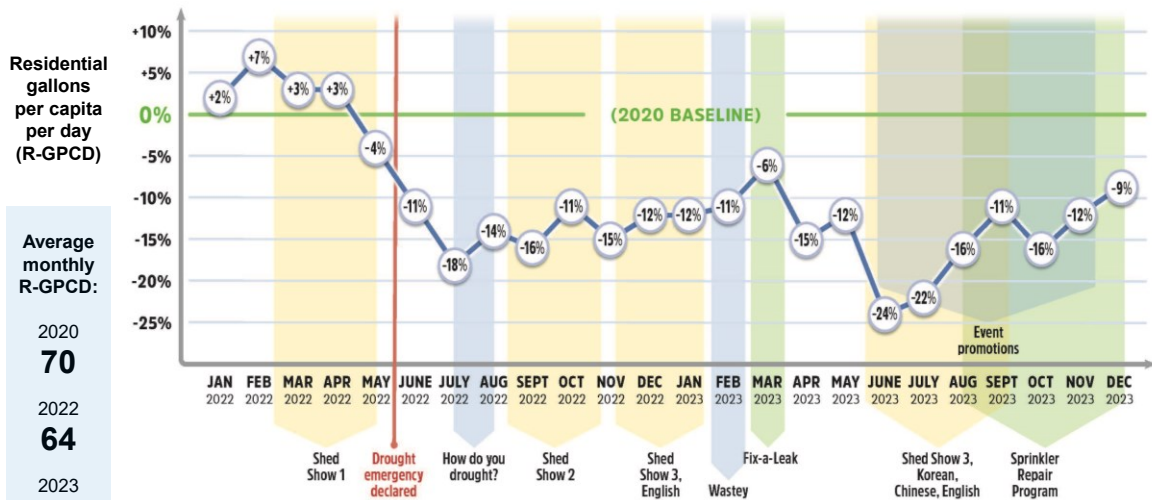
	2021	2022	2023
Apps completed	12	42	53
Square feet	14,968	133,680	287,530

Vs. 2022, completions increased **26%**
and square footage increased **115%**

Square footage increased **19-fold** since 2021



IRWD OUTREACH AND CUSTOMER WATER SAVINGS



Average monthly R-GPCD:

2020 **70**

2022 **64**

2023 **60**

Since drought emergency declared R-GPCD 14% below 2020 baseline



Source: IRWD Water Efficiency department

GOALS FOR 2024

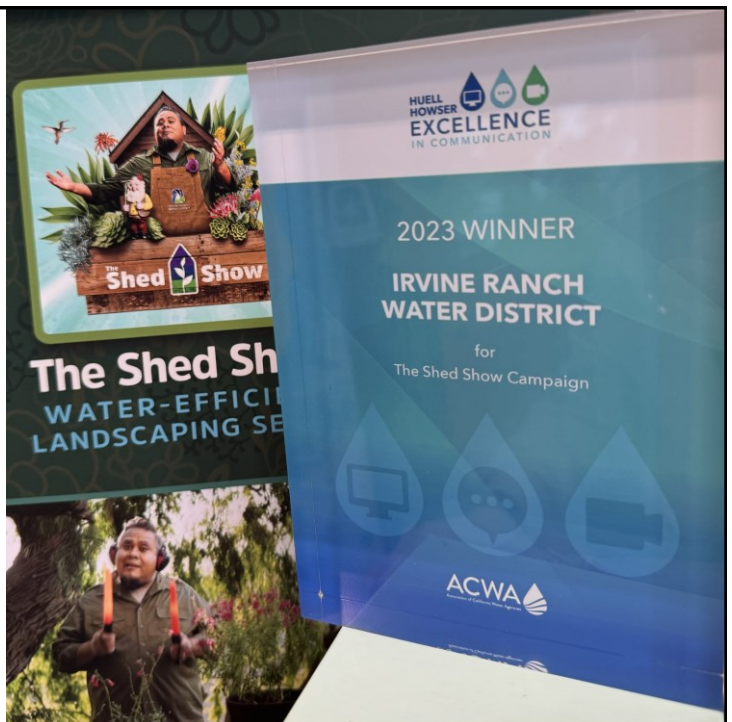
- Implement the tipping point campaign
- Right-size the number of impressions needed to create impact
- Incorporate vertical video options into every paid and organic social media campaign
- Experiment with streaming audio
- Develop outreach strategies for email campaigns
- Continue to revitalize IRWD.com




19

19

QUESTIONS?



20

February 7, 2024
Prepared and
submitted by: C. Compton
Approved by: Paul A. Cook 

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

2023 CUSTOMER SATISFACTION SURVEY RESULTS

SUMMARY:

The District conducted a customer satisfaction survey, as has been periodically done, to assist with developing new programs and public outreach campaigns to best assist and reach IRWD customers. At the Committee meeting, consultants from Fairbank, Maslin, Maullin, Metz, and Associates (FM3) will present the survey results to the Committee, and staff will discuss how the results and additional research will be used to develop future public outreach and water efficiency programs for the District.

BACKGROUND:

FM3 conducted an online and telephone survey of approximately 1,100 randomly selected IRWD residential customers for the District. The survey, conducted from November 1 to November 19, 2023, asked customers about their general perceptions of IRWD, water safety and reliability, water efficiency, and their contact and communication with IRWD. The survey results were compared to the 2018 Customer Satisfaction Survey.

FM3 will review the results with the Committee, and the results will be used to develop IRWD's future public outreach and water efficiency programs.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

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


RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

None.

Note: This page is intentionally left blank.

February 7, 2024
Prepared and
submitted by: C. Compton
Approved by: Paul A. Cook 

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

2024 LEGISLATIVE AND REGULATORY UPDATE

SUMMARY:

This report provides an update on the 2023-2024 legislative session, regulatory issues, and IRWD priorities. As legislation and regulations develop, staff will provide updates and recommendations to the Water Resources Policy and Communications Committee and the Board, as appropriate. Staff recommends the Board consider the following actions / positions:

- *AB 805 (Arambula) — Sewer Service within Disadvantaged Communities: “SEEK AMENDMENTS”;*
- *AB 1820 (Schiavo) — Housing Development Projects: Fees and Exactions: “WATCH”;*
- *AB 1827 (Papan) — Water Fees and Charges- Higher-Consumptive Water Parcels: “SPONSOR/ SUPPORT”;* and
- *SB 937 (Wiener) — Development Projects: Fees and Charges: “SEEK AMENDMENTS”.*

BACKGROUND:

January 15 was the last day for bills to be submitted to the Office of the Legislative Counsel, and January 31 was the last day for bills introduced in 2023 to be passed out of their house of origin. The bill introduction deadline this year is February 16, although resolutions and constitutional amendments can be introduced after that date. The first policy committee deadlines are in late April and early May.

A copy of the Legislative Matrix is provided as Exhibit “A”. Links to the bills discussed below are included within each discussion, unless a separate exhibit is noted.

2024 State Legislative Update:

Connection Fees and Development Impact Fees:

One of the prominent topics of discussion during the 2019, 2020, 2021 and 2022 legislative years was the lack of affordable housing in California, and that topic of discussion has returned in the 2024 legislative year.

The previous discussions related to fees were spurred by a report issued by the University of California, Berkeley’s Turner Center— the [“Residential Impact Fees In California: Current Practices and Policy Considerations to Improve Implementation of Fees Governed by the Mitigation Fee Act,”](#) (the “Turner Study”).

After the release of the Turner Study, Assemblymember Timothy Grayson (D-Concord) along with several of his colleagues proposed a number of changes to the laws governing fees charged to new housing developments, including connection fees. At the time and in 2020, 2021 and 2022, staff engaged with IRWD's associations and industry partners to seek the removal of connections fees from the scope of Assemblymember Grayson's proposals.

Again, this coming legislative year, Assemblymember Grayson joined by others has introduced legislation related to the fees charged on new housing development.

Assemblymember Pilar Schiavo (D, Santa Clarita) joined by Assemblymember Tim Grayson (D, Concord) introduced [AB 1820](#). As currently drafted, AB 1820 would permit a development proponent to request a preliminary fee and exaction estimate when it submits an application to a local government.

Senate Scott Wiener (D-San Francisco) also joined by Assemblymember Grayson introduced [SB 937](#). SB 937 seeks to change when fees related to a development are due to a local agency, and specifically makes water and sewer connection fees subject to portions of the Mitigation Fee Act. These two changes would likely impact IRWD's current connection fee process.

Staff will continue to monitor these bills and work to mitigate any impact they may have on IRWD. To position the District to best mitigate any impacts of these bills, staff recommends the Board adopt a "watch" position on AB 1820 and a "seek amendments" position on SB 937.

AB 805 (Arambula, D-Fresno) – Sewer Service within Disadvantaged Communities:

AB 805, as substantially amended on January 22, would, among other things, grant the State Water Resources Control Board (State Board) the authority to require a sewer service provider to provide administrative, technical, operational, legal, or managerial services to assist sewer systems serving a disadvantaged community if a sewer system is found by the State Board to be an inadequate sewage treatment system or a sewer system that has demonstrated difficulty in maintaining technical, managerial, and financial capacity to prevent fraud and mismanagement. The bill would also permit the State Board to order a sewer service provider to provide those services to a sewer system that voluntarily accepts financial assistance for the provision of adequate sewer service.

The State Board powers proposed by AB 805 are similar to those provided to the State Board for failing water systems. AB 805 does not have same protections for the assuming sewer system that is provided for an assume water system. For example, AB 805 does not guarantee that funding will be provided to a sewer service provider ordered to provide services to an inadequate system. The bill also does not provide liability protection for providers ordered to provide these services. AB 805 contains an urgency clause and would take effect 30 days upon passage.

Staff recommends the Board adopt a "seek amendments" position on AB 805 and authorize staff to seek amendments that would provide protections for an assuming sewer provider that are similar to those provided in existing law for assuming water providers.

AB 1827 (Papan, D-San Mateo) – Water Fees and Charges- Higher-Consumptive Water Parcels:

The first is a proposal that would establish state policy to encourage and incentivize, but not mandate, the development of emergency water supplies, and to support the use of emergency supplies during times of water shortage. The second is a proposal that would clarify existing law that the cost associated with peak water usage should be reasonably allocated to the parcels served by a water service provider in a manner that reasonably reflects the water service provider’s cost of serving higher-consumptive water parcels and low-consumptive water parcels, and that those costs could be proportionally allocated based on meter size, peaking factors or other methods consistent with Proposition 218.

ACA 16 (Bryan, D- Culver City) – Environmental Rights:

On January 25, Assemblymember Issac Bryan (D, Culver City) introduced ACA 16, a proposed constitutional amendment. ACA 16 proposes to add one sentence to the California constitution which would read: “The people have a right to clean air and water and a healthy environment.” Staff will discuss ACA 16 with the Committee and the discussion taking place within the water industry related to its potential impacts on the human right to water.

SB 908 (Cortese, D-Campbell) – Public Records- Electronic Messages:

Senate Dave Cortese (D-Campbell) introduced SB 908 on January 8. SB 908 would prohibit all public agency employees and elected or appointed officials from using an electronic messaging system to send or create an email or text message related to public business if the system is not a system used by their public agency for official business unless they send a copy of that message to the agency’s official system within 20 days. The bill would also apply similar restrictions to the Legislature. By enacting such a provision, the bill seeks to prevent the use of private email accounts and phones for texting.

Other 2024 State Legislative Updates:

Staff will also provide an oral update to the Committee on any new developments related to the following:

- Budget discussions and water infrastructure funding;
- Climate resilience bonds;
- State dam safety funding;
- Surplus Land Act changes;
- Low-income water rate assistance;
- *SB 366 (Caballero, D-Salinas) – The California Water Plan Long-Term Supply Targets;*
- IRWD’s legislative proposal related to emergency water supplies; and
- Other legislative matters of interest to the District.

2024 State and Regional Regulatory Update:

The following is a list of state and regional regulations and agency reports staff are monitoring, tracking, or planning to engage in over the next three to 12 months. As the next drafts of the regulations or reports are released for public review and comment, staff will engage, as appropriate. Staff will also provide an oral update to the Committee on any new developments related to these regulations and other regulations of interest to the District.

The pending regulations and reports actively being tracked include:

- [California Endangered Species Act Listing](#) for the Southern California Steelhead;
- California Natural Resources Agency (CNRA) [30 x 30 California Implementation](#);
- CNRA's [Water Resilience Portfolio Implementation and Resiliency 2.0 Implementation](#);
- DWR's [2023 California Water Plan Update](#);
- DWR Surface water and groundwater interconnection guidance;
- Housing and Community Development's Surplus Land Act guidelines;
- State Board's implementation of the adopted "[Cross Connection Policy Handbook](#)";
- State Board's implementation of the Lead and Copper Rule;
- State Board's "[Making Water Conservation a California Way of Life](#)" implementation;
- State Board's [Safe and Affordable Funding for Equity and Resilience \(SAFER\) Drinking Water Program](#);
- State Board's [Development of Maximum Contaminant Levels for PFAS](#);
- South Coast AQMD's [Cumulative Impacts from Air Toxics for CEQA Projects](#);
- South Coast AQMD's Tier 4 Emergency Generator Testing Policy;
- South Coast AQMD's [PAR 1146.2 Control of NOx from Large Water Heaters, Small Boilers and Process Heaters](#); and
- South Coast AQMD's [Proposed Rule 1110.4, Emissions from Emergency Generators](#).

Staff will also provide the Committee with an update on other regulatory matters of interest to the District.

2024 Federal Legislative Update:

Kern Fan Groundwater Storage Project Outreach:

IRWD's federal advocacy priority in 2024 focuses on seeking federal funding for the Kern Fan Groundwater Storage Project and advocating for an increased funding authorization for the federal Water Storage Program. Staff will provide an update on those efforts.

2023 Federal Regulatory Updates:

The following is a list of federal regulations and agency reports staff are monitoring, tracking, or planning to engage in over the next three to 12 months. As the next drafts of the regulations or report are released for public review and comment, staff will engage, as appropriate. Staff will also provide an oral update to the Committee on any new developments related to these regulations and other regulations of interest to the District.

The pending regulations and reports actively being tracked include:

- U.S. Environmental Protection Agency’s (U.S. EPA’s) [Lead and Copper Rule Improvements](#);
- U.S. EPA’s [Proposed Designation of PFOA and PFOS as CERCLA Hazardous Substances](#);
- U.S. EPA’s [Potential Future Hazardous Substances Designations of PFAS Under CERCLA](#);
- U.S. EPA’s [Proposed PFAS National Primary Drinking Water Regulation](#);
- U.S. EPA’s [Consumer Confidence Report Rule Revisions](#); and
- Bureau of Reclamation’s [Post-2026 Colorado River Reservoir Operational Guidelines and Strategies for Lake Powell and Lake Mead](#).

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

The Board adopt a “sponsor/support” position on AB 1827 (Papan), a “seek amendments” position on AB 805 (Arambula) and SB 937 (Weiner), and a “watch” position on AB 1820 (Schiavo).

LIST OF EXHIBITS:

