

AGENDA

IRVINE RANCH WATER DISTRICT SUPPLY RELIABILITY PROGRAMS COMMITTEE TUESDAY, AUGUST 17, 2021

This meeting will be held in person, but due to COVID-19, this meeting will also be conducted as a teleconference pursuant to the provisions of the Governor's Executive Orders N-25-20 and N-29-20, which suspend certain requirements of the Ralph M. Brown Act.

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

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

Via Web: <https://irwd.webex.com/irwd/j.php?MTID=mebcd14ee933008a813ef43fa658ad9c1>
Meeting Number: 146 430 7096
Password: j3A3hrJ7HdZ

PLEASE NOTE: Webex observers of 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. Observers joining the meeting while the Committee is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

CALL TO ORDER 7:30 a.m.

ATTENDANCE Committee Chair: Douglas Reinhart _____
Member: Peer Swan _____

<u>ALSO PRESENT</u>	Paul Cook	_____	Paul Weghorst	_____
	Rob Jacobson	_____	Fiona Sanchez	_____
	Kellie Welch	_____	Christine Compton	_____
	Natalie Palacio	_____	Jo Ann Corey	_____
	_____	_____	Marina Lindsay	_____
	_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 12:00 p.m. on Monday, August 16, 2021.

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

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.
4. Determine which items may be approved without discussion.

INFORMATION

- | | |
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| <p>5. <u>WATER BANKING PROJECT FACILITIES, CAPACITIES, OPERATIONS AND PROGRAMS – PALACIO / WELCH / SANCHEZ / WEGHORST</u></p> <p>Recommendation: Receive and file.</p> <p>6. <u>SITES RESERVOIR PROJECT PRELIMINARY WATER COSTS AND WATER RIGHTS – WELCH / SANCHEZ / WEGHORST</u></p> <p>Recommendation: Receive and file.</p> | |
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OTHER BUSINESS

7. CLOSED SESSION CONFERENCE WITH REAL PROPERTY NEGOTIATORS – Pursuant to Government Code Section 54956.8:

Property: Williams Ranch (Parcel Nos. 815-180-018, 827-120-010, 827-130-005, 827-140-001, 830-050-004, 830-050-008, 830-50-010, 827-040-005, 827-040-004, 827-072-001, 827-072-002, 827-072-003, 827-072-004, 827-072-005, 827-072-010, 827-120-002, 827-120-001, 827-040-006, 827-050-003, 827-050-007, 827-050-005, 827-050-001, 827-020-002, 827-030-003, 827-020-004, 827-020-001, 827-020-018, 827-040-003, 827-050-002, 827-020-003, 815-180-011, 815-180-006, 815-180-003, 827-120-003, 827-120-004, 827-120-005, 827-120-007, 827-120-006, 827-120-008, 827-120-009, 827-120-011, 827-130-012, 827-040-001, and 830-030-004), County of Riverside

Agency Negotiators: Paul Cook, General Manager and
Paul Weghorst, Executive Director of Water Policy

Negotiating Parties: E&S Farming, LLC

Under Negotiation: Lease Price and Terms of Payment

OTHER BUSINESS - Continued

8. CLOSED SESSION CONFERENCE WITH REAL PROPERTY NEGOTIATORS -
Pursuant to Government Code Section 54956.8:

Property: Potential water rights in American River

Agency Negotiators: Paul Cook, General Manager and
Paul Weghorst, Executive Director of Water Policy

Negotiating Parties: Various parties to be determined

Under Negotiation: Price and Terms of potential water rights

9. Open Session
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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August 17, 2021

Prepared by: N. Palacio / K. Welch

Submitted by: F. Sanchez / P. Weghorst

Approved by: Paul A. Cook

PCA

SUPPLY RELIABILITY PROGRAMS COMMITTEE

WATER BANKING PROJECT FACILITIES, CAPACITIES, OPERATIONS AND PROGRAMS

SUMMARY:

Staff has prepared information related to IRWD's water banking facilities, capacities, operations and exchange programs. The information is regularly updated to reflect changes in the status of IRWD's projects, programs and operations. At the Committee meeting, staff will review this information and provide an update on efforts to secure additional water for recharge and mutually beneficial exchanges at IRWD's water banking projects.

BACKGROUND:

To facilitate discussion with the Committee, staff has prepared reference materials in tabular, map and schematic formats to describe IRWD's water banking facilities, capacities, operations, storage and exchange programs. The reference materials are updated regularly to reflect changes in the status of the projects, programs and operations. The following is an overview of the reference materials.

Capacity and Operations Tables:

A table presenting storage, recharge and recovery capacities of existing and planned IRWD water banking projects, including capacities available to IRWD in the Kern Water Bank, is provided as Exhibit "A". Exhibits "B" and "C" provide an update on water banking recovery and recharge operations, as well as the balance of the water stored in the Kern Water Bank. Exhibit "B" provides before-loss estimates of water recharged at the water banking projects, and Exhibit "C" provides after-loss estimates of water recharged at the projects. Both Exhibits "B" and "C" include a column that provides totals for each water type and storage location.

Changes shown in red on Exhibits "B" and "C" show the estimated recovery (through July 2021) of 6,841 acre-feet (AF) of IRWD's non-State Water Project (SWP) Water delivered to Wonderful Orchards inside Kern County as part of the Dudley Ridge Water District Long-term 1-for-1 Water Exchange Program and an estimated recovery (through July 2021) of 1,615 AF of IRWD's Banked SWP Allocation water delivered to Dudley Ridge's service area as part of the water sales agreement between IRWD and Dudley Ridge.

Last month, the Kern County Water Agency (KCWA) and Dudley Ridge reached agreement that the full amount of Article 21 Water that IRWD recharged in 2017 does not have to be returned for use on IRWD's Jackson Ranch property or other lands within Dudley Ridge. Only half of the Article 21 Water recharged in 2017 must be returned; the other half may be exported for IRWD's use in Kern County or to its service area. These changes have been made in Exhibits "B" and

“C” and show a portion of the 2017 Article 21 Water being moved from the Dudley Ridge State Water Project (SWP) column back to IRWD’s SWP column.

A table presenting a summary of IRWD’s water purchase and exchange programs is presented as Exhibit “D”. The table lists each purchase and exchange program that IRWD has entered into and presents information related to the type of exchange, year executed, agreement type and water type. IRWD and partner shares are listed and show the total amount of water included in each program. The balances listed for IRWD and its partners show the amount of water remaining in storage, with IRWD’s balances specifying whether the water is stored in Metropolitan Water District’s system, Kern County, or owed to IRWD by Dudley Ridge. The table also provides details related to the exportability of IRWD’s supplies. Changes shown in red on Exhibit “D” correspond with the changes made to Exhibits “B” and “C”. At the Committee meeting, staff will present an overview of IRWD’s water banking accounting system. Staff will also demonstrate how the numbers in the exhibits are derived and summarized.

Exhibit “E” graphically depicts how storage of SWP and non-SWP water has changed in the Strand and Stockdale Integrated Banking Projects through time. The table provided as Exhibit “F” shows how capacities in the water banking projects have been dedicated to IRWD’s existing and proposed exchange programs.

Project Maps:

To support the tables provided as Exhibits “A”, “B”, “C”, “D” and “F”, as well as the figure provided as Exhibit “E”, staff has prepared maps that depict project wells and pipelines, recharge basins and Cross Valley Canal turnout locations, along with the most current recharge rates. These maps are provided as Exhibits “G”, “H” and “I”, respectively. The facilities shown on the maps are associated with the Strand Ranch, Stockdale West, Stockdale East and Drought Relief Projects.

Program Agreement Diagrams:

Schematic diagrams have been prepared that depict IRWD water banking and exchange programs with Rosedale-Rio Bravo Water Storage District, Buena Vista Water Storage District, Dudley Ridge, and Metropolitan. These diagrams are provided as Exhibits “J”, “K”, “L”, “M”, “N” and “O”, as described in the List of Exhibits.

Recharge and Exchange Opportunities:

IRWD has been pursuing additional opportunities to secure water for recharge as well as mutually beneficial exchanges. At the Committee meeting, staff will provide an update on proposed exchanges and programs with Dudley Ridge.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

- Exhibit “A” – Recharge, Storage and Recovery Capacities of Current and Anticipated Water Banking Projects
- Exhibit “B” – Water Banking Storage, Recharge and Recovery Operations before Losses
- Exhibit “C” – Water Banking Storage, Recharge and Recovery Operations after Losses
- Exhibit “D” – Status of IRWD Purchase and Exchange Programs
- Exhibit “E” – Historic Water Storage in Strand and Stockdale Projects
- Exhibit “F” – Dedicated Capacities of Current Water Banking Projects
- Exhibit “G” – Map of Water Banking Project Wells and Pipelines
- Exhibit “H” – Map of Water Banking Recharge Basins and Cross Valley Canal Turnout Facilities
- Exhibit “I” – Map of Water Banking Recharge Rates
- Exhibit “J” – Diagram of IRWD-Rosedale Water Banking and Exchange Program Agreements
- Exhibit “K” – Diagram of Long-term Water Exchange Program with Buena Vista and Diagram of One-year Program to Augment Recharge Using Stockdale West Recharge Facilities with Buena Vista
- Exhibit “L” – Diagram of Unbalanced Exchange Program Diagram with Dudley Ridge
- Exhibit “M” – Diagram of Coordinated Operating, Water Storage, Exchange and Delivery Agreement with Metropolitan
- Exhibit “N” – Diagram of Template Wheeling Agreement with Metropolitan
- Exhibit “O” – Diagram of Dudley Ridge One-for-One Exchange

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Exhibit "A"

TABLE 1
Current and Anticipated Water Banking Project
Recharge, Storage and Recovery Capacities
August 17, 2021

