

SAN GORGONIO PASS WATER AGENCY
1210 Beaumont Avenue, Beaumont, CA
Board of Directors Engineering Workshop
Agenda
October 10, 2016 at 4:00 p.m.

- 1. Call to Order, Flag Salute and Roll Call**
- 2. Public Comment:**
Members of the public may address the Board at this time concerning items relating to any matter within the Agency's jurisdiction. To comment on specific agenda items, please complete a speaker's request form and hand it to the board secretary.
- 3. Review and Discussion of Memorandum Regarding Water Acquisition Options – Information Purposes Only* (Page 2)**
- 4. Announcements**
 - A. Regular Board Meeting, October 17, 2016 at 7:00 p.m.
 - B. Finance and Budget Workshop, October 24, 2016 at 4:00 p.m.
 - C. San Gorgonio Pass Regional Water Alliance, October 26, 2016
 1. Regular Meeting at 5:30 p.m. – Banning City Hall Conference Room
- 5. Adjournment**

***Information included in Agenda Packet**

(1) Materials related to an item on this Agenda submitted to the Board of Directors after distribution of the agenda packet are available for Public inspection in the Agency's office at 1210 Beaumont Avenue, Beaumont during normal business hours. (2) Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection at the Agency's office, located at 1210 Beaumont Avenue, Beaumont, California 92223, during regular business hours. When practical, these public records will also be made available on the Agency's Internet Web site, accessible at <http://www.sgpwa.com>." (3) Any person with a disability who requires accommodation in order to participate in this meeting should telephone the Agency (951 845-2577) at least 48 hours prior to the meeting in order to make a request for a disability-related modification or accommodation.

Memorandum

To: Jeff Davis, General Manager
San Gorgonio Pass Water Agency

From: Dale Melville & Dan Flory

Subject: Water Acquisition Options for SGPWA

Date: September 29, 2016

This memorandum is structured to provide the San Gorgonio Pass Water Agency ("SGPWA") pertinent background information on potential water transfer opportunities, with a focus on presenting water purchase opportunities, water partnering opportunities, and issues related to accomplishing water transfers into or within the State Water Project service area.

Introduction

In accordance with your authorization dated July 12 to our June 24, 2016 proposal, Provost & Pritchard Consulting Group ("P&P") has prepared this memorandum to assist SGPWA in assessing options available to acquire additional long-term water supplies. This memorandum has been updated from our August 26 draft, to incorporate your comments and our discussion last week for additional information on selected items.

Based on our previous discussions, SGPWA desires to supplement its current 17,300 acre-feet ("af") of State Water Project ("SWP") Table A amount with an additional 2,500 af of reliable annual supply by 2020, and ultimately 17,000 to 23,000 af/y of additional reliable annual supply at build-out of the service area; additionally, we discussed that with the groundwater banking facilities existing (Beaumont Cherry Valley WD) and planned (SGPWA), there appears to be sufficient groundwater recharge facilities within the SGPWA service area to meet demands for the next 15 years, assuming the surface water for those programs is available. This memorandum is intended to provide SGPWA with a listing of the surface water options that may be available for SGPWA to consider acquiring to reliably meet their long-term demand. In addition to identifying potential sources of long-term water supplies for SGPWA, issues associated with those supplies are also presented.

In July 2013, Kennedy/Jenks Consultants prepared a memorandum evaluating potential water transfer opportunities for SGPWA. A lot has changed in the past three years! First, California has endured continuation of drought (2012-2016) that significantly reduced SWP and CVP deliveries south of the Delta (65%, 35%, 5%, 20%, 60%, respectively for the SWP and 30%, 25%, 0%, 0%, 5%, respectively for ag Westside CVP). Second, the Sustainable Groundwater Management Act ("SGMA") was enacted

in 2014 which has already had significant changes in water resource planning although implementing agencies are just forming and initial groundwater sustainability plans are at least three years away. These two conditions have had a huge impact on the value of the water resource.

In addition to the need for an increased reliable water supply, the information developed herein may have a side benefit by providing information on alternative water supplies that may be helpful to the SGPWA in evaluating the business case for participating in the California WaterFix ("CWF"). One of the considerations in evaluating the water supply benefits of the CWF is to compare the relative availability, costs, and risks associated with alternative water supplies.

This memorandum addresses the alternative water supplies that could be acquired and transferred to the SGPWA. These alternative supplies include discussions on the viability of additional Table A water from the SWP, contract water from the Central Valley Project ("CVP"), and appropriated water rights water. Additionally, this study reviews the water supply alternatives and partnerships described in the July 24, 2013 memorandum prepared by Kennedy/Jenks and provide an update to the status of those water supply alternatives. To the extent the information is readily available (or otherwise known to P&P), this memorandum also addresses the potential availability, market costs, and risks of these water supply alternatives. The scope of this request was to address the issues related to acquiring and transferring long-term supplemental water supplies, but not to identify specific pricing or terms with individual sellers.