Exhibit “A” – IRWD Legislative Matrix

Note: This page is intentionally left blank.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 122 (Budget)	Public Resources Trailer Bill		Expresses the intent of the Legislature that the administration conduct an assessment of offshore wind energy permitting and related resource needs across applicable State entities, including, but not limited to, the Energy Commission, the State Lands Commission, the California Coastal Commission, and the State Coastal Conservancy. States that the outcomes of the assessment may be considered as part of a future budget. Appropriates funds.	08/14/2023 - Re-referred to SENATE Committee on BUDGET AND FISCAL REVIEW.
AB 270 (Lee)	Political Reform Act of 1974: Public Campaign Financing		Permits a public officer or candidate to expend or accept public moneys for the purpose of seeking elective office if the State or a local governmental entity established a dedicated fund for this purpose. Prohibits the public moneys for this dedicated fund from being taken from public moneys that are earmarked for education, transportation, or public safety. Provides that this restriction would not apply to charter cities.	06/14/2023 - To SENATE Committees on ELECTIONS AND CONSTITUTIONAL AMENDMENTS and APPROPRIATIONS.
AB 277 (Rodriguez)	Extreme Weather Forecast and Threat Intelligence Center		Establishes the State-Federal Flood Operations Center within the Department of Water Resources and authorizes the department to administer the center in the department's divisions, offices, or programs. Requires the department and the Office of Emergency Services, in consultation with cooperating agencies, to develop and submit a report to the Legislature on or before specified date that outlines necessary technological advancements for agile forecasting and gaps in data that would improve flood response.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 295 (Fong)	Department of Transportation: Maintenance Projects		Requires the Department of Transportation to expedite roadside maintenance for specified projects related to roadside maintenance and the removal and clearing of material. Authorizes local governmental entities, fire protection districts, fire safe councils, and tribal entities to notify the department of those projects that have not been completed in an efficient and timely manner. Requires the Division of Maintenance to begin the maintenance project within a specified number of days.	07/11/2023 - In SENATE Committee on TRANSPORTATION: Not heard.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 305 (Villapudua)	California Flood Protection Bond Act of 2024	Support	Enacts the California Flood Protection Bond Act of 2024 which, if approved by the voters, would authorize the issuance of bonds in the specified amount pursuant to the State General Obligation Bond Law for flood protection projects. Provides for the submission of these provisions to the voters at the specified statewide general election.	06/14/2023 - To SENATE Committees on NATURAL RESOURCES AND WATER and GOVERNANCE AND FINANCE.
AB 311 (Santiago)	Food Assistance Program: Eligibility and Benefits		Removes a specified age limitation and makes any individual eligible for the program if the individual's immigration status is the sole basis for their ineligibility for CalFresh benefits.	06/14/2023 - To SENATE Committee on HUMAN SERVICES.
AB 347 (Ting)	Household Product Safety: Toxic Substances		Requires the Department of Toxic Substances Control to adopt guidance regarding the perfluoroalkyl and polyfluoroalkyl substances prohibition and the internet posting and labeling requirements for cookware, and to post that guidance on its internet website by specified date. Requires the department to select and test at least a specified number but no more than a certain number of random samples of food packaging and cookware for compliance with those PFAS prohibitions.	09/11/2023 - In SENATE. Read second time. To third reading.;09/11/2023 - In SENATE. From third reading. To Inactive File.
AB 388 (Connolly)	California's Wildfire and Forest Resilience		Requires the Department of Conservation, in consultation with the Wildfire and Forest Resilience Task Force and member agencies, to establish guidelines for funding the implementation of regional priority strategies and to establish regional investment strategies to identify and align resources that support implementation of regional priority strategies that contribute to the goals and key actions identified in California's Wildfire and Forest Resilience Action Plan issued by the task force in January 2021.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 408 (Wilson)	Climate Resilient Farms		Enacts the Climate-Resilient Farms, Sustainable Healthy Food Access, and Farmworker Protection Bond Act of 2024, which, if approved by the voters, would authorize the issuance of bonds to finance programs related to, among other things, agricultural lands, food and fiber infrastructure, climate resilience, agricultural professionals, including farmers, ranchers, and farmworkers, workforce development and training, air quality, tribes, disadvantaged communities, nutrition, and food aid.	09/01/2023 - In SENATE Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
AB 453 (Cervantes)	District-Based Elections		Requires a public hearing concerning district-based elections that is consolidated with a meeting of the governing body of the political subdivision that includes other substantive agenda items, to begin at a fixed time regardless of its order on the agenda.	05/10/2023 - To SENATE Committees on ELECTIONS AND CONSTITUTIONAL AMENDMENTS and GOVERNANCE AND FINANCE.
AB 457 (Patterson J)	Surplus Land Act: Exempt Surplus Land: Leases	Watch	Provides that the disposal of exempt surplus land is not subject to certain requirements. Expands definition of exempt surplus land to include a parcel that is identified in the local agency's circulation element or capital improvement program for future roadway development, is no larger than a specified number of acres, is zoned for retail commercial use, and the use of the parcel is consistent with the underlying zoning, and abuts a State highway right-of-way. Makes other nonsubstantive changes.	09/13/2023 - In ASSEMBLY. Ordered returned to SENATE. *****To SENATE.
AB 460 (Bauer-Kahan)	State Water Resources Control Board: Water Rights		Authorizes the State Water Resources Control Board to issue, on its own motion or upon the petition of an interested party, an interim relief order to a diverter or user of water in adjudicative proceedings to apply or enforce specified provisions of law related to water rights and quality.	06/27/2023 - In SENATE Committee on NATURAL RESOURCES AND WATER: Not heard.
AB 468 (Quirk-Silva)	State Building Standards		Requires the housing or building department or, if there is no building department, the health department, of every city or county or a specified environmental agency to enforce within its jurisdiction all of the State Housing Law and State Building	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			Standards Code. Provides that if an enforcement agency determines that a building is substandard based solely on the building being occupied, the agency is prohibited from commencing proceedings to abate the violation by repair if specified conditions are met.	
AB 518 (Wicks)	Paid Family Leave: Eligibility		Expands eligibility for benefits under the paid family leave program to include individuals who take time off work to care for a seriously ill designated person. Defines designated person to mean any individual related by blood or whose association with the employee is the equivalent of a family relationship. Authorizes the employee to identify the designated person when they file a claim for benefits.	09/13/2023 - In SENATE. From third reading. To Inactive File.
AB 527 (Calderon)	Urban Forestry: School Greening Projects: Grants		Provides that the California Urban Forestry Act of 1978 requires the Department of Forestry and Fire Protection to implement a program in urban forestry to encourage better tree management and planting in urban areas. Requires funds to be administered to support school greening by providing grants to eligible local educational agencies, nonprofit organizations, cities, counties, and districts, through a competitive grant process developed by the department. Requires the department to develop guidelines.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 544 (Bryan)	Voting: County Jails		Requires the Secretary of State to, upon appropriation of funds for this purpose, operate a program to provide grants to a specified number of counties to improve voter participation in jail facilities. Requires, in counties administering grants, the county sheriff or jail facility administrator to designate an employee as a voting coordinator at each facility who will be responsible for, among other things, ensuring compliance with requirements pertaining to polling locations.	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 560 (Bennett)	Sustainable Groundwater Management Act		Requires the parties to an adjudication action to submit a proposed settlement agreement determining rights to water to the State Water Resources Control Board for a nonbinding advisory determination as to whether the proposed settlement agreement will substantially impair the ability of a groundwater sustainability agency, the board, or the Department of Water Resources to achieve sustainable groundwater management before filing the proposed settlement agreement with the court.	09/01/2023 - In SENATE Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
AB 573 (Garcia E)	Organic Waste: Meeting Recovered Organic Waste Product		Provides that existing law requires the State Air Resources Board to approve and begin implementing a comprehensive short-lived climate pollutant strategy to achieve a certain reduction in statewide emissions of methane. Requires the Department of Resources Recycling and Recovery to allow a local jurisdiction, in procuring recovered organic waste products to meet procurement requirements, to use California-derived recovered organic waste that the local jurisdiction sends for processing outside of the State.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 593 (Haney)	Carbon Emission Reduction Strategy: Building Sector		Requires the State Energy Resources Conservation and Development Commission to adopt a strategy, with milestones, to reduce emissions of greenhouse gases for the building sector. Requires the commission, in developing the strategy, to consult and collaborate with certain entities, to hold at least a specified number of public workshops, and to convene stakeholder sessions.	09/01/2023 - In SENATE Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
AB 609 (Papan)	Office of Wildfire Technology Research and Development		Requires the Office of Wildfire Technology Research and Development to submit a report to the Legislature that assesses the feasibility of the Department of Forestry and Fire Protection and the Office of Emergency Services, working with the National Interagency Aviation Committee and the International Airtanker Board, to conduct an evaluation of innovative new aerial	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			firefighting technologies and whether any new technologies exist that might meet CAL FIRE standards of water and retardant delivery systems.	
AB 627 (Jackson)	Drayage Trucks: Voucher Incentive Project		Provides that the Air Resources Board administers the California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project under which the agency issues a limited number of vouchers to incentivize the purchase and use of zero-emission commercial vehicles. Requires the board to ensure that a voucher for the purchase of a new, or the retrofit of a used, drayage truck is provided to an operator in an amount determined pursuant to a sliding scale based on the number of drayage trucks the operator owns.	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.
AB 749 (Irwin)	State Agencies: Information Security: Uniform Standards		Requires every State agency, as defined and subject to specified exceptions, to implement Zero Trust architecture for all data, hardware, software, internal systems, and essential third-party software, including for on-premises, cloud, and hybrid environments, to achieve prescribed levels of maturity based on the Cybersecurity and Infrastructure Security Agency (CISA) Maturity Model by specified dates.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 754 (Papan)	Water Management Planning: Water Shortages	Watch	Relates to the Urban Water Management Planning Act. Requires a water shortage contingency plan to include, if, based on a description and quantification of each source of water supply, a single reservoir constitutes at least a specified percent of the total water supply, an identification of the dam and description of existing reservoir management operations, and, if the reservoir is owned and operated by the urban water supplier, a description of operational practices and approaches.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 788 (Petrie-Norris)	Fire Prevention: Grant Programs: Reporting		Requires the Wildfire and Forest Resilience Task Force, on or before specified date, and annually thereafter, to compile and post on its internet website specified information relating to specified State and federal grant programs relating to fire prevention.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 805 (Arambula)	Sewer Service: Disadvantaged Communities		Authorizes the State Water Resources Control Board to require a sewer service provider to contract with an administrator designated or approved by the State Board for administrative, technical, operational, legal, or managerial services to assist a designated sewer system with the provision of adequate sewer service. Requires the State Board to take specified actions before determining that a sewer service provider is a designated sewer system. Appropriates funds.	01/30/2024 - In ASSEMBLY. Read third time, urgency clause adopted. Passed ASSEMBLY. *****To SENATE.
AB 817 (Pacheco)	Open Meetings: Teleconferencing: Subsidiary Body		Provides that the Ralph M. Brown Act requires, with specified exceptions, each legislative body of a local agency to provide notice of the time and place for its regular meetings. Provides that existing law authorizes the legislative body of a local agency to use alternate teleconferencing provisions during a proclaimed state of emergency. Authorizes, until specified date, a subsidiary body to use alternative teleconferencing provisions and imposes requirements for notice, agenda, and public participation.	01/25/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.
AB 824 (Calderon)	Highway Greening: Statewide Strategic Plan		Enacts the Highway Greening Act, which would require the Department of Transportation to complete a statewide strategic plan to work to achieve at least a specified percent increase of green highways in urban areas, disadvantaged communities, and low-income communities by specified year. Requires the department to submit the plan to the Legislature and specified committees of the Legislature on or before specified date.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 828 (Connolly)	Sustainable Groundwater Management: Managed Wetlands		Adds various defined terms for purposes of the Sustainable Groundwater Management Act, including the terms managed wetland and small community water system. Provides that existing law grants a groundwater sustainability agency specified authority and authorizes a groundwater sustainability agency to regulate groundwater extraction using that authority. Prohibits a groundwater sustainability agency from using that authority under specified circumstances.	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.
AB 830 (Soria)	Lake and Streambed Alteration Agreements: Exemptions		Provides that existing law prohibits a person, a state or local governmental agency, or a public utility from substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake. Exempts the temporary operation of existing infrastructure or temporary pumps being used to divert flood stage flows or near-flood stage flows to groundwater recharge as long as certain conditions are met.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 837 (Alvarez)	Surplus Land: Exempt Surplus Land		Provides, until specified date, that land that is subject to a sectional planning area is not subject to specified requirements for the disposal of surplus land if specified conditions are met. Requires a local agency that disposes of land pursuant to these provisions to submit a specified report to the Department of Housing and Community Development.	06/07/2023 - To SENATE Committees on GOVERNANCE AND FINANCE and HOUSING.
AB 841 (Berman)	State Energy Resources Conservation and Development		Requires the State Energy Resources Conservation and Development Commission to submit to the Legislature an Industrial Heat Electrification Roadmap. Authorizes the commission to consult with the State Air Resources Board to include in the roadmap an estimate of the reductions in emissions of greenhouse gases and criteria air pollutants, and commensurate health benefits, from electrifying the identified industrial subsectors.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 868 (Wilson)	Political Reform Act of 1974: Digital Political Ads		Enacts the Digital Advertisement Transparency and Accountability Act, or DATA Act. Requires a committee that pays for a digital advertisement to appear on an online platform to submit to the Fair Political Practices Commission a copy of the digital advertisement and specified information. Requires an online platform to transmit to the commission specified information regarding digital advertisements, and to retain the information for no less than a specified number of years for specified purposes.	09/01/2023 - In SENATE Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
AB 914 (Friedman)	California Environmental Quality Act: Review Time		Requires a State agency acting as the lead agency, until specified date, to complete its environmental review for an electrical infrastructure project and to approve or deny the project within a specified number of years of the submission and acceptance of a complete application for the issuance of a lease, permit, license, certificate, or other entitlement for use for electrical infrastructure to the State agency.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 923 (Bauer-Kahan)	Flood Plain Restoration Projects: Central Valley: Study		Requires the Central Valley Flood Protection Board, in coordination with the Department of Water Resources, to identify priority flood plain restoration or floodway expansion projects where increased flows due to climate change are likely to overwhelm existing flood protection infrastructure. Requires the department and the board to conduct broad stakeholder outreach to identify priority projects and would require that those projects provide at least a specified number of public benefits.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 930 (Friedman)	Local Government: Reinvestment in Infrastructure		Authorizes a special district to join a Reinvestment in Infrastructure for a Sustainable and Equitable California district. Requires the Office of Planning and Research to develop guidelines for the formation of RISE districts. Requires the guidelines to require a RISE development plan to provide that at	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			least a specified percent of the total funding received by the district be spent on residential units created within the district that are restricted to persons and families of low or moderate income.	
AB 998 (Connolly)	Biomass Energy Facilities: State Energy Commission		Requires the State Energy Resources Conservation and Development Commission, on or before specified date to issue a report on the utility-scale biomass combustion facilities still in operation as of specified date. Requires the report to include various assessments of biomass combustion facilities still in operation as of specified date, and options to maximize the environmental benefits of these facilities.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 1024 (Aguiar-Curry)	Water Rights: Small Irrigation Use		Exempts an entity from the requirement to enter into a lake or streambed alteration agreement with the Department of Fish and Wildlife if the entity submits a State Water Resources Control Board-approved registration or renewed or amended registration for water use in specified counties to the department and the department determines certain requirements are met. Limits the number of these registrations to a specified amount for the first year of implementation.	09/01/2023 - In SENATE Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
AB 1170 (Valencia)	Political Reform Act of 1974: Filing Requirements		Relates to the Political Reform Act, which requires elected officials, candidates for elective offices, and committees formed primarily to support or oppose a candidate for public office or a ballot measure to file periodic campaign statements and certain reports concerning campaign finances and related matters. Permits a filing officer to retain a report or statement filed in a paper format as a copy on microfilm or other space-saving materials or as an electronic copy without a two-year waiting period.	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1176 (Zbur)	General Plans: Local Electrification Planning Act		Provides for the Local Electrification Planning Act, which would require a city, county, or city and county to prepare and adopt a specified plan, or otherwise integrate a plan into the general plan that, among other things, identifies opportunities to expand electric vehicle charging to meet the needs of the city's, county's, or city and county's current and future visitors, residents, and businesses, and includes policies and implementation measures that address the needs of disadvantaged communities.	06/28/2023 - In SENATE Committee on GOVERNANCE AND FINANCE: Not heard.
AB 1205 (Bauer-Kahan)	Water Rights: Sale, Transfer, or Lease: Agricultural		Requires the State Water Resources Control Board to, on or before specified date, conduct a study and report to the Legislature and appropriate policy committees on the existence of speculation or profiteering by an investment fund in the sale, transfer, or lease of an interest in any surface water right or groundwater right previously put to beneficial use on agricultural lands.	09/11/2023 - In SENATE. From third reading. To Inactive File.
AB 1211 (Mathis)	Safe Drinking Water State Revolving Fund		Relates to existing law which requires the State Water Resources Control Board, at least once every 2 years, to post information on its internet website regarding implementation of the Safe Drinking Water State Revolving Fund Law and expenditures from the Safe Drinking Water State Revolving Fund. Requires the board to post the information at least annually.	05/10/2023 - To SENATE Committee on ENVIRONMENTAL QUALITY.
AB 1246 (Nguyen)	Public Employees' Retirement System Optional Settlement		Provides that existing law permits a member of the Public Employees' Retirement System to elect from among several other optional settlements for the purpose of structuring their retirement allowance. Permits a member who elected to receive a specified optional settlement at retirement, if the member's former spouse was named as beneficiary and a legal judgment awards only a portion of the interest in the retirement system to the member, to elect to add their new spouse as the beneficiary.	09/11/2023 - In SENATE. From Special Consent Calendar. To Inactive File.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1272 (Wood)	State Water Resources Control Board: Drought Planning		Requires the State Water Resources Control Board, in consultation with the Department of Fish and Wildlife, to adopt principles and guidelines for diversion and use of water in coastal watersheds during times of water shortage for drought preparedness and climate resiliency. Authorizes the state board to issue a cease and desist order when a diversion or use violates or threatens to violate an applicable principle or guideline adopted by the state board for the diversion and use of water.	09/14/2023 - Withdrawn from Enrollment.;09/14/2023 - In ASSEMBLY. Ordered returned to SENATE. *****To SENATE.
AB 1284 (Ramos)	Tribal Ancestral Lands and Waters: Cogovernance		Encourages the Natural Resources Agency to enter into cogovernance and comanagement agreements with federally recognized tribes. Authorizes the Secretary of the Agency or a delegate to enter into agreements with federally recognized tribes for the purposes of shared responsibility, decision making, and partnership in resource management and conservation within a tribes ancestral lands and waters. Requires the secretary or a delegate to be the signatory for the State for such agreements.	01/29/2024 - In ASSEMBLY. Read third time. Passed ASSEMBLY. *****To SENATE.
AB 1297 (Quirk-Silva)	Public Restrooms		Requires each local government to complete an inventory of public restrooms owned and maintained by the local government that are available to the general population in its jurisdiction. Requires governments to report their findings to the State Department of Public Health, which would be required to compile the information and to report the availability of public restrooms to the Legislature. Requires the Legislature to consider the report when evaluating the public's access to reliable public restrooms.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 1318 (Rivas)	California Environmental Quality Act: Exemption		Expands the CEQA exemption by increasing the size of a residential project that would qualify for the exemption to include a project of not more than 5 acres in total area.	05/31/2023 - To SENATE Committees on ENVIRONMENTAL QUALITY and HOUSING.
AB 1337 (Wicks)	State Water Resources Control Board: Water Diversion	Watch	Expands the instances when the diversion or use of water is considered a trespass. Authorizes the State Water Resources Control Board to issue a curtailment order for any diversion,	07/10/2023 - In SENATE Committee on NATURAL RESOURCES AND WATER: Not heard.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			regardless of basis of right, when water is not available under the diverter's priority of right. Requires the board to adopt regulations to implement this provision.	
AB 1348 (Grayson)	State Government: Controller: Claims Audits		Relates to the Government Claims Act, which requires the presentation of all claims for money or damages against local public entities and the State. Authorizes the Controller to conduct financial and compliance audits as the Controller's office deems as necessary for purposes of ensuring that any expenditures are expended in a manner consistent with the law and the voters' intent. Requires the Controller to provide a report with specified information from these audits to the Legislature.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 1349 (Irwin)	Electric Vehicle Charging Station Networks: Data Fields		Requires owners, operators, and infrastructure developers of electric vehicle charging stations, except for charging stations located at residential dwellings, for which those parties are awarded a State grant to support the electric vehicle charging stations to ensure that specified data fields for the owner's or operator's entire network of electric vehicle charging stations in the State are made available, free of charge, to third-party software developers through an application programming interface.	07/03/2023 - In SENATE Committee on ENERGY, UTILITIES AND COMMUNICATIONS: Not heard.
AB 1465 (Wicks)	Nonvehicular Air Pollution: Civil Penalties		Provides that existing law establishes maximum civil penalties for a person who violates air pollution laws from nonvehicular sources. Requires, in assessing penalties, that health impacts, community disruptions, and other circumstances related to the violation be considered. Requires that civil penalties for a violation be assessed and recovered in a civil action brought by the Attorney General, by any district attorney, or by the attorney for any district in which the violation occurs.	09/06/2023 - In SENATE. From third reading. To Inactive File.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1546 (Gabriel)	CA Consumer Privacy Act of 2018: Statute of Limitations		Requires an action by the Attorney General to enforce the California Consumer Privacy Act to be commenced within a specified number of years after the cause of action accrued.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 1563 (Bennett)	Groundwater Sustainability Agency: Extraction Permits		Provides that the Sustainable Groundwater Management Act requires all groundwater basins designated as high or medium-priority basins by the Department of Water Resources to be managed under a groundwater sustainability plan or coordinated plans, with specified exceptions. Requires a county to forward permit requests for the construction of new groundwater wells, the enlarging of existing wells, and the reactivation of abandoned wells to the groundwater sustainability agency before permit approval.	07/12/2023 - In SENATE Committee on GOVERNANCE AND FINANCE: Not heard.
AB 1567 (Garcia E)	Safe Drinking Water, Wildfire Prevention, Drought Prep	Support and Amend	Enacts the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, Clean Energy, and Workforce Development Bond Act of 2024, which, if approved by the voters, would authorize the issuance of bonds in a specified amount to finance projects for safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, clean energy, and workforce development programs.	06/14/2023 - To SENATE Committees on NATURAL RESOURCES AND WATER and GOVERNANCE AND FINANCE.
AB 1573 (Friedman)	Water Conservation: Landscape Design: Model Ordinance	Seek Amendments	Provides that the Water Conservation in Landscaping Act provides for a Model Water Efficient Landscape Ordinance that is adopted and updated at least every specified number of years. Requires the model ordinance, at the next update initiated after specified date, to require that all new or renovated nonresidential areas install in the project footprint not less than a specified percent of California native plants, and to prohibit the inclusion of nonfunctional turf in nonresidential landscape projects.	09/07/2023 - In SENATE. From third reading. To Inactive File.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1581 (Kalra)	Diversion or Obstruction of Rivers, Streams, or Lakes		Exempts certain individuals, agencies, universities, zoological gardens, and institutions authorized to import, export, take, or possess any endangered, threatened, or candidate species for scientific, educational, or management purposes from the required agreement with the Department of Fish and Wildlife. Requires entities to submit to the department a written notification, fee, and a copy of proposed environmental protection measures authorized by other agencies' habitat restoration permits.	06/14/2023 - To SENATE Committee on NATURAL RESOURCES AND WATER.
AB 1688 (Sanchez)	Voter Registration: Cancellation: Deceased Persons		Provides that existing law requires the Secretary of State to adopt regulations to facilitate the availability of death statistics from the State Department of Health Services for use by the Secretary of State and county elections officials to cancel affidavits of registration of deceased persons. Authorizes the Secretary of State to also seek an agreement with the federal Social Security Administration to facilitate the availability of death statistics from that agency.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
AB 1712 (Irwin)	Personal Information: Data Breaches		Provides that the Information Practices Act requires any agency that owns or licenses computerized data that includes personal information to disclose any breach of the security of the system following discovery or notification of the breach. Requires the security breach notification to include the websites of the major credit reporting agencies and the Uniform Resource Locator for the main internet website operated by the Federal Trade Commission to provide information for victims of identity theft.	06/14/2023 - To SENATE Committee on JUDICIARY.
AB 1757 (Judiciary)	Accessibility: Internet Websites		Provides that existing law imposes liability upon a person, firm, or corporation that denies or interferes with admittance to, or enjoyment of, public facilities or otherwise interferes with the rights of an individual with a disability for damages and attorney's fees. Provides that a website is presumed to provide equally effective communication and to facilitate full and equal	08/15/2023 - From SENATE Committee on APPROPRIATIONS with author's amendments.;08/15/2023 - In SENATE. Read second time and amended. Re-referred to Committee on APPROPRIATIONS.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: January 31, 2024

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			enjoyment for the purpose of determining whether an award of damages is warranted if the website has a certain certification.	
AB 1781 (Waldron)	State Mandates: Claims		Changes the minimum claim for reimbursement for a state mandate to \$800.	01/16/2024 - To ASSEMBLY Committee on LOCAL GOVERNMENT.
AB 1782 (Ta)	Redevelopment: Successor Agencies: Housing Asset Fund		Increases the amount that a housing successor may expend on homeless prevention and rapid rehousing services to \$500,000. The bill would require the Department of Housing and Community Development to publish on its internet website an adjustment to the amount that may be expended by a housing successor to reflect any change in the Consumer Price Index for All Urban Consumers.	01/16/2024 - To ASSEMBLY Committees on HOUSING AND COMMUNITY DEVELOPMENT and LOCAL GOVERNMENT.
AB 1784 (Pellerin)	Elections: Multiple Candidacies		States the intent of the Legislature to enact legislation clarifying that a person is prohibited from filing nomination documents for more than one office at the same election.	01/03/2024 - INTRODUCED.
AB 1785 (Pacheco)	California Public Records Act		Defines home address, for purposes of the California Public Records Act, to include an assessor’s parcel number, which may be converted to a physical address through reference to other information made available online by the state or local agency.	01/16/2024 - To ASSEMBLY Committee on JUDICIARY.
AB 1795 (Carrillo)	Primary Elections: Dual Candidacies		Clarifies that a candidate is prohibited from filing nomination documents for more than one office at the same primary election.	01/04/2024 - INTRODUCED.
AB 1798 (Papan)	Department of Transportation: Contaminated Stormwater		Requires the Department of transportation, in consultation with the State Water Resources Control Board, the Department of Toxic Substances Control, and the Department of Fish and Wildlife, to develop a programmatic environmental review	01/22/2024 - To ASSEMBLY Committees on TRANSPORTATION and ENVIRONMENTAL SAFETY AND TOXIC MATERIALS.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			process to prevent 6PPD and 6PPD-quinone from entering salmon and steelhead trout bearing surface waters of the state.	
AB 1819 (Waldron)	Enhanced Infrastructure Financing Districts: Wildfires		Authorizes an enhanced infrastructure financing district that are at least partially in high or very high fire hazard severity zones designated by the State Fire Marshal to finance heavy equipment to be used for vegetation clearance and firebreaks, fortification of utilities against wildfires, and equipment used for fire watch, prevention, and fighting.	01/22/2024 - To ASSEMBLY Committee on LOCAL GOVERNMENT.
AB 1820 (Schiavo)	Housing Development Projects: Applications: Fees		Authorizes a development proponent that submits a preliminary application for a housing development project to request a preliminary fee and exaction estimate. Requires a local agency to comply with the request within 10 business days of the submission of the preliminary application, except as specified.	01/29/2024 - To ASSEMBLY Committees on HOUSING AND COMMUNITY DEVELOPMENT and LOCAL GOVERNMENT.
AB 1827 (Papan)	Local Government: Fees and Charges: Water		Provides that the fees or charges for property-related water service imposed or increased may include the incrementally higher costs of water service due to specified factors, including the higher water usage demand of parcels. Provides that the costs associated with higher water usage demands, the maximum potential water use, or a projected peak water usage demand may be allocated using any method that reasonably assesses the water service provider's cost of serving the parcels that are increasing demand.	01/29/2024 - To ASSEMBLY Committee on LOCAL GOVERNMENT.
AB 1829 (Patterson)	Electricity: Certificate of Public Convenience		Requires the Public Utilities Commission to issue a decision on an application for a certificate of public convenience and necessity within 18 months of the filing of a completed application for building or upgrading an electrical transmission line that is reasonably necessary to facilitate the achievement of the state's renewable energy policy.	01/29/2024 - To ASSEMBLY Committee on UTILITIES AND ENERGY.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1851 (Holden)	Drinking Water: Schoolsites: Lead Testing Pilot Program		Requires the Superintendent of Public Instruction to contract with a nonprofit technical assistance organization, for purposes of a pilot program applicable to unspecified school districts, to sample all potable water system outlets on the campuses of the school district for lead contamination, except as provided, and to identify and remediate any potable water system outlet emitting water containing lead levels in excess of 5 parts per billion.	01/29/2024 - To ASSEMBLY Committees on ENVIRONMENTAL SAFETY AND TOXIC MATERIALS and EDUCATION.
AB 1854 (Schiavo)	Service Member Protections		Relates to existing law which authorizes a member of the United States Army Reserve or the National Guard who is called to active duty to defer payments on certain obligations while serving on active duty. Authorizes the notice of deferral to specify a different date after which payments will be suspended. Requires a request for deferral to be submitted not later than 180 days following the period of active duty on which the deferral is based.	01/29/2024 - To ASSEMBLY Committee on MILITARY AND VETERANS AFFAIRS.
AB 1857 (Jackson)	State Air Resources Board: Air Quality Regulation		Requires the State Air Resources Board to adopt regulations to improve air quality in population centers located in valleys and would require each local air district to implement those regulations with regard to stationary sources located within its jurisdiction.	01/29/2024 - To ASSEMBLY Committee on NATURAL RESOURCES.
AB 1866 (Hart)	Oil and Gas: Idle Wells		Eliminates the schedule of fees for idle wells, including all fees for deposit into the Hazardous and Idle-Deserted Well Abatement Fund, and would instead require the operator of any idle well, as defined, to file a plan with the State Oil and Gas Supervisor to provide for the management and elimination of all idle wells. The bill would require the plan to require the operator to consider specified factors when prioritizing idle wells for testing or plugging and abandonment.	01/29/2024 - To ASSEMBLY Committee on NATURAL RESOURCES.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1868 (Friedman)	Property Taxation: Assessments: Affordable Housing		Establishes, for purposes of valuing property by the county assessor, a rebuttable presumption that, at the time of purchase, the value of real property subject to a recorded contract that meets the specified requirements is no greater than the sum of the value of the first mortgage and any applicable down payment.	01/29/2024 - To ASSEMBLY Committee on REVENUE AND TAXATION.
AB 1879 (Gipson)	Electronic Signatures		Requires, at the option of the parties in any written communication with a public entity, the use or acceptance of an electronic signature, unless otherwise provided. Provides that a digital signature would also have the same force and effect as the use of a manual signature if it complies with specified requirements and the public entity's use of a digital signature is mandated.	01/22/2024 - INTRODUCED.
AB 1881 (Davies)	California Coastal Commission: Membership		Requires the representative appointed by the Governor to the California Coastal Commission to either have the qualification described in existing law or have a professional background in geology, environmental engineering, or carpentry or building and construction trades.	01/22/2024 - INTRODUCED.
AB 1889 (Friedman)	General Plan: Wildlife Connectivity Element		Requires a general plan to include a wildlife connectivity element, or related goals, policies, and objectives integrated in other elements, that considers the effect of development within the jurisdiction on fish, wildlife, and habitat connectivity. Requires the wildlife connectivity element to, among other things, identify and analyze connectivity areas, permeability, and natural landscape areas within the jurisdiction.	01/22/2024 - INTRODUCED.
AB 1890 (Patterson J)	Public Works: Prevailing Wage		Relates to existing law which requires an entity awarding a public works contract to provide notice to the Department of Industrial Relations. Requires the awarding body to provide notice to the department if there is a change in the identity of a contractor or	01/22/2024 - INTRODUCED.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			subcontractor performing the project or, within 30 days, if the total amount of the contract change exceeds \$10,000.	
AB 1893 (Wicks)	Housing Accountability Act: Housing Disapprovals		Authorizes a local agency to disapprove or conditionally approve a housing development project for very low, low-, or moderate-income households if it makes a finding that the local agency has failed to adopt a revised housing element that is in substantial compliance with the Housing Element Law, and the housing development project is proposed for a site zoned for residential use or residential mixed-use development.	01/23/2024 - INTRODUCED.
AB 1894 (Ta)	Nonvehicular Air Pollution: Civil Penalties		Requires an air pollution control district to provide a person with a period of not less than 30 days to rectify a violation of air pollution laws before the person may be subject to specified civil penalties.	01/23/2024 - INTRODUCED.
AB 1897 (Flora)	Civil Actions: Prevailing Defendant: Attorney's Fees		Requires a court, whenever a defendant prevails in a civil action, to award reasonable attorney's fees to a prevailing defendant against the plaintiff upon a finding by the court that the plaintiff's prosecution of the action was not in good faith.	01/23/2024 - INTRODUCED.
AB 1921 (Papan)	Energy: Renewable Electrical Generation Facilities		Expands the definition of a renewable electrical generation facility to include a facility that uses linear generators using renewable fuels and meets other specified requirements.	01/25/2024 - INTRODUCED.
AB 1928 (Sanchez)	Worker Classification: Employees & Independent Contract		Repeals provisions that codify the ABC test. Declares that its purpose is to suspend and nullify the California Supreme Court's decision in Dynamex and provide that this decision does not apply for purposes of California law.	01/25/2024 - INTRODUCED.
AB 1951 (Fong)	California Environmental Quality Act: Exemption		Exempts from the California Environmental Quality Act (CEQA) a project for wildfire prevention within 50 feet of either side of a roadway.	01/29/2024 - INTRODUCED.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
AB 1953 (Villapudua)	Vehicles: Weight Limits		Clarifies that the maximum gross vehicle weight for a near-zero-emission vehicle or a zero-emission vehicle is 82,000 pounds.	01/29/2024 - INTRODUCED.
ACA 2 (Alanis)	Public Resources: Water and Wildfire Resiliency Act		Establishes the Water and Wildfire Resiliency Fund within the State Treasury, and would require the Treasurer to annually transfer an amount equal to 3% of all state revenues that may be appropriated as described from the General Fund to the Water and Wildfire Resiliency Fund. Requires the moneys in the fund to be appropriated by the Legislature and requires that 50% of the moneys in the fund be used for water projects, and that the other 50% of the moneys in the fund be used for forest maintenance.	04/20/2023 - To ASSEMBLY Committees on WATER, PARKS AND WILDLIFE and NATURAL RESOURCES.
ACA 16 (Bryan)	Environmental Rights		Amends the California Constitution to declare that the people have a right to clean air and water and a healthy environment.	01/25/2024 - INTRODUCED.
SB 74 (Dodd)	State Entities: State-Owned or State-Issued Devices		Requires State agencies, when implementing social media and cybersecurity policies pursuant to the Statewide Information Management Manual and authorizing any agency installation or download of an application for a particular social media platform on a State-issued or State-owned electronic device for an official State purpose, to adopt risk mitigation strategies tailored to risks posed by that social media platform.	09/06/2023 - In ASSEMBLY. To Inactive File.
SB 231 (Hurtado)	Department of Water Resources: Water Supply Forecasting		Requires the Department of Water Resources to inventory its existing drought mitigation and response plans and submit a report to the Legislature identifying these plans and their purposes by specified date. Requires the report to include a recommendation on whether there is a need for a new comprehensive, long-term plan for mitigating and responding to the effects of drought at the State level.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: January 31, 2024