WATER BANKING PROJECT	OWNERSHIP AND WELL INFO			ALLOCATED CAPACITY (AF)					1 ST PRIORITY RECOVERY CONDITIONS (CFS)		2 ND PRIORITY RECOVERY CONDITIONS (CFS)	
	IRWD OWNED	WELLS EXISTING	WELLS PROPOSED OR UNDER CONST.	TOTAL STORAGE CAPACITY	ANNUAL RECHARGE 1 ST PRIORITY	ANNUAL RECHARGE 2 ND PRIORITY	ANNUAL RECOVERY 1 ST PRIORITY	ANNUAL RECOVERY 2 ND PRIORITY	RECOVERY CAPACITY AS PLANNED ¹	ESTIMATED RECOVERY CAPACITY (APR. 2019 CONDITIONS) ²	RECOVERY CAPACITY AS PLANNED	RECOVERY CAPACITY CURRENT CONDITIONS
Strand Ranch	Yes	7	-	50,000	17,500	-	17,500	-	40.0	40.0	-	-
Stockdale West	Yes	3	-	26,000	27,100	-	11,250	-	15.0	15.0	-	-
Stockdale East	No	-	2	-	-	19,000	-	7,500	-	-	10.0	-
IRWD Acquired Storage Account ³	No	-	-	50,000	-	-	-	-	-	-	-	-
Drought Relief Project Wells ³	No	3	-	-	-	-	-	-	15.0	15.0	-	-
Kern Water Bank Storage Account ⁵	No	-	-	9,495	3,200	-	6,330	-	-	-	-	-
TOTALS		13	2	126,000	44,600	19,000	28,750	7,500	70.0	70.0	10.0	0.0
Partner Capacities ⁴				38,000	22,300	9,500	10,850	0	35.5	25.0	-	-
IRWD Capacities				88,000	22,300	9,500	17,900	7,500	34.5	25.0	-	-
IRWD's recovery <i>during</i> 6 month partner recovery period (AF)									12,420	9,000	-	-
IRWD's recovery <i>after</i> 6 month partner recovery period (AF)									5,480	6,733	-	-
TOTALS (AF)									17,900	15,733	-	-
Number of months needed to recover IRWD's total AF after partners' recovery (Assumes IRWD has use of total recovery capacity after partners' recovery)									8.6	10.2	-	-
Strand Ranch monthly recharge amount assuming 0.3 ft/day average recharge rate (AF)											4,518	
Stockdale West monthly recharge amount assuming 0.3 ft/day average recharge rate (AF)											2,331	

¹Based on designed Strand recovery capacity assuming 370' bgs. Assumes 5 cfs for each of the Stockdale West and Drought Relief wells in order to meet IRWD's Water Banking, Transfers, and Wheeling policy position. Assumes partners' water is recovered over 6 months.

²SUP-1, SWEX-2, and SREX-6 are currently down.

³IRWD has use of Acquired Storage and Drought Relief Project wells until January 12, 2039, unless the term of the agreement is extended.

⁴One half of storage capacity at Stockdale West and Strand Ranch will be allocated for partners.

⁵Kern Water Bank capacities based on 6.58% of Dudley Ridge Water District's 9.62% share of the Kern Water Bank. Annual recharge amount is based on an average of recharge rates for high and low groundwater level conditions. Not included in storage capacity, recharge, and recovery totals to match IRWD's Water Banking Policy Position Paper.

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Exhibit "B"

TABLE 2
IRWD's Water Banking Storage, Recharge and Recovery Operations - BEFORE LOSSES
August 17, 2021

TRANSACTIONS	WATER BANKING ENTITY					TOTAL BY WATER TYPE AND STORAGE LOCATION
	IRWD		BUENA VISTA (BVWSD)	CENTRAL COAST (CCWA)	DUDLEY RIDGE WATER DISTRICT (DRWD) ³	
	SWP ¹	NON-SWP ²	NON-SWP	SWP	SWP	
BEGINNING WATER IN STORAGE 2020 (AF)						
Total Kern Water Bank (estimated)	-	4,683	-	-	-	4,683
Total MWD System ⁴	8,027	-	-	-	296	8,322
Total Kern County ⁸	4,929	24,596	11,177	636	3,491	44,828
TOTAL STORED WATER (1/1/2020)	12,955	29,279	11,177	636	3,786	57,833
(RECOVERY) AND RECHARGE IN 2020 (AF)						
MWD Water to Jackson Ranch ⁵	-	-	-	-	(96)	(96)
2020 SWP Allocation (20%) ³	175	-	-	-	175	350
Kern River Water	-	-	(7,500)	-	-	(7,500)
SWP Table A	-	-	-	-	-	-
2017 Reserve Water ⁸	106	258	258	11	95	728
TOTAL 2020 TRANSACTIONS	281	258	(7,242)	11	174	(6,518)
Total Kern Water Bank	-	-	-	-	-	-
Total MWD System	8,027	-	-	-	200	8,226
Total Kern County	5,210	24,855	3,935	647	3,761	38,406
TOTAL STORED WATER (1/1/2021)	13,236	24,855	3,935	647	3,960	46,632
(RECOVERY) AND RECHARGE IN 2021 (AF)						
MWD Water to Jackson Ranch (estimated)	-	-	-	-	-	-
Kern Water Bank Deliveries	-	-	-	-	-	-
2021 SWP Allocation (5 %) ^{3, 6}	35	-	-	-	35	70
Kern River Water (estimated)	-	(6,841)	(2,681)	-	-	(9,522)
SWP Water Sale to DRWD Landowners	-	-	-	-	(1,615)	-
DRWD 1-for-1 Long Term Exchange Credit (estimated) ⁷	6,841	-	-	-	-	6,841
TOTAL ESTIMATED 2021 TRANSACTIONS	6,876	(6,841)	(2,681)	-	(1,580)	(2,611)
ESTIMATED WATER IN STORAGE 2021 (AF)						
Total Kern Water Bank	-	-	-	-	-	-
Total MWD System	8,027	-	-	-	200	8,226
Total Kern County	5,245	18,014	1,254	647	2,181	27,339
Total DRWD 1-for-1 Long Term Exchange Credit	5,000	-	-	-	-	5,000
TOTAL ESTIMATED STORED WATER TO DATE	18,271	18,014	1,254	647	2,380	40,565

NOTES:

-MWD = Metropolitan Water District of Southern California.

¹ IRWD's SWP includes 295 AF from CVWD that stays in Kern County.

² IRWD's Non-SWP total includes 2,842 AF, net of losses, of Kern County Water Agency Article 21 Water.

³ DRWD water supply will be returned by MWD or IRWD's Strand Ranch to IRWD's Jackson Ranch. IRWD's 2013-2016 SWP allocation amounts are stored in the MWD system. IRWD's 2017 through 2020 SWP allocation water is stored in Kern County. It is assumed that IRWD's 2021 SWP allocation will be stored in Kern County.

⁴ Beginning balance of water stored in MWD system includes: 4,000 AF from 2014 Exchange, 2,853 AF of 2014 borrowed SWP, 1,186 AF of IRWD's 2013-2016 SWP allocations through DRWD.

⁵ Water returned to DRWD by MWD for use on IRWD's Jackson Ranch.

⁶ 17 AF of IRWD's 2021 SWP Allocation was used to fulfill an obligation to Pastoria.

⁷ Per the DRWD Long-Term 1-for-1 Exchange Program, Non-SWP water delivered to DRWD landowners will be returned to IRWD as SWP water at a later date. To account for the SWP water that will be returned at a later date, the amount of water owed will be shown as a credit. Of the 10,000 AF total, 6,841 AF was estimated for deliveries to Wonderful Orchards through July 2021.

⁸ KCWA and DRWD are in agreement that IRWD is only required to return 50% of its 2017 Article 21 water for use on IRWD's Jackson Ranch property or other lands within DRWD, rather than 100%.

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Exhibit "C"

TABLE 3
IRWD's Water Banking Storage, Recharge and Recovery Operations - AFTER LOSSES
August 17, 2021

TRANSACTIONS	WATER BANKING ENTITY					TOTAL BY WATER TYPE AND STORAGE LOCATION
	IRWD		BUENA VISTA (BVWSD)	CENTRAL COAST (CCWA)	DUDLEY RIDGE WATER DISTRICT (DRWD) ³	
	SWP ¹	NON-SWP ²	NON-SWP	SWP	SWP	
BEGINNING WATER IN STORAGE 2020 (AF)						
Total Kern Water Bank	-	4,215	-	-	-	4,215
Total MWD System ⁴	8,027	-	-	-	296	8,322
Total Kern County ⁹	3,926	20,685	9,923	545	2,992	38,072
TOTAL STORED WATER (1/1/2020)	11,953	24,900	9,923	545	3,288	50,609
(RECOVERY) AND RECHARGE IN 2020 (AF)						
MWD Water to Jackson Ranch ⁵	-	-	-	-	(96)	(96)
2020 SWP Allocation (20%) ³	150	-	-	-	150	300
Kern River Water	-	-	(7,500)	-	-	(7,500)
SWP Table A	-	-	-	-	-	-
2017 Reserve Water ⁹	101	245	258	10	90	705
TOTAL 2020 TRANSACTIONS	251	245	(7,242)	10	144	(6,591)
Total Kern Water Bank	-	4,215	-	-	-	4,215
Total MWD System	8,027	-	-	-	200	8,226
Total Kern County	4,177	20,931	2,681	556	3,233	31,577
TOTAL STORED WATER (1/1/2021)	12,204	25,145	2,681	556	3,432	44,018
(RECOVERY) AND RECHARGE IN 2021 (AF)						
MWD Water to Jackson Ranch (estimated)	-	-	-	-	-	-
Kern Water Bank Deliveries	-	-	-	-	-	-
2021 SWP Allocation (5%) ^{3, 7}	30	-	-	-	30	60
Kern River Water (estimated)	-	(6,841)	(2,681)	-	-	(9,522)
SWP Water Sale to DRWD Landowners (estimated)	-	-	-	-	(1,615)	-
DRWD 1-for-1 Long Term Exchange Credit (estimated) ⁸	6,841	-	-	-	-	6,841
TOTAL ESTIMATED 2021 TRANSACTIONS ⁶	6,871	(6,841)	(2,681)	-	(1,585)	(2,621)
ESTIMATED WATER IN STORAGE 2021 (AF)						
Total Kern Water Bank	-	4,215	-	-	-	4,215
Total MWD System	8,027	-	-	-	200	8,226
Total Kern County	4,207	14,090	0	556	1,648	20,500
Total DRWD 1-for-1 Long Term Exchange Credit	6,841	-	-	-	-	6,841
TOTAL ESTIMATED STORED WATER TO DATE	19,075	18,304	0	556	1,847	39,782

NOTES:

-Water in storage has been adjusted to account for losses. IRWD's water stored in Kern County is adjusted 15% for losses (5% for out of county loss, 6% surface loss, and 4% reserve loss); Water stored for BVWSD in Kern County is adjusted 10% (6% for surface loss and 4% for reserve loss); KWB losses are 10%; no losses for water directly delivered to MWD system.