Water Acquisition Opportunities

SWP Table A Amounts – Ag Contractors

Permanent sale of approximately 150,000 acre-feet ("af") of SWP Table A have occurred since the Department of Water Resources ("DWR") and most of the SWP contractors executed the Monterey Amendment in 1995. The seller in each situation has been ag contractors, primarily from Kern County. The 130,000 af limit place by Kern County Water Agency ("KCWA") on permanent sales from their service area has been achieved, whereby member unit districts in KCWA have completed sales to SWP urban contractors; no additional Table A sales are allowed from KCWA without a major policy shift by KCWA. Since then, the only permanent Table A sales were by Dudley Ridge WD ("DRWD"), Tulare Lake Basin WSD ("TLBWSD"), or (related to the QSA) the Metropolitan Water District of Southern California ("MWDSC") as shown in **Table 1**. In DRWD and TLBWSD Table A sales, the transfers were from individual landowners within districts that had adopted policies allowing landowners to sell their Table A amount, subject to certain conditions that limit the impact to other district landowners. In each situation, the initial sales terms were negotiated outside the transferring districts, directly between the selling landowner and a water user (buyer) in the transferee agency. Once the seller-buyer agreements were brought to the districts, the districts developed appropriate agreements with the seller, buyer, and the other SWP contractor,

after which a formal request and necessary documentation (including CEQA compliance) were prepared and submitted to DWR for contract amendments to reflect the change in the Table A amount of the two SWP contractors.

In early August, we brought to SGPWA's attention a landowner in TLBWSD with 411 af of Table A amount for sale at about \$5,100/af. These are more typical of the agricultural ("ag") Table A sales anticipated in the future...smaller landowners deciding to either get out of farming or to reduce their reliance on relatively high-cost SWP water. Some of this is due to pending realities of SGMA in an over-drafted groundwater basin as well as other increasing regulations on farming, scales of economy for smaller growers, and similar constraints.

The other SWP ag contractor with a similar landowner transfer policy as DRWD and TLBWSD is Empire West Side ID ("EWSID"); landowners in EWSID have SWP Table A allocated at 0.4 af/acre. The two remaining ag contractors (Oak Flat WD and Kings County) do not have similar transfer policies. Discussion with the general manager of Oak Flat WD indicated that the district and landowners are in a water acquisition mode, not a selling mode. In conversation with the Kings County Administrative Officer, the County has contracts with others for the use of the water until 2035.

Table 1. Recent Long-Term Table A Water Sales

Year	Transferor	Transferee	Quantity	Price / Terms
2001	TLBWSD	Antelope Valley – East Kern WA	3,000 af	NA
2001	TLBWSD	DRWD	3,973 af	from/to same landowner
2003	TLBWSD	Alameda - Zone 7	400 af	NA
2004	TLBWSD	Kings County	5,000 af	NA
2004	MWDSC	Coachella WD (per QSA)	88,100 af	NA
2005	MWDSC	Desert WA (per QSA)	11,900 af	NA
2005	TLBWSD	Coachella WD	9,900 af	NA
2006	TLBWSD	Kings County	305 af	from/to same landowner
2009	DRWD	Mojave WA	14,000 af	\$5,200/af, phased over 10 year period
2010	DRWD	Antelope Valley – East Kern WA	1,998 af	\$5,850/af
2010	TLBWSD	Antelope Valley – East Kern WA	1,446 af	\$5,850/af

SWP Table A Amounts – Urban Contractors

Ventura County (officially the Ventura County Watershed Protection District) is comprised of three water agencies, specifically: City of Ventura (“City”), Casitas MWD (“Casitas”) and United Water Conservation District (“United”) with 10,000 af, 5,000 af, and 5,000 af, respectively. Historically, Ventura County has used only a small portion of its SWP supplies; United typically take delivery of about 2 taf/y and the other two entities are currently not taking SWP water. Ventura County has traditionally been a seller into the Turnback Pool and the four-year (2013-2016) demonstration Multi-Year Water Pool. We discussed with each of the general managers their intentions to more fully utilize their SWP water. They each indicated that they are currently exploring infrastructure improvements to deliver their allocations from their full Table A supply. In the interim, further discussions with one or more of these three entities could develop creative multi-year programs whereby SGPWA could lease or acquire water the three agencies can’t deliver to their own service area. Saying that, they appear reserved in doing something different with their SWP supplies.

Issues with each agency and examples of potential multi-year programs are discussed below.