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
SB 233 (Skinner)	Electric Vehicles and Electric Vehicle Supply Equipment		Requires the Energy Commission, in consultation with the state board and the Public Utilities Commission, to convene a stakeholder workgroup to examine challenges and opportunities associated with using battery electric vehicle and bidirectional electric vehicle service equipment as a mobile battery to power a home or building or to provide electricity to the electrical grid, and require the Energy Commission, in consultation with the stakeholder workgroup to submit a report to the Governor and Legislature.	09/13/2023 - In ASSEMBLY. To Inactive File.
SB 248 (Newman)	Political Reform Act of 1974: Disclosures		Requires a candidate for elective office to file, when the candidate files a declaration of candidacy, a form to disclose the candidate's prior education and work history, and history of military service, if any. Requires the Fair Political Practices Commission to create a form for this purpose. Requires the Secretary of State to post on its website a copy of completed forms submitted by candidates, making such forms available to the public for a specified number of years from the date of the election.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 251 (Newman)	Candidates' Statements: False Statements		Provides that existing law prohibits a candidate for nonpartisan elective office, or an incumbent in a recall election, to knowingly make a false statement of material fact in the candidate's statement with the intent to mislead the voters in connection with the candidate's campaign for nomination or election to an office. Provides that a violation of this prohibition is punishable by a fine. Increases the maximum fine amount.	01/16/2024 - In SENATE. Read third time. Passed SENATE. *****To ASSEMBLY.
SB 252 (Gonzalez)	Public Retirement Systems: Fossil Fuels: Divestment		Prohibits the boards of the Public Employees' Retirement System and the State Teachers' Retirement System from making new investments or renewing existing investments of public employee retirement funds in a fossil fuel company. Requires the boards to liquidate investments in a fossil fuel company on or before specified date. Suspends, temporarily, the liquidation provision	06/08/2023 - To ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			upon a good faith determination by the board that certain conditions materially impact normal market mechanisms for pricing assets.	
SB 265 (Hurtado)	Cybersecurity Preparedness: Critical Infrastructure		Requires the Office of Emergency Services to direct the California Cybersecurity Integration Center to prepare, and Cal OES to submit to the Legislature, a strategic, multiyear outreach plan to assist critical infrastructure sectors, in their efforts to improve cybersecurity and an evaluation of options for providing grants or alternative forms of funding to, and potential voluntary actions that do not require funding and that assist, that sector in their efforts to improve cybersecurity preparedness.	07/10/2023 - From ASSEMBLY Committee on EMERGENCY MANAGEMENT: Do pass to Committee on APPROPRIATIONS.
SB 299 (Limon)	Voter Registration: California New Motor Voter Program		Requires the Department of Motor Vehicles to transmit specified information to the Secretary of State for a person submitting a driver's license application who provides documentation demonstrating United States citizenship and that the person is of an eligible age to register or preregister to vote.	06/13/2023 - From ASSEMBLY Committee on HEALTH with author's amendments.;06/13/2023 - In ASSEMBLY. Read second time and amended. Re-referred to Committee on HEALTH.
SB 308 (Becker)	Carbon Dioxide Removal Market Development Act		Requires the State Air Resources Board to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions and to update the scoping plan at least once every specified number of years. Enacts the Carbon Dioxide Removal Market Development Act.	06/08/2023 - To ASSEMBLY Committee on NATURAL RESOURCES.
SB 328 (Dodd)	Political Reform Act of 1974: Contribution Limits		Relates to the Political Reform Act of 1974, which prohibits a person, other than a small contributor committee or political party committee, from making to a candidate for elective state, county, or city office, and prohibits those candidates from accepting from a person, a contribution totaling more than \$3,000 per election. Applies those contribution limits to candidates for school district, community college district, and other special district elections.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
SB 366 (Caballero)	State Water Plan: Long-Term Supply Targets	Support	Requires the Department of Water Resources to coordinate with the California Water Commission, the State Water Resources Control Board, other State and federal agencies, and the stakeholder advisory committee to develop a comprehensive plan for addressing the State's water needs and meeting specified long-term water supply targets for purposes of the California Water Plan. Requires the department to submit an annual report between updates to the plan that includes progress made toward meeting the targets.	07/11/2023 - In ASSEMBLY Committee on WATER, PARKS AND WILDLIFE: Not heard.
SB 393 (Glazer)	Environmental Quality Act: Judicial Challenge		Authorizes a defendant, in an action brought pursuant to the California Environmental Quality Act relating to a housing development project, to file a motion requesting the plaintiff or petitioner to identify every person or entity that contributes in excess of a specified amount toward the plaintiff's or petitioner's costs of the action. Authorizes the motion to be heard on shortened time at the court's discretion.	07/06/2023 - In ASSEMBLY. Assembly Rule 56 suspended.
SB 399 (Wahab)	Employer Communications: Intimidation		Prohibits, with specified exceptions, an employer from subjecting, or threatening to subject, an employee to discharge, discrimination, retaliation, or any other adverse action because the employee declines to attend an employer-sponsored meeting or affirmatively declines to participate in, receive, or listen to any communications with the employer or its agents or representatives, the purpose of which is to communicate the employer's opinion about religious or political matters.	07/11/2023 - From ASSEMBLY Committee on JUDICIARY: Do pass to Committee on APPROPRIATIONS.
SB 409 (Newman)	Elections: Candidate's Statement		Provides that existing law authorizes a candidate for statewide elective office who accepts the voluntary expenditure limits to purchase the space to place a statement in a State voter information guide. Requires the Secretary of State to establish, on or before specified date, a pilot program that would allow a	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			candidate to include a QR code link to a video statement in the State voter information guide.	
SB 414 (Allen)	Climate Change: Applications Using Hydrogen: Assessment	Watch	Provides that existing law requires the State Air Resources Board to prepare and post an evaluation on its internet website related to the use of hydrogen in the State. Requires, on or before specified date, the Board, in consultation with the State Energy Resources Conservation and Development Commission and the Public Utilities Commission to complete an assessment of the use of hydrogen in certain applications. Requires the assessment to incorporate the findings of, and not duplicate, the evaluation.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 422 (Portantino)	California Environmental Quality Act		Requires specified public agencies, at the time of adoption of a rule or regulation requiring the reduction in emissions of greenhouse gases, criteria air pollutants, or toxic air contaminants, to perform an environmental analysis of the reasonably foreseeable methods of compliance with the California Environmental Quality Act.	09/12/2023 - In ASSEMBLY. To Inactive File.
SB 477 (Housing)	Accessory Dwelling Units		Provides that existing law provides for the creation of junior accessory dwelling units by local ordinance, or, if a local agency has not adopted an ordinance, by ministerial approval, in accordance with specified standards and conditions. Makes nonsubstantive changes and reorganizes various provisions relating to the creation and regulation of accessory dwelling units and junior accessory dwelling units, and makes related nonsubstantive conforming changes.	08/14/2023 - In ASSEMBLY. Action rescinded whereby bill was read third time and passed. To third reading.;08/14/2023 - In ASSEMBLY. To Inactive File.
SB 504 (Dodd)	Wildfires: Defensible Space: Grant Programs		Provides that existing law requires fuels to be maintained and spaced in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. Provides that a violation of these requirements is a crime. Requires fuels to be maintained and spaced in a condition so that	05/11/2023 - To ASSEMBLY Committee on NATURAL RESOURCES.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			a wildfire would be unlikely to ignite the structure. Makes a conforming change with respect to an area or land that is within a very high fire hazard severity zone designated by a local agency.	
SB 511 (Blakespear)	Greenhouse Gas Emissions Inventories		Provides that the California Global Warming Solutions Act requires the State Air Resources Board to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions and to update the scoping plan. Requires the Board to develop, and publish on its website, a report on greenhouse gas emissions inventories for the specified calendar year for each city, county, or city and county that requests inclusion in the report.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 518 (Wilk)	Elections: Certification of Results		Requires the elections official to submit the certified statement of the results of the election on the 30th calendar day following the election.	06/08/2023 - To ASSEMBLY Committee on ELECTIONS.
SB 537 (Becker)	Open Meetings: Multijurisdictional		Relates to the Ralph M. Brown Act. Expand the circumstances of just cause to apply to the situation in which an immunocompromised child, parent, grandparent, or other specified relative requires the member to participate remotely. Requires the legislative body to provide a record of attendance of the members of the legislative body, the number of community members in attendance in the teleconference meeting, and the number of public comments on its internet website after a teleconference meeting.	09/14/2023 - In ASSEMBLY. To Inactive File.
SB 571 (Allen)	Fire Safety Regulations: Development Projects: Ingress		Requires the State Board of Forestry and Fire Protection to create, and provide to the Legislature, a report relating to standards for ingress and egress routes in new development. Requires the State Board to do certain things when creating the report, including provide opportunities for input from the public. Prohibits the State Board from adopting any regulations incorporating the	01/29/2024 - In SENATE. Read third time. Passed SENATE. *****To ASSEMBLY.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			standards described in the report until after a specified number of months.	
SB 597 (Glazer)	Building Standards: Rainwater Catchment Systems		Requires the Department of Housing and Community Development to conduct research and develop recommendations regarding building standards for the installation of rainwater catchment systems in newly constructed residential dwellings and authorizes the department to propose related building standards to the California Building Standards Commission for consideration. Authorizes the department to expend moneys from the Building Standards Administration Special Revolving Fund.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.
SB 611 (Menjivar)	Residential Rental Properties: Fees and Advertisements		Requires landlords or their agents who advertise or provide a quote for residential property for rent and who include a specific or range of monthly rent rates to include specified information in the monthly rate. Requires the additional amount of security deposit to be returned to the tenant after no more than a specified number of months of residency if the tenant is not in arrears for any rent due during that period and if the higher amount is not due to a prior history of residential property damage.	06/08/2023 - To ASSEMBLY Committee on JUDICIARY.
SB 632 (Caballero)	Candidate Statements		Provides that existing law allows certain candidates for State or federal elective office to purchase space to place a statement in the voter information portion of the sample ballot. Requires the Secretary of State or the Office of the Elections official to notify a candidate for statewide elective office, State Senate, or Assembly who files a statement with the Secretary or the elections official whether the statement was approved or rejected.	09/11/2023 - In ASSEMBLY. To Inactive File.
SB 638 (Eggman)	Climate Resiliency and Flood Protection Bond Act	Support	Enacts the Climate Resiliency and Flood Protection Bond Act of 2024 which, if approved by the voters, would authorize the issuance of bonds in the amount of a specified amount pursuant to the State General Obligation Bond Law, for flood protection and	06/28/2023 - From ASSEMBLY Committee on WATER, PARKS AND WILDLIFE with author's amendments.;06/28/2023 - In

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			climate resiliency projects. Provides that this bill is operative only if SB 867 of the 2023-24 Regular Session is enacted and takes effect on or before specified date.	ASSEMBLY. Read second time and amended. Re-referred to Committee on WATER, PARKS AND WILDLIFE.
SB 651 (Grove)	California Environmental Quality Act: Groundwater		Relates to the Sustainable Groundwater Management Act. Requires the Judicial Council to adopt a rule of court to establish procedures requiring actions or proceedings brought to attack, review, set aside, void, or annul the certification of an environmental impact report, or the granting of any project approvals, for groundwater recharge projects that implement a groundwater sustainability plan or an interim groundwater sustainability plan.	06/22/2023 - In ASSEMBLY. Read second time and amended. Re-referred to Committee on NATURAL RESOURCES.
SB 718 (Wilk)	Elections: Official Canvass: Unprocessed Ballots		Relates to law that requires county elections officials during the official canvass period following an election to send reports to the Secretary of State regarding the number of unprocessed ballots. Requires the Secretary of State to make public the information contained in those reports.	06/28/2023 - From ASSEMBLY Committee on ELECTIONS with author's amendments.;06/28/2023 - In ASSEMBLY. Read second time and amended. Re-referred to Committee on ELECTIONS.
SB 721 (Becker)	California Interagency AI Working Group		Creates the California Interagency AI Working Group to deliver a report to the Legislature regarding artificial intelligence. Requires require the working group members to be Californians with expertise in at least 2 of certain areas, including computer science, artificial intelligence, and data privacy. Requires the report to include a recommendation of a definition of artificial intelligence as it pertains to its use in technology for use in legislation.	06/01/2023 - To ASSEMBLY Committee on PRIVACY AND CONSUMER PROTECTION.
SB 724 (Glazer)	Political Reform Act of 1974: Communications		Provides that the Political Reform Act of 1974 requires the disclosure of certain payments. Requires the disclosure of any payment of or promise to pay a specified amount or more for a communication that clearly identifies an elected State officer, and educates the public about the previous votes cast by the elected	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS. Held in committee and made a Two-year bill.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			officer or about the source of campaign donations received by the elected officer, and that is disseminated, broadcast, or otherwise published within a specified number of days of an election.	
SB 755 (Becker)	Energy Efficiency and Building Decarbonization Programs		Provides for the California's Layered Energy Applications for Residents (CLEAR) Act of 2023. Requires the State Energy Resources Conservation and Development Commission to develop and make publicly available an internet website for energy efficiency and building decarbonization programs administered by the Energy Commission, federal or local governmental agencies, and nonprofit organizations that are available in the State for residential buildings and residential electricity customers.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 769 (Gonzalez)	Local Government: Fiscal and Financial Training		Provides that existing law imposes ethics training and sexual harassment prevention training and education on specified local agency officials. Exempts a local agency official from the training requirements if they comply with specified criteria under existing law relating to eligibility for appointment or election to, and continuing education for, the office of county treasurer, county tax collector, or county treasurer-tax collector.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 778 (Ochoa Bogh)	Excavations: Subsurface Installations	Watch	Provides that existing law establishes the California Underground Facilities Safe Excavation Board for the enforcement and administration of the Safe Dig Act and requires the Governor to appoint a certain number of the board members. Revises the knowledge and experience requirements for a certain number of the members appointed by the Governor. Requires an operator to contact the excavator by electronic positive response if the area delineated by the excavator does not match the ticket description.	06/15/2023 - From ASSEMBLY Committee on UTILITIES AND ENERGY with author's amendments.;06/15/2023 - In ASSEMBLY. Read second time and amended. Re-referred to Committee on UTILITIES AND ENERGY.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
SB 781 (Stern)	Methane Emissions: Natural Gas Producing Low Methane		Provides that existing law requires the State Air Resources Board to quantify and publish annually the amount of greenhouse gas emissions resulting from the loss or release of uncombusted natural gas to the atmosphere and emissions from natural gas flares during all processes associated with the production, processing, and transporting of natural gas imported into the State from out-of-state sources. Requires the board to request and incorporate certain information from utilities and other large gas users.	09/01/2023 - In ASSEMBLY Committee on APPROPRIATIONS: Held in committee.
SB 830 (Smallwood-Cueva)	Public Works		Requires a contractor engaging a third-party, permanent, and offsite fabrication facility to fabricate custom sheet metal ducts for a public works project to enter into a contract with the facility that requires compliance with specified public works laws. Requires certified copies of payroll records for the offsite, custom fabrication of sheet metal ducts to be accompanied by a written time record of that work certified by each employee performing the work.	09/08/2023 - In ASSEMBLY. To Inactive File.
SB 863 (Allen)	Measures Proposed by the Legislature		Allows the Legislature to specify that a constitutional amendment, bond measure, or other legislative measure submitted to the people will appear on the ballot at an election other the first statewide election if the election specified in the proposal would occur at least a specified number of days after adoption of the proposal by the Legislature.	01/30/2024 - In SENATE. Read third time. Passed SENATE. *****To ASSEMBLY.
SB 867 (Allen)	Drought, Flood, and Water Resilience	Support if Amended	Enacts the Drought, Flood, and Water Resilience, Wildfire and Forest Resilience, Coastal Resilience, Extreme Heat Mitigation, Biodiversity and Nature-Based Climate Solutions, Climate Smart Agriculture, Park Creation and Outdoor Access, and Clean Energy Bond Act of 2024, which would authorize the issuance of bonds to finance projects for, among other things, drought, flood, and water resilience. Provides for the submission of these	06/22/2023 - In ASSEMBLY. Read second time and amended. Re-referred to Committee on NATURAL RESOURCES.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			provisions to the voters at the specified statewide primary election.	
SB 901 (Umberg)	Civil Actions: Time for Commencement: Unwritten Lease		Makes technical, nonsubstantive changes to existing law which prohibits an action for breach of an unwritten lease of real property from being brought more than 2 years after breach of the lease and abandonment of the property, or more than 2 years after termination of the right of the lessee to possession of the property, whichever is the earlier time.	01/03/2024 - INTRODUCED.
SB 903 (Skinner)	Environmental Health: Product Safety: Perfluoroalkyl		States the intent of the Legislature to enact subsequent legislation to phase out the sale of products with avoidable perfluoroalkyl and polyfluoroalkyl substances.	01/04/2024 - INTRODUCED.
SB 908 (Cortese)	Public Records: Legislative Records: Electronic Message		Prohibits an elected or appointed official or employee of a public agency from creating or sending a public record using a nonofficial electronic messaging system unless the official or employee sends a copy of the public record to an official electronic messaging system.	01/08/2024 - INTRODUCED.
SB 915 (Cortese)	Local Government: Autonomous Vehicles		Prohibits an autonomous vehicle service, which has received approval to conduct commercial passenger service or engage in commercial activity using driverless vehicles by the Department of Motor Vehicles, the Public Utilities Commission, or another state agency, from commencing operation within a local jurisdiction until authorized by a local ordinance enacted pursuant to the bill's provisions.	01/09/2024 - INTRODUCED.
SB 924 (Bradford)	Tenancy: Credit Reporting: Lower Income Households		Deletes the repeal date, thereby extending existing law relative to tenancy, credit reporting and lower income households, indefinitely.	01/11/2024 - INTRODUCED.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*


Bill No. Author	Title	IRWD Position	Summary/Effects	Status
SB 934 (Gonzalez)	Vehicles: Width		Makes technical, nonsubstantive changes to provisions of law prohibiting the total outside width of a vehicle or its load from exceeding 102 inches, except as specified.	01/16/2024 - INTRODUCED.
SB 937 (Wiener)	Development Projects: Permits and Other Entitlements		Extends, for a specified period of time, months the period for the expiration, effectuation, or utilization of a housing entitlement, as defined, that was issued before a specified date, and that will expire before a specified date, except as specified.	01/17/2024 - INTRODUCED.
SB 946 (McGuire)	Wildfires: Community Hardening		States the intent of the Legislature to enact subsequent legislation related to community hardening to address risks resulting from wildfires.	01/18/2024 - INTRODUCED.
SB 955 (Seyarto)	Office of Planning and Research: Infrastructure Program		Requires the Office of Planning and Research, upon appropriation by the Legislature, to establish the Infrastructure Gap-Fund Program to provide grants to assist local agencies in developing and constructing infrastructure projects. Requires the office to develop guidelines and criteria to implement the program.	01/22/2024 - INTRODUCED.
SB 958 (Dodd)	Surplus State Property: County of Napa		Relates to surplus state property and the County of Napa. Deletes the exemption for the property known as Camp Coombs, thereby authorizing the Director of General Services to sell or exchange that property by January 1, 2026.	01/23/2024 - INTRODUCED.
SB 961 (Wiener)	Vehicles: Safety Equipment		Requires certain trucks and trailers to also be equipped with side guards, as specified. Requires the Department of the California Highway Patrol to adopt rules and regulations requiring driver inspections of side guards and requiring the department to inspect side guards that have been involved in collisions.	01/23/2024 - INTRODUCED.
SB 964 (Seyarto)	Property Tax: Tax- Defaulted Property Sales		Prohibits a property or property interest from being offered for sale under the provisions described above if that property or	01/23/2024 - INTRODUCED.

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: January 31, 2024

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
			property interest has not been offered for sale under specified provisions.	
SB 984 (Wahab)	Public Agencies: Project Labor Agreements		Authorizes a state agency to undertake a major state construction project only if that project is governed by a project labor agreement and if that project labor agreement includes community benefit goals, as specified, and would define various terms for these purposes. Authorizes the Governor to waive this requirement if the state agency has attempted to comply with this requirement and the Governor makes a written determination that the application of this requirement would be impracticable.	01/29/2024 - INTRODUCED.
SCA 2 (Stern)	Elections: Voter Qualifications		Provides that the California Constitution allows a United States citizen who is at least 18 years of age and a resident of the State to vote. Reduces the minimum voting age to a specified age.	09/01/2023 - From SENATE Committee on APPROPRIATIONS: Be adopted.;09/01/2023 - In SENATE. Ordered to third reading.
SCA 3 (Niello)	Elections: Initiatives and Referenda		Transfers from the Attorney General to the Legislative Analyst the duty of preparing the title and summary for a proposed initiative or referendum. Requires, for each measure that appears on a statewide ballot, the Legislative Analyst to prepare the ballot label and the ballot title and summary for the state voter information guide.	09/01/2023 - In SENATE Committee on APPROPRIATIONS: Held in committee.
HR 1430 (Valadao)	National Environmental Policy Act Review Requirements	Support	Directs the Secretary of the Interior and the Secretary of Agriculture to use certain previously completed environmental assessments and environmental impact statements to satisfy the review requirements of the National Environmental Policy Act of 1969.	04/25/2023 - In HOUSE Committee on AGRICULTURE: Referred to Subcommittee on FORESTRY.
HR 2964 (McClain)	Do Not Flush Labeling Requirements	Support	Requires the Federal Trade Commission to issue regulations requiring certain products to have Do Not Flush labeling.	12/06/2023 - In HOUSE Committee on ENERGY AND COMMERCE: Consideration and mark-up session held.;12/06/2023 - In HOUSE

EXHIBIT “A”
IRWD 2024 LEGISLATIVE MATRIX
Updated: *January 31, 2024*

Bill No. Author	Title	IRWD Position	Summary/Effects	Status
				Committee on ENERGY AND COMMERCE: Ordered to be reported as amended.
HR 3027 (Porter)	Reclamation Climate Change and Water Program Funding	Support	Reauthorizes funding for the Reclamation Climate Change and Water Program.	06/09/2023 - In HOUSE Committee on NATURAL RESOURCES: Referred to Subcmt on WATER, WILDLIFE AND FISHERIES.
S 1350 (Merkley)	Do Not Flush Labeling Regulations	Support	Requires the Federal Trade Commission to issue regulations requiring certain products to have Do Not Flush labeling.	04/27/2023 - INTRODUCED.;04/27/2023 - In SENATE. Read second time.;04/27/2023 - To SENATE Committee on COMMERCE, SCIENCE, AND TRANSPORTATION.
S 1429 (Lummis)	PFAS Substance Liability Exemptions	Support	Exempts certain entities from liability under the Comprehensive Environmental Response, Compensation, and Liability Act of specified year with respect to releases of perfluoroalkyl and polyfluoroalkyl substances (PFAS).	05/03/2023 - INTRODUCED.;05/03/2023 - In SENATE. Read second time.;05/03/2023 - To SENATE Committee on ENVIRONMENT AND PUBLIC WORKS.

February 7, 2024
Prepared by: M. Lindsay / N. Palacio /
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Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook 

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

WATER SUPPLY ASSESSMENTS FOR
TUSTIN LEGACY SPECIFIC PLAN AMENDMENT AND
TUSTIN MARKET PLACE PROJECT

SUMMARY:

In November 2023, IRWD received two requests from the City of Tustin (City) to complete Water Supply Assessments (WSAs) as required under SB 610 for the Tustin Legacy Specific Plan Amendment and the Tustin Market Place Project. Staff has completed the WSAs for each of the proposed projects and recommends Board approval of the documents.

BACKGROUND:

The City of Tustin's 2021-29 Housing Element identified several areas that could accommodate additional units to meet the City's Regional House Needs Allocation as required by the State of California. Two of these areas are the Tustin Legacy Specific Plan (TLSP) and the Tustin Market Place. The City proposes to amend the TLSP to include an additional 4,780 units for a total of 11,963 units. The TLSP is generally bounded by Red Hill Avenue on the west, Edinger Avenue on the north, Harvard Avenue on the east, and Barranca Parkway on the south. The Tustin Market Place is an existing shopping center where the City proposes to add 900 dwelling units within the surface parking area. The Tustin Market Place is located between Myford Road, Bryan Avenue, Jamboree Road, and Interstate 5. A location map of TLSP is provided as Exhibit "A," and a map of the Tustin Market Place is provided as Exhibit "B".

Separate WSAs have been completed for the TLSP Amendment and the Tustin Market Place Project, which are provided as Exhibit "C" and Exhibit "D", respectively. The WSAs for the proposed projects are based on information from IRWD's most recent Water Resources Master Plan. Estimates show an increase in IRWD potable water demands for the TLSP Amendment of 601 acre-feet per year (AFY) and a decrease of 23 AFY of non-potable demands. The Tustin Market Place Project includes an estimated increase of 102 AFY of potable demand and a decrease of 2 AFY of non-potable demand. Each WSA concludes that 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. This demand is in addition to the existing and planned future uses including, but not limited to, agricultural and manufacturing.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

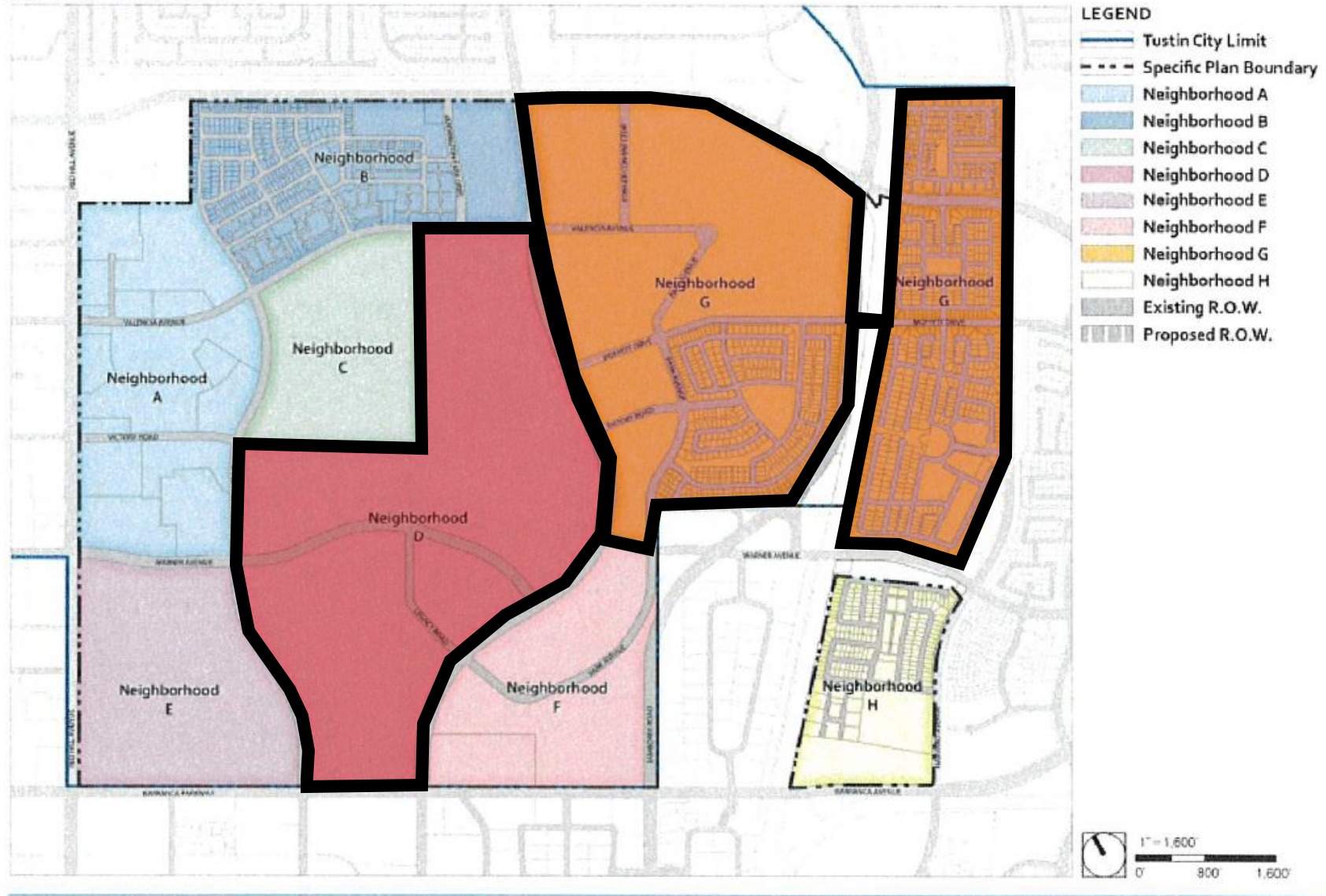
That the Board approve the Water Supply Assessment for the Tustin Legacy Specific Plan Amendment and the Water Supply Assessment for the Tustin Market Place Project.