-MWD = Metropolitan Water District of Southern California.

¹ IRWD's SWP includes 251 AF from CVWD that stays in Kern County.

² IRWD's Non-SWP total includes 2,842 AF of Kern County Water Agency Article 21 Water.

³ DRWD water supply will be returned by MWD or IRWD's Strand Ranch to IRWD's Jackson Ranch. IRWD's 2013-2016 SWP allocation amounts are stored in the MWD system. IRWD's 2017 through 2020 SWP allocation water is stored in Kern County. It is assumed that IRWD's 2021 SWP allocation will be stored in Kern County.

⁴ Beginning balance of water stored in MWD system includes 4,000 AF of 2014 Exchange, 2,853 AF of 2014 borrowed SWP, 1,186 AF of IRWD's 2013-2016 SWP allocations through DRWD.

⁵ Water returned to DRWD by MWD for use on IRWD's Jackson Ranch.

⁶ 2021 transactions may be adjusted for conveyance losses in CVC.

⁷ 17 AF of IRWD's 2021 SWP Allocation was used to fulfill an obligation to Pastoria.

⁸ Per the DRWD Long-Term 1-for-1 Exchange Program, Non-SWP water delivered to DRWD landowners will be returned to IRWD as SWP water at a later date. To account for the SWP water that will be returned at a later date, the amount of water owed will be shown as a credit. Of the 10,000 AF total, 6,841 AF was estimated for deliveries to Wonderful Orchards through July 2021.

⁹ KCWA and DRWD are in agreement that IRWD is only required to return 50% of its 2017 Article 21 water for use on IRWD's Jackson Ranch property or other lands within DRWD, rather than 100%.

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Exhibit "D"

Status of IRWD Purchase and Exchange Programs (AFTER LOSSES)

August 17, 2021

PARTNER	EXCHANGE RATIO	YEAR EXECUTED	AGREEMENT TYPE	WATER TYPE	PARTNER WATER		IRWD WATER								
					PARTNER SHARE (AF)	PARTNER BALANCE (AF)	IRWD SHARE (AF)	IRWD BALANCE				EXPORTABILITY			SELLABLE (Y/N)
								IN MWD SYSTEM (AF)	STORED IN KERN (AF)	OWED BY DUDLEY RIDGE WD	TOTAL (AF)	EXPORTABLE TO IRWD (AF)	NON-EXPORTABLE (AF)	FOR USE ON JACKSON RANCH (DRWD)	
Semitropic Water Storage District	NA	2008	Purchase	SWP Article 21	NA	NA	2,842		2,842		2,842		2,842		Yes
Carpinteria Valley Water District	2-for-1	2008	Short-Term	SWP Table A	277		250		250		250		250		Yes
Buena Vista Water Storage District ¹	2-for-1	2010	Pilot	Kern River	4,108		3,903								Yes
	2-for-1	2011	Long-Term	Kern River	21,248		20,186		11,248		11,248		11,248		
Antelope Valley East Kern Water Agency	2-for-1	2011	Pilot	SWP Table A	2,229		2,337	2,229	108		2,337	2,337			No
Carpinteria Valley Water District	2-for-1	2011	Pilot	SWP Table A	624		655	624	31		655	655			No
Dudley Ridge Water District ² (SWPAO #13012)	2-for-1	2013	SWPAO	SWP Table A	1,876	-	1,876	1,174	703		1,876	1,876		902	Yes
				SWP Article 21	1,553	840	1,554		1,554		1,554	1,554		840	Yes
Metropolitan Water District ³	1-for-1	2014	Short-Term	SWP Table A	NA	NA	4,000	4,000			4,000	4,000			No
Dudley Ridge Water District (SWPAO #17030)	2-for-1	2018	SWPAO	SWP Table A	1,006	1,006	1,006		1,006		1,006	1,006		1,006	Yes
Central Coast Water Agency	2-for-1	2017	Short-Term	SWP Table A	258	258	258		258		258	258			No
Dudley Ridge Water District ⁴	1-for-1	2017	Long-Term	SWP Table A						6,841	6,841	6,841			No
Central Coast Water Agency	2-for-1	2019	Short-Term	SWP Table A	298	298	298		298		298	298			No
Total:					33,477	2,402	39,165	8,027	18,298	6,841	33,165	18,825	14,340	2,748	

¹ Water acquired through BVWSD will be exportable after it is exchanged for SWP Table A through 1-for-1 exchange with Dudley Ridge Water District.

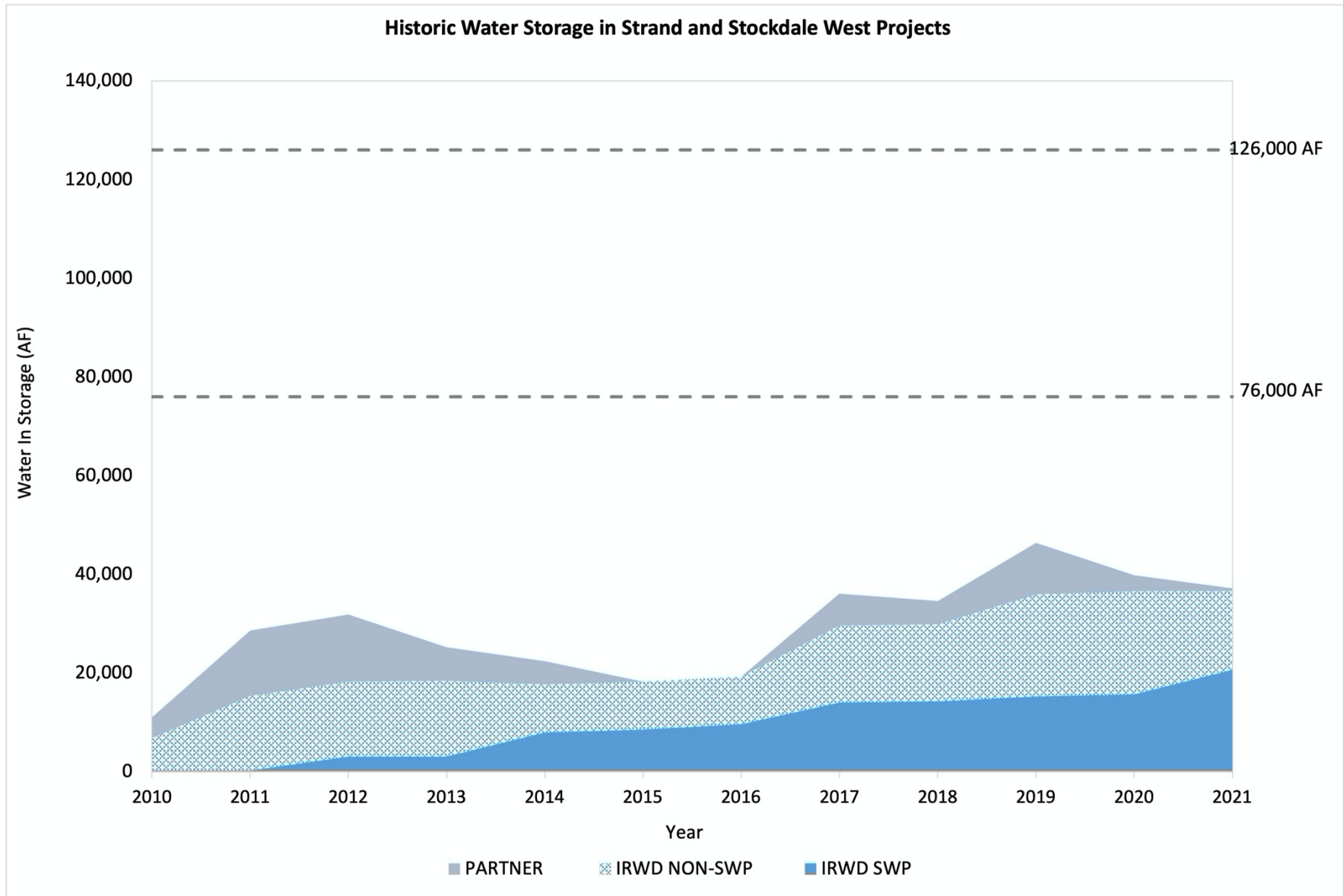
² Only the portion of water stored for use on Jackson Ranch in DRWD is sellable.

³ Source of water was Buena Vista Water Storage District Kern River high flow water.

⁴ Estimated amount of Table A to be returned to IRWD from Dudley Ridge Water District under the 1-for-1 exchange program.