1. City (known locally as Ventura Water) has reportedly been discussing with MWDSC about constructing an intertie where by MWDSC could use the City's water when allocations are beyond the City's demand. In our discussions, the City showed some interest in banking or similar arrangements during periods where their SWP water is not being fully utilized (bank for future delivery to their service area). It was also learned that the City's long-term plans may include direct potable reuse of about 6 taf/y treated wastewater, which could satisfy much of their future demand. Assuming an arrangement between the City and MWDSC is not imminent or pre-ordained, SGPWA could offer to recover a portion of the City's SWP costs in exchange for the SWP water that the City is allocated but can't deliver; in effect, this would be a multi-year sale or lease of City water, which is not addressed or prohibited in the SWP Water Supply Contracts. Alternately, SGPWA and Ventura County (on behalf of the City) could engage in a 2 for 1 exchange with a cost reimbursement component similar to the 2016 AVEK-SB¹ and AVEK-SCVWD² exchange agreements, but for multiple years.
2. Lake Casitas has storage capacity (254 taf) to withstand a 20 year drought cycle for Casitas; storage is now at 37% of capacity, which has Casitas more incentivized to make better use of their SWP water, especially if the drought continues. Casitas and the City are planning a 4 taf/y emergency connection

¹ 2016 AVEK-SB (Santa Barbara CFC&WCD) agreement is a one-year agreement (SWPAO #16017) where AVEK provides up to 10 taf to SB in 2016, with SB returning 50% of the water to AVEK by 2026; SB also paid AVEK \$500/af for the water retained by SB (total \$2.5M if the full 10 taf is delivered, yielding \$500/af for the water retained by SB).

² 2016 AVEK-SCVWD (Santa Clara Valley WD) agreement is a one-year agreement (SWPAO #16019) where AVEK provides up to 10 taf to SCVWD in 2016, with SCVWD returning 50% of the water to AVEK by 2026; SCVWD also paid AVEK \$300/af for the water delivered to SCVWD, plus \$250,000 (total of \$3.25M if the full 10 taf is delivered, yielding \$650/af for the water retained by SCVWD).

(potentially with others) to be constructed in the next 3 years, but this would not escalate their regular use of SWP water. The general manager indicated that Casitas wants their 5 taf Table A amount for future needs. An example of a potential interim program with Casitas would be for SGPWA to backstop Casitas's demands in exchange for a larger quantity of Casitas's SWP water in the future (i.e., an unbalanced exchange or banking arrangement in favor of SGPWA).

3. United is dealing with multiple challenges...currently, United can only get its SWP water via Piru Creek (experiencing ESA issues) and Lake Piru (experiencing quagga mussel infestation). Lake Piru storage is currently at 12 taf of its 100 taf capacity; United is considering a new facility to bring SWP water from Lake Pyramid to Lake Piru (instead of delivery via Piru Creek). This may be an opportunity for SGPWA to fund a portion of United's new facilities, in exchange for a percentage of United's SWP water, or alternately, SGPWA's payback for its investment could be receiving all of United's SWP water above its demands.

Central Coast Water Authority ("CCWA") represents two SWP contractors at the State Water Contractors ("SWC") board and at most other SWP functions. The two SWP contractors are San Luis County and Santa Barbara County. In discussions with CCWA's general manager, the following information was revealed.

1. **San Luis Obispo County ("SLO")** has 25,000 af of Table A and typically uses about 5 taf/y; SLO is experiencing groundwater overdraft and is currently looking for additional water. However, they have limited capacity in the California Aqueduct, only 5 taf/y treatment capacity with CCWA, and limited capacity in the Coastal Branch (4,830 af/y for their 25,000 af Table A). At Reach 31A in the Coastal Branch, there is capacity for 25 taf/y for SLO and 45 taf/y for Santa Barbara County ("SB"), but at Reach 33A, capacity decreases to 48.3 taf/y total (10% for SLO and 90% for SB). Historically, SLO has carried over any Table A above their demand. However, a program is being developed whereby CCWA agrees to provide additional treatment capacity to SLO in exchange for CCWA receiving 1 af of SLO's Table A for every 1 af that CCWA treats above SLO's treatment capacity; the water derived by CCWA would be distributed to all of CCWA's customers on a pro-rata basis, to the extent that distribution capacity is available.
2. **Santa Barbara County ("SB")** is in the process of re-acquiring their 12 taf of "suspended Table A amount" of their total 45,486 af and has no interest in selling a portion of their Table A supply. Of the 12 taf of Table A being re-acquired, 9.4 taf will be allocated to Santa Maria, who under a recent judgment must supply surface water to Nipomo; the balance is to be distributed to others in SLO. Unlike SLO, SB does have sufficient distribution capacity to deliver their Table A. However, Carpentaria WD at south end of SB's system, has 1,000 af Table A they have indicated an interest to sell. CCWA's policy states that a seller must provide a first-right-of-refusal to others within CCWA; with both SLO and SB both interested in additional water, it is unlikely the Carpentaria water would leave the

region. However, as Carpentaria is at the far end of the distribution system, its fixed costs would need to be recovered, which are higher than other areas within CCWA (~\$1,800/af Table A)...a potential detraction for local purchasers.

A potential partnership between SGPWA and CCWA (SLO and/or SB) could exist whereby SGPWA could acquire the water in excess of CCWA's needs or ability to convey to SLO and/or SB. An example exchange program that could benefit both SGPWA and CCWA would be similar to the 2016 AVEK-SB program discussed previously (but on a long-term arrangement) and/or a banking program (as SB/SLO have minimal groundwater storage facilities and in recent years has relied on water acquisitions to meet demand). Developing an unbalanced exchange or banking program that could provide SB or SLO water in drier years would allow SGPWA to retain one or more acre-foot for every 2 acre-feet provided by SB or SLO.