LIST OF EXHIBITS:

- Exhibit "A" – Tustin Legacy Specific Plan Amendment Location Map
- Exhibit "B" – Tustin Market Place Project Location Map
- Exhibit "C" – Water Supply Assessment for The Tustin Legacy Specific Plan Amendment
- Exhibit "D" – Water Supply Assessment for Tustin Market Place Project

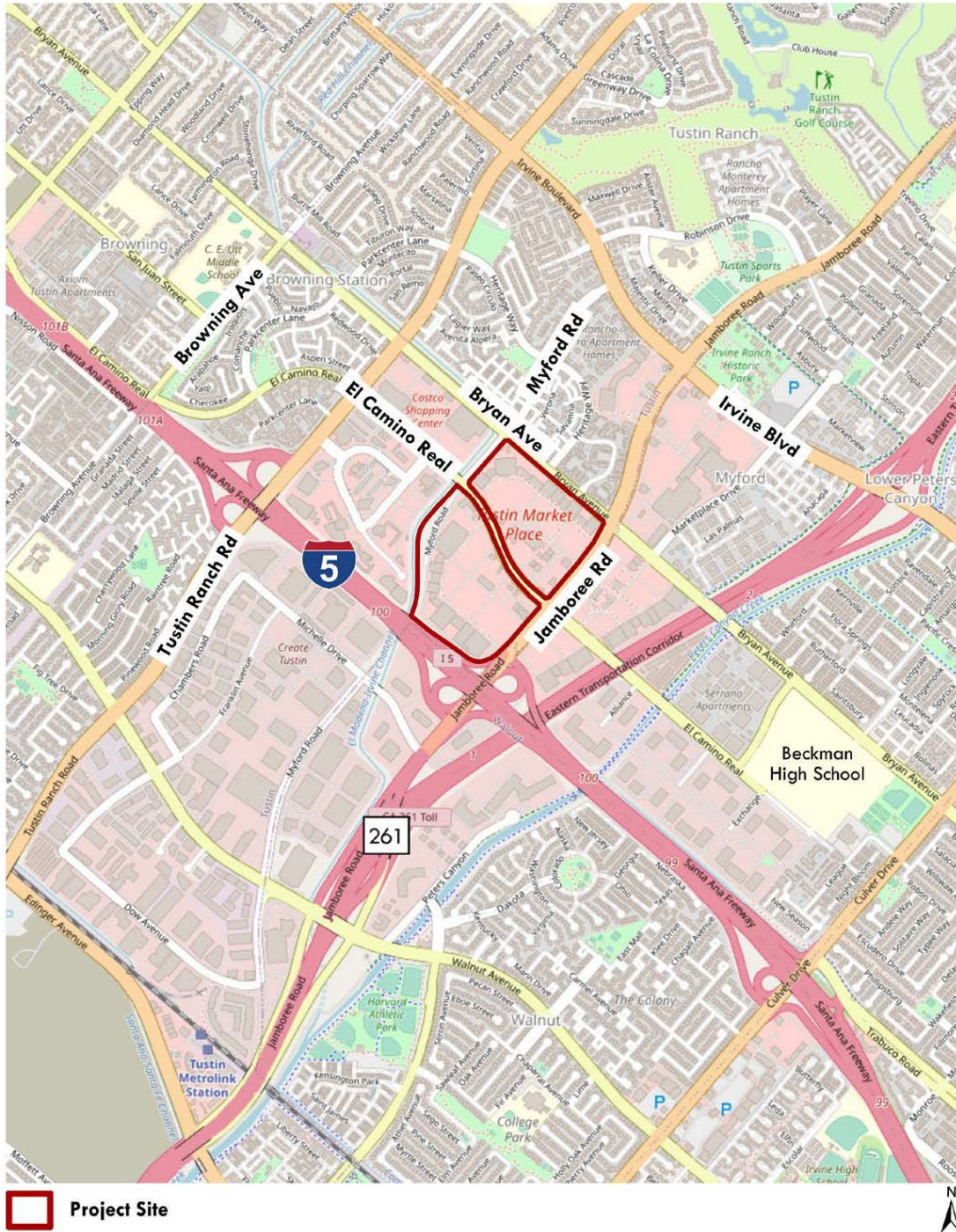
Exhibit "A"

Figure 2-3 Neighborhoods



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Local Vicinity



The Tustin Marketplace Housing Overlay
City of Tustin

Figure 1

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Exhibit "C"

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

To: (Lead Agency)

City of Tustin
300 Centennial Way
Tustin, CA 92780

(Applicant)
City of Tustin
300 Centennial Way
Tustin, CA 92780

Project Information

Project Title: Tustin Legacy Specific Plan Amendment (Exhibit A)

- Residential: No. of dwelling units: 4,780 dwelling units (See Exhibit B)
- Shopping center or business: No. of employees N/A Sq. ft. of floor space 9,532,419 total (no change)
- 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) _____
- Other: _____

Assessment of Availability of Water Supply

On _____ 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 _____ Date _____ Title _____

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, based on land use planning information 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 most recent update of that document (2020 UWMP) was adopted in June 2021.

In addition to the WRMP and the 2020 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 use efficiency 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 temporarily 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 by 7% in the assessment during both "single-dry" and "multiple-dry" years. This increase in estimated demands is considered conservative and is consistent with the Municipal Water District of Orange County's ("MWDOC") 2020 UWMP which assumes increased demands in single-dry and multiple dry years of 6% based on MWDOC's Orange County Reliability Study (MWDOC 2020 UWMP, pg. 7-2). The Metropolitan Water District of Southern California ("MWD") also considers these weather variables in their climate adjustment factors when forecasting demands, as documented in MWD's 2020 UWMP which shows an average increase of 8% for single dry year demands (MWD 2020 UWMP Tables 2-4, 2-5, 2-6) and also documented in their 2020 Integrated Resources Plan - Regional Needs Assessment (2022).

Planning horizon. In accordance with Water Code Section 10910, this assessment reviews demands and supplies covering a 20-year planning horizon. For consistency with IRWD's WRMP, the assessment reviews demands and supplies through the year 2044, which is considered to include build-out or "ultimate development".

Assessment of demands. Water demands are reviewed in this assessment for three development projections (to 2044):

- 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 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 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 may increase 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 2020 Urban Water Management Plan (MWD 2020 UWMP) concludes that MWD has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry year condition and a period of drought lasting five consecutive water years, as well as in a normal water year hydrologic condition. (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 annual demands for the *baseline*, *with-project* and *full build-out* scenarios projected under the normal year, and the single- and multiple-dry year conditions through the year 2044. (Figures 1, 2 and 3.) IRWD plans to proceed with the implementation of future potable supplies (*under development*), as shown in the Figures, to improve local reliability during dry-year conditions.
- Adequate *currently available* potable water supply capacity is available to meet *peak-flow* (maximum day) demands for all demand projections through the year 2044. (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 2044. (Figures 5, 6, 7 and 8.) IRWD has implemented all planned 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 operational limits on Delta pumping. See "**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's information concerning operational limits on Delta pumping. See "**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 can provide additional reliability during dry years or emergencies. See "**IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD,**" below.

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, 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. Several proceedings concerning Delta operations were initiated 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 were established to identify long-term solutions for the Delta. In addition, State and federal agencies and water user entities are currently engaged in the development of the Delta Conveyance Project (previously California WaterFix), which is aimed at making physical and operational improvements in the Delta necessary to improve south of the Delta SWP water supplies and water quality and protect ecosystem health in the Delta (MWD 2020 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 its 2007 Integrated Resources Plan ("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. 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. 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. The 2010 IRP Update includes MWD's Adaptive Resource Management Strategy 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.

In January 2016, MWD adopted its 2015 IRP Update. In the 2015 IRP Update, MWD continued its Adaptive Resource 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 that additional actions are needed in investments in conservation, local supplies, the Delta Conveyance Project (previously 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.

MWD is currently developing its 2020 IRP Update and has completed and adopted a 2020 IRP Regional Needs Assessment which is considered Phase 1 of the 2020 IRP. A One Water Implementation phase will be Phase 2 of the 2020 IRP. The One Water Implementation will take the results and findings of Phase 1 to identify integrated regional solutions. It will include an updated Adaptive Management Strategy, policies, programs and projects to address the findings and mitigate any potential shortages.

IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD: In the MWD 2020 UWMP, MWD states it has supply capability that would be sufficient to meet expected demands from 2025 to 2045 under single dry year and multiple dry year conditions.¹

Based on the prior MWD 2007 IRP Implementation Report and also reported in the MWD 2015 IRP, 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 2025 through 2045. 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 2025 through 2045, 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. (See also the footnote 1).

Per the MWD 2020 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") (dated February 2009, updated December 2014) which provides standardized methodology for allocation of MWD's supplies during times of shortage. The WSDM Plan distinguishes between shortages, severe shortages, and extreme shortages.

¹ The MWD 2020 UWMP utilized DWR's 2019 SWP Delivery Capability Report to estimate future SWP supplies for 2025 through 2045. 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 2020 UWMP reflect 58% or 1.1 MAF in MWD's expected average year SWP entitlement supplies. This amount is a higher expected average than MWD's 2015 estimate of 984,000 AF. For purposes of a conservative analysis, IRWD has used the 22% reduction in its supplies from MWD as the basis of IRWD's analysis.

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, 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

Figures 1a, 2a, and 3a show IRWD’s estimated supplies (average and single and multiple dry years) under a short-term MWD water supply 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 addition, these Figures do not reflect a reduction in demands, thus representing a more conservative view of IRWD’s supply capability. (see “**Recent Actions Related to Drought Conditions**” below)

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 includes 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

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 “2021-2022 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.

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 conserve potable water. In addition, if needed, resultant net shortage levels can be addressed by demand reduction programs as described in IRWD’s updated Water Shortage Contingency Plan adopted in 2021. IRWD’s Water Shortage Contingency Plan provides procedures for responding to various levels of supply shortages through a combination of supply augmentation and demand management measures. As stated in IRWD’s Water Shortage Contingency Plan, use of local supplies, storage and other supply augmentation measures can mitigate shortages, and are used as necessary and appropriate during declared shortage levels.

It can be noted that IRWD’s above approach is conservative, in that IRWD evaluates the effect of the 16% reduction through 2044 and shows the effect of current allocation scenarios in all of the five-year increments. However, 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. In 2012, DWR adopted phase 1 of its Climate Action Plan, its department-wide plan for reducing greenhouse gas emissions (GHG). In September 2018, the DWR released phase 2 of its Climate Action Plan, which is DWR’s guide to addressing climate change in the programs, projects, and activities over which it has authority. Per this guidance, California’s climate policy focuses on reducing GHG emissions, preparing for climate change impacts, and supporting climate-related research to inform policy responses and decision-making processes.

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. In the 2015 IRP Update, MWD states that it 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 the MWD 2020 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 such as climate change and can also establish “signposts” that can be monitored to see when crucial changes may be happening. MWD states in its 2020 UWMP that the RDM analysis was valuable in identifying vulnerabilities to its 2015 IRP approach to long-term reliability and in understanding how climate change would best be incorporated into the 2020 IRP.

Per the MWD 2020 UWMP, MWD continues to incorporate current climate change science into its planning efforts and MWD has made great efforts to implement GHG mitigation programs and policies for its facilities and operations. In 2022, MWD released a Climate Action Plan which complements MWD’s IRP planning process and set reduction targets and outlined strategies to reduce emission levels by 2045. In MWD’s 2020 IRP Regional Needs Assessment, MWD finds that SWP supplies are highly susceptible to varying hydrologic conditions, climate change, and regulatory restrictions. In this report, MWD assesses climate

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.

vulnerabilities and the need for future projects such as indirect potable reuse, stormwater capture, and expanded storage capacity to mitigate and adapt to these vulnerabilities and ensure future resilience. Specific climate change impacts on 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 2020 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 the MWD 2020 UWMP (pages 3-19 to 3-23). IRWD has also addressed supply interruption planning in its WRMP and 2020 UWMP.

Recent Actions Related to Drought Conditions. In response to 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 included 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 its 2013 potable water use 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 its 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. On April 7, 2017, Governor Brown rescinded the Executive Order.

In California's most recent drought (2021-2023), in July 2021, Governor Newsom called for voluntary 15 percent reduction in potable water use from all urban suppliers. Consistent with the Governor's Executive Order, IRWD implemented Level 2 of its Water Shortage Contingency Plan, although IRWD had no projected shortages in supplies. In March 2023, Governor Newsom rescinded the Executive Order.

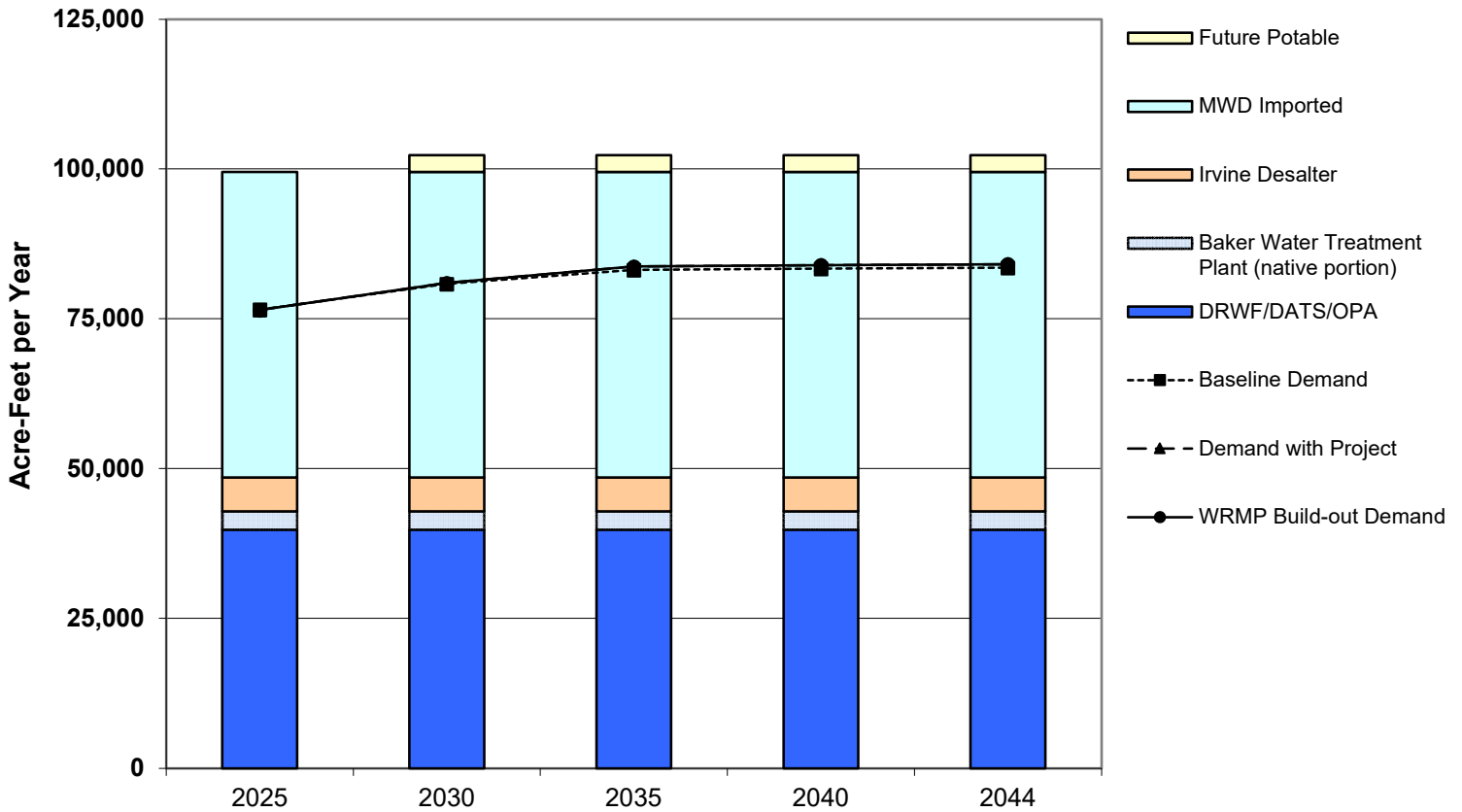
As discussed under "*IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD*" (see above), IRWD has effectively analyzed an imported water supply reduction up to a level 5 Regional Shortage Stage in Figures 1a, 2a, 3a. These Figures, however, do not reflect a reduction in demands, thus representing 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 Governors' 2015 and 2021 orders, IRWD's conservative supply-sufficiency analysis in Figures 1a, 2a and 3a does not include the ordered reduction in potable demands.

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 “Actions on Delta Pumping” above.

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



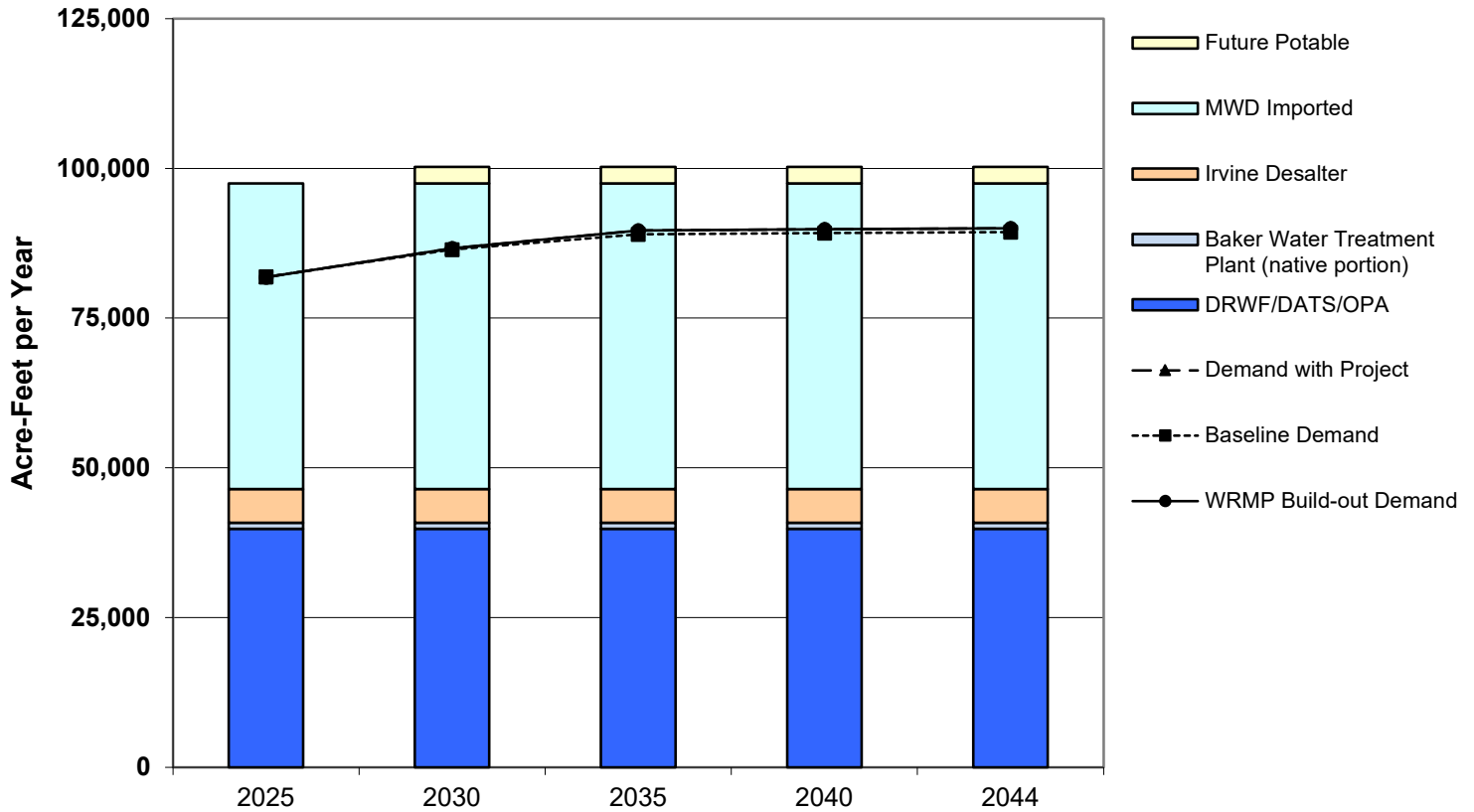
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	3,048	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	101,911	104,711	104,711	104,711	104,711
Baseline Demand	76,540	80,802	83,150	83,359	83,525
Demand with Project	76,467	80,981	83,748	83,958	84,126
WRMP Build-out Demand	76,467	80,981	83,748	83,958	84,126
Reserve Supply with Project	25,444	23,730	20,963	20,753	20,585

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 is supplied untreated imported water and native water from Irvine Lake.

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



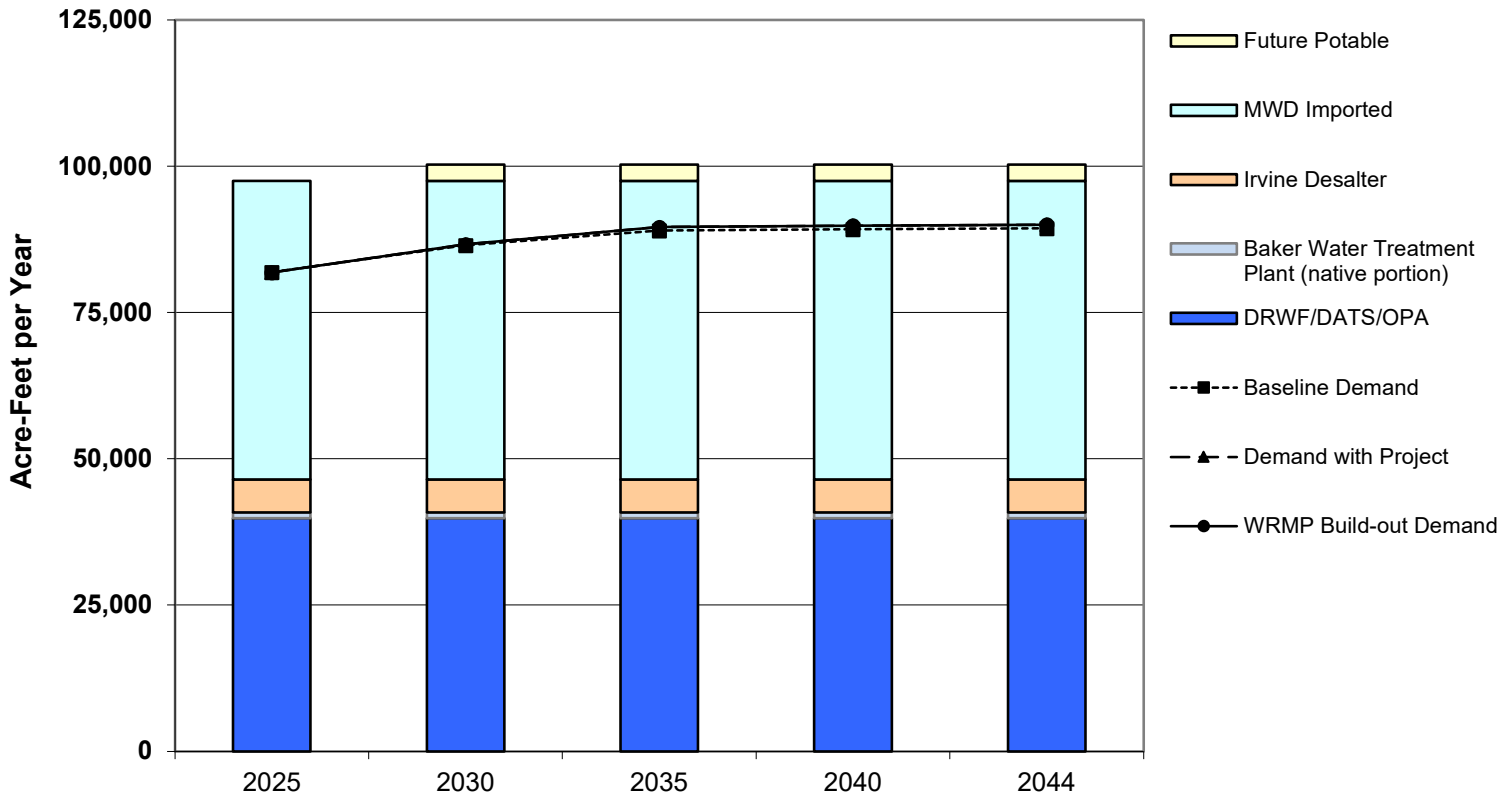
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	99,863	102,663	102,663	102,663	102,663
Baseline Demand	81,898	86,458	88,971	89,194	89,372
Demand with Project	81,820	86,649	89,611	89,835	90,015
WRMP Build-out Demand	81,820	86,649	89,611	89,835	90,015
Reserve Supply with Project	18,043	16,013	13,052	12,828	12,648

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 is supplied untreated imported water and native water from Irvine Lake.

