

AGENDA
IRVINE RANCH WATER DISTRICT
SUPPLY RELIABILITY PROGRAMS COMMITTEE
THURSDAY, MAY 18, 2017

CALL TO ORDER 3:00 p.m., Committee Room, Second Floor, District Office
15600 Sand Canyon Avenue, Irvine, California

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

<u>ALSO PRESENT</u>	Paul Cook	_____	Kellie Welch	_____
	Rob Jacobson	_____	Patrick Sheilds	_____
	Ray Bennett	_____	Paul Weghorst	_____
	Jo Ann Corey	_____	Dane Johnson	_____
	Fiona Sanchez	_____	Christine Compton	_____
	_____	_____	_____	_____

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

- | | |
|---|--|
| 5. <u>WATER BANKING PROJECT FACILITIES, CAPACITIES, OPERATIONS AND PROGRAMS OVERVIEW – JOHNSON/WELCH/SANCHEZ/WEGHORST</u> | |
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Recommendation: Receive and file.

ACTION

- | | |
|--|--|
| 6. <u>WATER STORAGE INVESTMENT PROGRAM FUNDING FOR KERN FAN GROUNDWATER STORAGE PROJECT – WELCH/SANCHEZ/WEGHORST</u> | |
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Recommendation: That the Committee provide input on the conceptual Kern Fan Groundwater Storage Project and the proposed approach to pursuing Water Storage Investment Program funding.

ACTION - Continued

7. REVISIONS TO TERMS FOR PILOT EXCHANGE PROGRAM
WITH CASTAIC LAKE WATER AGENCY – WEGHORST

Recommendation: That the Committee provide input on the proposed alternatives for allowing Castaic Lake Water Agency store its share of exchange water longer in the IRWD Water Banks and on staff recommendations for which alternatives to send to Castaic Lake Water Agency.

OTHER BUSINESS

8. A. Directors' Comments
- B. 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 at the entrance of the meeting room at the District Office. The Irvine Ranch Water District Committee Room is wheelchair accessible. If you require any special disability-related accommodations (e.g., access to an amplified sound system, etc.), please contact the District Secretary at (949) 453-5300 during business hours at least seventy-two (72) hours prior to the scheduled meeting. This agenda can be obtained in an alternative format upon written request to the District Secretary at least seventy-two (72) hours prior to the scheduled meeting.

May 18, 2017

Prepared by: D. Johnson/K. Welch

Submitted by: F. Sanchez/P. Weghorst

Approved by: Paul Cook

SUPPLY RELIABILITY PROGRAMS COMMITTEE

WATER BANKING PROJECT FACILITIES, CAPACITIES, OPERATIONS AND PROGRAMS OVERVIEW

SUMMARY:

Staff has prepared information related to IRWD's water banking facilities, capacities, exchange programs and operations that can be used for reference purposes during Committee meetings. The information is provided in tabular, map and schematic formats that can be updated as necessary to reflect changes in IRWD's projects, programs and operations. At the Committee meeting, staff will provide an overview of the information.

BACKGROUND:

To assist in the facilitation of Committee meeting discussions, staff has prepared reference materials in tabular, map and schematic formats that describe IRWD's water banking facilities, capacities, operations and exchange programs. The reference materials will be updated as needed to reflect changes to the projects, programs and operations. Following is an overview of the reference materials provided.

Capacity and Operations Tables:

A table has been prepared that presents storage, recharge and recovery capacities of existing and planned IRWD water banking projects including capacities available to IRWD in the Kern Water Bank. Another table has been prepared that provides an update on water banking recovery and recharge operations and the balance of the stored water in the Kern Water Bank. These tables are provided as Exhibits "A" and "B", respectively.

2017 Recharge Operations Update:

Exhibit "B" has been updated to provide current estimates of the amounts and types of water that have been recharged in 2017 at the Strand and Stockdale Integrated Banking Projects as well as at the Kern Water Bank. The estimates are shown net of losses and may be subject to further adjustments for Cross Valley Canal conveyance losses. The total amount of water delivered to the projects so far in 2017 is approximately 13,400 acre-feet (AF). In March and April 2017, IRWD recharged 1,486 AF of State Water Project Table A water and approximately 3,610 AF of Article 21 water that was made available through IRWD's existing unbalanced exchange program with Dudley Ridge Water District (DRWD). Since April 6, 2017, IRWD has been taking delivery of high-flow Kern River water from Buena Vista Water Storage District (BVWSD). Staff estimates approximately 8,300 AF of Kern River water has been delivered to date. It is expected that another

21,700 AF of high-flow Kern River water will be delivered to the projects through August 2017. To date, 454 AF of water has been recharged into IRWD's account in the Kern Water Bank.

Project Maps:

To support the tables provided as Exhibits "A" and "B", staff has prepared maps that depict project wells, pipelines and Cross Valley Canal turn-out locations, and recharge basin locations. These maps are provided as Exhibits "C", "D", and "E", respectively. The facilities shown on these maps are associated with the Strand Ranch, Stockdale West, Stockdale East and Rosedale Drought Relief Projects.

Program Agreement Diagrams:

Schematic diagrams have been prepared that depict IRWD's water banking and exchange programs with Rosedale-Rio Bravo Storage District, BVWSD, DRWD and Metropolitan Water District of Southern California. These diagrams are provided as Exhibits "F", "G", "H", "I" and "J" as described in the List of Exhibits below. Staff has prepared a new diagram shown on the second page of Exhibit "G" which depicts an overview of the recently executed agreement between IRWD and BVWSD for the one-year program to augment recharge using the Stockdale West recharge facilities.

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
- Exhibit "C" – Map of Water Banking Project Wells and Pipelines
- Exhibit "D" – Map of Cross Valley Canal Turnout Facilities
- Exhibit "E" – Map of Water Banking Recharge Basins
- Exhibit "F" – Diagram of IRWD-Rosedale Water Banking and Exchange Program Agreements

- Exhibit “G” – Diagram of Long-Term Water Exchange Program with Buena Vista Water Storage District and Diagram of One-Year Program to Augment Recharge Using Stockdale West Recharge Facilities with Buena Vista Water Storage District
- Exhibit “H” – Diagram of Unbalanced Exchange Program Diagram with Dudley Ridge Water District
- Exhibit “I” – Diagram of Coordinated Operating, Water Storage, Exchange and Delivery Agreement with Metropolitan Water District of Southern California
- Exhibit “J” – Diagram of Template Wheeling Agreement with Metropolitan Water District of Southern California

Exhibit "A"

TABLE 1
Current and Anticipated Water Banking Projects
Recharge, Storage and Recovery Capacities
May 18, 2017

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 (DEC. 2016 CONDITIONS) ²	RECOVERY CAPACITY AS PLANNED	RECOVERY CAPACITY CURRENT CONDITIONS
Strand Ranch	Yes	7	-	50,000	17,500	-	17,500	-	40.0	27.0	-	-
Stockdale West	Yes	-	3	26,000	27,100	-	11,250	-	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	-	-	-
Kern Water Bank Storage Account ⁵	No	-	-	9,495	3,200	-	6,330	-	-	-	-	-
TOTALS		7	8	126,000	44,600	19,000	28,750	7,500	70.0	27.0	10.0	0.0
Partner Capacities ⁴				36,000	22,300	9,500	12,000	0	35.5	27.0	-	-
IRWD Capacities				90,000	22,300	9,500	16,750	7,500	34.5	0.0	-	-
IRWD's recovery <i>during</i> 6 month partner recovery period (AF)									12,420	0.0	-	-
IRWD's recovery <i>after</i> 6 month partner recovery period (AF)									4,330	6,733	-	-
TOTALS (AF)									16,750	6,733	-	-
Number of months needed to recover IRWD's total AF after partners' recovery (Assumes IRWD has use of total recovery capacity after partners' recovery)									8.1	14.0	-	-

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.

²Strand Ranch wells currently idle.

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 (10/26/2015).

Exhibit "B"

TABLE 2
IRWD's Water Banking Storage, Recharge and Recovery Operations
 May 18, 2017

TRANSACTIONS	WATER BANKING ENTITY				
	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 2016 (AF)					
Total Kern Water Bank	-	4,267	-	-	-
Total MWD System ⁴	7,502	-	-	-	649
Total Strand Ranch	389	9,675	-	-	-
TOTAL STORED WATER (1/1/2016)	7,891	13,942	-	-	649
(RECOVERY) AND RECHARGE IN 2016 (AF)					
CVWD	-	-	-	-	-
BVWSD	-	-	-	-	-
Kern Water Bank	-	22	-	-	-
2016 SWP Allocation ³	524	-	-	-	525
TOTAL 2016 TRANSACTIONS	524	22	-	-	525
Total Kern Water Bank	-	4,289	-	-	-
Total MWD System	8,026	-	-	-	1,174
Total Kern County	389	9,675	-	-	-
TOTAL STORED WATER (1/1/2017)	8,415	13,964	-	-	1,174
(RECOVERY) AND RECHARGE IN 2017 (AF)					
Kern Water Bank Deliveries ⁵	249	160	-	-	-
2017 SWP Allocation (85%) ³	632	-	-	-	669
2017 SWP Article 21 ⁶	1,534	-	-	-	1,624
High Flow Kern River	-	3,528	3,735	-	-
TOTAL ESTIMATED 2017 TRANSACTIONS⁷	2,416	3,688	3,735	-	2,293
ESTIMATED WATER IN STORAGE 2017 (AF)					
Total Kern Water Bank	249	4,449	-	-	-
Total MWD System	8,026	-	-	-	1,174
Total Kern County	2,555	13,203	3,735	-	2,293
TOTAL ESTIMATED STORED WATER TO DATE	10,831	17,652	3,735	-	3,467

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 DRWD in Kern County is adjusted 10% (6% for surface loss and 4% for reserve loss).