However, CCWA has recently engaged in discussions with AVEK to develop a banking program to store and recover CCWA's (SLO and SB's) Table A water to increase their annually reliability. As of today, CCWA is not wedded to AVEK, but AVEK is an appealing partner due to their large Table A amount and ability to draw from their groundwater supplies in years of low SWP allocations, resulting in a high level of AVEK's Table A water being available for CCWA. Given this information, to compete with AVEK, SGPWA would need to provide a compelling offer that would make a better business case than what AVEK may offer.

CVP Contract Water

South of Delta CVP supplies are within either the San Luis Unit or Delta-Mendota Canal ("DMC") contractors (Westside deliveries from the Delta) or the Friant Unit (Eastside deliveries from Millerton Reservoir).

1. **South of Delta Westside** CVP ag water deliveries, as noted in the Introduction section, have been bleak the past several years. A portion of the low allocations has been due to the drought hydrology, but a large portion is due to regulatory issues, particularly the Endangered Species Act ("ESA"), which even in the near average hydrology experienced this year, has resulted in only a 5% delivery to CVP ag contractors south of the Delta. Pursuing long-term water purchases from Westside CVP ag contractors is considered a low priority due to the low yield from the CVP supply. Urban CVP contractors that obtain their supply via the Delta have fared better during the 2012-2016 period (75%, 75%, 50%, 25%, 55%, respectively), but they have not indicated any interest to reduce their CVP contracts.

However, about a decade ago, Mercy Springs Water District (a DMC CVP contractor) sold 1,000 af of its contract water to a private party for a proposed development in Santa Nella. At that time, the price was \$2,000/af; the development has not progressed and the water may be available, albeit a relatively unreliable Westside CVP ag supply (see previous discussion) and more

difficult to transfer due to the 1992 Central Valley Improvement Act ("CVPIA") which provides first rights-of-refusal to other CVP contractors.

2. For the **Friant Unit** on the eastside of the San Joaquin Valley, CVP contractors are primarily ag districts, with a few small municipal users. Fresno Irrigation District ("FID") has both Kings River and CVP supplies and has developed groundwater banking facilities to capture flood water for later use by themselves and others. FID has historically been active in water transfers and exchanges, but in conversation with their General Manager, SGMA is causing FID to hold back from any long-term commitments until any transfers can be evaluated in context to the pending Groundwater Sustainability Plan for the subbasin. Other Friant contractors have been even more impacted by reduced water supplies due to the San Joaquin River Settlement and compounded by the current drought and pending SGMA actions in a groundwater basin in severe overdraft. CVP water deliveries to the Friant contractors for 2012-2016 have been, respectively, 50%, 62%, 0%, 0%, 75% for Class 1 (firm) supplies and 0% in each of the last 5 years for Class 2 (non-firm) supplies.

Water Rights Water

In 2000, KCWA and the Nickel Family made an agreement that provided KCWA the **Nickel water rights** on the Kern River in exchange for 10 taf/y of firm SWP water from KCWA's Table A amount. Since then, various transitions have occurred resulting in the following holdings of the 10,000 af/y of "Nickel Water":

1. 1,607 af/y purchased by Newhall Land & Farming in 2001 for development in Santa Clarita;
2. 6,693 af/y purchased by Tejon Ranchcorp in 2013 for their Grapevine development; and
3. 1,700 af /y purchased by CV Communities in 2013 for developments in the AVEK service area.

In a June 2016 agreement between CV Communities and AVEK, 1,187 af/y of the Nickel Water was reserved for CV Communities and the remainder (513 af/y) was made available for AVEK to acquire and use and/or market. AVEK is currently discussing a multi-year transfer to Montecito (via CCWA to Santa Barbara County's service area) to make this water available for \$2,000/af. Time is of the essence, but SGPWA could pursue and potentially compete with Montecito for the 513 af/y of firm water (costs to convey the water by SGPWA should be less than via CCWA).

As background information on market conditions, prior to the above repurchases, in 2007 the Nickel Family transferred 8,393 af to DMB Associates for \$525/af/y, escalated each year at CPI or by 3%, whichever is greater; the term was for 35 years, with the ability to extend another 35 years.

San Joaquin Tributaries Authority (Oakdale ID, South San Joaquin ID, Modesto ID, Turlock ID, City and County of San Francisco) have occasionally attempted to transfer

portions of their surplus water to Westside CVP contractors, generally in the same counties as the Authority. Public opposition, high conveyance losses and costs regularly defeated those efforts. Although the area is rich in water supplies, transferring water from this area has been highly contentious, and with SGMA is anticipated to be more so.