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Exhibit “E”



*After losses

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Exhibit "F"

TABLE 5
IRWD Dedicated Water Banking Capacities for
Existing and Proposed Exchange Programs
August 17, 2021

Program	Dedicated Storage Capacity Strand Ranch (AF)	Dedicated Storage Capacity Stockdale West (AF)	Dedicated Storage Capacity Leased Storage Account (AF)	Kern Water Bank Storage Capacity (AF)
Total Capacity	50,000	26,000	50,000	9,495
BVWSD	40,000	-	-	-
DRWD	10,000	-	-	-
AVEK	-	20,000	-	-
CVWD	-	5,000	-	-
Total Dedicated	50,000	25,000	-	-
Total Remaining	-	1,000	50,000	9,495

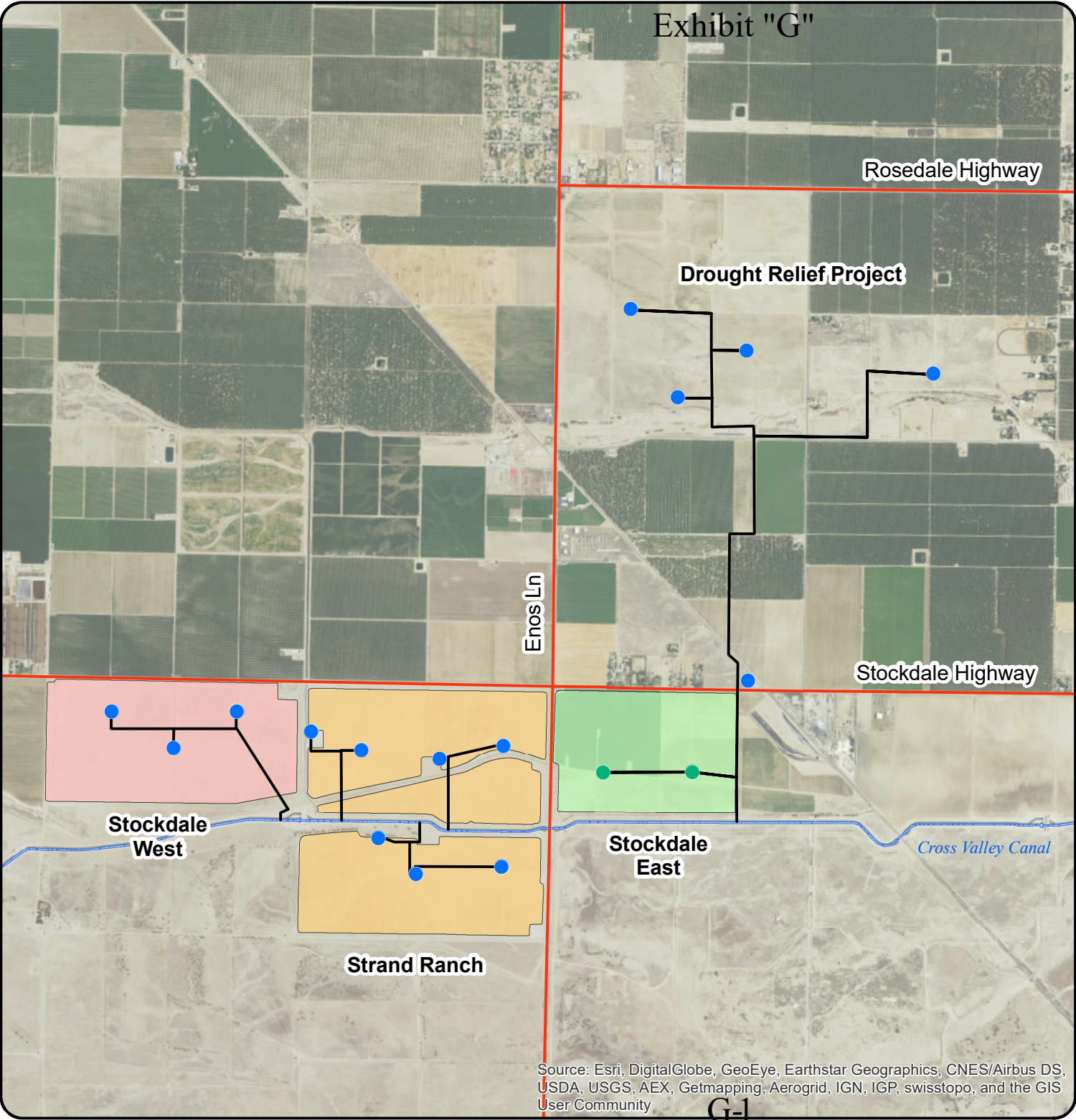
RECHARGE CAPACITY

Program	Dedicated Recharge Capacity Strand Ranch (AF)	Dedicated Recharge Capacity Stockdale West (AF)	Dedicated Recharge Capacity Leased Storage Account (AF)	Kern Water Bank Recharge Capacity (AF)
Total Capacity	17,500	27,100	-	3,200
BVWSD	17,500	-	-	-
DRWD	-	-	-	-
AVEK	-	20,000	-	-
CVWD	-	5,000	-	-
Total Dedicated	17,500	25,000	-	-
Total Remaining	-	2,100	-	3,200

RECOVERY CAPACITY

Program Partner	Dedicated Recovery Capacity Strand Ranch (AF)	Dedicated Recovery Capacity Stockdale West (AF)	Dedicated Recovery Capacity Leased Storage Account (AF)	Kern Water Bank Recovery Capacity (AF)
Total Capacity	17,500	11,250	-	6,330
BVWSD	6,667	-	-	-
DRWD	-	-	-	-
AVEK	-	3,333	-	-
CVWD	-	833	-	-
IRWD	10,833	7,084	-	6,330
Total Dedicated	17,500	11,250	-	6,330
Total Remaining	-	-	-	-

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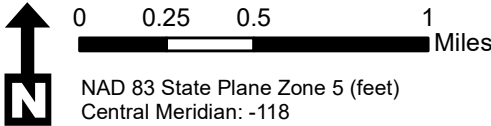


**Location Map:
IRWD Water Banking Projects
Wells and Turnin Pipelines**

MAP FEATURES

- Extraction Well
- Extraction Well
- Well Discharge Pipelines
- Stockdale East
- Stockdale West
- Strand Ranch

This figure shows the location of IRWD's water banking project sites and extraction wells.



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Exhibit "H"

Rosedale Highway



Irvine Ranch
WATER DISTRICT

Location Map: IRWD Water Banking Projects Recharge Basins & Turnout Facilities

MAP FEATURES

- ▲ Turnouts
- Stockdale West
- Strand Ranch

This figure shows the location of
recharge basins, pipelines and
turnout facilities.

Existing Siphon
50 CFS Capacity
From Strand

Stockdale West
Turnout
100 CFS Capacity

Existing North & South
Strand Ranch
Turnout Facilities
100 CFS Capacity Each

Cross Valley Canal

Stockdale Highway

Enos Ln

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS,
USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS
USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS

User Community



0 0.25 0.5 1
Miles

NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

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Exhibit "I"

Rosedale Highway



Location Map: IRWD Water Banking Projects Recharge Rates

MAP FEATURES

- ▲ Turnouts
- Stockdale West
- Strand Ranch

This figure shows the location of recharge basins and their associated recharge rates as of June 18, 2019.

Stockdale West
0.11 feet/day
15 CFS

Strand Ranch North
0.29 feet/day
40 CFS

Stockdale Highway

Cross Valley Canal

Strand Ranch South
0.13 feet/day
15 CFS

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



0 0.25 0.5 1
Miles

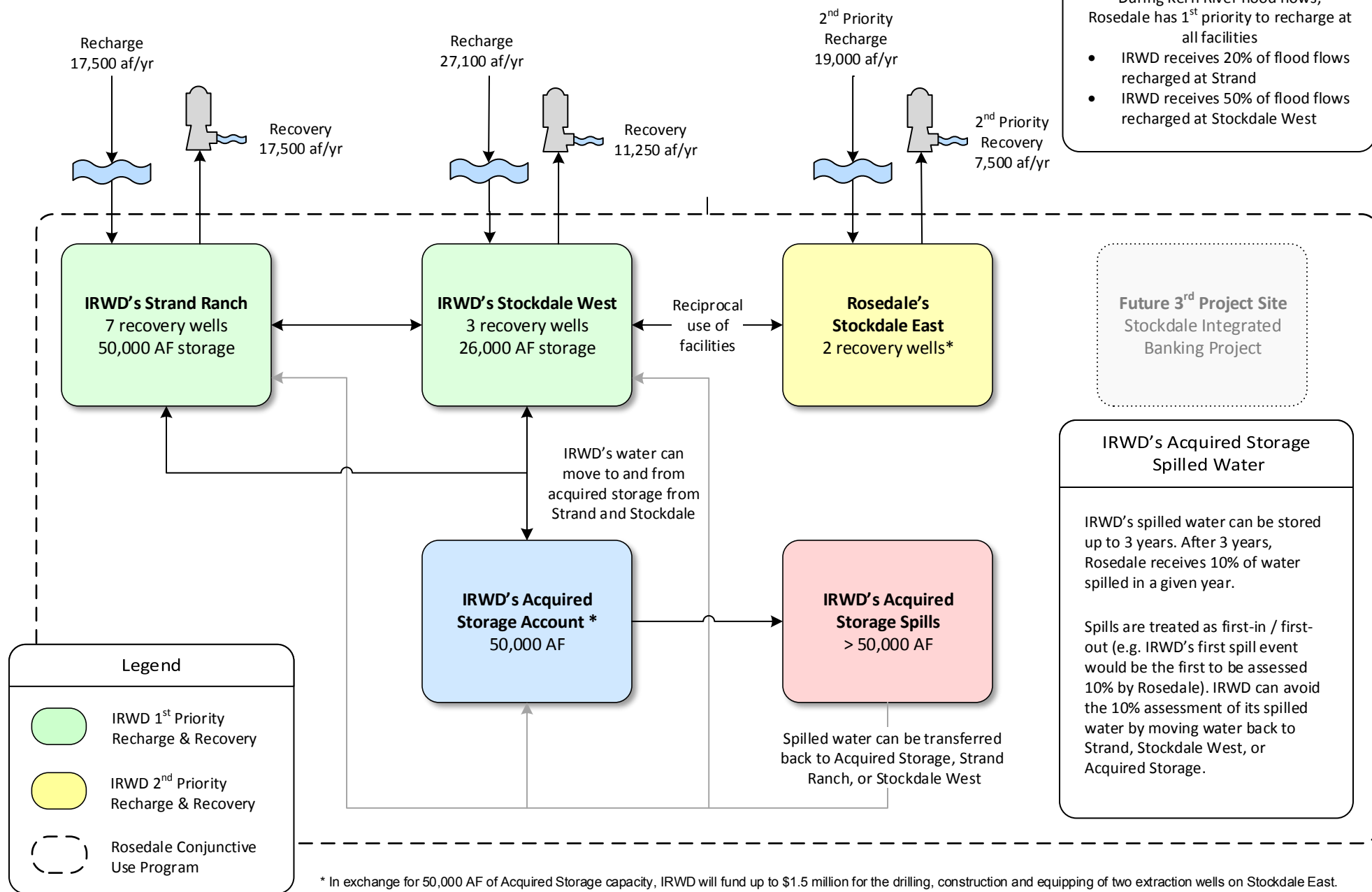
NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