-MWD = Metropolitan Water District of Southern California.

¹ IRWD's SWP includes 389 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 SWP allocation water will be stored at Strand Ranch.

⁴ Beginning balance of water stored in MWD system includes 4,000 AF 2014 Exchange, 2,853 AF 2014 borrowed SWP, 649 AF IRWD's 2013-2015 SWP allocations through DRWD.

⁵ Article 21 deliveries to Kern Water Bank commenced on 2/15/17. DRWD's capacity was 72 cfs through 2/24/17, then dropped to a capacity of 63 cfs. IRWD's 6.58% yielded 9 AF/day from 2/15-2/24 and yields 8 AF/day from 2/25/17 to current.

⁶ Article 21 deliveries to Strand Ranch/Stockdale West began 3/8/17. Deliveries made pursuant to the DRWD/MWD Unbalanced Exchange Program at current rate of 130 cfs.

⁷ 2017 transactions may be adjusted for conveyance losses in CVC.

Exhibit "C"

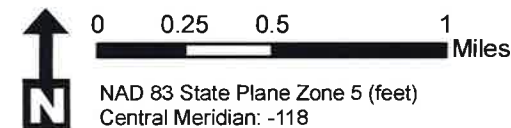


Location Map: IRWD Water Banking Projects Wells and Turnin Pipelines

MAP FEATURES

- Existing Extraction Well
- Planned Extraction Well
- Well Under Construction
- Well Discharge Pipelines
- Stockdale East
- Stockdale West
- Strand Ranch

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



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

Exhibit "D"

Rosedale Highway



**Location Map:
IRWD Water Banking Projects
Turnout Facilities**

MAP FEATURES

- ▲ Turnouts
- Stockdale East
- Stockdale West
- Strand Ranch

Existing Siphon
50 CFS Capacity
From Strand

Construction Complete
(Not Yet Operational)
Stockdale West Turnout
100 CFS Capacity

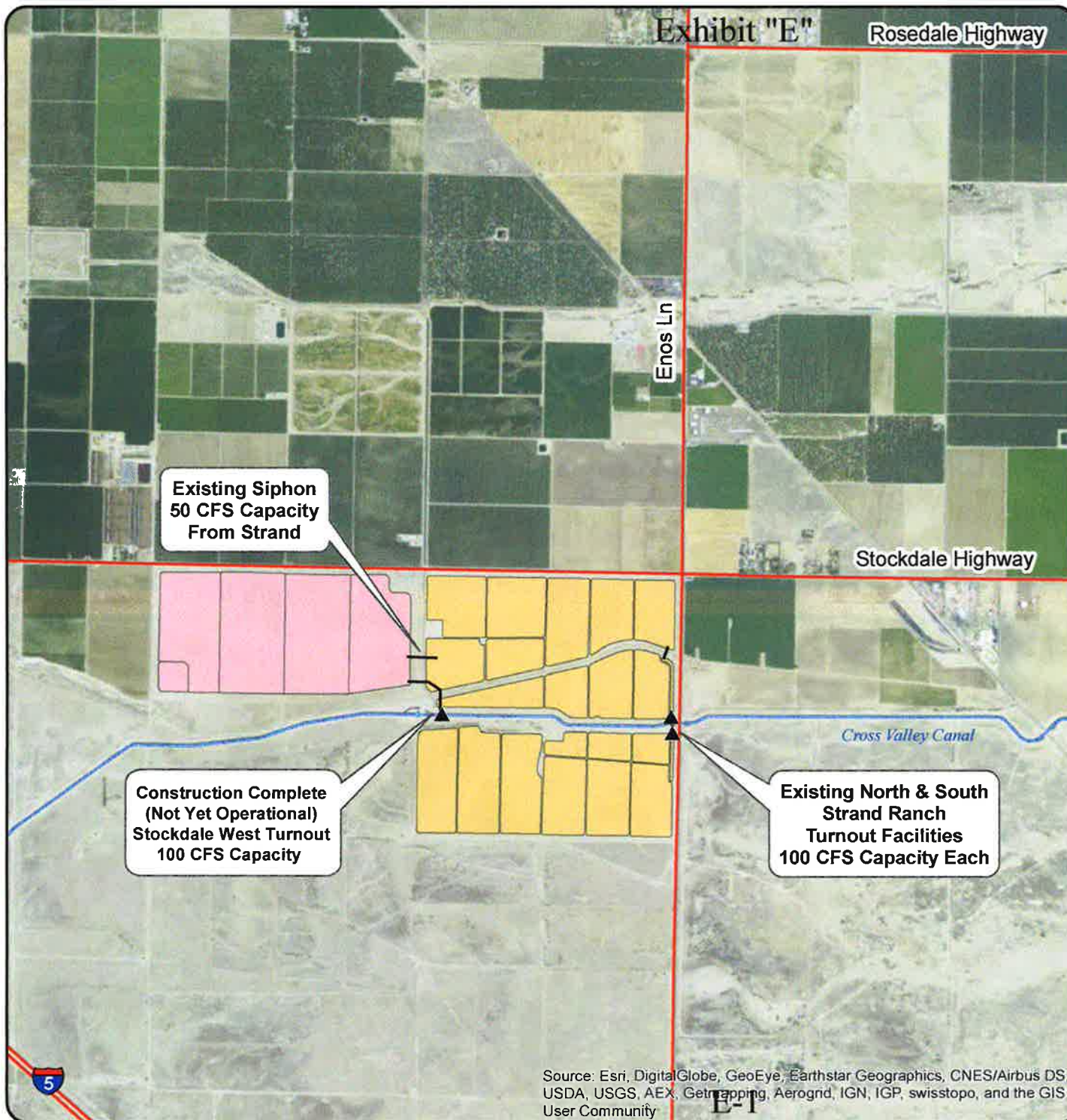
Existing North & South
Strand Ranch
Turnout Facilities
100 CFS Capacity Each

This figure shows the location of
existing and anticipated pipelines
and turnout facilities.



0 0.25 0.5 1
Miles
NAD 83 State Plane Zone 5 (feet)
Central Meridian: -118

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



**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 as well as existing and anticipated pipelines and turnout facilities.

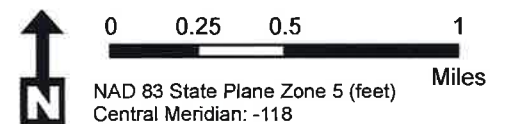


EXHIBIT "F"

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)