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



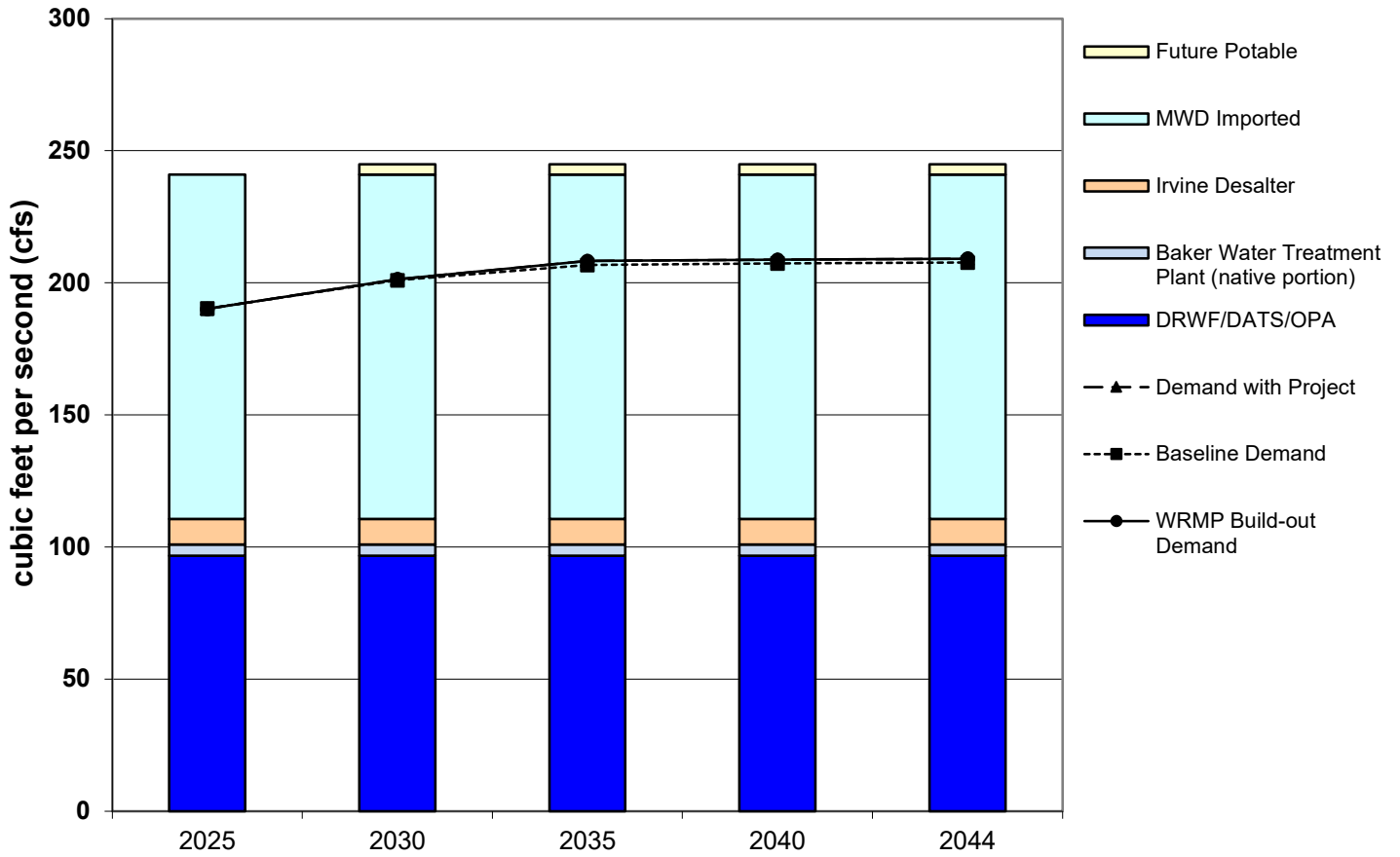
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	99,863	102,663	102,663	102,663	102,663
Baseline Demand	81,898	86,458	88,971	89,194	89,372
Demand with Project	81,820	86,649	89,611	89,835	90,015
WRMP Build-out Demand	81,820	86,649	89,611	89,835	90,015
Reserve Supply with Project	18,043	16,013	13,052	12,828	12,648

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.

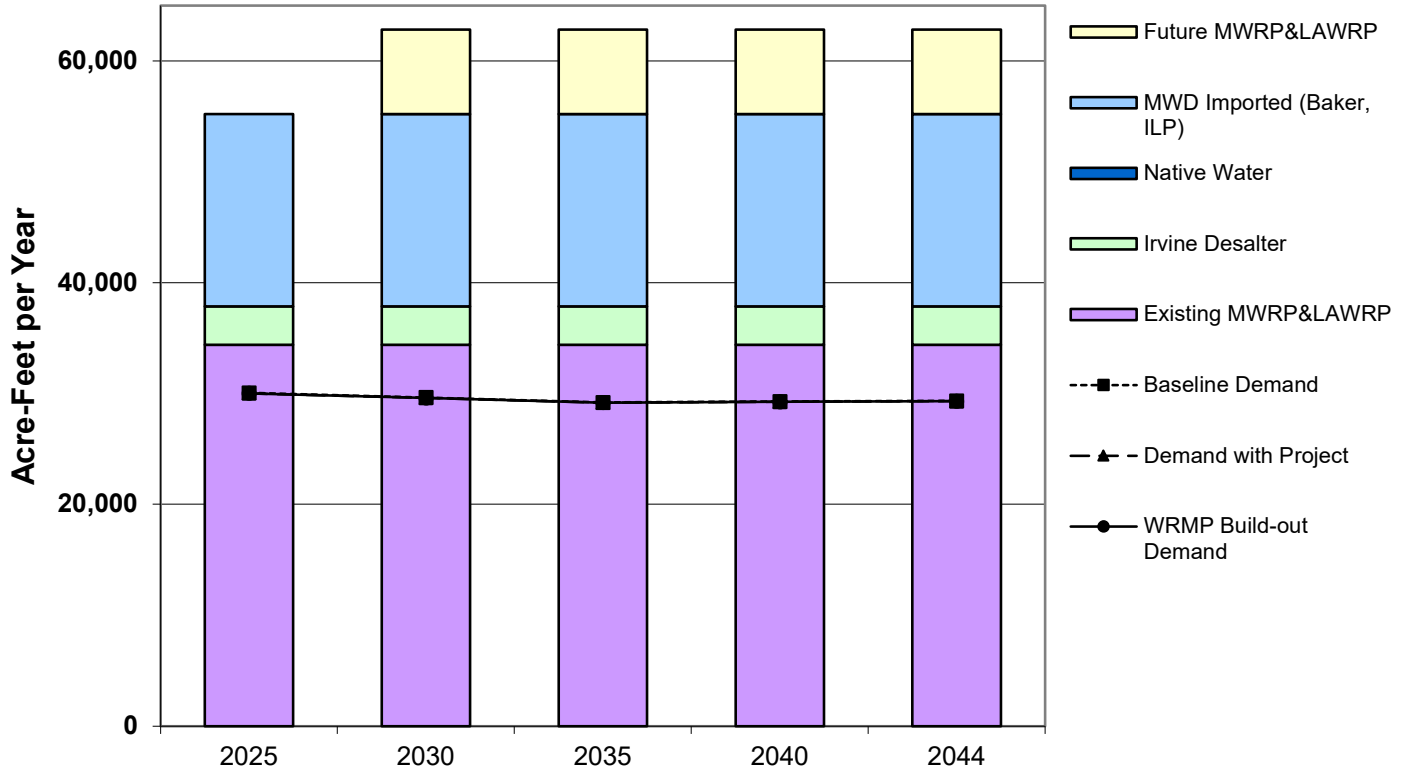
Baker Water Treatment Plant is supplied untreated imported water and native water from Irvine Lake.

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



(in cfs)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	130.4	130.4	130.4	130.4	130.4
DRWF/DATS/OPA	96.7	96.7	96.7	96.7	96.7
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)	4.2	4.2	4.2	4.2	4.2
Supplies Under Development					
Future Potable	-	3.9	3.9	3.9	3.9
Maximum Supply Capability	249.6	253.4	253.4	253.4	253.4
Baseline Demand	190.3	200.9	206.7	207.2	207.7
Demand with Project	190.1	201.3	208.2	208.7	209.2
WRMP Build-out Demand	190.1	201.3	208.2	208.7	209.2
Reserve Supply with Project	59.5	52.1	45.2	44.7	44.3

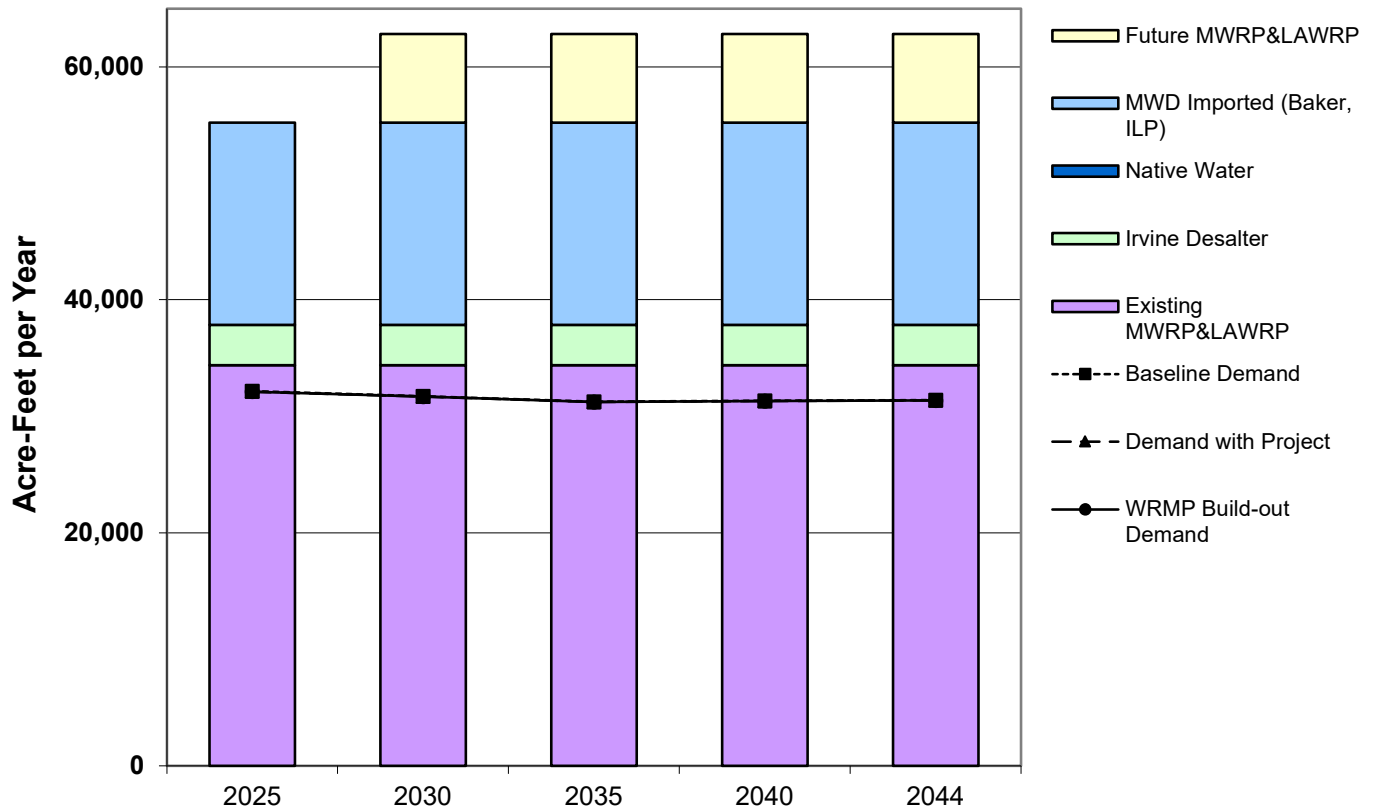
**Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2025	2030	2035	2040	2044
<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	30,058	29,639	29,202	29,275	29,333
Demand with Project	30,020	29,606	29,179	29,252	29,310
WRMP Build-out Demand	30,020	29,606	29,179	29,252	29,310
Reserve Supply with Project	25,177	33,215	33,641	33,568	33,510

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

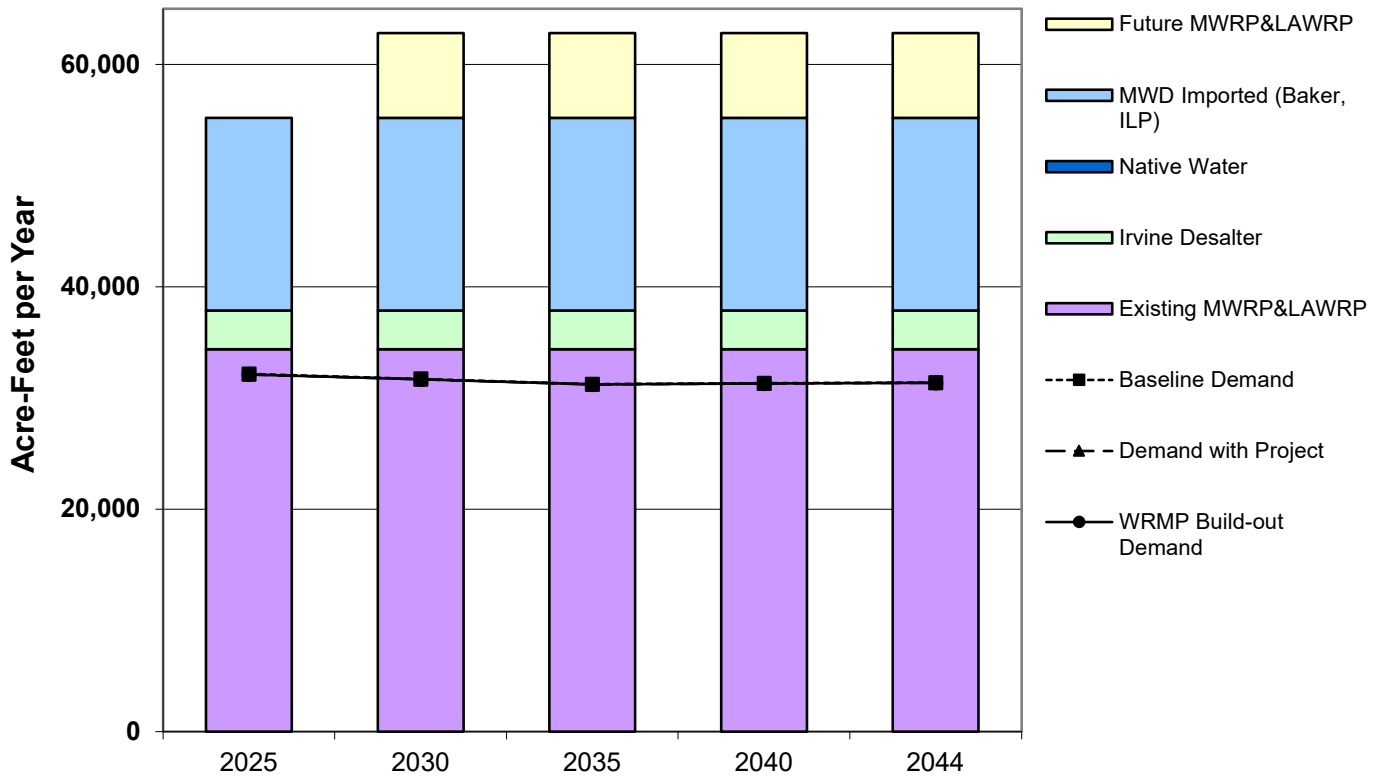
**Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2025	2030	2035	2040	2044
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	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	32,162	31,714	31,246	31,324	31,387
Demand with Project	32,121	31,678	31,221	31,299	31,362
WRMP Build-out Demand	32,121	31,678	31,221	31,299	31,362
Reserve Supply with Project	23,076	31,142	31,599	31,521	31,458

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

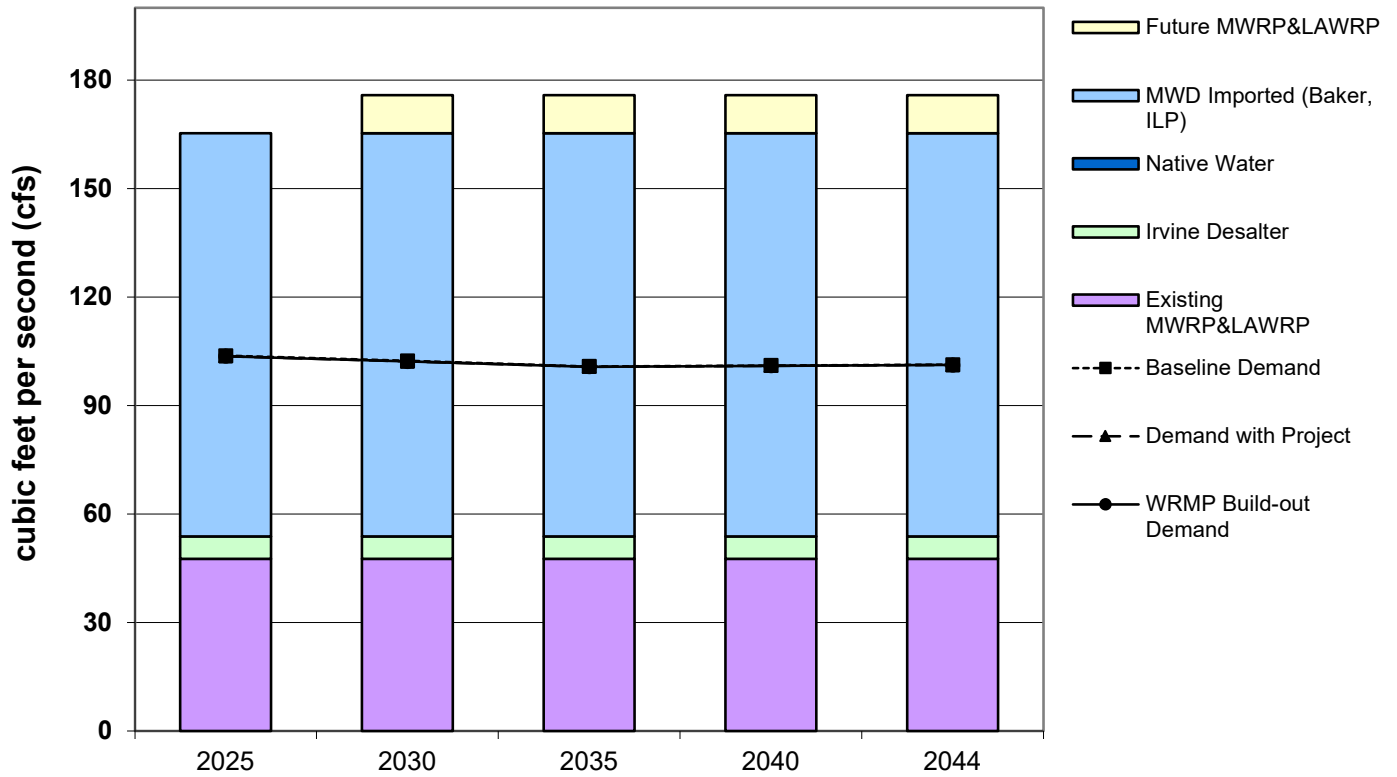
**Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2025	2030	2035	2040	2044
<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	32,162	31,714	31,246	31,324	31,387
Demand with Project	32,121	31,678	31,221	31,299	31,362
WRMP Build-out Demand	32,121	31,678	31,221	31,299	31,362
Reserve Supply with Project	23,076	31,142	31,599	31,521	31,458

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

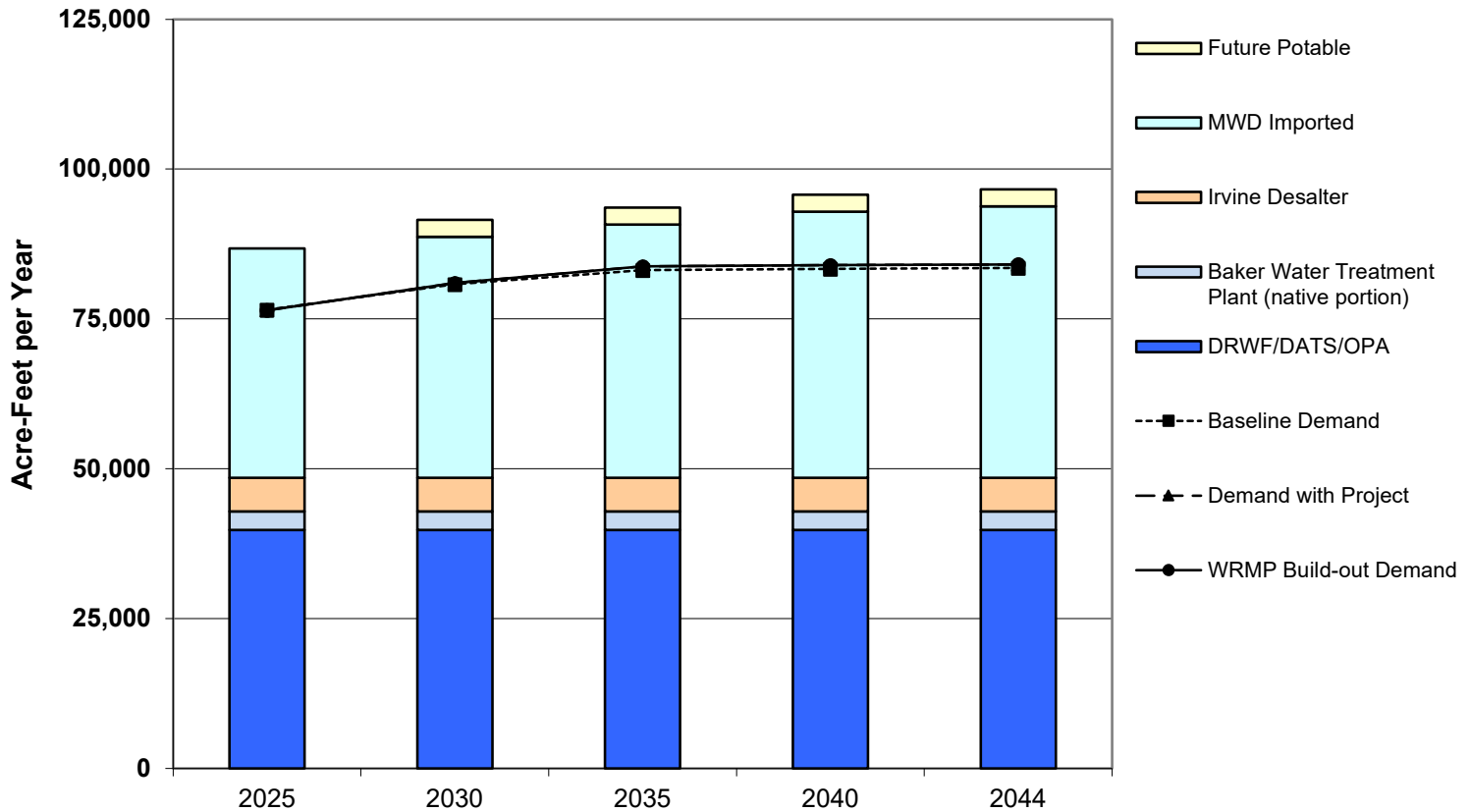
**Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water**



(in cfs)	2025	2030	2035	2040	2044
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	103.8	102.3	100.8	101.1	101.3
Demand with Project	103.7	102.2	100.8	101.0	101.2
WRMP Build-out Demand	103.7	102.2	100.8	101.0	101.2
Reserve Supply with Project	61.6	73.6	75.1	74.8	74.6

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

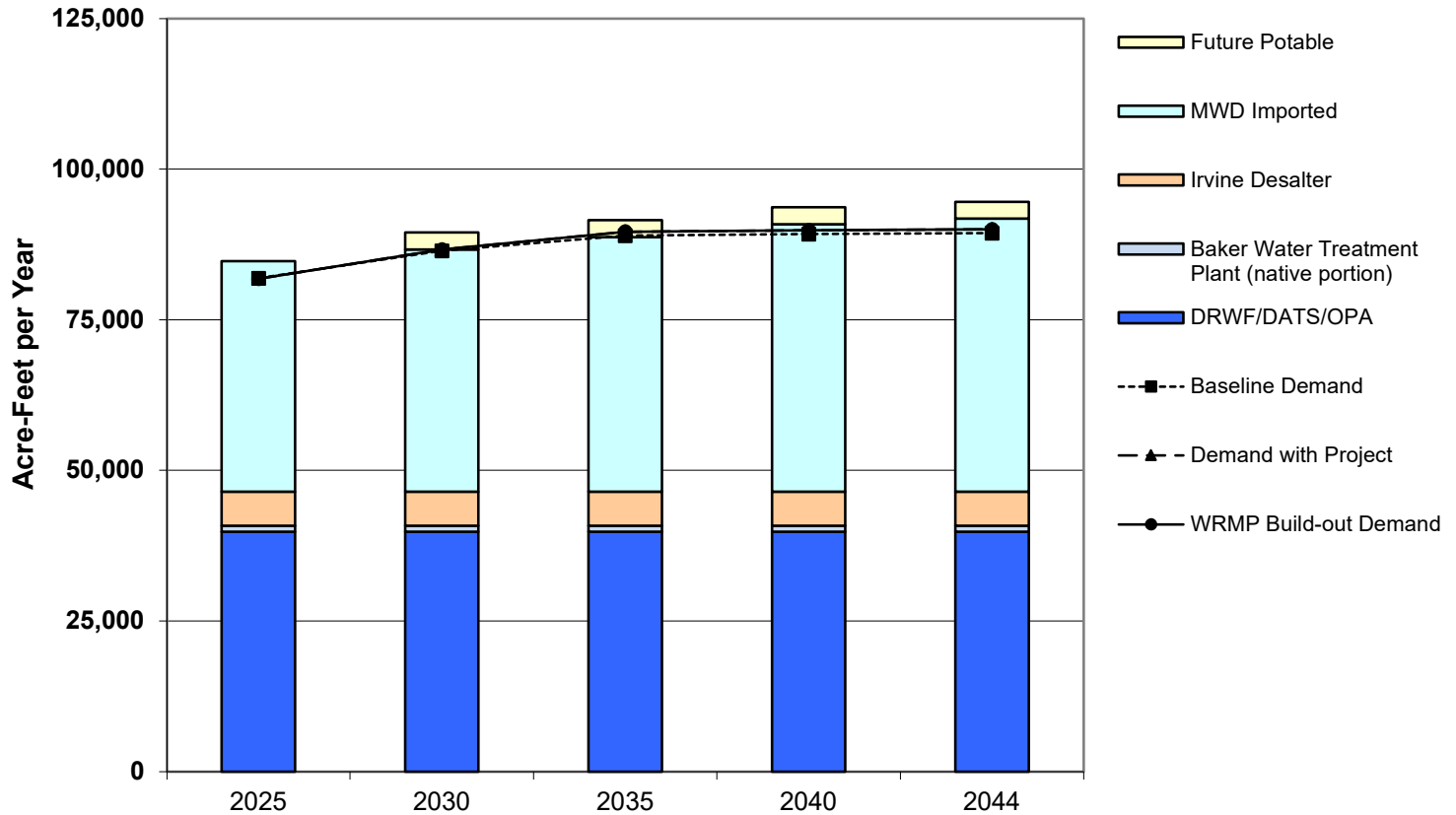
**Figure 1a
IRWD Normal-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation***



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	3,048	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	89,154	93,906	95,958	98,114	99,007
Baseline Demand	76,540	80,802	83,150	83,359	83,525
Demand with Project	76,467	80,981	83,748	83,958	84,126
WRMP Build-out Demand	76,467	80,981	83,748	83,958	84,126
Reserve Supply with Project	12,687	12,926	12,210	14,157	14,882