Transfers from **northern California water rights holders** is also an option for SGPWA, however, the major obstacles are (a) conveyance across the Delta (refer to discussion later in this memo on Potential Water Transfer Issues), (b) establishing an equitable basis for sharing the risk in years the water can't be conveyed through the Delta, and (c) pricing schedule to cover the term of the transfer. It should be noted that the transfer from Western Canal WD to Palmdale WD discussed in the 2013 Kennedy/Jenks memorandum was never agreed to. Water transfers across the Delta from northern California water districts have been almost exclusively limited to 1-year transfers under the DWR and USBR Dry Year Transfer Programs.

The **Cadiz Valley Water Conservation, Recovery, and Storage Project** is under development and is working to remove remaining political opposition to the project; all litigation has been recently cleared for the project. The project is designed to capture and store up to 1 maf of local surface and groundwater flow in the Cadiz Valley, water that if not stored and/or used would be lost/outflow to a salt water sink. The project requires construction of a 44-mile pipeline from wells in Cadiz Valley to the Colorado Aqueduct where the water would be exchanged by MWDSC for SWP water in San Luis Reservoir (it is our understanding that MWDSC has not yet committed to the exchange). The project is more fully described on the website at www.cadizinc.com. According to the Cadiz website, project participants for a portion of the first tranche of 50 taf/y yield, include six southern California water providers (Santa Margarita WD, Three Valleys MWD, Suburban Water Systems, Golden State WC, Jurupa CSD, and California Water Service Company. San Luis WD and a mutual water company made up of growers in the San Joaquin Valley have also executed contracts with Cadiz. Whether all of these participants will stay "in" is unknown.

Estimated water costs are approximately \$1,000/af in San Luis Reservoir (was \$960/af in 2015 dollars) via take or pay contract, but an option to carryover storage in the groundwater basin for a for one-time payment of \$1,500/af (rational is that if the water is not used, it increases the potential to spill to the salt sink). This is a long-term water supply that may be of interest to SGPWA; this program could be structured to add yield for SGPWA on a timetable consistent with projected demand increases in the service area.

Semitropic WSD is in the development stages of a project that would utilize high flow Kings River floodwater, store it temporarily in floodwater basins in Kings County, and convey regulated water into the California Aqueduct downstream to Semitropic WSD for in-lieu and direct recharge. Water that can be captured in excess of the needs of Semitropic's landowners would be marketed to interested third parties. The project is several years away from completion, and the quantity, frequency, and pricing of any

third party water is yet undetermined; however, this may be another program to add to SGPWA's water portfolio to increase its future firm water supply.

Renewable Resources Group, an asset management firm focused on water/energy resources, primarily in California. It has various holdings of water rights and water projects in California; recent contact with them indicated that they may have water available on the spot market, but nothing currently available for sale long-term.

Sites Reservoir Project, is a proposed off-stream reservoir in northern California that in late July 2016, SGPWA submitted a request to participate at a 14,000 af level as a member of the Reservoir Project Agreement Committee for Phase 1 of the Sites Reservoir Project being administered by the Sites Project Authority.

Table 2 provides a summary of the water opportunities we've identified that SGPWA may consider pursuing. We have prioritized these opportunities based primarily on the criteria of those most likely to be successful in a step-by-step approach of meeting SGPWA's long-term water supply goals.

Table 2. Potential Long-Term Water Sales

Potential Seller	Quantity	Pricing	Description / Issues	Priority
Landowners in TLBWSD (total Table A 87,471 af)	TBD	Est. \$5,000-6,000/af	Small landowners may be interested; larger landowners have been contacted and some may be interested at higher pricing	1
Landowners in EWSID (total Table A 3,000 af)	TBD	Est. \$5,000-6,000/af	Small landowners may be interested; larger landowners have been contacted and are not currently interested	1
Ventura County	TBD (portion of 20 taf)	TBN	Multi-year program where SGPWA acquires water that Ventura can't deliver locally	1
CCWA (SLO and SB Counties)	TBD (portion of 70.486 taf)	TBN	Multi-year program where SGPWA acquires water that CCWA can't deliver locally; also, potential acquisition of Table A from Carpentaria WD	1
Sites Reservoir Project	14,000 af	~\$1,000/af	SGPWA has requested to participate in Phase 1 of this off-stream surface water storage project	1

Nickel Water held by AVEK	513 af	~\$2,000/af	AVEK beginning negotiations with Montecito (in CCWA)	1
Landowners in DRWD (total Table A 45,350 af)	TBD	Est. \$5,000-6,000/af	Small landowners may be interested; larger landowners have been contacted and are not currently interested	2
Renewable Resources Group	TBD	TBD	RRG has a portfolio of water (short-term and long-term); product varies with time	2
Cadiz Valley Project	TBD	~\$1,000/af	Water would be available in San Luis Reservoir	2
Wathen-Castanos Homes	1,000 af	TBN	Availability uncertain (CVP contract amount purchased from Mercy Springs WD)	3
Semitropic Kings River Project	TBD	TBD	Early stages of development; uncertain if water will be available for third parties	3

For reference only, **Table 3** has been prepared to provide the relative cost of SWP water to SGPWA versus the SWP costs to various upstream SWP contractors discussed in this memorandum.