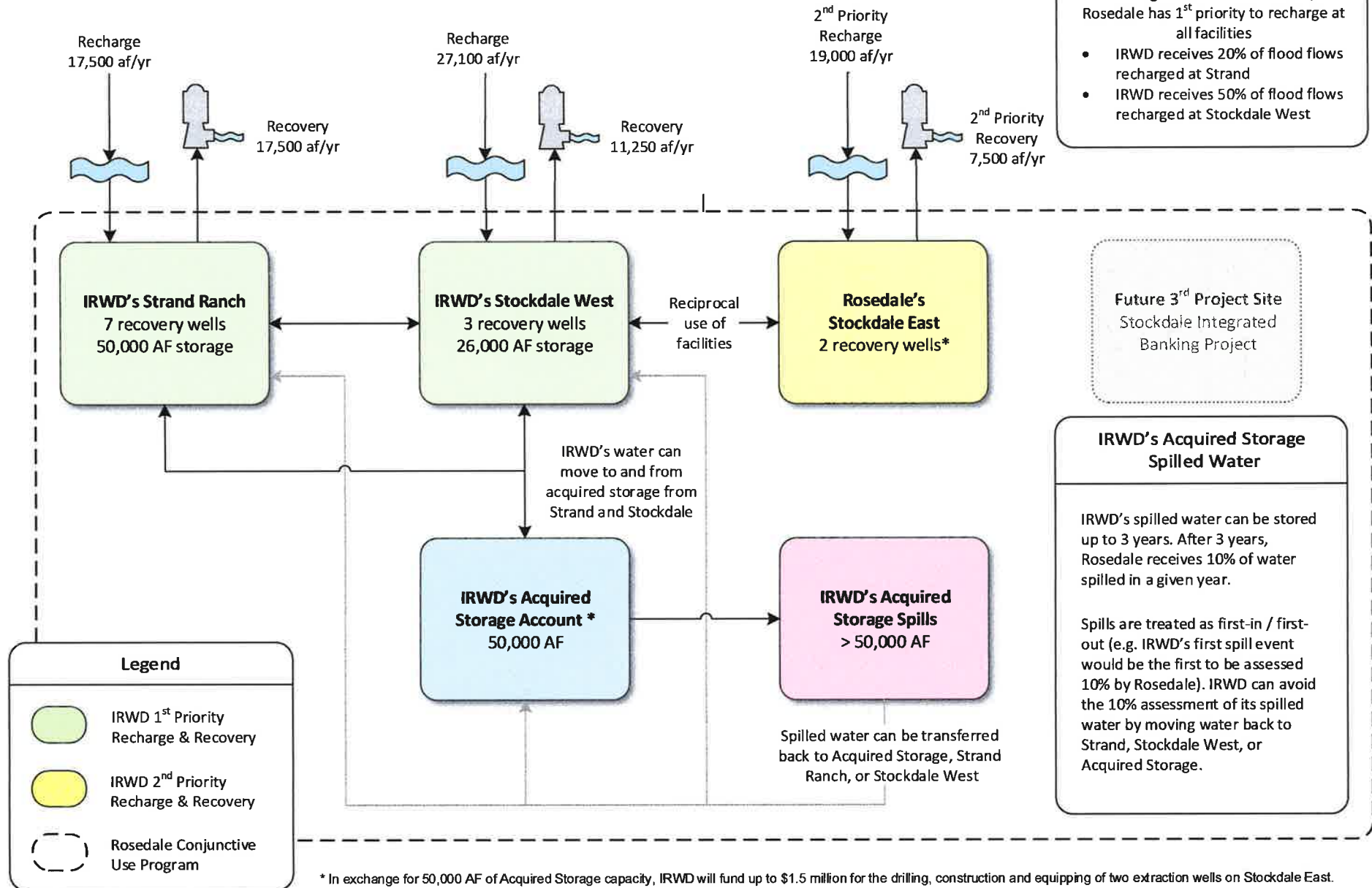
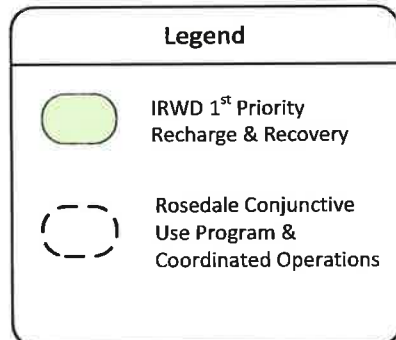
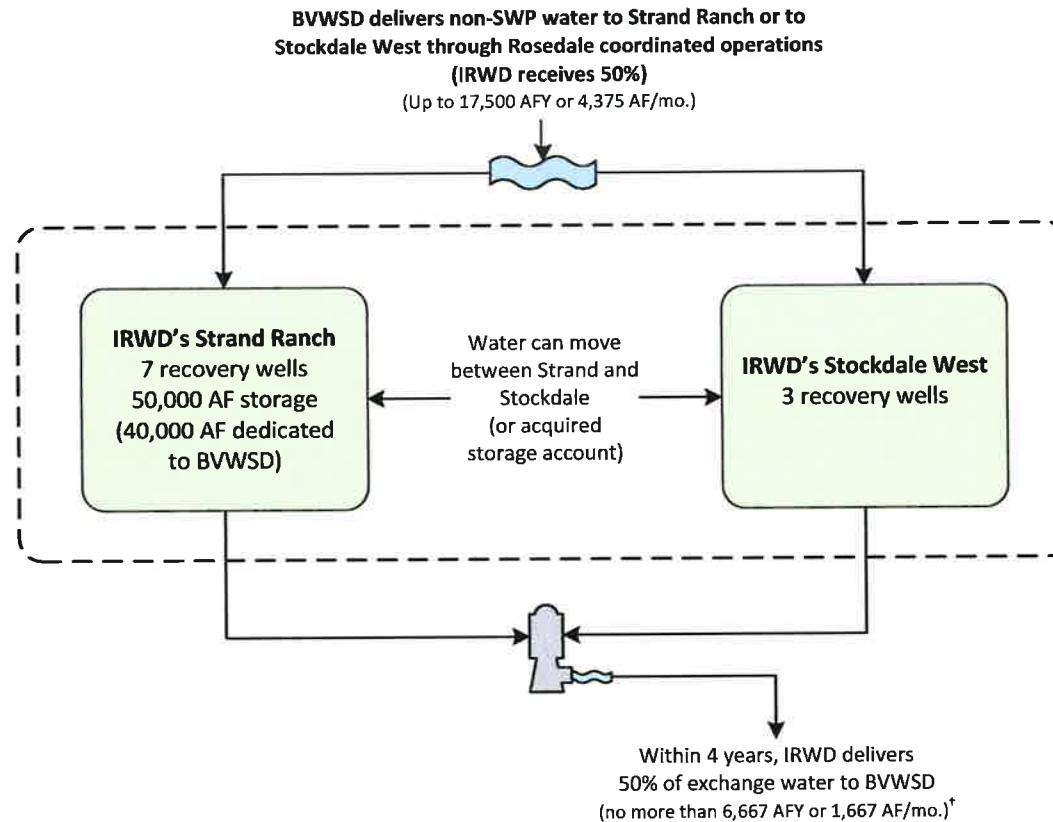


Exhibit "G"

Buena Vista Water Storage District Long Term Water Exchange Program

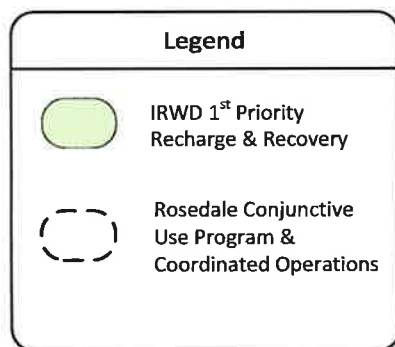
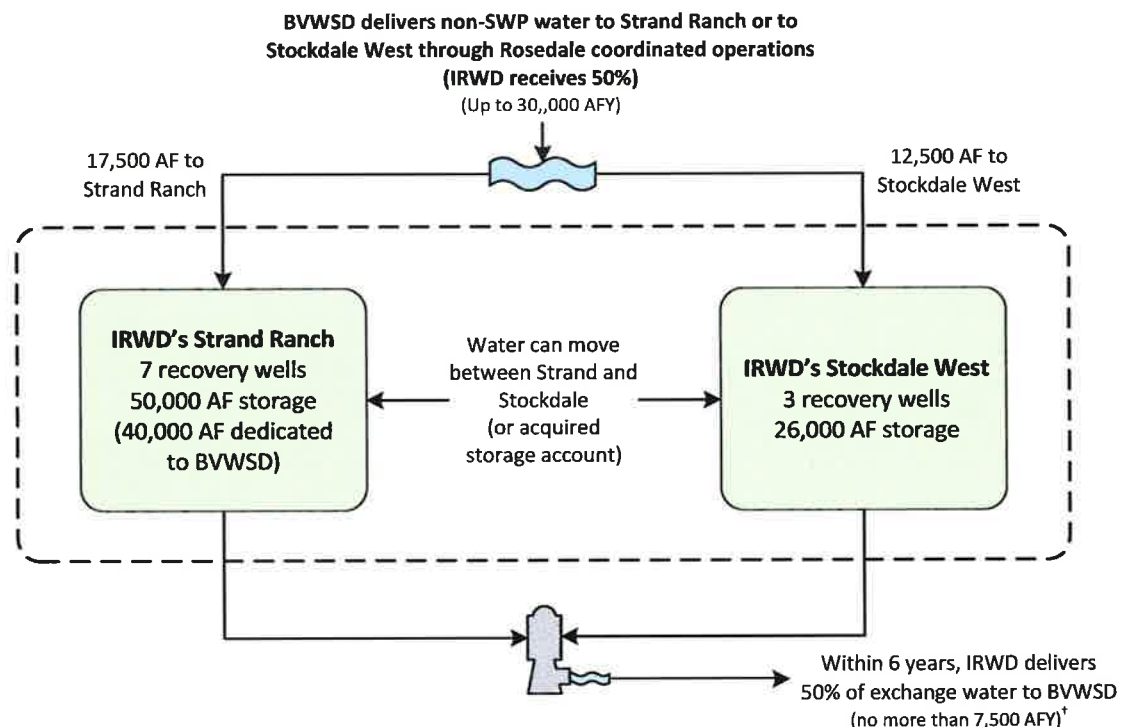
Effective 1/1/2011 through 1/12/2039



[†]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 3/20/2018



[†]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:

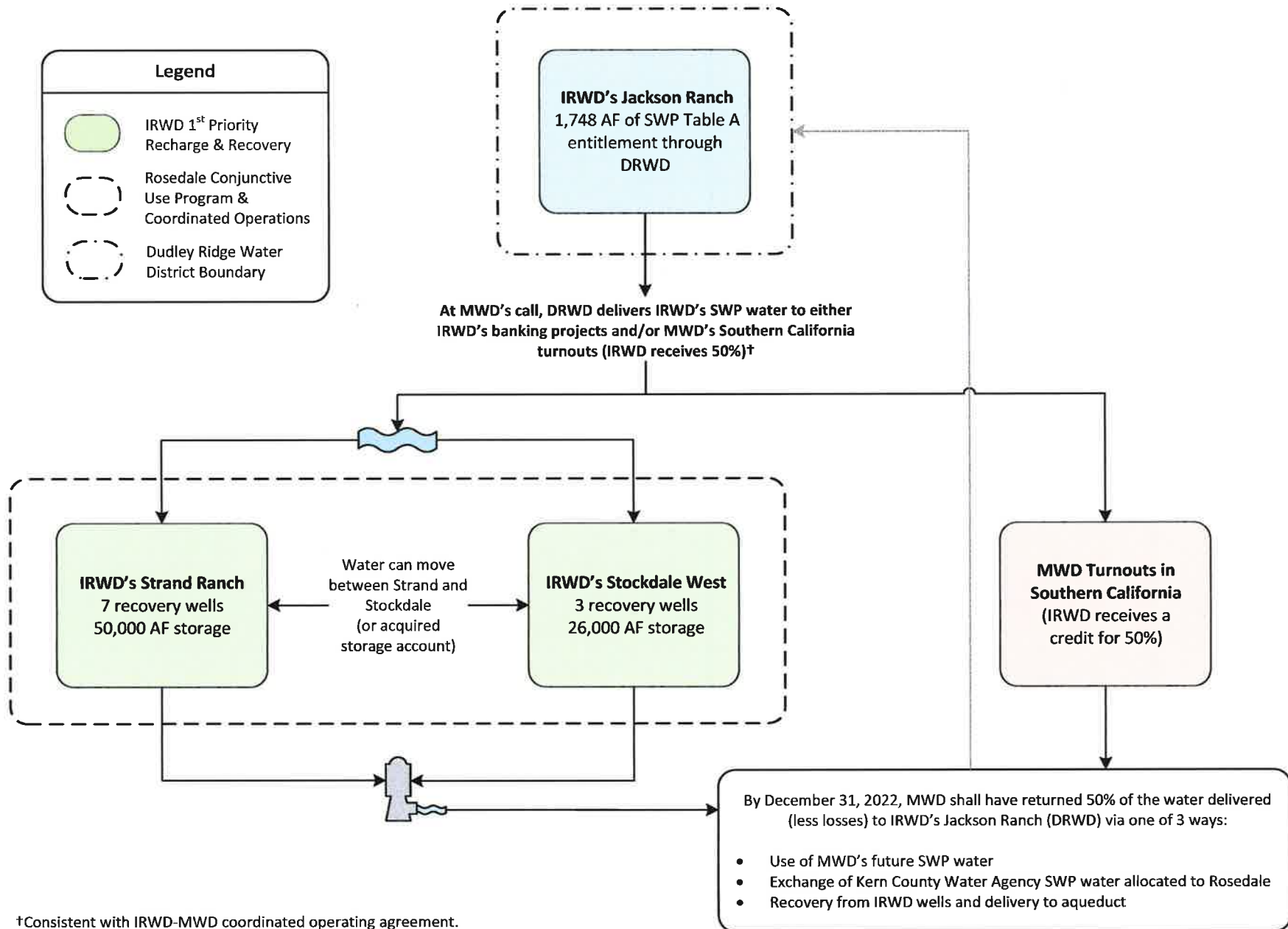
Modified for 1-Year Recharge Program Only

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 "H"

Dudley Ridge Water District (DRWD) Unbalanced Exchange Program

Up to 8,700 AF delivered from 12/16/2013 through 12/31/2017



†Consistent with IRWD-MWD coordinated operating agreement.

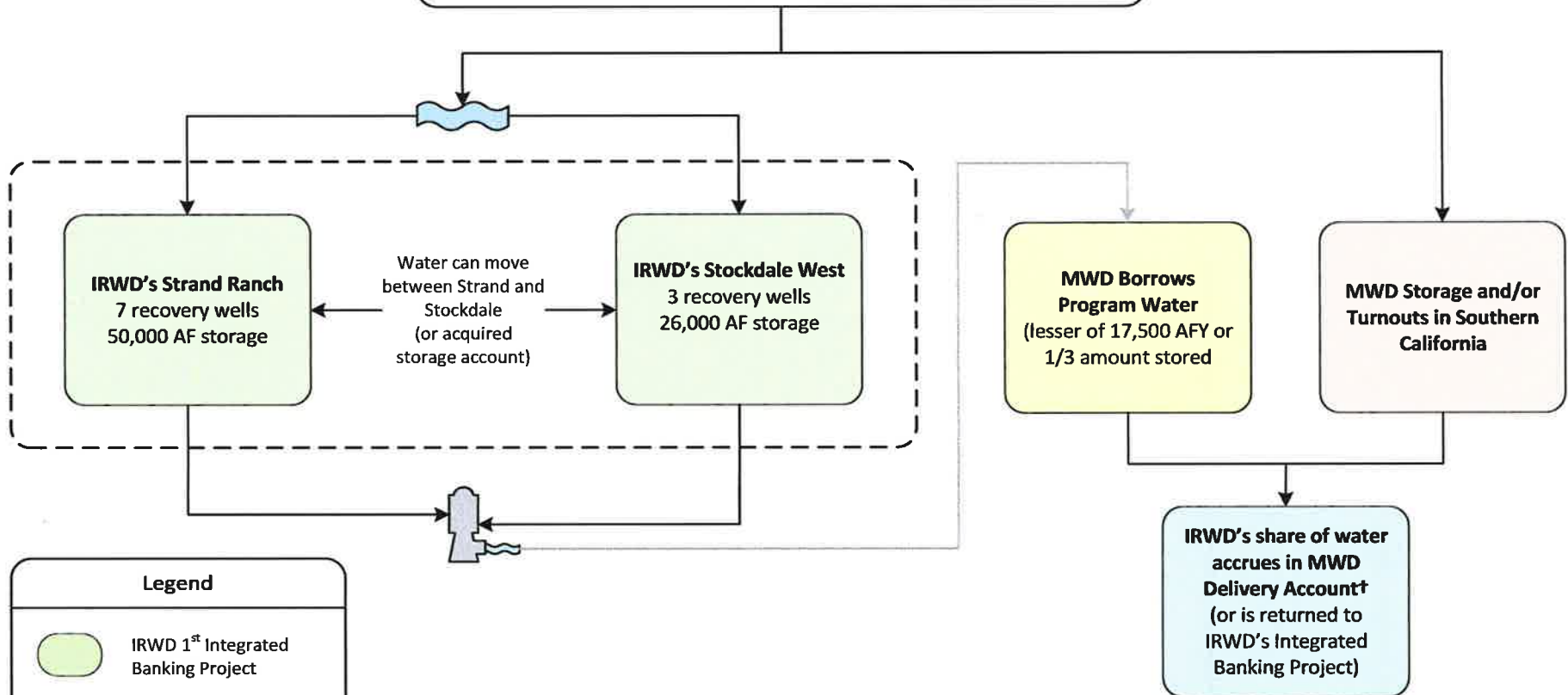
Exhibit "I"