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Exhibit "J"

IRWD-Rosedale Water Banking and Exchange Program Agreements

Effective 1/12/2009 through 1/12/2039 (Strand Ranch)
2/4/2016 through 1/12/2039 (Stockdale West)

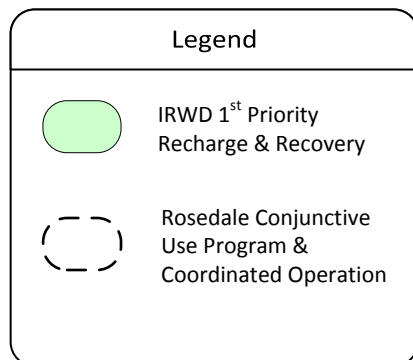
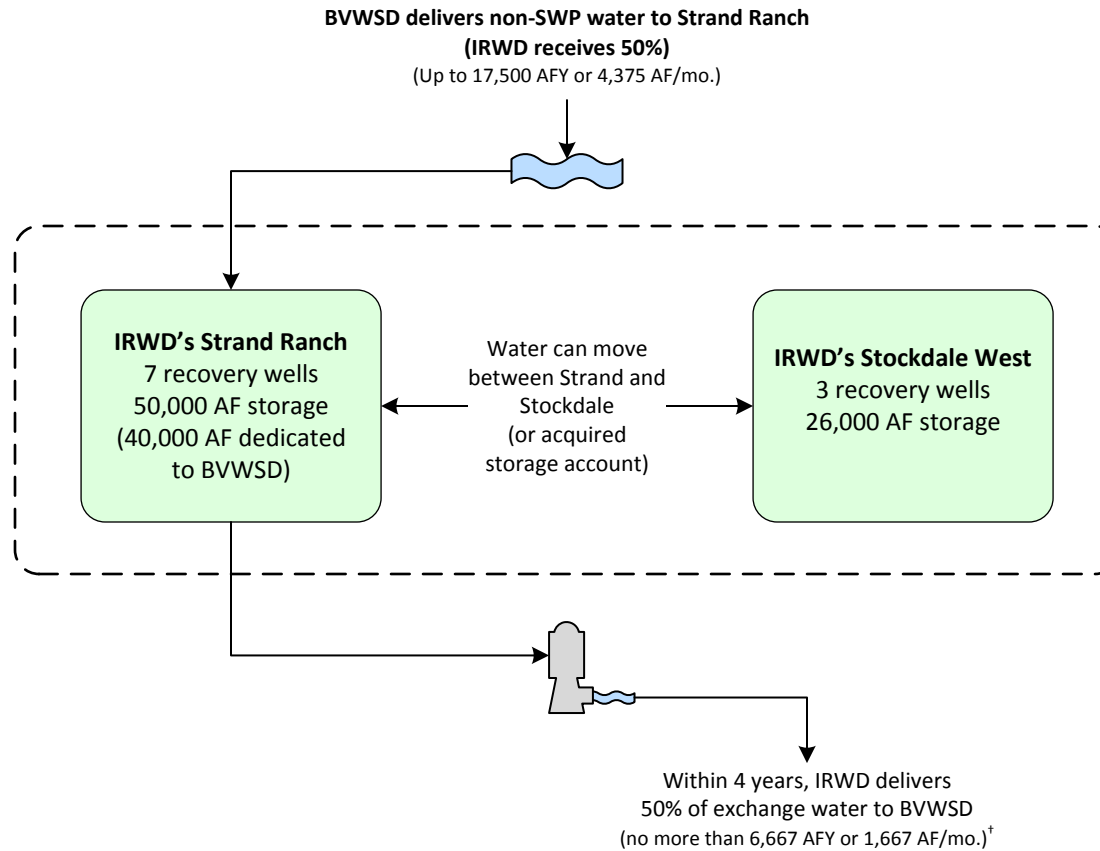


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Exhibit "K"

Buena Vista Water Storage District Long Term Water Exchange Program

Effective 1/1/2011 through 1/12/2039

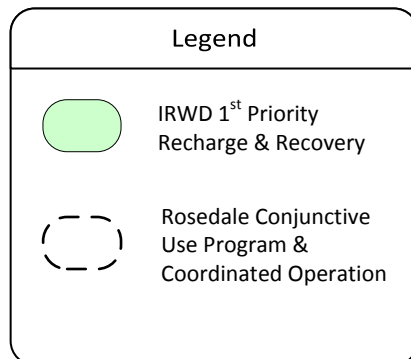
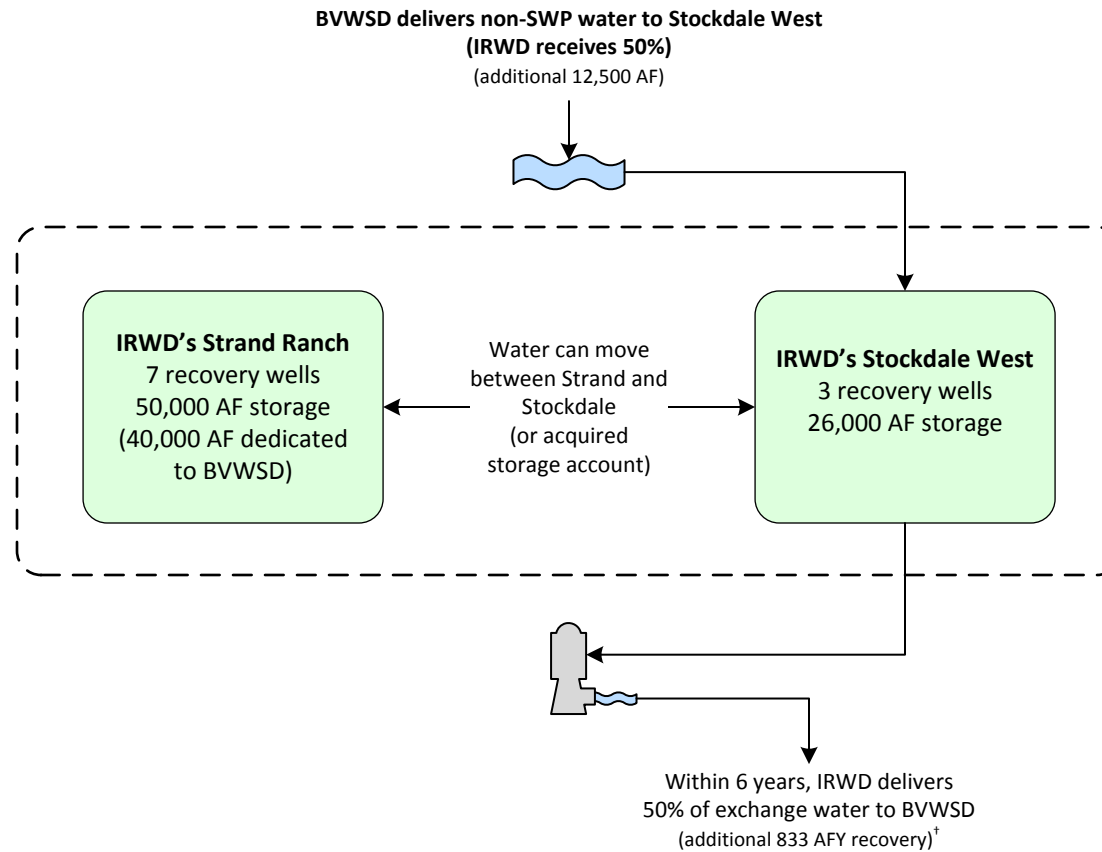


[†]IRWD shall remit one-half of the exchanged supply less one-half of reasonable losses back to BV no later than December 31st of the 4th year following the associated recharge event. IRWD pays for recovery of water returned to BV. Water to be remitted back to BV may remain in storage at Strand Ranch beyond the 4th year, in exchange for a greater percent being transferred to IRWD as compensation per the table shown to the right:

Year Following Recharge Event	Percent Transferred to IRWD	Percent Returned to BV During or Before Indicated Year
1	50%	50%
2	50%	50%
3	50%	50%
4	50%	50%
5	60%	40%
6	70%	30%
7	80%	20%
8	90%	10%
9	100%	0%

Buena Vista Water Storage District One-Year Program to Augment Recharge Using Stockdale West Recharge Facilities