Table 3. Fixed and Variable Costs for Selected SWP Contractors

Contractor	SWP Fixed Cost per Acre-Foot of Table A ¹	SWP Variable Cost per Acre-Foot Delivered ²
SGPWA	\$1,123	\$292
Empire West Side ID	112	23
Tulare Lake Basin WSD	109	23
Dudley Ridge WD	102	23
San Luis Obispo County (CCWA)	246	156

Santa Barbara County (CCWA)	825	156
Castaic Lake WA	198	171
Ventura County	187	186
Antelope Valley – East Kern WA	161	178
Mojave WA	218	214

¹ Source: DWR Bulletin B132-15, B tables 4, 15, 16A, 21, 22, 31

² Source: DWR Bulletin B132-15, B tables 5B, 16B, 18

Partnering Opportunities

If increasing SGPWA's firm supply cannot be achieved solely through direct purchases of long-term contract or water rights supplies, other strategies may need to be taken. Having a portfolio of multi-year or long-term exchange programs that can complement SGPWA's Table A supply and banking programs are worthy of consideration. Potential programs are discussed below.

1. Antelope Valley East-Kern Water Agency ("AVEK")

AVEK is the third largest SWP contractor, with a contract SWP Table A of 144,844 af, but presently has a local annual demand for SWP water of only about 50-60,000 af. In recent years AVEK has developed a groundwater bank to meet local water quality needs and to firm up its SWP supply; the combination of a large groundwater basin, relatively large Table A, and recharge and extraction capability make AVEK a viable storage and exchange partner for SGPWA. Although it is unlikely that AVEK would permanently transfer any of its Table A or water right water to SGPWA, if a new source of water could be acquired by SGPWA that from time to time may not be available during times when SGPWA could not take direct delivery of the water, AVEK could help regulate and store those supplies. Because of its flexibility and large Table A, AVEK has the ability to return water to SGPWA at low allocation levels when other storage programs may not be able to deliver because of local needs. Additionally, if SGPWA were to move quickly, the 513 af/y of Nickel Water being managed by AVEK (refer to Water Rights Water section above) could be pursued to bolster its firm water supply. Otherwise, AVEK's long-term interests are similar with SGPWA's, in that they both want to end up with additional water as a result of water management programs (albeit AVEK has accommodated annual exchanges that resulted in less water for AVEK).

2. Mojave Water Agency ("MWA")

MWA has an 85,800 af Table A amount, with current annual needs of about 11,000 af/y. In the near- to mid-term, MWA has indicated an interest in unbalanced exchanges, whereby MWA gives up water in exchange for recovering a portion of their SWP fixed costs. The recent proposed exchange between MWA and SCVWD³ is an example of the types of programs that work for MWA.

3. San Bernardino Valley MWD ("SBVMWD")

SBVMWD has 102,600 af of Table A contract amount; in 2016 they were able to fully use their 60% allocation, which was their highest historical demand. SBVMWD's general manager indicated that they will eventually use their full Table A. As you have stated, SGPWA is currently finalizing a multi-year agreement with SBVMWD to receive up to 5 taf/y as first priority (above MWDSC) when SBVMWD has water surplus to their needs. SBVMWD appears that they will have surplus water in the near- to mid-term when the SWP allocation is above average (>60%) and even more often when/if the California WaterFix is implemented.

4. Ventura County

As noted in Table 2 and discussion prior to the table, the three SWP water purveyors in Ventura County provide an opportunity to develop a multi-year program where SGPWA acquires water that Ventura can't deliver locally.

5. Castaic Lake WA ("CLWA")

CLWA has 95,200 af of Table A and in 2007 purchased 11,000 af/y rights to water purchased from the Buena Vista/Rosedale–Rio Bravo Water Banking and Recovery Program ("BV/RRB Water"). Recent discussions with CLWA indicated that it was highly unlikely that it would be interested in selling either of these supplies on a long-term basis, however, by the end of this year it will be completing a water reliability report intended to better define its water asset mix. CLWA has sold some of the BV/RRB Water on the spot market, but pending annexations to CLWA are anticipated which would reduce the availability of that water over time. Historically, CLWA has sold the BV/RRB Water only in years when CLWA's board has declared a surplus of water available; sales were made to the San Luis Water District in 2012 (5.5 taf) and to the Westside 5 (refer to #7 below) in 2012 (16.5 taf) and 2013 (22 taf).

³ 2016 MWA-SCVWD proposal (pending DWR approval) is a one-year agreement where MWA provides SCVWD up to 8 taf in 2016, with SCVWD returning a varying quantity of water to MWA by 2026 based on a sliding scale between 16.7% of the water in a 15% SWP year up to 100% of the water in a year when the SWP allocation is 65% or more; SCVWD would also pay MWA \$166/af for the water delivered SCVWD in 2016 (total \$1.328M if the full 8 taf is delivered, yielding \$332/af for the water retained by SCVWD).