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

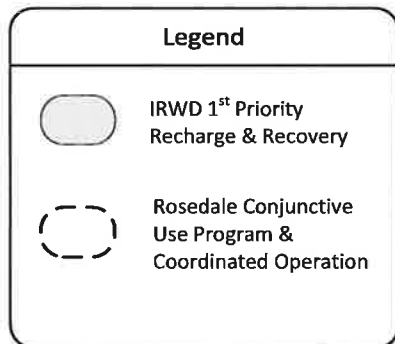
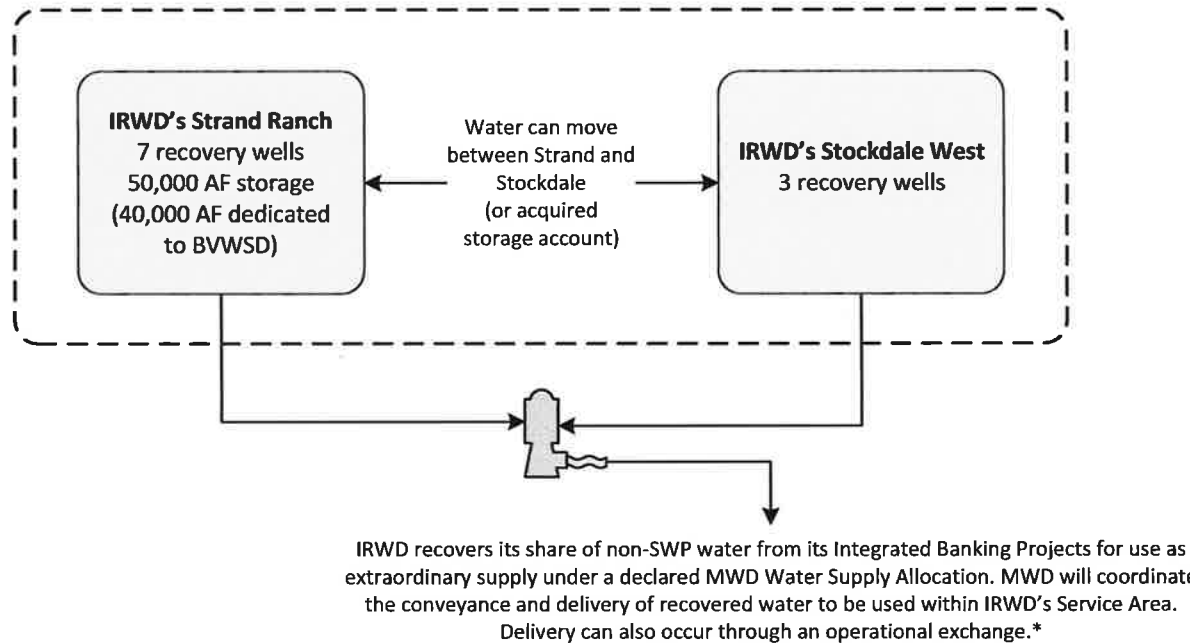
MWD has three options for the use and storage of Program Water:

- 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.

Exhibit "J"
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.

May 18, 2017

Prepared by: K. Welch

Submitted by: F. Sanchez/P. Weghorst

Approved by: Paul Cook 

SUPPLY RELIABILITY PROGRAMS COMMITTEE

WATER STORAGE INVESTMENT PROGRAM FUNDING FOR KERN FAN GROUNDWATER STORAGE PROJECT

SUMMARY:

The California Water Commission (CWC) is accepting applications for Proposition 1 grant funding through the Water Storage Investment Program (WSIP). The goal of the WSIP is to fund water storage projects that provide public benefits, improve the operation of the state water system, determine if they are cost effective and provide a net improvement in ecosystem and water quality conditions. Staff has been in discussions with Rosedale-Rio Bravo Water Storage District (Rosedale) regarding the development of a conceptual groundwater storage project that meets the grant funding eligibility criteria. At the Committee meeting, staff will present the preliminary project concepts and approach to be considered for securing grant funding. Staff recommends that the Committee provide input on the conceptual groundwater storage project and the proposed approach to pursuing WSIP funding.

BACKGROUND:

The CWC is accepting applications for grant funding through the WSIP for the planning, design and construction of water storage projects that provide specific public and ecosystem benefits. The funding source for the WSIP is Proposition 1, also known as the Water Quality, Supply and Infrastructure Improvement Act of 2014, which provides \$2.7 billion for public benefits associated with water storage projects. The maximum WSIP funding request for a surface and/or groundwater storage project is 50% of the project capital costs. The WSIP cost share must provide at least 50% of the quantified ecosystem improvement benefits for the project. Capital costs incurred after November 4, 2014 will be eligible for reimbursement. Applications must be submitted to the CWC by August 14, 2017.

Following is an overview of staff participation in a study of the water supply benefits that could be achieved from new water storage projects and a conceptual proposal for a groundwater storage project in the Kern Fan that was development with the assistance of Rosedale.

ACWA Storage Integration Study:

In 2016 staff, along with Rosedale and other water agencies, participated in a Storage Integration Study through the Association of California Water Agencies (ACWA). ACWA undertook the study to define and quantify the benefits of integrating the operation of new storage projects with the existing State Water Project (SWP) and Central Valley Project (CVP) in the interest of helping to fulfill statewide water supply needs and priorities. The study describes eight new surface and groundwater storage projects that could provide such benefits.

A conceptual Kern Fan Groundwater Storage Project (Kern Fan Project) is included in the study as envisioned by staff at both Rosedale and IRWD. The concept would be to develop a regional

water bank in the Kern Fan to capture and store water during conditions when surface water is abundant. A portion of the water would be returned at a later date through groundwater recovery and implementation of operational exchanges. The project could be integrated with the SWP and CVP systems through program agreements with project contractors and through the use of turnouts from the California Aqueduct, the Cross Valley Canal, the Friant-Kern Canal and potential new conveyance facilities.

Kern Fan Groundwater Storage Project:

Staff has worked with Rosedale to develop a concept for a potential Kern Fan Project that could provide the benefits needed to meet the eligibility criteria for WSIP funding. A two-phased approach would be taken to the development of the Kern Fan Project. The first phase would be to develop the proposed third project site as contemplated in the Stockdale Integrated Banking Project with IRWD and Rosedale jointly acquiring up to 640 acres in the Kern Fan area and constructing conveyance, recharge and recovery facilities as necessary to develop a fully functioning water banking project.

To date, programmatic environmental review work for the third project site was completed as part of the Stockdale Project Final Environmental Impact Report (EIR). Based on the characteristics of the Kern Fan, it is expected that the third project site could result in a storage capacity of approximately 50,000 AF. Exhibit "A" depicts the area for the third project site as part of the Stockdale Project.

The second phase of the Kern Fan Project would involve IRWD and Rosedale acquiring an additional 640 acres of land for expansion of the water banking facilities. The overall project would consist of approximately 100,000 AF of storage capacity, up to 100,000 AFY in recharge capacity and up to 70 cfs of recovery capacity. Staff anticipates the overall cost of the Kern Fan Project would be about \$100 million and, if qualified, up to \$50 million would be funded through the Proposition 1 grant. IRWD and Rosedale would then each provide \$25 million each for the project.

Proposed Project Benefits:

In order to satisfy the WSIP grant requirements, the project must demonstrate quantifiable ecosystem improvement benefits for the Bay-Delta (Delta). Conceptually, the ecosystem benefits could be derived from a decrease in water exported from the Delta and/or an increase in river flows during critical periods when Delta flows must be maintained to support fish spawning.

The Kern Fan Project could be operated such that in wet years, IRWD and Rosedale would acquire surplus unallocated Article 21 supplies to store in the project. IRWD and Rosedale would share first priority rights to 66,000 AF of the water delivered into storage for use in their respective water banking and exchange programs. In a critical year when the Delta is water short, the California Department of Water Resources (DWR) would have the ability to request recovery of up to 33,000 AF from the Kern Fan Project to meet local and downstream State Contractor demands in lieu of exporting water from the Delta. DWR releases of flows from

reservoirs upstream of the Delta would then improve ecosystem habitat for Delta fish species. Such deliveries could occur at a rate of 550 cfs over a one month period or up to 1,100 cfs in a 15-day period. A schematic of the conceptual Kern Fan Project is included as Exhibit "B".

Technical Studies and Modeling:

Staff and Rosedale propose to initiate the necessary technical studies and modeling that is required to quantify the benefits of the Kern Fan Project as a condition of the WSIP. The grant regulations require an evaluation of project conditions and quantification of the benefits in physical and monetary values. The physical changes to the Delta ecosystem must be quantified and then assessed a project benefit value. The quantification of the ecosystem benefits involves complex water operations and species modeling which would support the request for grant funding. The assistance of technical consultants will be needed to perform the necessary modeling of the Kern Fan Project benefits.

Preparing Grant Application:

Preparing a CWC grant application will involve preparation of numerous documents, supporting attachments, responses to questions and financial analyses to describe how the Kern Fan Project will support the WSIP objectives. Staff has received a proposal for \$24,000 from DDB Engineering to assist in writing and compiling the grant application. Staff expects that the required technical studies would cost up to \$76,000. To share in these costs, it is proposed that IRWD and Rosedale each contribute up to \$50,000 towards the cost of the technical studies, modeling and grant application preparation. Funding for IRWD's proposed cost share of the technical studies, modeling and application preparation is included in the FY 2016-17 Capital Budget.

Staff recommends that the Committee provide input on the conceptual Kern Fan Project and staff's approach to pursuing the WSIP funding. Staff will return to the Committee and Board in July with a recommendation for a grant application for the Kern Fan Project and a request for adoption of the required resolution designating an authorized representative to submit the application.

FISCAL IMPACTS:

Funding for the District's proposed cost share for the technical studies, modeling and application preparation is included in the FY 2016-17 Capital Budget.

ENVIRONMENTAL COMPLIANCE:

A Final EIR for the Stockdale Integrated Banking Project was prepared, certified and approved in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Rosedale, as lead agency, filed a Notice of Determination for the Stockdale Integrated Banking Projects with the County of Kern. IRWD, as a responsible agency, filed Notice of Determinations with the

County of Orange and with the County of Kern. The EIR includes a program-level analysis of impacts of a third project site because the location of the site has not been identified. If and when the third Stockdale project site is identified, subsequent project-level environmental review would need to be conducted prior to implementation of project facilities. It is expected the a new EIR would be required for the construction and operation of the second phase facilities contemplated in the Kern Fan Project.