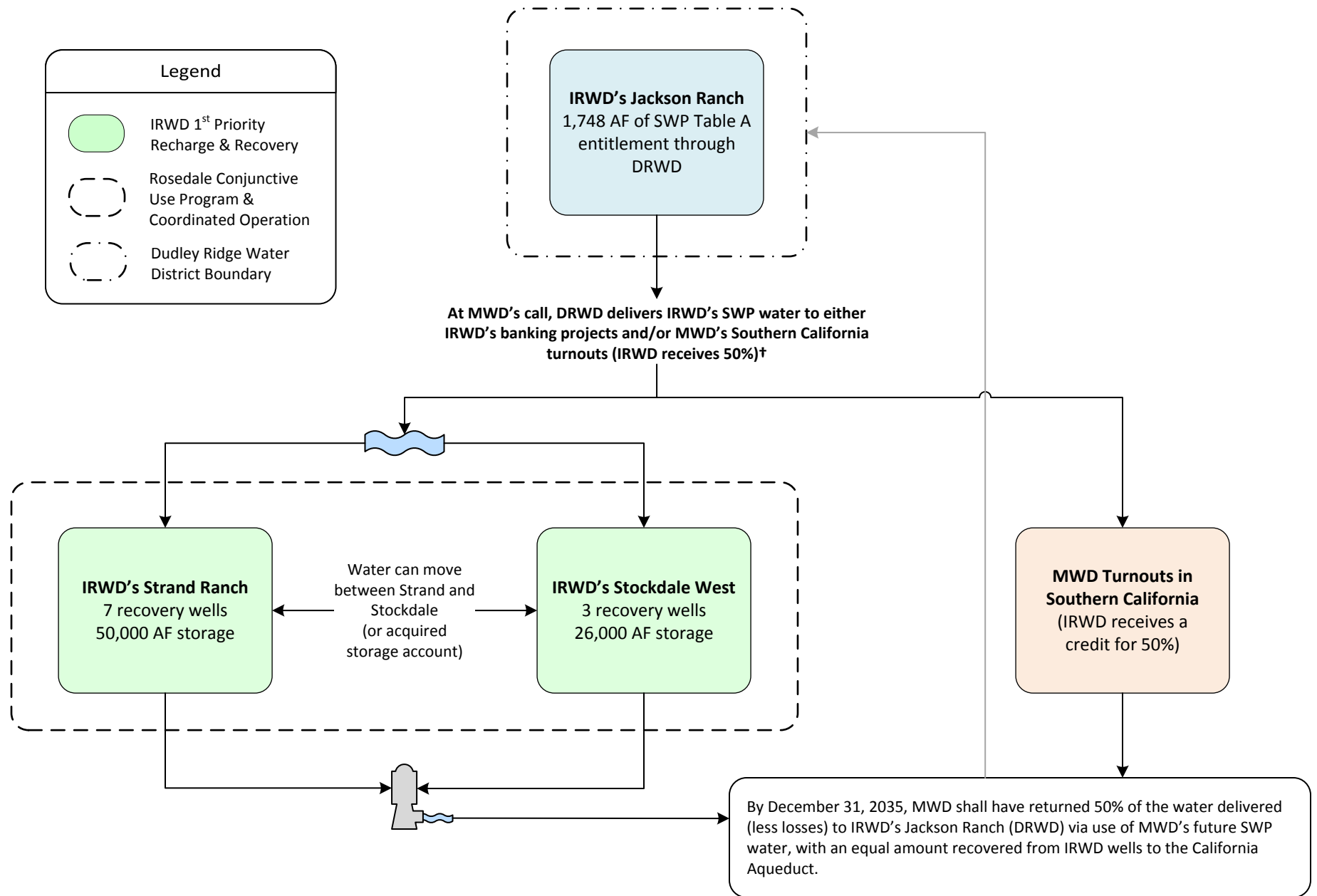
Effective 4/1/2017 through 3/30/2018



[†]IRWD shall remit one-half of the exchanged supply less one-half of reasonable losses back to BV no later than December 31st of the 6th year following the associated recharge event. IRWD pays for recovery of water returned to BV. Water to be remitted back to BV may remain in storage at Strand Ranch beyond the 6th year, in exchange for a greater percent being transferred to IRWD as compensation per the table shown to the right:

Year Following Recharge Event	Percent Transferred to IRWD	Percent Returned to BV During or Before Indicated Year
1	50%	50%
2	50%	50%
3	50%	50%
4	50%	50%
5	50%	50%
6	50%	50%
7	75%	25%
8	100%	0%
9	100%	0%

Exhibit "L"
Dudley Ridge Water District (DRWD) Unbalanced Exchange Program
Up to 12,240 AF delivered from 6/7/2018 through 12/31/2027



†Consistent with IRWD-MWD coordinated operating agreement.

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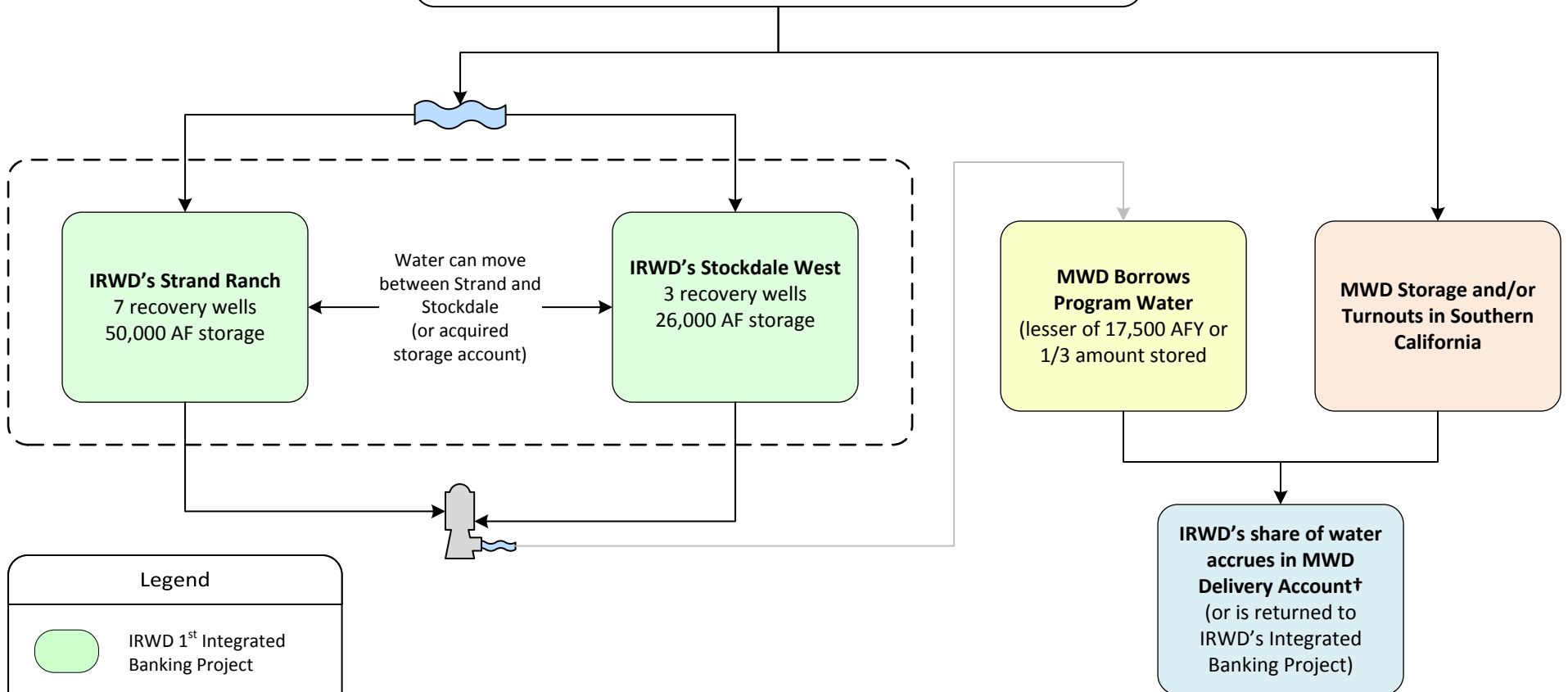
Exhibit "M"

Coordinated Operating, Water Storage, Exchange and Delivery Agreement Between MWD, MWDOC and IRWD Effective 5/1/2011 through 11/4/2035

With MWD's consent, IRWD secures SWP water (Program Water) through exchanges with IRWD Banking Partners for use as extraordinary supply under MWD Water Supply Allocation Plan

MWD has three options for the use and storage of Program Water:

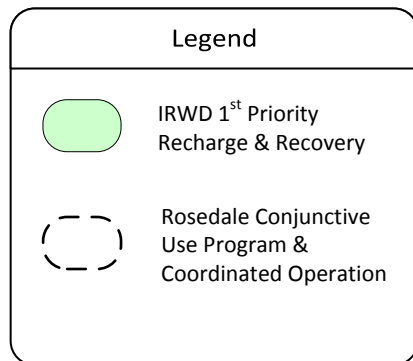
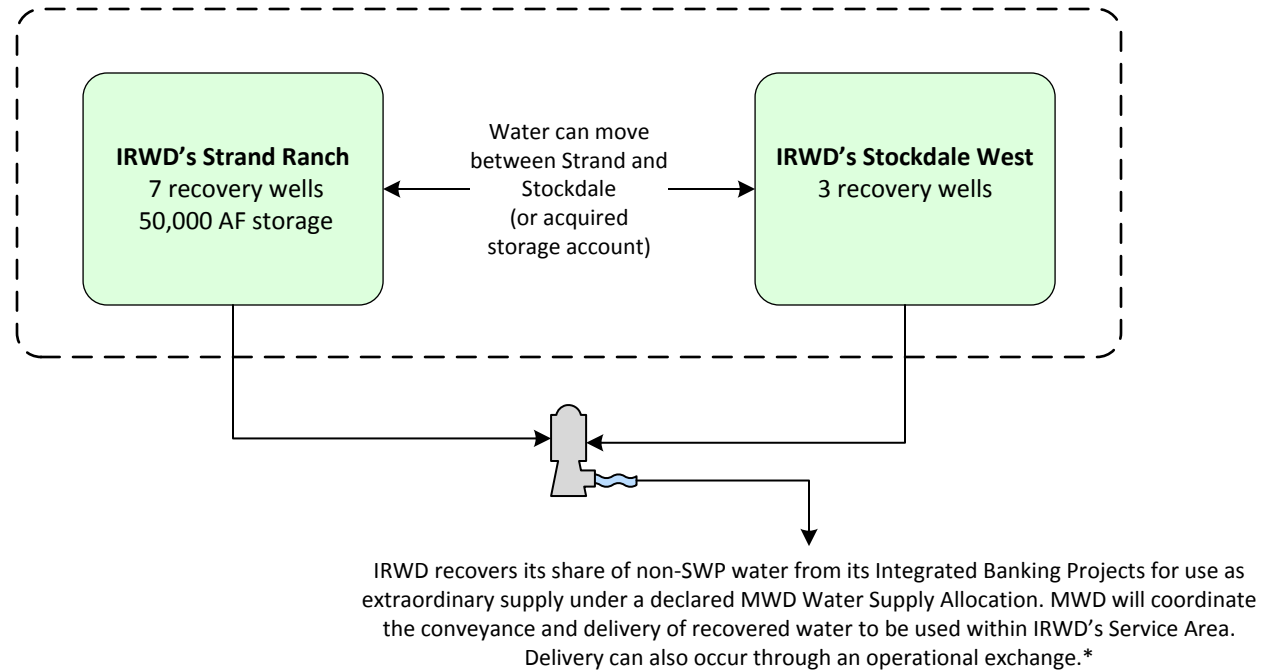
- Storage of water in IRWD's Integrated Banking Project
- Delivery to Southern California for immediate use and/or storage in MWD system
- Borrow a portion of Program water, with accrual in MWD Delivery Account



- Under an MWD Allocation, when IRWD calls for water, IRWD must first recover Program Water from the Integrated Banking Project before receiving water from the MWD Delivery Account.
- MWDOC shall pass through extraordinary supply credits for IRWD's benefit.
- † IRWD's banking partner share of Program Water to be returned by MWD.