6. Crestline – Lake Arrowhead Water Agency (“CLAWA”)

Although CLAWA has only 5,800 af of Table A, it only uses about 1,200 af/y of SWP water and can meet its remaining demands from local supplies. As the unbalanced 2 for 1 exchange was negotiated in 2016 between SGPWA and CLAWA (SWPAO #16013), a similar program could be developed on a long-term basis to address the years when CLAWA has surplus Table A. With SGPWA’s water bank in place, higher banking ratios could be considered to provide firm water to CLAWA.

7. Westside Districts (“Westside 5”)

DRWD and four member units within KCWA, with a combined Table A of 575,656 af, have been collaborating since 2008 to acquire supplemental water supplies to meet their ag demands. Due to their large demand and various groundwater storage programs available to them (Kern Water Bank, Berrenda Mesa Water Bank, and others), they are almost always able to take supplemental water into their service areas. Similar to what was discussed for AVEK, should SGPWA have water (SWP or other acquired water) in excess of its demand and/or delivery capacity, the Westside 5 could be a good partner for developing short- or long-term exchange and/or banking programs to regulate if water supplies cannot be directly delivered to SGPWA; however, the objectives of the Westside 5 are similar to SGPWA’s, in that they are both attempting to increase their net water supply.

8. Another opportunity may exist by partnering with one of at least two water recovery projects being undertaken in the San Joaquin Valley by Element Renewal. They are working with Tulare Lake Drainage District and Panoche Water District to treat irrigation drainage water with pre-treatment and reverse osmosis to a level where the water can be discharged into the California Aqueduct. These efforts are still in the early stages, but tentative projects are that water can be produced in the \$800-1,500/af range. The water would be firm, assuming the lands that are being drained continue to be irrigated; with SGMA implementation on the horizon, the long-term reliability of the water supply is questionable.

9. Lastly, all SWP supplemental water purchase programs should be pursued, either to add to annual supply, increase groundwater storage, or as opportunity-water to develop exchange or programs with other water purveyors. Such SWP programs include the Turnback Pool (to the extent it remains), Yuba Accord Water, and the Dry Year Water Purchase Program.

Market Pricing

The value of water has been increasing rapidly during the recent drought and increasing regulatory constraints in California. With the future implementation of the SGMA, the value of water in California will continue to rise. **Table 4** provides an overview of our assessment of spot market water prices under drier, average, and wetter conditions in

the San Joaquin Valley. It should be noted that these water prices are more typical for the conditions listed, but specific situations and prior years' water conditions will result in pricing of future individual water transfers that could be lower or substantially higher than the prices shown. This is a dynamic market, subject to price fluctuations based on (a) conveyance losses, availability, and risks; (b) time of year when deliveries are made; (c) institutional barriers and risks; (d) environmental and/or third party issues; and (e) quantity of water delivered.

The "future estimates" below are strictly those of the authors based on past and current personal experience with negotiating and implementing water transfers. At best, they are intended to indicate an upward trend versus specific pricing levels. The "future estimates" are also intended to represent pricing in a 2 to 3-year drought, versus the 4-year drought we recently (or perhaps still are) experiencing.

Table 4. Overview of Water Pricing for Annual Transfer Water (\$/acre-foot)

Time Period	Drier Conditions	Average Conditions	Wetter Conditions
Pre-drought (prior to 2012)	\$250-350	\$100-200	\$25-100
1 st year of drought (2012)	\$150-250	NA	NA
4 th year of drought (2015)	\$900-1,500	NA	NA
Future estimates (pre-SGMA implementation) ¹	\$450-900	\$300-600	\$100-200
Future estimates (post-SGMA implementation) ²	\$900-1,800	\$600-1,200	\$200-400

¹ Assumes pricing 50% higher than average market in 2013 & 2014 (i.e., 2nd or 3rd year of drought)

² Assumes pricing twice that of future market pre-SGMA implementation (again, in 2nd or 3rd year of drought)

Potential Water Transfer Issues

Although water transfers have occurred for many years, recent developments have raised new issues that SGPWA should consider as it evaluates transfer opportunities. Transfer issues are associated with each of the potential supplies described above.

Conveyance Capacity SWP in Facilities

The SWP Water Supply Contracts allocate the cost of building and maintaining the Aqueduct and other SWP facilities to the contractors by a somewhat arcane formula. The formula is meant to equitably allocate the cost of each reach to the contractors that use that reach to deliver their Table A amount. Therefore, SGPWA pays for a small portion of the Aqueduct from Banks Pumping Plant to its service area. Since the formula was envisioned to cover only Table A amounts, any other type of water is evaluated by DWR to determine if there is a financial or water supply impact on other contractors.