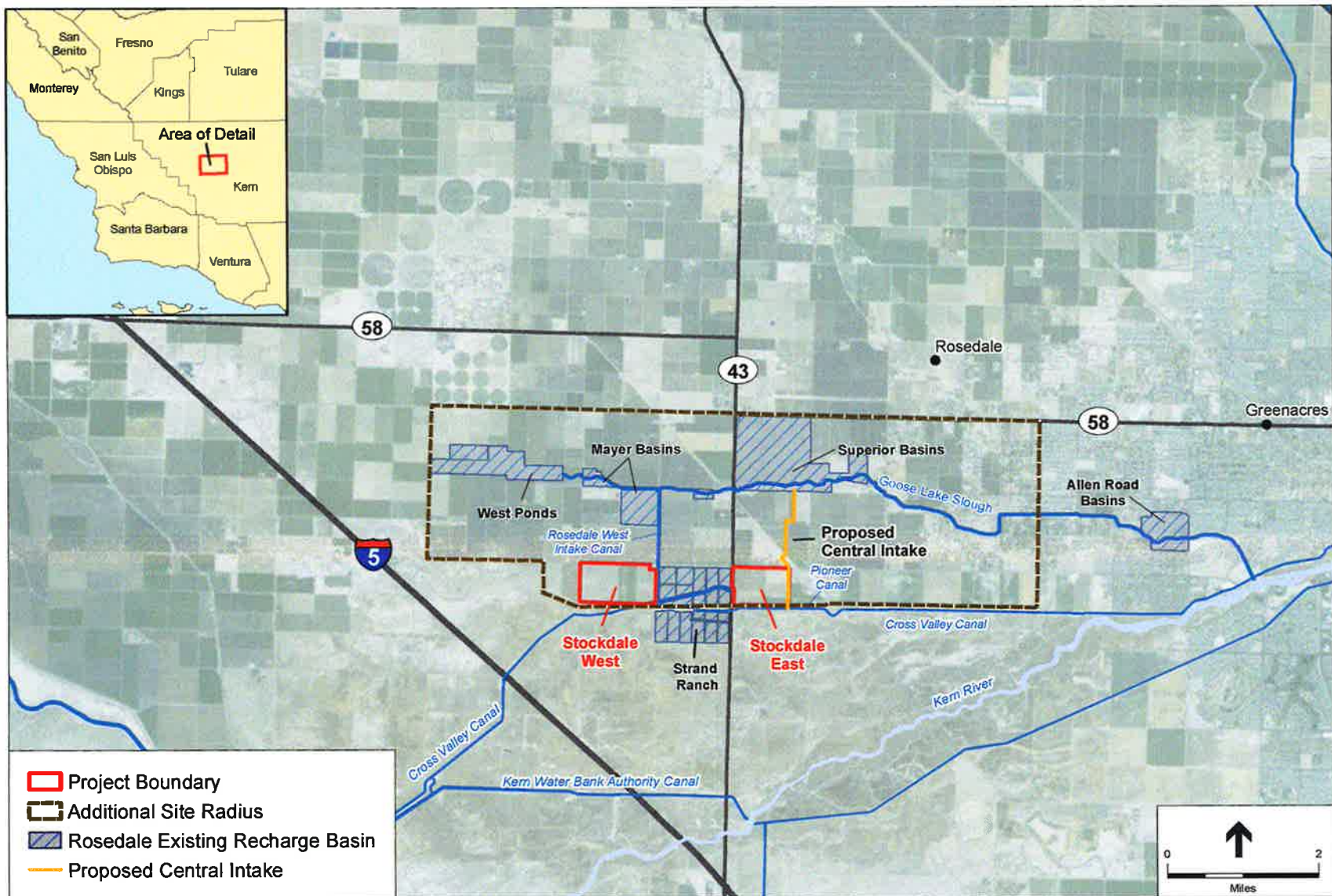
RECOMMENDATION:

That the Committee provide input on the conceptual Kern Fan Groundwater Storage Project and the proposed approach to pursuing Water Storage Investment Program funding.

LIST OF EXHIBITS:

Exhibit "A" – Location Map: Stockdale Integrated Banking Project
Exhibit "B" – Schematic: Kern Fan Groundwater Storage Project

EXHIBIT "A"

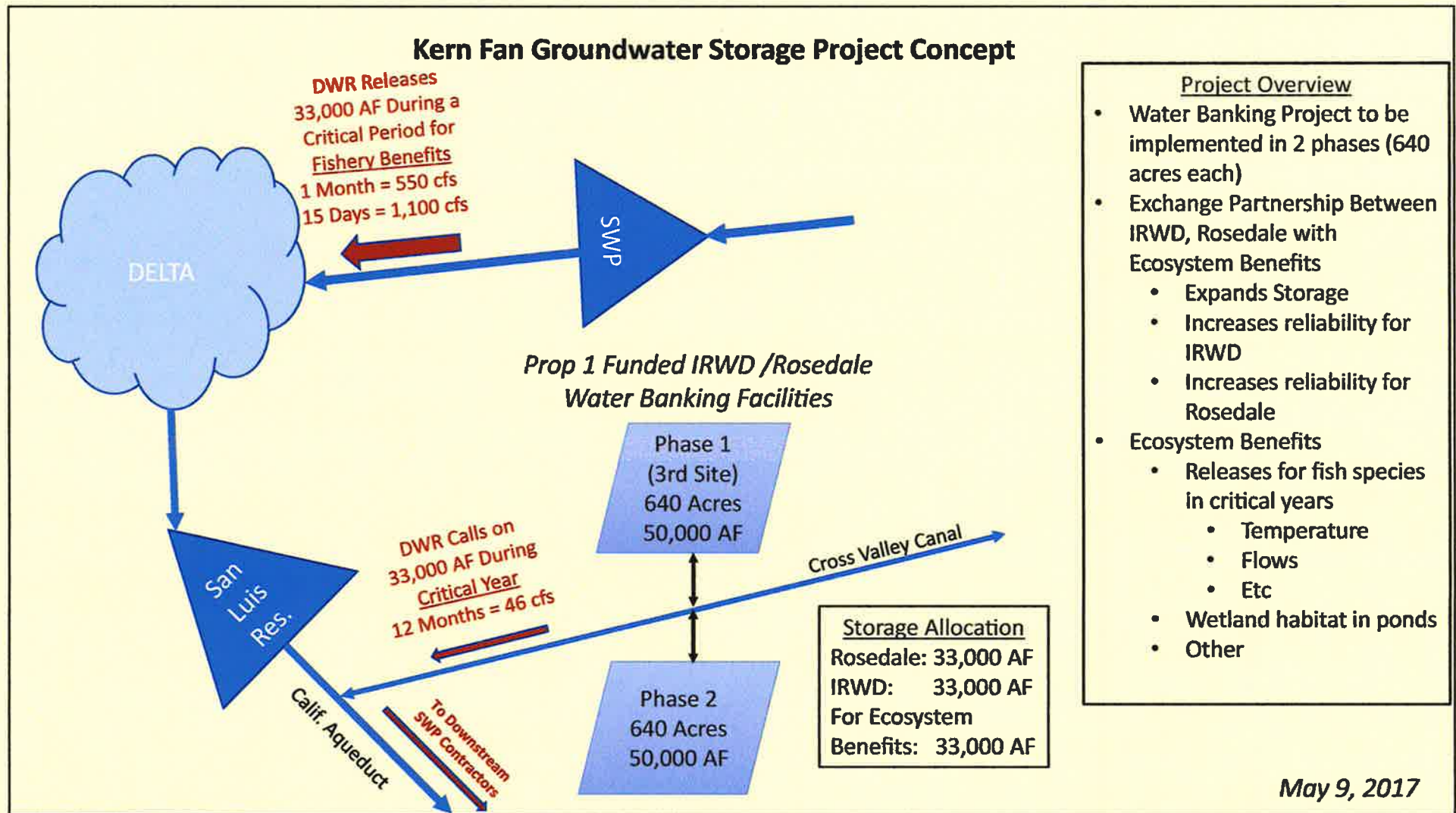


SOURCE: ESRI 2013

Stockdale Integrated Banking Project . 211181

Figure 2-1
Project Location

EXHIBIT "B"



May 18, 2017

Submitted by: P. Weghorst

Approved by: Paul Cook 

SUPPLY RELIABILITY PROGRAMS COMMITTEE

REVISIONS TO TERMS FOR PILOT EXCHANGE PROGRAM WITH CASTAIC LAKE WATER AGENCY

SUMMARY:

On May 4, 2017, staff submitted draft terms for a pilot exchange program to Castaic Lake Water Agency (CLWA). The program would allow CLWA to deliver 10,000 AF of State Water Project (SWP) water to the Strand and Stockdale Integrated Banking Projects (IRWD Water Banks) on a 2-for-1 basis. On May 11, 2017 staff met with CLWA and received comments on the draft terms, including a request to allow CLWA to store its share of the water longer in the projects. Staff has prepared alternatives for the Committee to consider in granting CLWA's request. Staff recommends that the Committee provide input on the proposed alternatives and on staff recommendations for which alternatives to send to CLWA.