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Exhibit "N"
Agreement for Conveyance of Water Between MWD, MWDOC, and IRWD (Wheeling Agreement)
Template for future agreements



*The recovered water must be used within IRWD's service area. IRWD to pay MWD wheeling charges, including system access rate, water stewardship rate, and treatment surcharge (if applicable), for each acre foot of recovered water wheeled by MWD. IRWD will pay the actual costs of power incurred by MWD to convey recovered water in the California Aqueduct to IRWD delivery points.

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Exhibit "O"

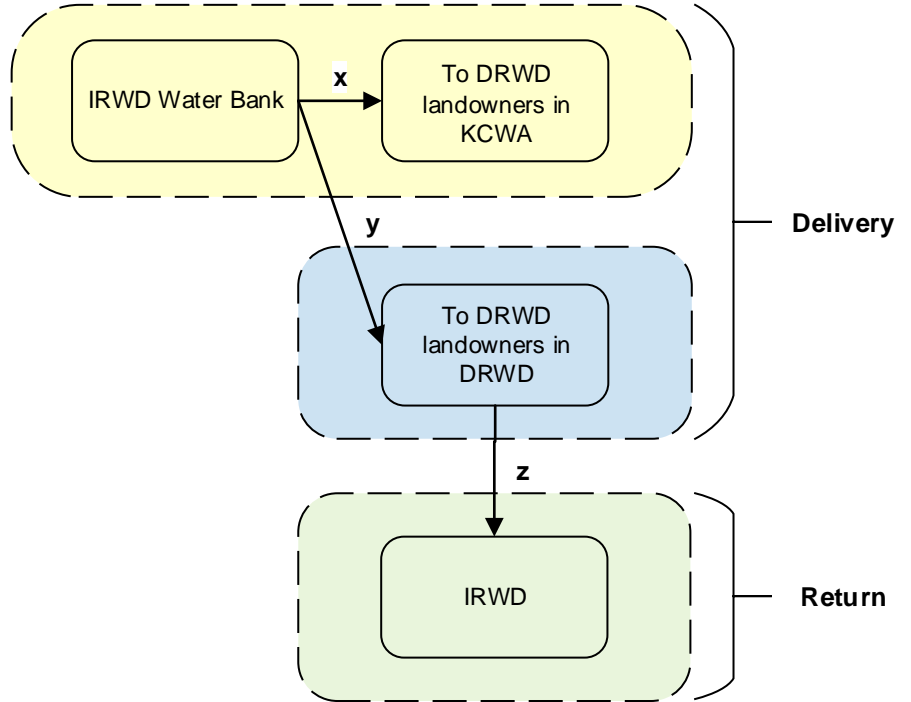
Dudley Ridge Water District Long Term 1-for-1 Water Exchange Program Effective 5/31/2017 through 11/4/2035

Scenario A

(Per Sections 2, 3, 4.1.1, and 4.1.3)

x= Non-Project Water required to stay in Kern County
y= Non-Project Water allowed to leave Kern County
z= DRWD Table A Water equal to x+y less applicable losses, if any

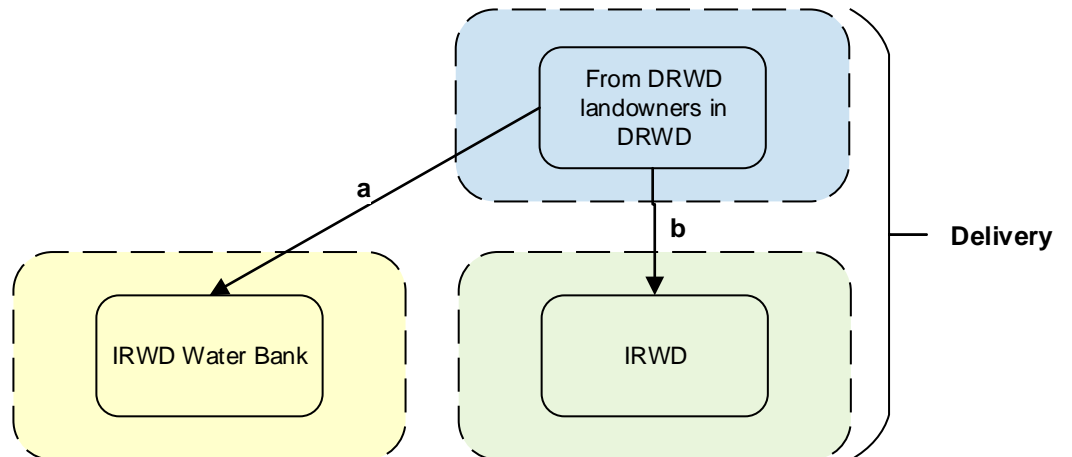
Per Section 4.1.3, z can be delivered to IRWD via in-ground transfer to IRWD, SWP delivery to IRWD banking facilities, or SWP delivery to MWDSC



Scenario B

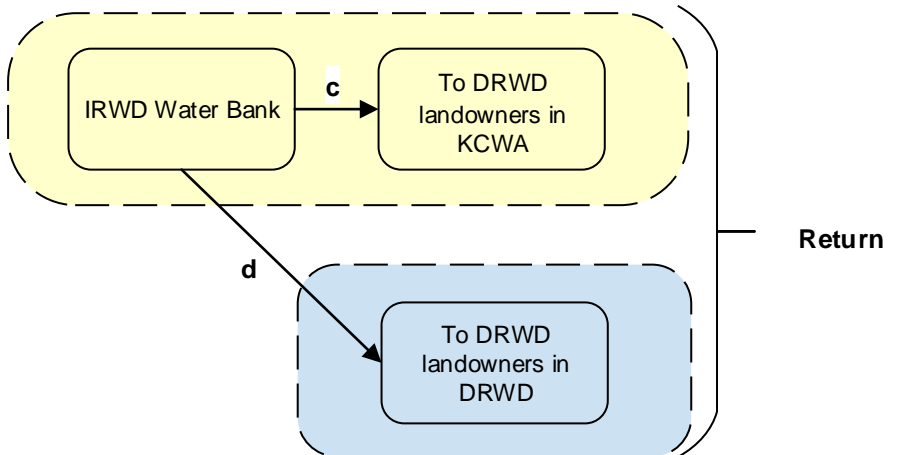
(Per Sections 2, 3, and 4.1.2)

$a + b = c + d$
(less applicable losses, if any)




Legend

	KCWA Service Area
	DRWD Service Area
	IRWD Service Area



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August 17, 2021
Prepared by: K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook 

SUPPLY RELIABILITY PROGRAMS COMMITTEE

SITES RESERVOIR PROJECT PRELIMINARY WATER COSTS AND WATER RIGHTS

SUMMARY:

In December 2020, the Board approved IRWD's participation in the planning and environmental review of the Sites Reservoir Project corresponding to 1,000 acre-feet (AF) of release capacity in the project. This capacity would allow IRWD to establish a regulated average water supply of 1,000 acre-feet per year (AFY) for its existing water bank and the Kern Fan Groundwater Storage Project. At the meeting, staff will provide an update on the Sites Reservoir Project financing plan, a preliminary analysis of the estimated cost of water from the project, and an overview of the Sites Reservoir Authority's approach to securing water rights for the project.

BACKGROUND:

The proposed Sites Reservoir Project will provide 1.5 million AF of off-stream storage in the Sacramento Valley that would capture and store stormwater flows from the Sacramento River after all other water rights and regulatory requirements are met. A map showing the project location is provided as Exhibit "A". The stored water would be used by California communities, farms and businesses. The water would also be used for environmental purposes consistent with the California Water Commission's Water Storage and Investment Program (WSIP) requirements. Other proposed project benefits will include recreation, flood control and local economic benefits. The Sites Reservoir Project expects to receive \$836 million in WSIP funding and up to 25% of capital funding from the federal government through the Water Infrastructure Improvements for the Nation Act.

Irvine Ranch Water District Participation:

IRWD's participation in the Sites Reservoir Project corresponds to 1,000 AF of annual release capacity and 6,234 AF of storage capacity in the reservoir. As a participant in the Sites Reservoir Project, IRWD is a member of the Reservoir Committee and participates in all of the Sites Project meetings and workshops. IRWD is funding its share in the amount of \$208,500 of the current year's Sites Reservoir Project work plan, which continues through December 31, 2021.

The work plan includes planning and environmental review work associated with completing WSIP grant eligibility requirements by the January 1, 2022 deadline. Sites Reservoir Authority staff are also working on completing a water rights application, which is expected to be submitted by the end of 2021. During this period, IRWD has engaged MBK Engineers to complete hydrologic yield modeling, and staff is performing financial modeling of the water supply benefits from the Project.

Sites Project Affordability and Financing Plan:

On July 23, IRWD staff participated in the Sites Joint Reservoir Committee and Authority Board Financing Plan Workshop which included a project affordability analysis that described project costs and project deliveries. Based on this analysis, project participants can assess their respective project affordability by evaluating the project's fixed and variable costs, water supply benefits, potential water sales, storage leasing, and avoided costs. The Sites Reservoir Project capital costs are projected to be approximately \$3.9 billion in 2021 dollars, which will be partially funded through state and federal grants. The remaining capital costs will be allocated to participants based on participant shares in the project and which facilities the participants will be using. Each participant will decide whether its share of capital costs would be funded through financing or on a pay-go basis. Sites Reservoir Authority staff expect to review the proposed plan of finance to its Joint Committee and Board in September 2021.