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

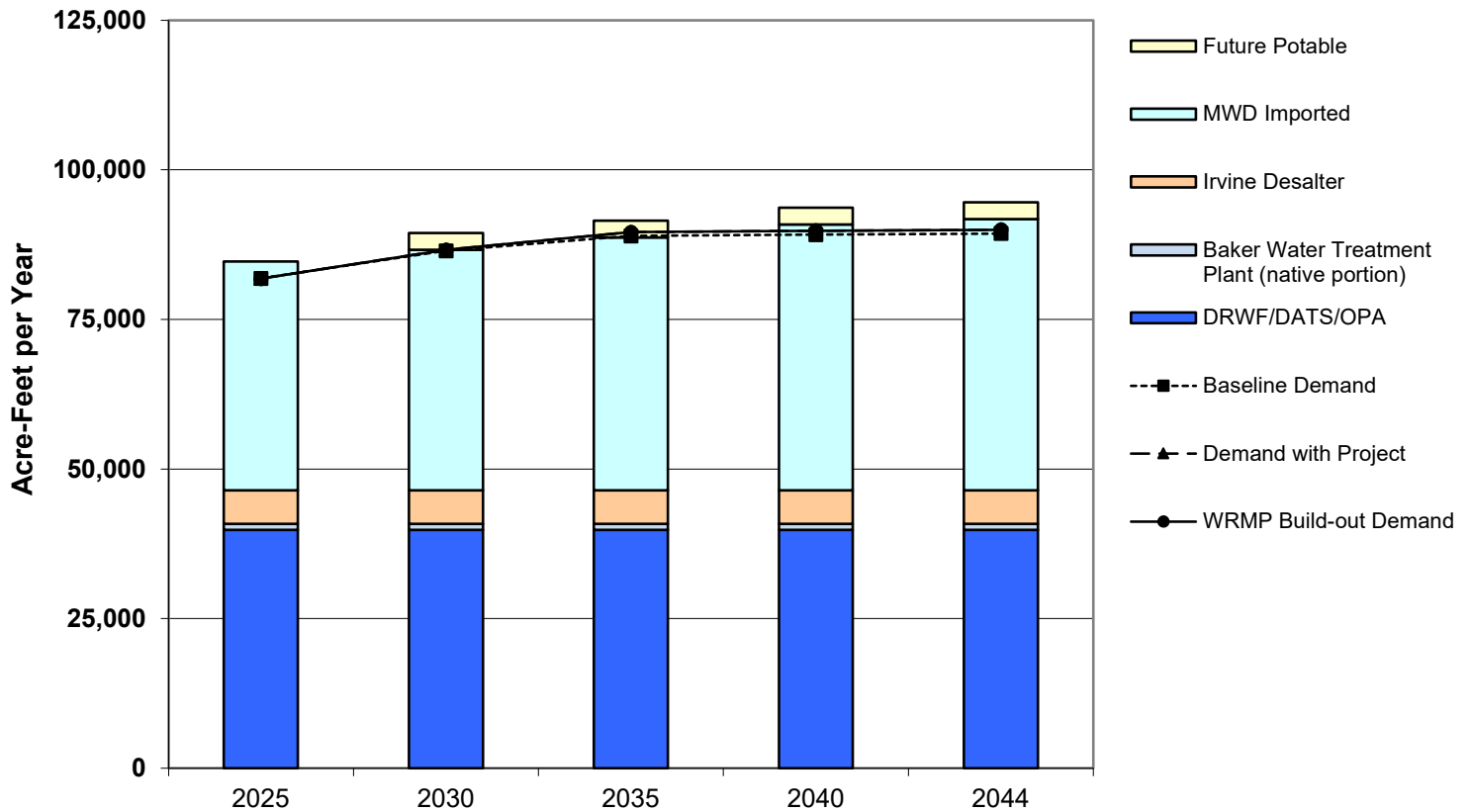
Figure 2a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	87,106	91,858	93,910	96,066	96,959
Baseline Demand	81,898	86,458	88,971	89,194	89,372
Demand with Project	81,820	86,649	89,611	89,835	90,015
WRMP Build-out Demand	81,820	86,649	89,611	89,835	90,016
Reserve Supply with Project	5,286	5,209	4,299	6,231	6,945

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

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



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	87,106	91,858	93,910	96,066	96,959
Baseline Demand	81,898	86,458	88,971	89,194	89,372
Demand with Project	81,820	86,649	89,611	89,835	90,015
WRMP Build-out Demand	81,820	86,649	89,611	89,835	90,015
Reserve Supply with Project	5,286	5,209	4,299	6,231	6,945

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

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	
Potable - Treated Surface			
Baker Treatment Plant (Imported) 10	6.3	4,554	6
Baker Treatment Plant (Native)	4.2	3,048	6
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	2
OPA Well	4.4	3,200	11
Deep Aquifer Treatment System-DATS	12.3	8,618	2
Wells 21 & 22	8.6	2,400	2
Irvine Desalter	9.7	5,618	3
Total Potable Current Supplies	249.6		49,479
			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
Nonpotable - Imported 10			
Baker Aqueduct	40.2	11,651	6
Irvine Lake Pipeline	65.0	9,000	7
	105.2	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	419.2		179,397
Supplies Under Development			
Potable Supplies			
Future Groundwater Production Facilities	3.9	2,800	2,800
Total Under Development	3.9	2,800	2,800
Total Supplies			
Potable Supplies	253.4		116,073
Nonpotable Supplies	169.6		66,124
Total Supplies (Current and Under Development)	423.0		182,197

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.6. Max Day is equivalent to Treatment Plant Production

2 Contract amount - See Assessment Potable Supply-Groundwater(iii). Due to groundwater limitations, value changed from 6,329 AF to 2,400 AF

3 Contract amount - See Assessment 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 Footnote 8, page 27). In 2023, IRWD executed an Agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to use the 3 cfs sold. The amount shown in the table remains 10.5 cfs

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 Assessment 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.

11 Per Agreement with the City of Orange, average annual capacity increased to 3,200 acre-feet

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

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:

(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

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, 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

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 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

mentioned in this assessment, by virtue of the consolidation of IRWD and LAWD on December 31, 2000.

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,

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. In 2023, IRWD executed an agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to the use of the 3 cfs sold.

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. 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 through the year 2044. 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 under normal conditions; 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). In 2023, IRWD executed an Agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to use the 3 cfs sold. 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

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

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.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.

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.

(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. In the MWD 2020 UWMP, MWD has extended its planning timeframe out through 2045 to ensure that the MWD 2020 UWMP may be used as a source document for meeting requirements for sufficient supplies. In addition, the MWD 2020 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 2020 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 2020 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 2045. 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 2020 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 - **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. 11828 and 11829), IRWD adopted its fiscal year 2023-24 capital budget on April 24, 2023 (Resolution No. 2023-6), 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 general obligation 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 the MWD 2020 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 the MWD 2020 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 the MWD 2020 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 2020 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 260,000 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. The efforts being undertaken by OCWD to avoid 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. See also following section on “**Sustainable Groundwater Management Act**”.

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

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.

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 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). See also the following section on “**Sustainable Groundwater Management Act**”.

(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 since the year 2002:

(In AFY)

Year (ending 6/30)	DRWF/DATS/OPA/21-22	Irvine Subbasin (IRWD)	Irvine Subbasin (TIC)	LAWD ¹²
2023	36,558	4,692	0	0

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.

2022	35,344	5,159	0	0
2021	38,722	3,644	0	0
2020	33,975	4,005	0	0
2019	38,603	3,961	0	0
2018	38,196	4,619	0	0
2017	39,787	4,077	0	169
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
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)	DRWF ¹³	Future GW ¹⁴	IDP (Potable)	IDP (Nonpotable)
2025	42,218	2,800	5,618	3,461
2030	42,218	2,800	5,618	3,461
2035	42,218	2,800	5,618	3,461
2040	42,218	2,800	5,618	3,461

(e) If not included in the 2020 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

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 3,200 AFY for the OPA well and 2,800 AFY for Wells 21 & 22.

¹⁴ Under-development.

¹⁵ OCWD has adopted a basin production percentage of 85% for 2023-24. 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.

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”) 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 Basin 8-1 Alternative was updated in January 2023.

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

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

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

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

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

2020 Integrated Water Resources Plan Regional Needs Assessment, Metropolitan Water District of Southern California, April 2022

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

2020 Urban Water Management Plan, Municipal Water District of Orange County, May 2021

Climate Action Plan, Metropolitan Water District of Southern California, May 2022

Climate Action Plan Phase 2: Climate Change Analysis Guidance, California Department of Water Resources, September 2018

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

2021-2022 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District, February 2023

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

Basin 8-1 Alternative 2022 Update, Orange County Water District, January 2022

Exhibit A

Depiction of Project Area

Figure 2-3 Neighborhoods

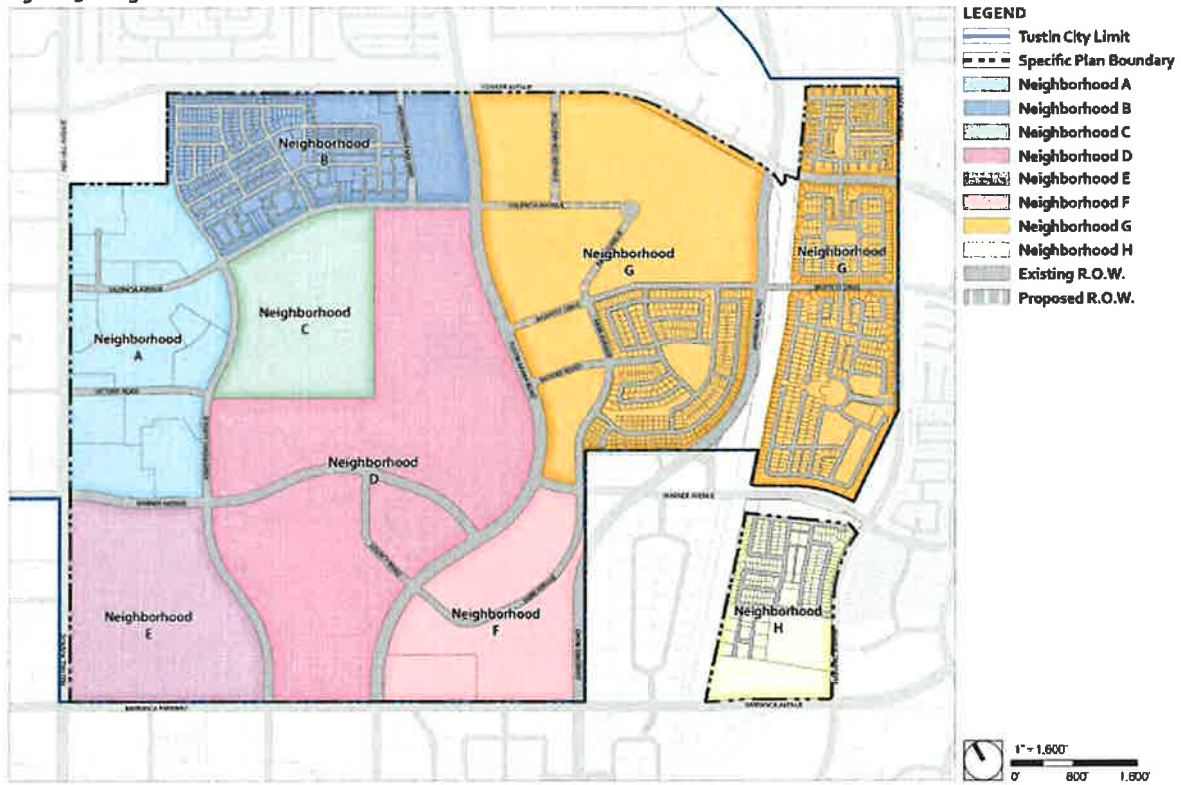


Exhibit B

Uses Included in Project

WATER RESOURCES



November 9, 2023

NOV 16 2023

**IRVINE RANCH
WATER DISTRICT**

Kellie 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.*)
for Tustin Legacy Specific Plan Amendment in the City of Tustin

The City of Tustin 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 a supplemental environmental impact report is required for the project.

Proposed Project Information

Project Title: Tustin Legacy Specific Plan Amendment to meet the objectives of the
2021-2029 Housing Element

Location of project: The Tustin Legacy Specific Plan is generally bounded by Red Hill Avenue on the west, Edinger Avenue on the north, Harvard Avenue on the east, and Barranca Parkway on the south. Jamboree Road transects the site. The Housing Element identified three sites in the TLSP for rezoning to accommodate a portion of the City’s Regional Housing Needs Allocation (RHNA) spread across two geographically defined areas, referred to as Neighborhoods in the TLSP: Neighborhood D and Neighborhood G. The portions of Neighborhood D that are identified within the housing element sites inventory total 84.73 acres, including parcels within Neighborhood D North (HE Site 1A @ 39.87 acres) and D South (HE Site 1B @ 44.86 acres). Neighborhood G is in the northeastern portion of the TLSP site, and the housing element inventory allocates approximately 50 acres as being available for residential development. Figure 3-3, TLSP Neighborhoods, illustrates the location of Neighborhood D and G.

- (For projects requiring a new assessment under Water Code §10910 (h).) Previous Water Supply Assessment including this project was approved on July 13, 2015. 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: 2,211 RHNA units + 2,569 maximum density bonus units (Total additional units = 4,780 units); Plan Total (11,963 units)
- Shopping center or business: No. of employees N/A Sq. ft. of floor space 9,532,419 square feet total (no change)
- Commercial office: No. of employees N/A Sq. ft. of floor space N/A
- Hotel or motel: No. of rooms N/A
- Industrial, manufacturing, processing or industrial park: No. of employees N/A No. of acres N/A Sq. ft. of floor space N/A
- Mixed use (check and complete all above that apply)
- Other: N/A

Total acreage of project: 1,606-acre project area includes 1,511 acres in Tustin and approximately 95 acres in Irvine

Acreage devoted to landscape:

Greenbelt N/A golf course N/A parks 170 acres
Agriculture N/A other landscaped areas N/A

Number of schools two elementary schools and one middle/high school

Number of public facilities five (no change)

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: none


What is the current land use of the area subject to a land use change under the project?
The Tustin Legacy Specific Plan area contains existing residential, commercial, and institutional development and vacant land.

Is the project included in the existing General Plan? Yes If no, describe the existing General Plan Designation N/A


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 TUSTIN

By: 
Ken Nishikawa,
Deputy Director of Public Work, Engineering\City Engineer

REQUEST RECEIVED:

Date: 11/16/23
By: 
Irvine Ranch Water District

REQUEST COMPLETE:

Date: 11/27/23
By: 
Irvine Ranch Water District

Note: This page is intentionally left blank.

Exhibit "D"

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

To: (Lead Agency)

City of Tustin
300 Centennial Way
Tustin, CA 92780

(Applicant)
City of Tustin
300 Centennial Way
Tustin, CA 92780

Project Information

Project Title: Tustin Market Place (Exhibit A)

- Residential: No. of dwelling units: 900 dwelling units (See Exhibit B)
- Shopping center or business: No. of employees N/A Sq. ft. of floor space 756,791 (no change)
- 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) _____
- Other: _____

Assessment of Availability of Water Supply

On _____ 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 _____ Date _____ Title _____

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, based on land use planning information 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 most recent update of that document (2020 UWMP) was adopted in June 2021.

In addition to the WRMP and the 2020 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 use efficiency 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 temporarily 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 by 7% in the assessment during both "single-dry" and "multiple-dry" years. This increase in estimated demands is considered conservative and is consistent with the Municipal Water District of Orange County's ("MWDOC") 2020 UWMP which assumes increased demands in single-dry and multiple dry years of 6% based on MWDOC's Orange County Reliability Study (MWDOC 2020 UWMP, pg. 7-2). The Metropolitan Water District of Southern California ("MWD") also considers these weather variables in their climate adjustment factors when forecasting demands, as documented in MWD's 2020 UWMP which shows an average increase of 8% for single dry year demands (MWD 2020 UWMP Tables 2-4, 2-5, 2-6) and also documented in their 2020 Integrated Resources Plan - Regional Needs Assessment (2022).

Planning horizon. In accordance with Water Code Section 10910, this assessment reviews demands and supplies covering a 20-year planning horizon. For consistency with IRWD's WRMP, the assessment reviews demands and supplies through the year 2044, which is considered to include build-out or "ultimate development".

Assessment of demands. Water demands are reviewed in this assessment for three development projections (to 2044):

- 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 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 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 may increase 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 2020 Urban Water Management Plan (MWD 2020 UWMP) concludes that MWD has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry year condition and a period of drought lasting five consecutive water years, as well as in a normal water year hydrologic condition. (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 annual demands for the *baseline*, *with-project* and *full build-out* scenarios projected under the normal year, and the single- and multiple-dry year conditions through the year 2044. (Figures 1, 2 and 3.) IRWD plans to proceed with the implementation of future potable supplies (*under development*), as shown in the Figures, to improve local reliability during dry-year conditions.
- Adequate *currently available* potable water supply capacity is available to meet *peak-flow* (maximum day) demands for all demand projections through the year 2044. (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 2044. (Figures 5, 6, 7 and 8.) IRWD has implemented all planned 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 operational limits on Delta pumping. See "**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's information concerning operational limits on Delta pumping. See "**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 can provide additional reliability during dry years or emergencies. See "**IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD**," below.

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, 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. Several proceedings concerning Delta operations 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 were established to identify long-term solutions for the Delta. In addition, State and federal agencies and water user entities are currently engaged in the development of the Delta Conveyance Project (previously California WaterFix), which is aimed at making physical and operational improvements in the Delta necessary to improve south of the Delta SWP water supplies and water quality and protect ecosystem health in the Delta (MWD 2020 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 its 2007 Integrated Resources Plan ("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. 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. 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. The 2010 IRP Update includes MWD's Adaptive Resource Management Strategy 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.

In January 2016, MWD adopted its 2015 IRP Update. In the 2015 IRP Update, MWD continued its Adaptive Resource 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 that additional actions are needed in investments in conservation, local supplies, the Delta Conveyance Project (previously 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.

MWD is currently developing its 2020 IRP Update and has completed and adopted a 2020 IRP Regional Needs Assessment which is considered Phase 1 of the 2020 IRP. A One Water Implementation phase will be Phase 2 of the 2020 IRP. The One Water Implementation will take the results and findings of Phase 1 to identify integrated regional solutions. It will include an updated Adaptive Management Strategy, policies, programs and projects to address the findings and mitigate any potential shortages.

IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD: In the MWD 2020 UWMP, MWD states it has supply capability that would be sufficient to meet expected demands from 2025 to 2045 under single dry year and multiple dry year conditions. ¹

Based on the prior MWD 2007 IRP Implementation Report and also reported in the MWD 2015 IRP, 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 2025 through 2045. 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 2025 through 2045, 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. (See also the footnote 1).

Per the MWD 2020 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") (dated February 2009, updated December 2014) which provides standardized methodology for allocation of MWD's supplies during times of shortage. The WSDM Plan distinguishes between shortages, severe shortages, and extreme shortages.

¹ The MWD 2020 UWMP utilized DWR's 2019 SWP Delivery Capability Report to estimate future SWP supplies for 2025 through 2045. 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 2020 UWMP reflect 58% or 1.1 MAF in MWD's expected average year SWP entitlement supplies. This amount is a higher expected average than MWD's 2015 estimate of 984,000 AF. For purposes of a conservative analysis, IRWD has used the 22% reduction in its supplies from MWD as the basis of IRWD's analysis.

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, 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

Figures 1a, 2a, and 3a show IRWD’s estimated supplies (average and single and multiple dry years) under a short-term MWD water supply 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 addition, these Figures do not reflect a reduction in demands, thus representing a more conservative view of IRWD’s supply capability. (see “**Recent Actions Related to Drought Conditions**” below)

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 includes 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

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 “2021-2022 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.

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 conserve potable water. In addition, if needed, resultant net shortage levels can be addressed by demand reduction programs as described in IRWD's updated Water Shortage Contingency Plan adopted in 2021. IRWD's Water Shortage Contingency Plan provides procedures for responding to various levels of supply shortages through a combination of supply augmentation and demand management measures. As stated in IRWD's Water Shortage Contingency Plan, use of local supplies, storage and other supply augmentation measures can mitigate shortages, and are used as necessary and appropriate during declared shortage levels.

It can be noted that IRWD's above approach is conservative, in that IRWD evaluates the effect of the 16% reduction through 2044 and shows the effect of current allocation scenarios in all of the five-year increments. However, 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. In 2012, DWR adopted phase 1 of its Climate Action Plan, its department-wide plan for reducing greenhouse gas emissions (GHG). In September 2018, the DWR released phase 2 of its Climate Action Plan, which is DWR's guide to addressing climate change in the programs, projects, and activities over which it has authority. Per this guidance, California's climate policy focuses on reducing GHG emissions, preparing for climate change impacts, and supporting climate-related research to inform policy responses and decision-making processes.

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. In the 2015 IRP Update, MWD states that it 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 the MWD 2020 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 such as climate change and can also establish "signposts" that can be monitored to see when crucial changes may be happening. MWD states in its 2020 UWMP that the RDM analysis was valuable in identifying vulnerabilities to its 2015 IRP approach to long-term reliability and in understanding how climate change would best be incorporated into the 2020 IRP.

Per the MWD 2020 UWMP, MWD continues to incorporate current climate change science into its planning efforts and MWD has made great efforts to implement GHG mitigation programs and policies for its facilities and operations. In 2022, MWD released a Climate Action Plan which complements MWD's IRP planning process and set reduction targets and outlined strategies to reduce emission levels by 2045. In MWD's 2020 IRP Regional Needs Assessment, MWD finds that SWP supplies are highly susceptible to varying hydrologic conditions, climate change, and regulatory restrictions. In this report, MWD assesses climate

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.

vulnerabilities and the need for future projects such as indirect potable reuse, stormwater capture, and expanded storage capacity to mitigate and adapt to these vulnerabilities and ensure future resilience. Specific climate change impacts on 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 2020 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 the MWD 2020 UWMP (pages 3-19 to 3-23). IRWD has also addressed supply interruption planning in its WRMP and 2020 UWMP.

Recent Actions Related to Drought Conditions. In response to 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 included 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 its 2013 potable water use 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 its 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. On April 7, 2017, Governor Brown rescinded the Executive Order.

In California's most recent drought (2021-2023), in July 2021, Governor Newsom called for voluntary 15 percent reduction in potable water use from all urban suppliers. Consistent with the Governor's Executive Order, IRWD implemented Level 2 of its Water Shortage Contingency Plan, although IRWD had no projected shortages in supplies. In March 2023, Governor Newsom rescinded the Executive Order.

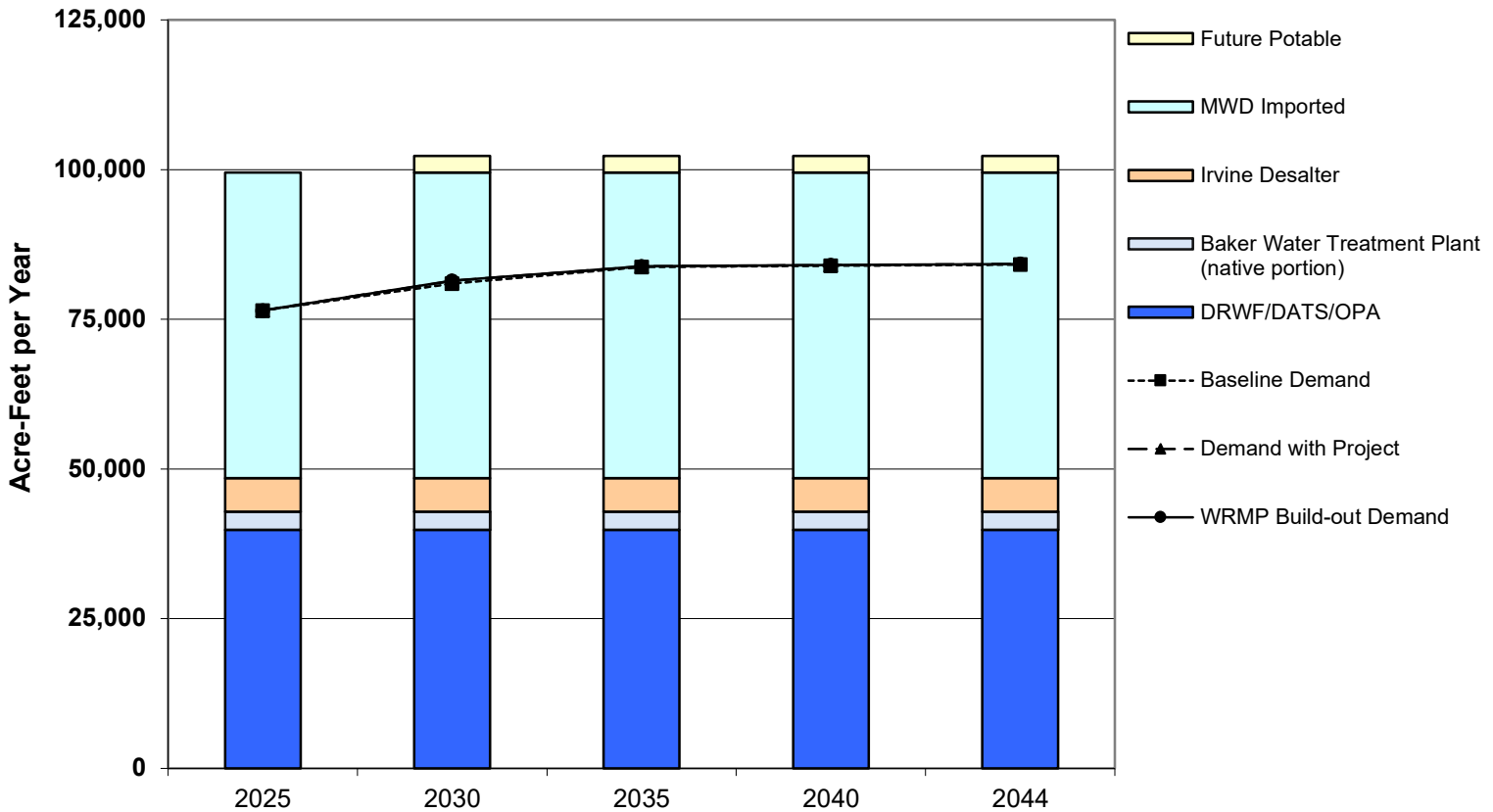
As discussed under "*IRWD's Evaluation of Effect of Reduced MWD Supplies to IRWD*" (see above), IRWD has effectively analyzed an imported water supply reduction up to a level 5 Regional Shortage Stage in Figures 1a, 2a, 3a. These Figures, however, do not reflect a reduction in demands, thus representing 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 Governors' 2015 and 2021 orders, IRWD's conservative supply-sufficiency analysis in Figures 1a, 2a and 3a does not include the ordered reduction in potable demands.