BACKGROUND:

On May 2, 2017, staff received a request from CLWA for IRWD to submit draft terms for a pilot exchange program that would allow CLWA to recharge State Water Project (SWP) water at the IRWD Water Banks. In response to this request, staff prepared draft terms for a 2017 Pilot Exchange Program that would allow CLWA to deliver 10,000 AF to the IRWD Water Banks on an unbalanced exchange basis. These terms were based on the terms of the Short-Term Exchange Program Agreement that IRWD recently executed with Central Coast Water Authority. The Terms for a 2017 Pilot Exchange Program with CLWA are attached as Exhibit "A".

With the concurrence of the Committee, staff submitted the draft terms to CLWA on May 3, 2017. On May 4, 2017, CLWA staff reviewed the term sheet with its Water Resources Committee. Following is an overview of the draft terms, comments received back from CLWA and concepts for revising the terms based on CLWA's comments.

Overview of Program Terms:

The terms for the 2017 Pilot Exchange Program would allow CLWA, within the first year of the six year exchange, to deliver up to 10,000 AF of SWP water on a 2-for-1 basis to the IRWD Water Banks. IRWD would return half of the water (less a proportionate share of the losses) to CLWA by the end of the sixth full year of the exchange. CLWA would reimburse IRWD for CLWA's share of the variable supply and recharge costs when they take delivery of water returned by IRWD. CLWA would also pay all the associated fixed SWP costs and the costs associated with the recovery and delivery of water returned to CLWA.

Comments from CLWA:

On May 11, 2017, staff met with CLWA to receive feedback on the proposed draft terms. At the meeting, CLWA expressed that they would not expect to have the demand to take delivery of all

of the return water by the end of the sixth year of the exchange program. Accordingly, CLWA requested that IRWD consider revisions to the draft terms that would allow it to store its share of the exchange water longer in the IRWD Water Banks. CLWA also stated that an attractive aspect of IRWD's proposal was that it would allow CLWA to deliver water into storage without any up-front costs and that they were optimistic about the benefits of the program.

Concepts for Revising Terms:

Staff has considered CLWA's request to revise the draft terms to allow CLWA to store its share of the exchange water longer in the IRWD Water Banks. As a result of this consideration, staff has developed alternatives presented in Exhibit "B" which also describes the pros and cons of each alternative concept. At the Committee meeting, staff will present an overview of the alternatives and make recommendations for which alternatives to send to CLWA for its consideration. Staff recommends that the Committee provide input on the proposed alternatives for letting CLWA store its share of exchange water longer in IRWD's Water Banks and on staff recommendations for which alternatives to send to Castaic Lake Water Agency.

FISCAL IMPACTS:

The proposed draft terms for a pilot exchange program with CLWA would require CLWA to reimburse IRWD for their share of the variable supply and recharge costs when they take delivery of the water returned by IRWD. CLWA would also pay all the associated fixed SWP costs and the costs associated with the recovery and delivery of the return water to CLWA. It is expected that IRWD would pay about \$42 per AF for the recharge of its share of the water delivered into storage by CLWA. Recovery of IRWD's share of the water would cost about \$79 per AF. IRWD and CLWA would equally share in the cost of administration fees charged by the Kern County Water Agency which are expected to be \$5 per AF for the water delivered into storage.

ENVIRONMENTAL COMPLIANCE:

A Final EIR for the Stockdale Integrated Banking Project was prepared, certified and approved in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Rosedale, as lead agency, filed a Notice of Determination for the Stockdale Integrated Banking Projects with the County of Kern. IRWD, as a responsible agency, filed Notice of Determinations with the County of Orange and with the County of Kern. The EIR includes a program-level analysis of impacts of a third project site because the location of the site has not been identified. If and when the third Stockdale project site is identified, subsequent project-level environmental review would need to be conducted prior to implementation of project facilities.

RECOMMENDATION:

That the Committee provide input on the proposed alternatives for allowing Castaic Lake Water Agency store its share of exchange water longer in the IRWD Water Banks and on staff recommendations for which alternatives to send to Castaic Lake Water Agency.

LIST OF EXHIBITS:

Exhibit "A" – Terms of 2017 Pilot Exchange Program with Castaic Lake Water Agency
Exhibit "B" – Alternative Concepts for Extending Recovery for Castaic Lake Water Agency

EXHIBIT "A"

DRAFT

(5/3/2017)

Castaic Lake Water Agency and Irvine Ranch Water District

Terms of 2017 Pilot Exchange Program

GENERAL TERMS

- Parties:** Irvine Ranch Water District ("IRWD"); Castaic Lake Water Agency ("CLWA")
- Description:** The IRWD seeks to enter into an Exchange Program for 2017 ("2017 Pilot Exchange Program") with CLWA as described in this Summary of Proposed Terms ("Term Sheet") pursuant to an Exchange Program Agreement (as defined below). The CLWA and IRWD 2017 Pilot Exchange Program will provide for IRWD to store up to 10,000 AF of CLWA's available SWP water in IRWD's Strand Ranch Integrated Banking Project and Stockdale Integrated Banking Project (Water Bank) on a 2 for 1 basis as described under the 2017 Pilot Exchange Program Terms.
- Effective Date:** May XX, 2017.
- Term:** Six (6) years from the Effective Date or as mutually extended by the Parties.
- IRWD's Water Bank:** The IRWD Strand Ranch Integrated Banking Project and Stockdale Integrated Banking Project are located in Kern County and are owned by IRWD and operated by Rosedale-Rio Bravo Water Storage District (Rosedale). IRWD holds the first priority rights to use of the Strand Ranch and Stockdale West recharge facilities except for when the Kern River Watermaster offers water to all takers willing to sign a notice/order or the Kern River Watermaster offers Kern River water to the California Aqueduct / Kern River Intertie. Under such conditions, Rosedale has first priority right to the use of the recharge facilities. IRWD holds first priority rights to use of the Strand Ranch and Stockdale West recovery

facilities. IRWD's combined water banking capacity limitations are up to the following:

Recharge Capacity: Up to 250 cfs and 44,600 acre-feet per year

Recharge Area: 767 acres

Recovery Capacity: Approximately 36 cfs and 17,500 acre-feet per year currently, and expanding to 51 cfs and 38,801 acre-feet per year by January 2018¹

Storage Capacity: 76,000 acre-feet

Cross Valley Canal Turnouts: 300 cfs

Non-Binding Effect: This Term Sheet is intended to be a non-binding statement of the terms of the proposed transaction. It is subject to the negotiation, execution and delivery of an Exchange Program Agreement by IRWD and CLWA not inconsistent with the basic terms and conditions set forth herein. CLWA and IRWD will provide usual and customary representations and warranties.

General Expenses: Each party shall be responsible for its own fees and expenses arising out of the negotiation and execution of agreements related to this transaction, obtaining necessary approvals, and the like.

Coordination: IRWD and CLWA shall jointly coordinate with the California Department of Water Resources (DWR), the Metropolitan Water District of Southern California (Metropolitan) and the Kern County Water Agency (KCWA) in the development of all approvals and agreements necessary to deliver Exchange Water to the Water Bank and to deliver Return Water to CLWA as described below. IRWD

¹ As a participant in the Rosedale Drought Relief Project, IRWD will have access to 15 cfs of recovery capacity, on a first priority basis, to augment the instantaneous recovery capacity of the Strand Ranch Integrated Banking Project. This increase in recovery capacity will be available for IRWD and its exchange partners in early 2018.

and CLWA shall each be responsible for their own costs associated for such coordination.

CEQA Compliance: Both parties shall comply with CEQA and cooperate with one another with respect to CEQA compliance that may be required by the California Department of Water Resources (DWR) for the proposed 2017 Pilot Exchange Program. It is expected that DWR will file a Notice of Exemption for the program. IRWD has already conducted environmental review under CEQA for the Water Bank that takes into consideration the delivery of SWP water to the Water Bank. Rosedale and IRWD independently certified and approved the Water Bank Project on May 27, 2008 for Strand Ranch Integrated Banking Project and December 8, 2015 for Stockdale Integrated Banking Project. It is expected that no further environmental review will be necessary. However, IRWD and CLWA will share equally any additional costs associated with environmental review deemed necessary for delivering CLWA Exchange Water into storage. Both IRWD and CLWA shall separately be responsible for any other environmental review necessary to implement the 2017 Pilot Exchange Program within their own respective service areas.

Permit Costs: No permits are expected to be required for the 2017 Pilot Exchange Program; however, IRWD and CLWA will share equally any and all regulatory and permitting fees that might come to be required during the implementation of the 2017 Pilot Exchange Program.