The estimated Sites Reservoir Project fixed and variable operating costs were also reviewed at the workshop. A range of minimum and maximum operating costs was reviewed based on various operating scenarios. The operating scenarios range from dry year reservoir releases with no reservoir fills to wet years with maximum reservoir fills and no releases. The Sites Reservoir Authority has estimated the full range of operating costs based on these scenarios. Estimated fixed annual costs are allocated based on the percentage share of each participant's storage allocation.

Estimated Cost of Water for IRWD:

IRWD's projected capital costs on a pay-go basis are expected to be approximately \$17,471,000 in 2021 dollars. Given this current information, IRWD's per AF costs of water from the Sites Reservoir Project would range in accordance with IRWD's minimum average yield from the reservoir of 1,000 AF per year to a higher estimated yield of 1,670 AF per year, which would be achieved by frequently cycling water in and out of storage. Additional considerations that will affect IRWD's cost of water from the Sites Reservoir Project include fixed and variable operating costs, as well as losses associated with conveyance of water across the San Joaquin-Sacramento River Delta (Delta).

Delta Carriage Losses:

Project participants located south of the Delta (including IRWD) will face constraints in the existing capacity to convey Sites Project water across the Delta. Based on Sites Reservoir Project modeling, the water losses in conveying water across the Delta could be as high as 25%. These conveyance losses impact the amount of water that IRWD would expect to receive from the Sites Reservoir Project, as well as the cost of water. The proposed Delta Conveyance Project, referred to as an Alternative Conveyance, would be expected to free up the constraints and provide additional conveyance capacity that may be used to convey Sites Project water across the Delta.

Unit Costs of Water:

Staff has prepared preliminary estimates of the costs of water on a per acre-foot basis, based on potential ranges of annual water supply that could be realized from the Sites Reservoir Project, both with and without an Alternative Conveyance. The preliminary estimates assume an annual water supply south of the Delta ranging from 750 AF to 1,670 AF with annual costs including capital, fixed and variable operating components. The unit costs of water are estimated to range from \$327 to \$619 per AF. These estimates represent the cost of water delivered at the Banks Pumping Plant after Delta losses. These estimates do not include the projected per acre-foot cost of IRWD's potential share of the Alternative Conveyance capacity of three cubic feet per second, which could add an additional \$90 to \$150 per AF to the cost of water. The preliminary cost estimates under the different project yield scenarios are provided in Exhibit "B". These estimates do not take into consideration any benefits associated with potential water sales or storage leasing opportunities.

In September, staff expects to receive preliminary modeling results from MBK Engineers of the potential range of water supply benefits to IRWD assuming deliveries will be made to the Kern Fan Groundwater Storage Project, both with and without Alternate Conveyance. At that time, staff will provide the Committee with updated preliminary estimates of the cost of water from the Sites Reservoir Project

Sites Reservoir Project Water Rights:

The water supply for the Sites Reservoir Project will be high flows diverted from the Sacramento River, Stone Corral Creek, and Funks Creek. These diversions will occur during times when the Delta is in excess conditions and all senior downstream water rights have been met.

On July 20, staff participated in a Reservoir Committee meeting in which Sites Reservoir Authority staff provided an overview of the approach to secure water rights for the Project. The Sites Reservoir Authority would seek to divert water when the Sacramento River is not fully appropriated during the period of September 1 to June 15. The Project would divert up to 1.5 million AF per year. These diversions would be consistent with available canal capacities to move the water into Sites Reservoir.

To potentially expedite the water right process, the Sites Reservoir Authority is considering filing a petition to amend and assign a prior water right application for Colusa Reservoir. The Place of Use for the stored water will include the entire Central Valley Project and State Water Project areas for export. The Site Reservoir Authority staff and consultants have been working closely with the State Water Resources Control Board, Bureau of Reclamation and the California Department of Water Resources to ensure no injury to other water users. The Authority plans to submit the water rights application to the State Board in December 2021 and expects that the State Board will issue its order and water right permit within 18 months.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

The Site Authority is preparing an Environmental Impact Report/Environmental Impact Study for the Sites Reservoir Project. A draft of the document is expected to be released for public review by September 2021.

RECOMMENDATION:

Receive and file.

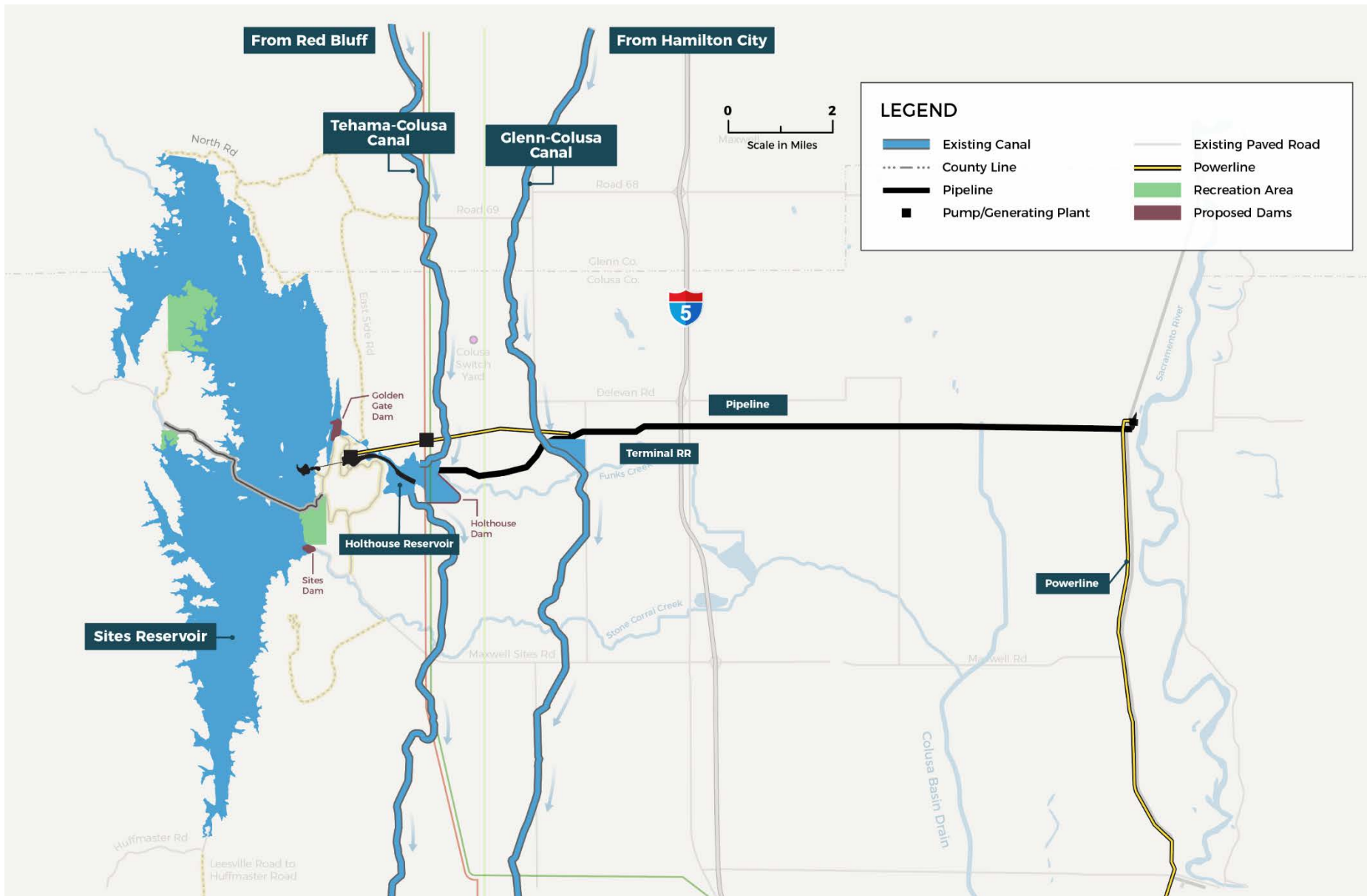
LIST OF EXHIBITS:

Exhibit "A" – Location Map of the Sites Reservoir Project

Exhibit "B" – Preliminary Cost of Water from Sites Reservoir Project

EXHIBIT "A"

Sites Reservoir Location Map



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EXHIBIT "B"

Preliminary Cost of Water from Sites Reservoir Project August 17, 2021

Project Yield Scenarios	Average Annual Yield (AF)	Capital Cost Per AF of Yield	Annual Variable Costs Per AF	Annual Fixed Costs Per AF	Total Annual Cost Per AF
Minimum Yield With Alternative Conveyance*	1,000	\$ 349	\$ 40	\$ 75	\$ 464
Minimum Yield Without Alternative Conveyance**	750	\$ 466	\$ 53	\$ 100	\$ 619
Maximum Yield With Alternative Conveyance*	1,670	\$ 209	\$ 72	\$ 45	\$ 327
Maximum Yield Without Alternative Conveyance**	1,253	\$ 279	\$ 97	\$ 60	\$ 435

Assumptions (Source: Sites Reservoir Authority, July 2021)

Pay go capital costs	\$ 17,471,000
Storage Allocation	6,234 AF
Average minimum yield	1,000 AF per year
Estimated maximum yield	1,670 AF per year
Economic life of project	50 years
Annual fixed costs	\$ 75,000 per year
Average variable costs	\$ 40,000 per year
Maximum variable costs (max fill)	\$ 121,000 per year (upper end)

All dollars shown are 2021 \$

Estimated costs of water at Banks Pumping Plant

*Does not include estimated cost of Alternative Conveyance capacity of 3 cfs projected to be additional \$90 to \$150/AF

**Assumes a 25% carriage loss without Alternative Conveyance

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