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 "Actions on Delta Pumping" above.

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



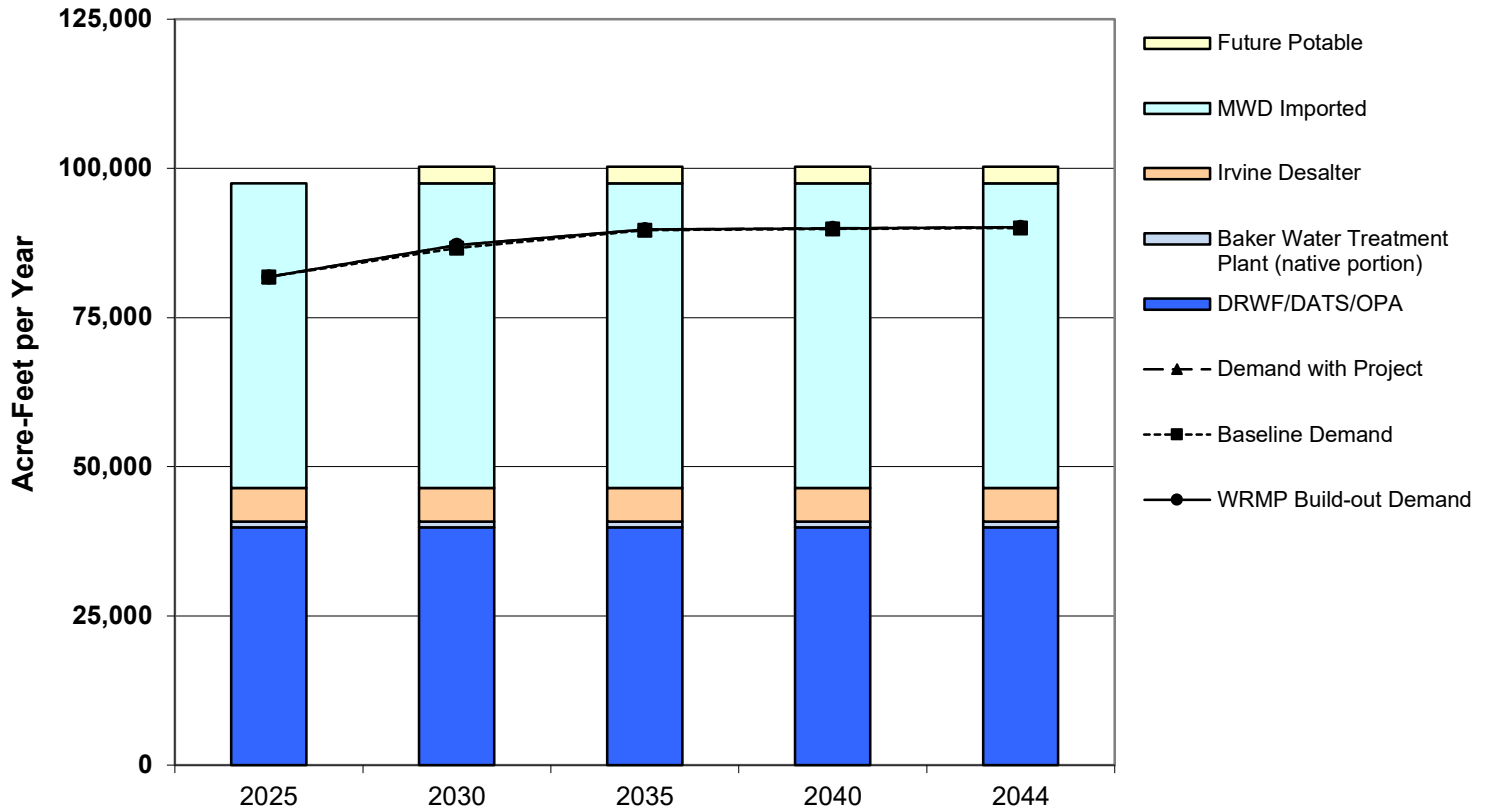
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	3,048	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	101,911	104,711	104,711	104,711	104,711
Baseline Demand	76,467	80,981	83,748	83,958	84,126
Demand with Project	76,468	81,430	83,850	84,060	84,228
WRMP Build-out Demand	76,468	81,430	83,850	84,060	84,228
Reserve Supply with Project	25,443	23,281	20,861	20,651	20,483

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 is supplied untreated imported water and native water from Irvine Lake.

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



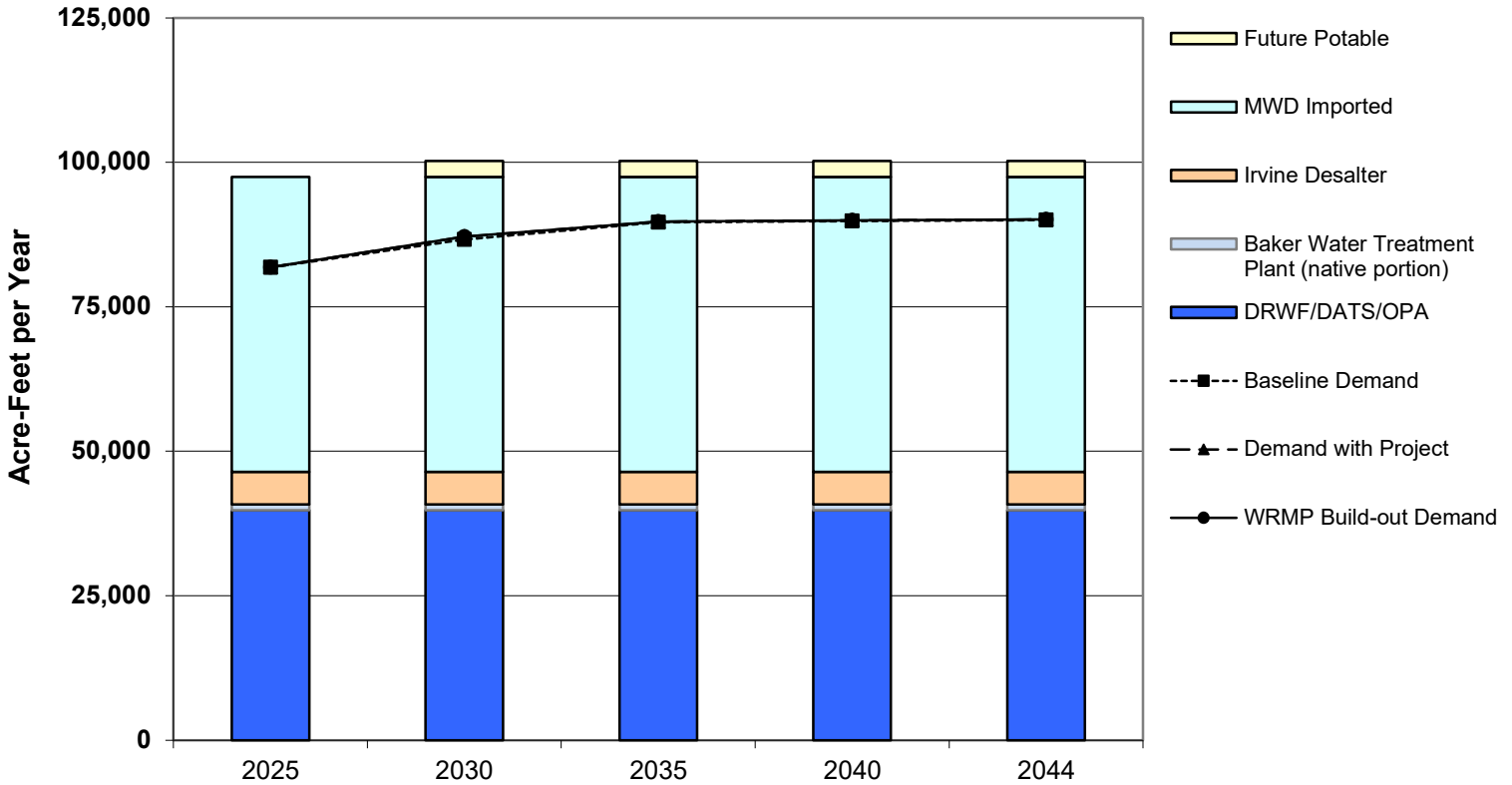
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	99,863	102,663	102,663	102,663	102,663
Baseline Demand	81,820	86,649	89,611	89,835	90,015
Demand with Project	81,821	87,130	89,719	89,944	90,124
WRMP Build-out Demand	81,821	87,130	89,719	89,944	90,124
Reserve Supply with Project	18,042	15,532	12,943	12,719	12,539

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 is supplied untreated imported water and native water from Irvine Lake.

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



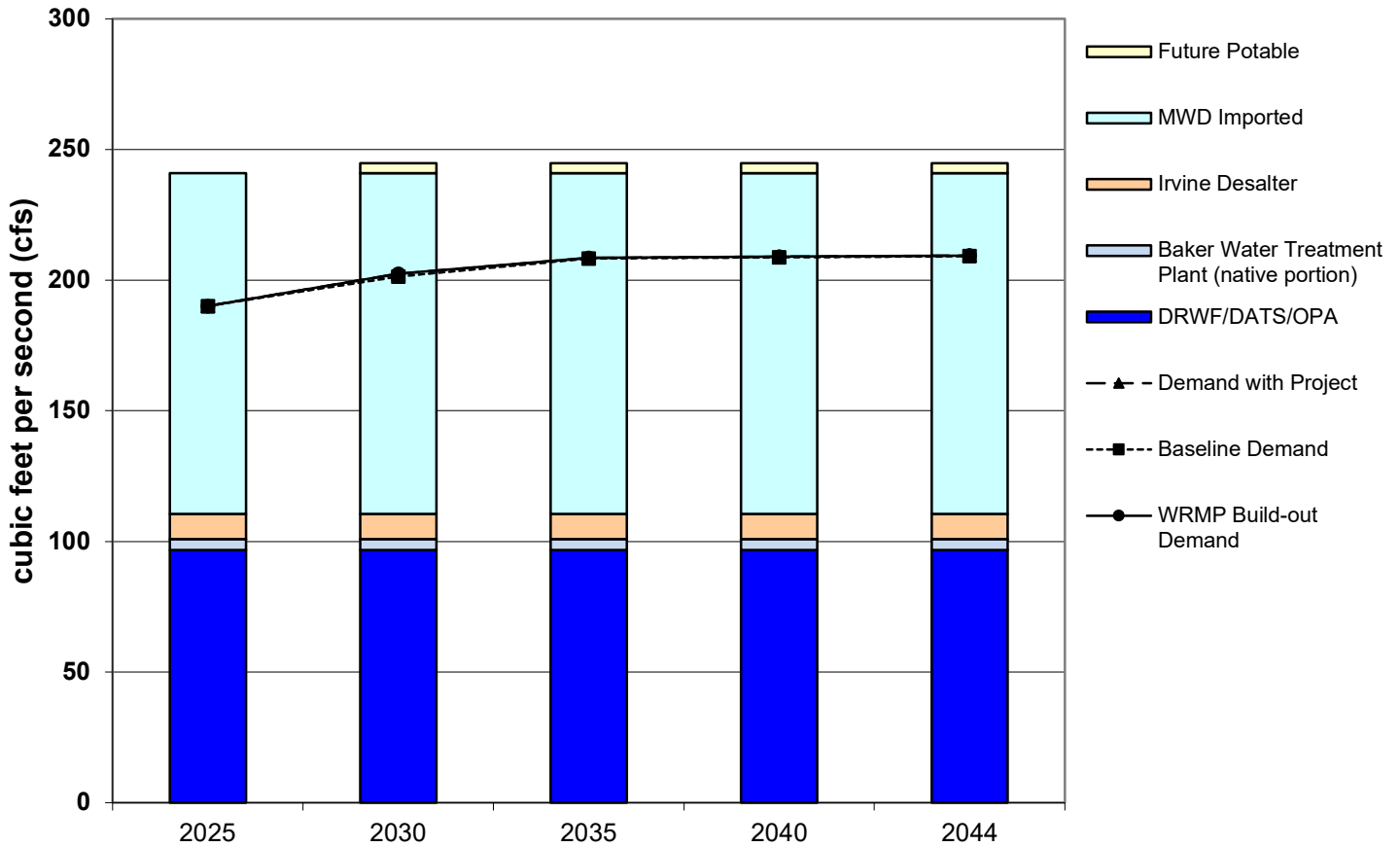
(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	51,027	51,027	51,027	51,027	51,027
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	99,863	102,663	102,663	102,663	102,663
Baseline Demand	81,820	86,649	89,611	89,835	90,015
Demand with Project	81,821	87,130	89,719	89,944	90,124
WRMP Build-out Demand	81,821	87,130	89,719	89,944	90,124
Reserve Supply with Project	18,042	15,532	12,943	12,719	12,539

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.

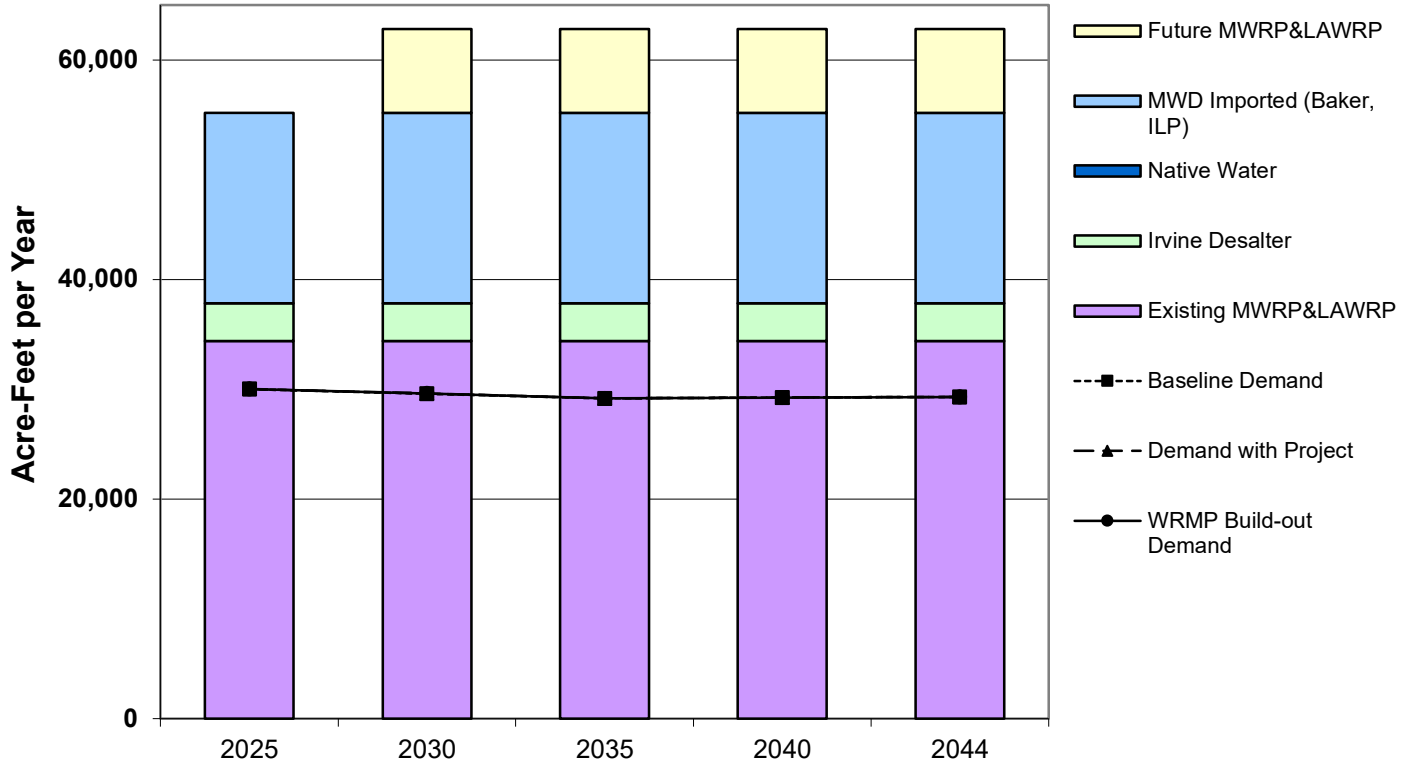
Baker Water Treatment Plant is supplied untreated imported water and native water from Irvine Lake.

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



(in cfs)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	130.4	130.4	130.4	130.4	130.4
DRWF/DATS/OPA	96.7	96.7	96.7	96.7	96.7
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)	4.2	4.2	4.2	4.2	4.2
Supplies Under Development					
Future Potable	-	3.9	3.9	3.9	3.9
Maximum Supply Capability	249.6	253.4	253.4	253.4	253.4
Baseline Demand	190.1	201.3	208.2	208.7	209.2
Demand with Project	190.1	202.5	208.5	209.0	209.4
WRMP Build-out Demand	190.1	202.5	208.5	209.0	209.4
Reserve Supply with Project	59.5	51.0	45.0	44.4	44.0

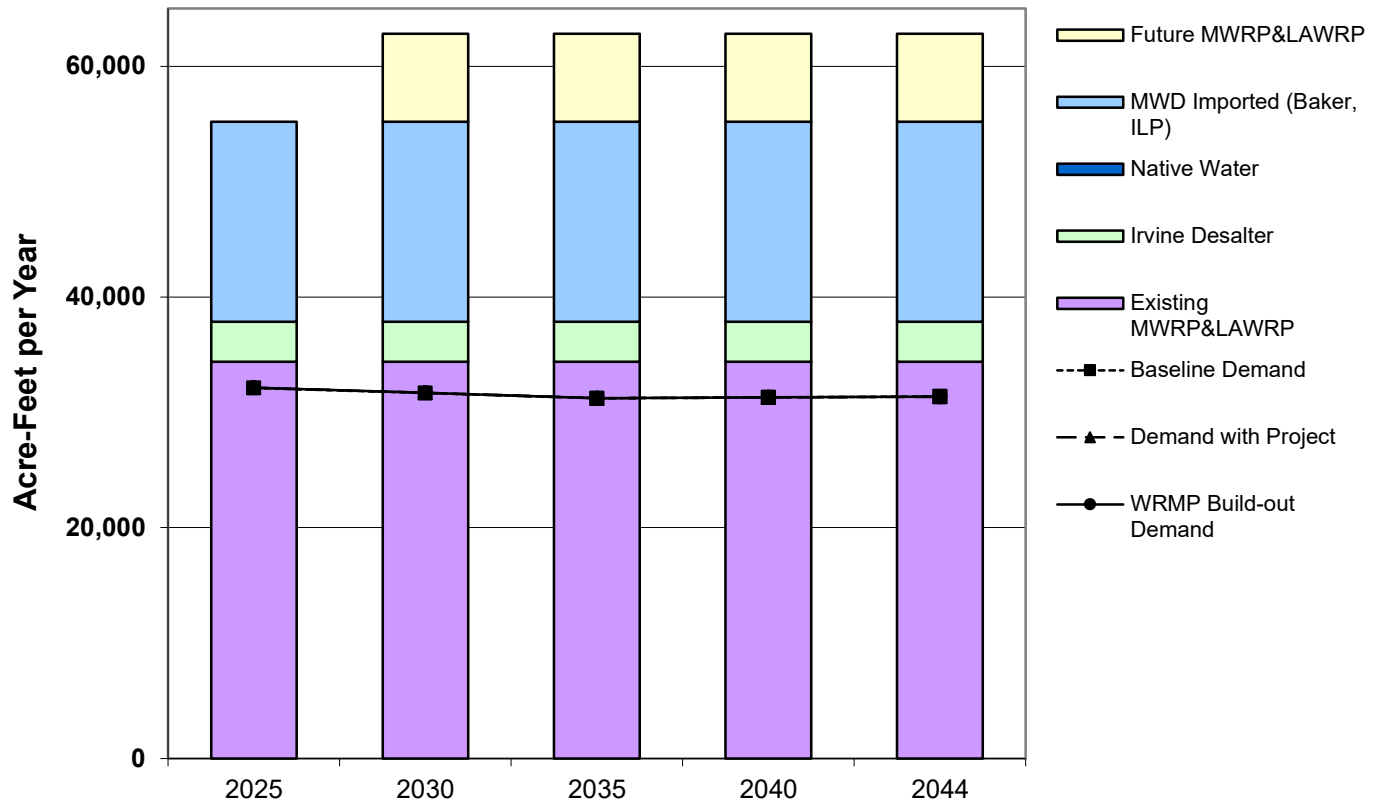
**Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2025	2030	2035	2040	2044
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	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	30,020	29,606	29,179	29,252	29,310
Demand with Project	30,024	29,623	29,177	29,250	29,308
WRMP Build-out Demand	30,024	29,623	29,177	29,250	29,308
Reserve Supply with Project	25,173	33,197	33,643	33,570	33,512

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

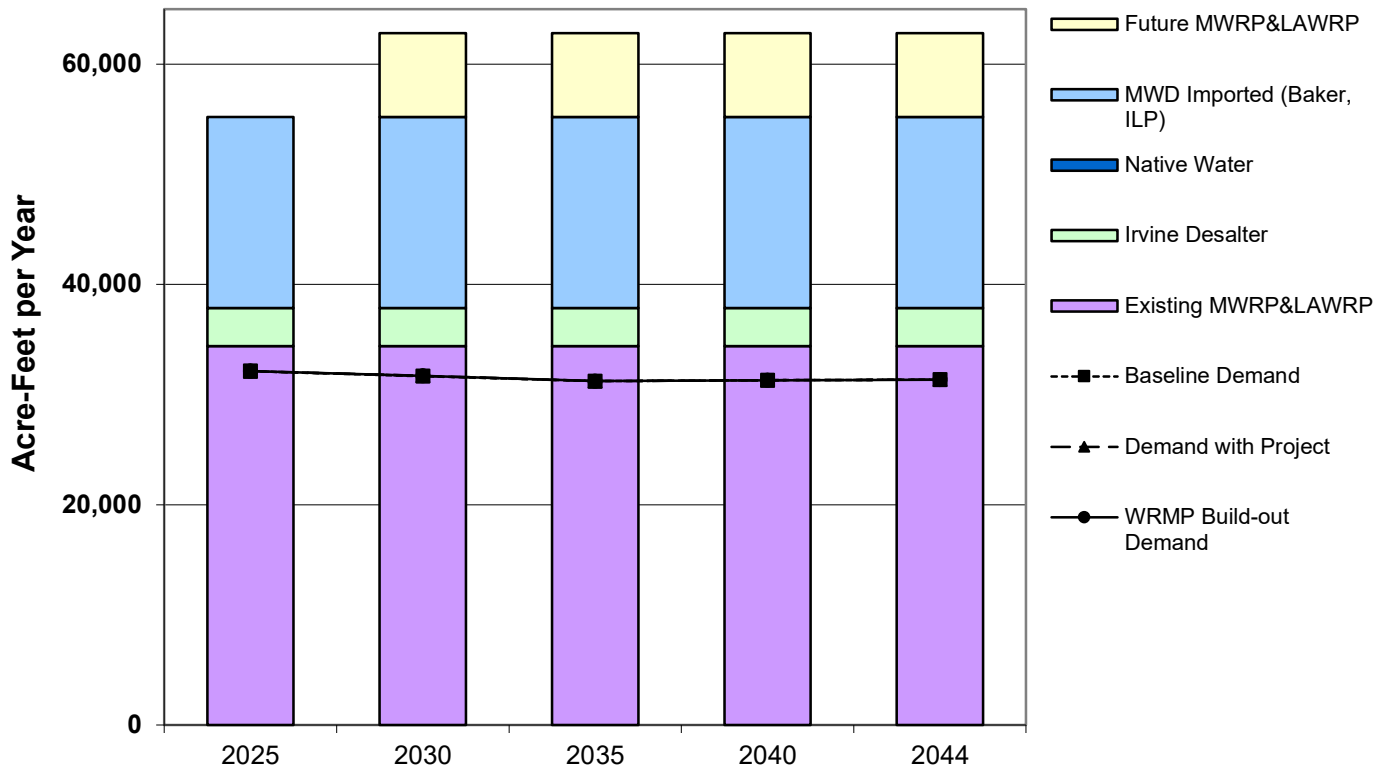
**Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water**



(in acre-feet per year)	2025	2030	2035	2040	2044
<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	32,121	31,678	31,221	31,299	31,362
Demand with Project	32,125	31,696	31,219	31,297	31,360
WRMP Build-out Demand	32,125	31,696	31,219	31,297	31,360
Reserve Supply with Project	23,072	31,124	31,601	31,523	31,460

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

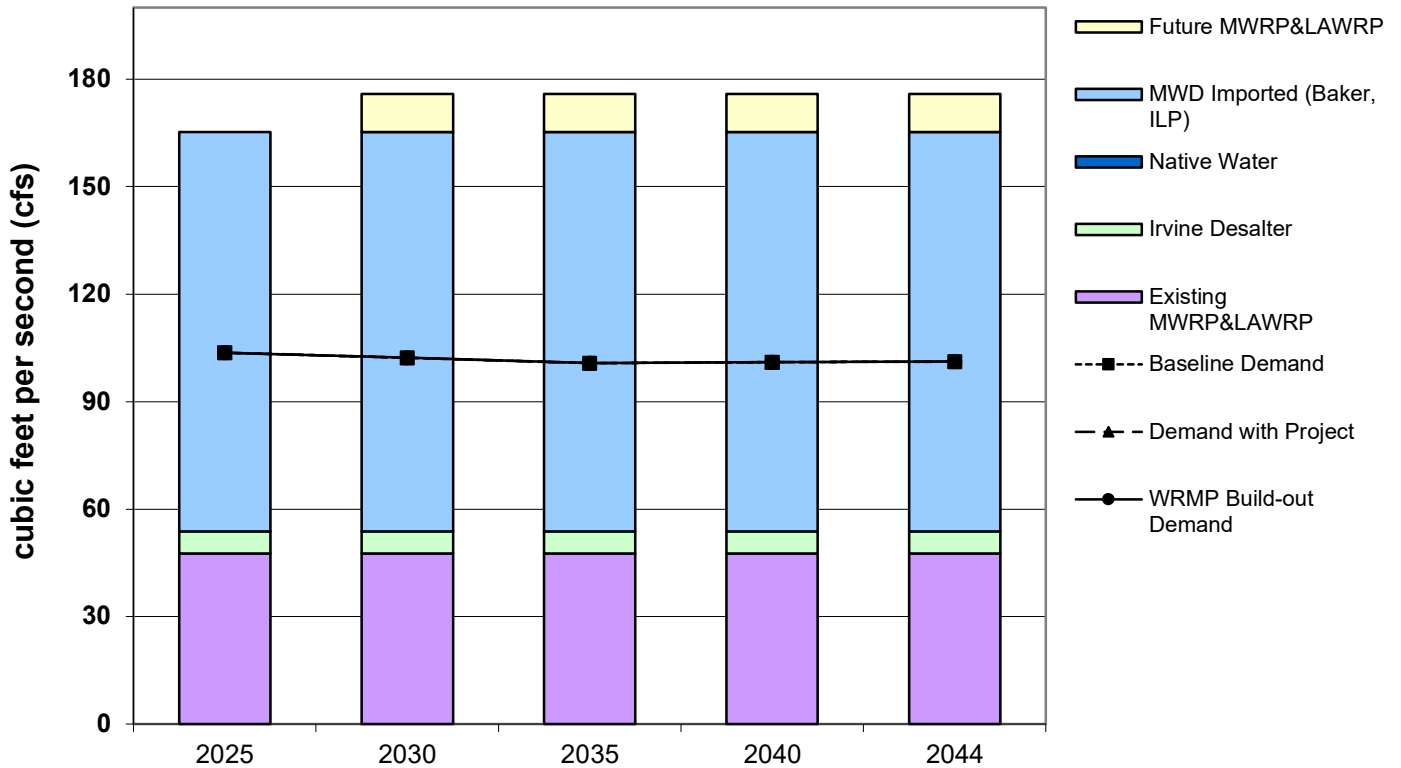
Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water



(in acre-feet per year)	2025	2030	2035	2040	2044
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	-	-	-	-	-
Maximum Supply Capability	55,197	62,820	62,820	62,820	62,820
Baseline Demand	32,121	31,678	31,221	31,299	31,362
Demand with Project	32,125	31,696	31,219	31,297	31,360
WRMP Build-out Demand	32,125	31,696	31,219	31,297	31,360
Reserve Supply with Project	23,072	31,124	31,601	31,523	31,460

Note: Downward trend reflects reduction in agricultural use over time.
MWD Imported Supplies are shown at 16% reduction off of average connected capacity.