Reach repayment capacity is often less than the actual constructed physical capacity of the SWP facilities. Depending on the location within the system, some areas have ample capacity to move both full SWP Table A amounts plus other supplies. If there is unused capacity, it is usually not an issue; but if the capacity is being fully used by participating contractors, DWR goes through a prioritization process. Since DWR is less and less likely to deliver full Table A amounts to contractors in the future because of regulatory constraints, it may not be an issue for SGPWA to “borrow” unused capacity, or pay an additional charge for conveyance, but the reliability of a long-term transfer using excess capacity should be carefully considered, especially considering SGPWA’s location is essentially at the end of the East Branch. Therefore, SGPWA will need to evaluate the delivery reliability of the various supplies described herein vs. SWP capacity limits and non-Table A delivery priorities. In certain high demand year types, this could require SGPWA to accept deliveries at non-ideal times or sacrifice the delivery altogether.

Export Capability and San Luis Reservoir Storage

The water year 2016 showed that tightening restrictions on export pumping would make transfers across the Delta from northern California even more challenging. In past years, the opportunity to implement transfers from northern California was driven primarily by hydrology. If the export users had a demand and there was a supply north of the Delta, whether it was a contractual or water right supply, there was a possibility for transfer. This year showed that even if there is a water supply available in the north, getting it across the Delta and exported could be difficult. Shasta, Oroville, and Folsom were all essentially full, but export capacity was limited. Any available pumping capacity was committed to Project purposes and unavailable for transfer water. There is now limited capacity to export the water and a restricted time frame for transfers to take place (July through September). Other SWP and CVP contractors engaging in transfers from northern California are attempting to move water within this same three month transfer window.

A byproduct of this situation is that the State and Federal Projects have not been able to export as much water, which reduces the amount of water that can be stored in San Luis Reservoir. This is likely to continue into the future without some isolated conveyance facility in place, as proposed with the California WaterFix. If water can be more readily moved south of the Delta, under current conditions there is more available capacity in San Luis Reservoir storage to regulate deliveries of supplemental water.

Reduced Reliance

The Delta Reform Act of 2009 established the Delta Stewardship Council. The Council’s mission is to achieve the co-equal goals of a more reliable water supply and the protection, restoration and enhancement of the Delta ecosystem. One of the ways the Council proposes to accomplish this is *“to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency”*. One interpretation

of this language is that simply less water would be exported from the Delta. This means that SGPWA could export no more from the Delta than it has in the past. Another interpretation is that the percentage of water from the Delta in an agency's total water supply must (also) be smaller. If this interpretation prevails, there is likely to be a much more restrictive approach to transfers across the Delta by the State. A water transfer would be considered a "covered action" requiring approval by the Council to determine if the action was consistent with the Delta Plan and if it would "reduce" the reliance on the Delta.

California WaterFix

The present proposal includes two tunnels (pipelines) that would divert water from the Sacramento River and convey water more directly to the Banks Pumping Plant in the south Delta. To allocate the costs and benefits of the proposed Delta conveyance, the DWR envisions a contract amendment to the long-term Water Supply Contract. Recent informal discussions regarding the amendment and the SWP have explored four areas that may impact transfers and SGPWA's future SWP supplies.

1. Increase the Reliability of the Contractor's Existing Table A:

The present reliability or delivery capability of the SWP is about 58% to 60%. If completed, the California WaterFix should increase the conveyance across the Delta and increase overall SWP reliability to about 85%; SGPWA's existing reliability would be improved and should also be less susceptible to future pumping restrictions in the south Delta.

2. Additional Delta Conveyance:

In 2016 the pumping at Banks Pumping Plant was totally committed to Project purposes. This left no excess capacity for non-Project transfers across the Delta. A new isolated facility would provide additional conveyance and therefore more opportunities for transfer from northern California sources.

3. Options for Increased Participation:

If existing SWP contractors are given the option, some may decide not to participate in the WaterFix for financial or policy reasons. This may provide an opportunity for participating contractors to take part at a different level than their Table A percentage. One benefit of additional capacity could be for Delta transfers.

4. Water Management Tools:

Many of the present contract provisions make transfers and exchanges between contractors somewhat cumbersome and expensive. The argument has been made by some SWP contractors that the costs of the WaterFix can only be justified if contractors have additional water management tools to allow more flexibility to use their existing Table A as efficiently as possible. The SWC are working on these issues now, with Jeff Davis serving as chair for the SWP contractors' effort.

Local Resistance to Additional Supplies

In some areas, there is a concern that additional water leads directly to increased growth. Many SWP contractors have faced considerable resistance and sometimes litigation from local groups opposed to urban growth. SGPWA's service area is in a high growth region and is likely to face opposition if additional water supplies are being considered. A common method of challenging additional water supply projects has been through CEQA. Additional reliability or water obtained through transfers could be considered as growth inducing and subject to local or regional scrutiny and evaluation.

Administrative Processes Related to Transfers

The 2013 Kennedy/Jenks memo included a section on this subject; if additional information is needed, Provost & Pritchard Consulting Group has staff familiar and highly experienced in regularly advising, processing, and working with other SWP contractors, DWR staff, and others to move water transfer and exchange programs through the administrative and CEQA processes.

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