Water Rights: It is expressly agreed, understood, and acknowledged by IRWD and CLWA that any existing or future delivery of Exchange Water to the Water Bank by CLWA will not result in or be considered a sale or transfer of CLWA's contractual rights to SWP Table A water.

Exchange Program Agreement: Contract language to be incorporated into the Exchange Program Agreement between the Parties.

2017 PILOT EXCHANGE PROGRAM TERMS

- Exchange Water:** CLWA will supply SWP water to the Water Bank available to CLWA as a result of allocations of Table A water or other water to CLWA under its SWP Contract with DWR (Exchange Water).
- Quantity:** Up to 10,000 acre-feet of Exchange Water may be delivered to the Water Bank by CLWA within the first year of the execution of the Exchange Program Agreement with a maximum cumulative account balance limited to the lesser of 10,000 acre-feet or the total amount of Exchange Water delivered to the Water Bank within the first year (Maximum Account Balance). In addition, IRWD at its sole discretion may offer CLWA the ability to extend the term of this agreement to allow delivery of Exchange Water to the Water Bank.
- Quality:** The quality of water delivered to the Water Bank and returned to CLWA will be limited as follows:
- If and to the extent that either party delivers water to and into the California Aqueduct, the quality of water shall meet the water quality standards established by DWR for pump-in to the California Aqueduct.
- Availability:** The Exchange Water will be available as per Delivery Schedule below and upon completion of environmental review, agreements and permits for the programs contemplated by this agreement. The availability of Exchange Water shall be determined in CLWA's sole discretion in accordance with the Quantity limit defined above. The availability of recharge and storage capacity beyond the Quantity limits described above will be determined in IRWD's sole discretion.
- Delivery Points:** CLWA will deliver Exchange Water to the IRWD point of delivery (IRWD POD) which will be the Strand Ranch and/or Stockdale West Turnouts on the Cross Valley Canal, other Rosedale diversion locations as specified by Rosedale, or thereabouts, or as directed by Metropolitan. IRWD will deliver Return Water,

as defined below, to the CLWA point of delivery (CLWA POD) which will be Check 28 of the California Aqueduct.

- Return Water:** Water that IRWD delivers to CLWA (Return Water) will occur by either (i) an exchange of banked water for SWP water or other water already in the California Aqueduct, or (ii) recovery of water from the Water Bank wells with subsequent delivery through the Cross Valley Canal (CVC) to the California Aqueduct.
- Delivery Schedule:** CLWA may deliver Exchange Water within the twelve months of the execution of the Exchange Program Agreement. IRWD shall provide Return Water at a time when requested by CLWA at an annual rate of no more than one-third of the portion of the Maximum Account Balance due to be returned to CLWA after losses. For example, if the CLWA portion of the Maximum Account Balance after losses was 4,250 acre-feet, then Return Water would be provided at a rate not to exceed 1,417 acre-feet per year. At CLWA's request, IRWD may at IRWD's sole discretion, provide Return Water at a higher rate per year. The scheduling of the delivery of water through the CVC will be dependent on available CVC capacity as determined by Rosedale and the KCWA.
- Consideration:** IRWD will remit Return Water equal to one-half of the Exchange Water placed into storage less applicable losses (as described below) by the end of the 5th full calendar year after the associated recharge event. The other one-half of the Exchange Water placed into storage less applicable losses shall be deemed transferred to IRWD. CLWA's share of the Exchange Water less applicable losses may not remain in storage beyond the end of the 5th full calendar year after the delivery of Exchange Water.
- Losses:** Exchange Water stored will be subject to the loss provisions of any applicable "Memorandum of Understanding" between Rosedale and adjoining entities applicable to or affecting the 2017 Pilot Exchange Program. Losses for banking

operations currently are fifteen percent (15%) for evaporation, migration and out-of county use. Losses associated with deliveries in the Cross Valley Canal (CVC) may be up to an additional two percent (2%). IRWD and CLWA agree that all losses will be shared equally.

Costs:

Costs associated with the 2017 Pilot Exchange Program will be paid as follows:

- (i) IRWD will pay all variable costs actually incurred by CLWA associated with making the Exchange Water available for recharge at the IRWD POD in Kern County and charges assessed by Rosedale for the recharge of the water at the Water Bank. These costs are currently estimated to be \$35 per acre-foot (AF) and are comprised of approximately \$30 per AF for the Unit Variable OMP&R Component of Transportation Charge in the SWP in Reach 13-b of the California Aqueduct, an administrative charge of about \$3 per AF and other variable operating costs up to about \$2 per AF assessed by Rosedale consistent with that certain Water Banking and Exchange Program Agreement (Banking Agreement) between Rosedale and IRWD dated as of January 13, 2009. CLWA will reimburse IRWD for 50 percent of these costs paid by IRWD upon IRWD's delivery of Return Water to CLWA.
- (ii) CLWA will pay all fixed costs associated with making all Exchange Water available for recharge, including water that will be allocated to both CLWA and IRWD.
- (iii) IRWD will pay all variable costs associated with delivery of the Exchange Water through the CVC and into the recharge basins. These costs include the use of two CVC pumping plants, which is currently estimated at \$7 per AF. CLWA will reimburse IRWD for 50 percent of these variable costs paid by IRWD upon IRWD's delivery of Return Water to CLWA.

- (iv) CLWA will reimburse IRWD for all costs incurred by IRWD in the recovery and/or exchange of Return Water from Storage at the Water Bank. Recovery costs associated with extraction are currently estimated at \$74 per AF and are comprised of average groundwater pumping costs of \$68 per AF, an administrative charge estimated at \$3 per AF and other fixed and variable recovery costs up to about \$3 per AF that may be assessed by Rosedale consistent with the Banking Agreement. The actual groundwater pumping cost will be dependent on water surface elevations and time of year. CLWA shall also reimburse IRWD for any applicable CVC Standby and CVC O&M charges that may be assessed by Rosedale for delivered water utilizing CVC capacity currently estimated at \$3 per AF. CLWA shall also reimburse IRWD for any applicable fees that may be assessed by Rosedale to contribute to the mitigation obligation "Action Fund" for recovery of CLWA's share of the water, initially set at \$2 per AF (for water actually pumped not exchanged). CLWA will pay all conveyance and canal pumping costs associated with the delivery of Return Water to the CLWA POD and to its service area.
- (v) IRWD will pay all necessary fees assessed by KCWA for its administration associated with the 2017 Pilot Exchange Program. These costs are currently estimated at \$5 per AF for the total quantity of up to 10,000 AF for the 2017 Pilot Exchange Program. CLWA will reimburse IRWD for 50 percent of these administration costs paid by IRWD upon IRWD's delivery of Return Water to CLWA.
- (vi) IRWD will pay all costs associated with the recovery and/or exchange of its share of water from storage at the Water Bank including all conveyance costs and pumping costs to its respective service area.

EXHIBIT “B”

Alternative Concepts for Extending Recovery for Castaic Lake Water Agency’s (CLWA) 2017 Proposed Pilot Water Exchange Program May 18, 2017

	Alternative	Pros	Cons
1	<u>Current Proposal</u> - CLWA delivers 10,000 AF to the water bank in 2017; - CLWA must recover all water by end of year 6.	Frees up capacities for other banking partners	CLWA would need to recover water earlier than is needed to meet projected CLWA’s reliability requirements.
2	<u>Additional Non-SWP Transfers</u> - CLWA must recover all water by end of year 6; - CLWA transfers 50 AF of <u>non-SWP</u> water in ground to IRWD for each additional year in storage.	- CLWA has discretion over recovery from the water bank; - IRWD receives additional non-SWP.	Does not free up capacities for other banking partners
3	<u>Additional SWP Transfers</u> - CLWA must recover all water by end of year 6; - CLWA transfers additional SWP water to IRWD for each additional year in storage under agreed upon depreciation schedule.	- CLWA has discretion over recovery from the water bank; - IRWD receives additional SWP.	- DWR would not allow greater than 50% of CLWA’s SWP supplies to be exchanged; - Does not free up capacities for other banking partners
4	<u>Uniform Storage Fee</u> - CLWA must recover all water by end of year 6; - CLWA pays \$7.50 per acre-foot for water left in storage after year 6.	- CLWA has discretion over recovery from the water bank; - IRWD receives some capital recovery through storage fee.	Does not free up capacities for other banking partners
5	<u>Extend Recovery 1 Year with Additional Deliveries</u> - CLWA must recover all water by end of year 6; - IRWD extends storage for 1 year if CLWA delivers an additional 10,000 AF by the end of year 7.	- CLWA has discretion over recovery from the water bank; - IRWD receives additional water to fill water bank.	Does not free up capacities for other banking partners
6	<u>Transfer to Another Account</u> CLWA must recover all water or transfer its stored water to another water banking account by end of year 6.	- CLWA has discretion over recovery from the water bank; - Frees up capacities for other banking partners.	CLWA would need to have available capacities in another Kern Fan banking account.