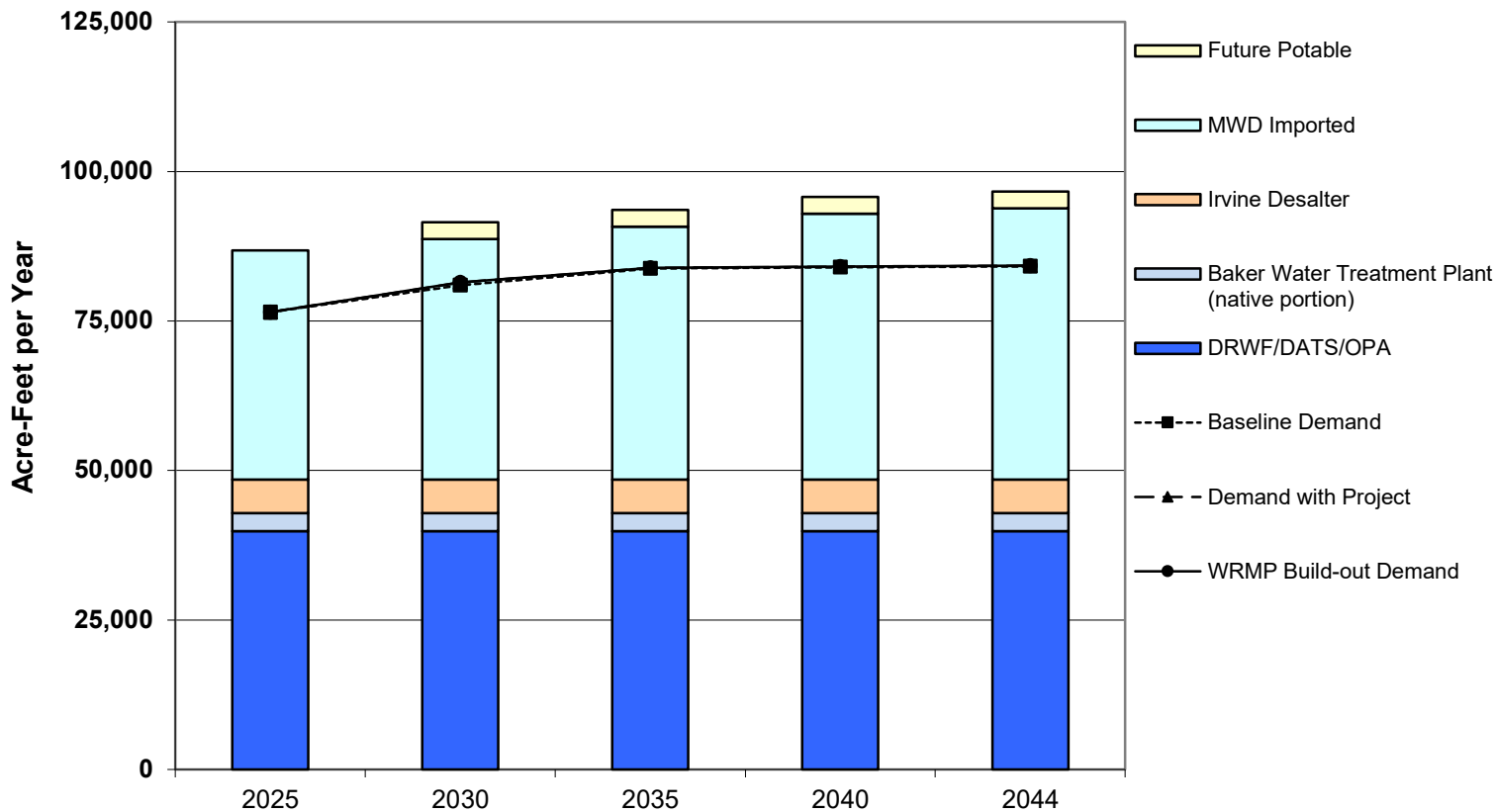
Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water



(in cfs)	2025	2030	2035	2040	2044
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	103.7	102.2	100.8	101.0	101.2
Demand with Project	103.7	102.3	100.7	101.0	101.2
WRMP Build-out Demand	103.7	102.3	100.7	101.0	101.2
Reserve Supply with Project	61.6	73.5	75.1	74.8	74.6

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

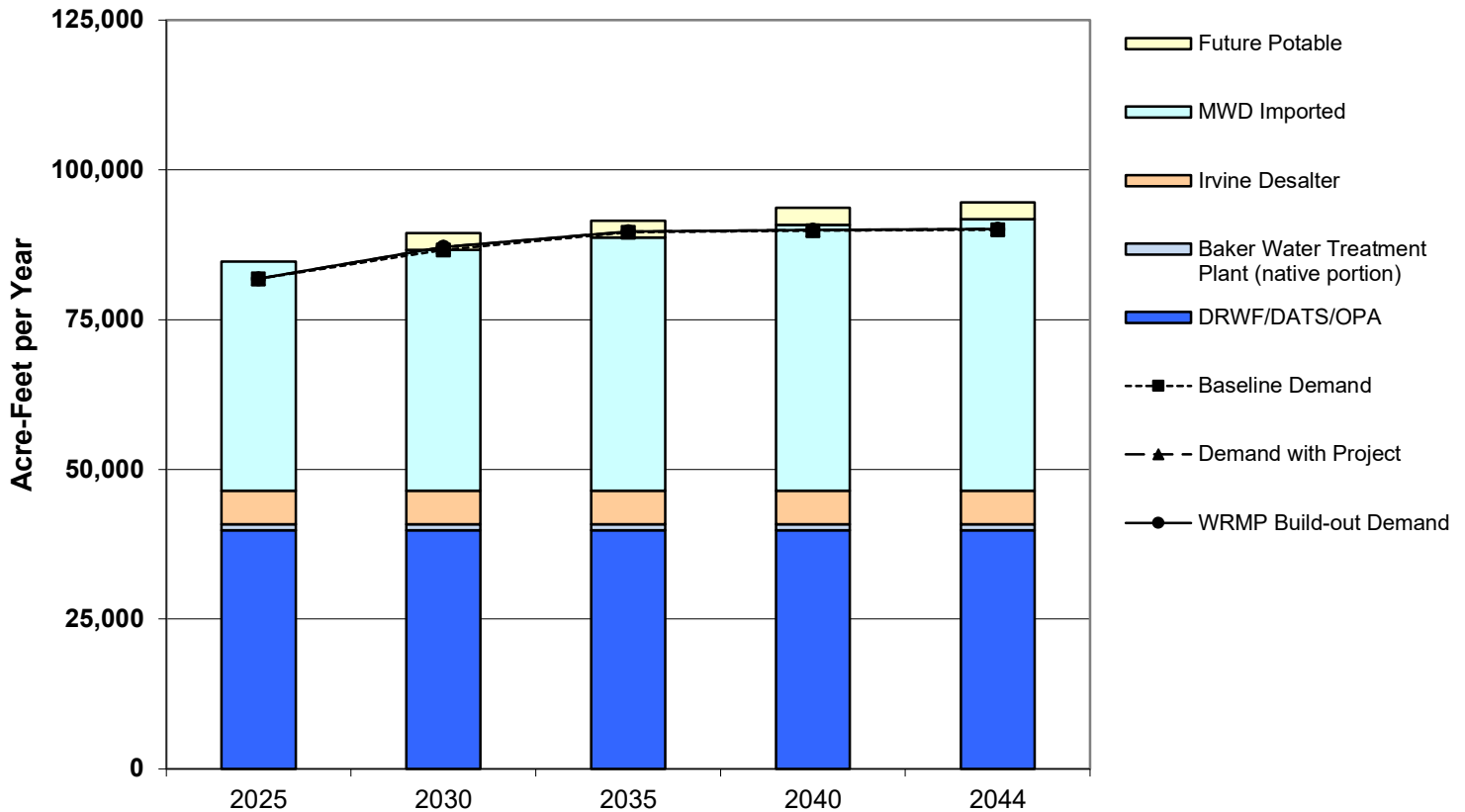
Figure 1a
IRWD Normal-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	3,048	3,048	3,048	3,048	3,048
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	89,154	93,906	95,958	98,114	99,007
Baseline Demand	76,467	80,981	83,748	83,958	84,126
Demand with Project	76,468	81,430	83,850	84,060	84,228
WRMP Build-out Demand	76,468	81,430	83,850	84,060	84,228
Reserve Supply with Project	12,686	12,476	12,108	14,055	14,779

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

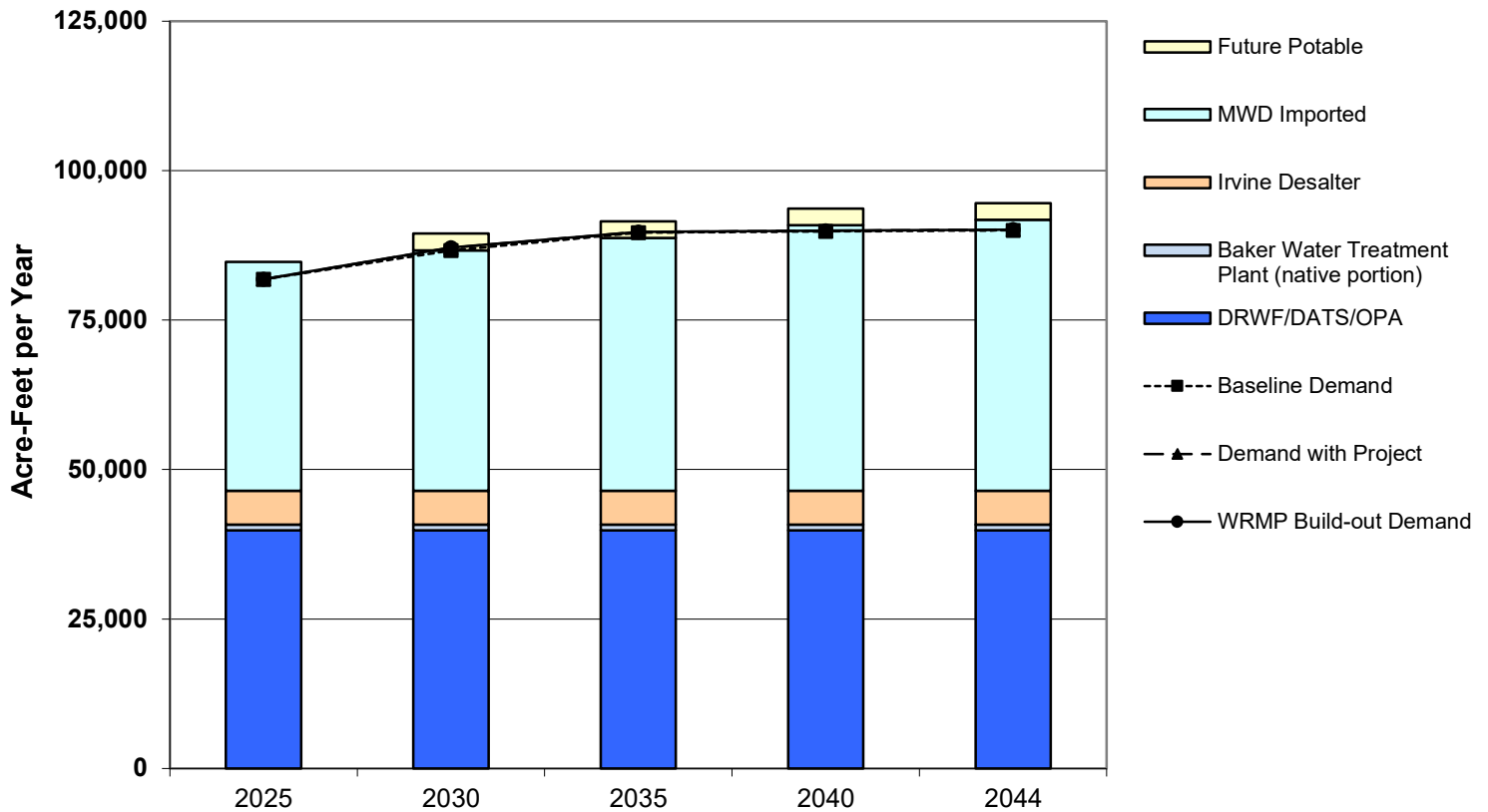
Figure 2a
IRWD Single Dry-Year Supply & Demand - Potable Water
Under Temporary MWD Allocation*



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	87,106	91,858	93,910	96,066	96,959
Baseline Demand	81,820	86,649	89,611	89,835	90,015
Demand with Project	81,821	87,130	89,719	89,944	90,124
WRMP Build-out Demand	81,821	87,130	89,719	89,944	90,125
Reserve Supply with Project	5,285	4,728	4,190	6,122	6,835

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

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



(in acre-feet per year)	2025	2030	2035	2040	2044
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF, Baker)	38,270	40,222	42,274	44,430	45,323
DRWF/DATS/OPA	39,818	39,818	39,818	39,818	39,818
Irvine Desalter	5,618	5,618	5,618	5,618	5,618
Wells 21 & 22	2,400	2,400	2,400	2,400	2,400
Baker Water Treatment Plant (native portion)	1,000	1,000	1,000	1,000	1,000
Supplies Under Development					
Future Potable	-	2,800	2,800	2,800	2,800
Maximum Supply Capability	87,106	91,858	93,910	96,066	96,959
Baseline Demand	81,820	86,649	89,611	89,835	90,015
Demand with Project	81,821	87,130	89,719	89,944	90,124
WRMP Build-out Demand	81,821	87,130	89,719	89,944	90,124
Reserve Supply with Project	5,285	4,728	4,190	6,122	6,835

*For illustration purposes, IRWD has shown MWD Imported Supplies as estimated under a MWD short-term allocation up to a level 5 in all of the 5-year increments. This does not reflect a reduction in demands, thus representing a conservative view of supply capability. 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 2020 UWMP. Under a MWD Allocation, the Baker WTP would be limited to available MWD and native water.

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	
Potable - Treated Surface			
Baker Treatment Plant (Imported) 10	6.3	4,554	6
Baker Treatment Plant (Native)	4.2	3,048	6
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	2
OPA Well	4.4	3,200	11
Deep Aquifer Treatment System-DATS	12.3	8,618	2
Wells 21 & 22	8.6	2,400	2
Irvine Desalter	9.7	5,618	3
Total Potable Current Supplies	249.6		49,479
			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
Nonpotable - Imported 10			
Baker Aqueduct	40.2	11,651	6
Irvine Lake Pipeline	65.0	9,000	7
	105.2	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	419.2		179,397
Supplies Under Development			
Potable Supplies			
Future Groundwater Production Facilities	3.9	2,800	2,800
Total Under Development	3.9	2,800	2,800
Total Supplies			
Potable Supplies	253.4		116,073
Nonpotable Supplies	169.6		66,124
Total Supplies (Current and Under Development)	423.0		182,197

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.6. Max Day is equivalent to Treatment Plant Production

2 Contract amount - See Assessment Potable Supply-Groundwater(iii). Due to groundwater limitations, value changed from 6,329 AF to 2,400 AF

3 Contract amount - See Assessment 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 Footnote 8, page 27). In 2023, IRWD executed an Agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to use the 3 cfs sold. The amount shown in the table remains 10.5 cfs

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 Assessment 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.

11 Per Agreement with the City of Orange, average annual capacity increased to 3,200 acre-feet

*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) 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

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.

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).

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,

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. In 2023, IRWD executed an agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to the use of the 3 cfs sold.

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. 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 through the year 2044. 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 under normal conditions; 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). In 2023, IRWD executed an Agreement that sells 3 cfs to South County agencies, leaving 7.5 cfs for daily use for IRWD. However, should an emergency arise, IRWD retains the right to use the 3 cfs sold. 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

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

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.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.

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.

(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. In the MWD 2020 UWMP, MWD has extended its planning timeframe out through 2045 to ensure that the MWD 2020 UWMP may be used as a source document for meeting requirements for sufficient supplies. In addition, the MWD 2020 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 2020 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 2020 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 2045. 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 2020 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 - **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. 11828 and 11829), IRWD adopted its fiscal year 2023-24 capital budget on April 24, 2023 (Resolution No. 2023-6), 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 general obligation 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 the MWD 2020 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 the MWD 2020 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 the MWD 2020 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 2020 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 260,000 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. The efforts being undertaken by OCWD to avoid 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. See also following section on “**Sustainable Groundwater Management Act**”.

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

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.

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 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). See also the following section on “**Sustainable Groundwater Management Act**”.

(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 since the year 2002:

(In AFY)

Year (ending 6/30)	DRWF/DATS/ OPA/21-22	Irvine Subbasin (IRWD)	Irvine Subbasin (TIC)	LAWD ¹²
2023	36,558	4,692	0	0

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.

2022	35,344	5,159	0	0
2021	38,722	3,644	0	0
2020	33,975	4,005	0	0
2019	38,603	3,961	0	0
2018	38,196	4,619	0	0
2017	39,787	4,077	0	169
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
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)	DRWF ¹³	Future GW ¹⁴	IDP (Potable)	IDP (Nonpotable)
2025	42,218	2,800	5,618	3,461
2030	42,218	2,800	5,618	3,461
2035	42,218	2,800	5,618	3,461
2040	42,218	2,800	5,618	3,461

(e) If not included in the 2020 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

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 3,200 AFY for the OPA well and 2,800 AFY for Wells 21 & 22.

¹⁴ Under-development.

¹⁵ OCWD has adopted a basin production percentage of 85% for 2023-24. 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.

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”) 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 Basin 8-1 Alternative was updated in January 2022.

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

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

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

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

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

2020 Integrated Water Resources Plan Regional Needs Assessment, Metropolitan Water District of Southern California, April 2022

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

2020 Urban Water Management Plan, Municipal Water District of Orange County, May 2021

Climate Action Plan, Metropolitan Water District of Southern California, May 2022

Climate Action Plan Phase 2: Climate Change Analysis Guidance, California Department of Water Resources, September 2018

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

2021-2022 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District, February 2023

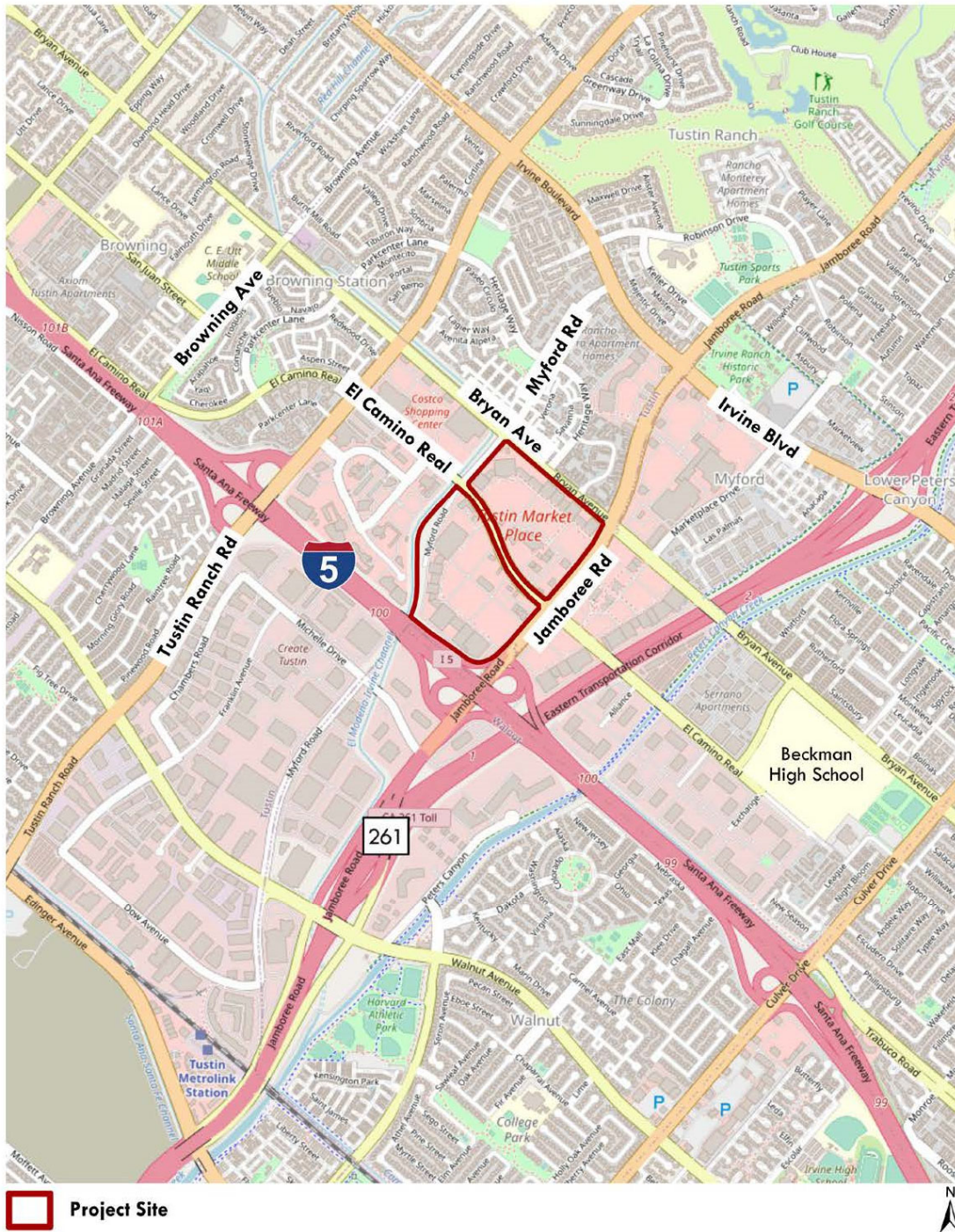
Basin 8-1 Alternative, Orange County Water District, January 2017

Basin 8-1 Alternative 2022 Update, Orange County Water District, January 2022

Exhibit A

Depiction of Project Area

Local Vicinity



The Tustin Marketplace Housing Overlay
City of Tustin

Figure 1

Exhibit B

Uses Included in Project

Public Works / Engineering

Date November 14, 2023

WATER RESOURCES

NOV 16 2023

IRVINE RANCH WATER DISTRICT



Kellie 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.) for Tustin Market Place in the City of Tustin

The City of Tustin 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 a supplemental environmental impact report is required for the project.

Proposed Project Information

Project Title: Housing Zone at Tustin Market Place to meet the objectives of the 2021-2029 Housing Element

Location of project: The Project site is approximately 18 acres in size and currently used as surface parking within an approximately 76.93 acre shopping center, all under common ownership (The Market Place). The Project site is generally bounded by Myford Road to the northwest, Bryan Avenue to the northeast, Jamboree Road to the southeast and I-5 (Santa Ana Freeway) to the southwest.

- Four checkboxes with text: (For projects requiring a new assessment under Water Code §10910 (h).) Previous Water Supply Assessment including this project was approved on N/A. 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:

- Three checkboxes with text: Residential: No. of dwelling units: 900 units; Shopping center or business: No. of employees N/A Sq. ft. of floor space 756,791 square feet total (no change); Commercial office: No. of employees N/A Sq. ft. of floor space N/A

- Hotel or motel:* No. of rooms N/A
- Industrial, manufacturing, processing or industrial park:* No. of employees N/A
No. of acres N/A Sq. ft. of floor space N/A
- Mixed use* (check and complete all above that apply)
- Other:* N/A

Total acreage of project: 18 acres

Acreage devoted to landscape:

Greenbelt N/A golf course N/A parks N/A
Agriculture N/A other landscaped areas N/A

Number of schools N/A

Number of public facilities one (no change)

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: none


What is the current land use of the area subject to a land use change under the project?
The Market Place contains existing commercial and institutional uses

Is the project included in the existing General Plan? Yes If no, describe the existing General Plan Designation N/A


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.

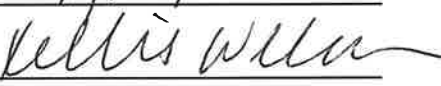
CITY OF TUSTIN

By: 
Ken Nishikawa,
Deputy Director of Public Work/Engineering

REQUEST RECEIVED:

Date: 11/16/23
By: 
Irvine Ranch Water District

REQUEST COMPLETE:

Date: 11/27/23
By: 
Irvine Ranch Water District

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