

## **Attachment 2: CalSim 3 Model Assumptions Callouts**

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## Attachment 2: CalSim 3 Model Assumptions Callouts

### 4A-2.1 Introduction

The assumptions for all CalSim 3 model simulations are summarized in Section 2. CalSim 3 model delivery specifications, including CVP and SWP contracts amounts, are outlined in Section 3.

### 4A-2.2 CalSim 3 Modeling Assumptions Callouts

The following matrix summarized the assumptions used for the CalSim 3 models:

- Baseline Conditions
- Proposed Project

	Baseline Conditions	Proposed Project
<b>GENERAL</b>		
<b>Planning horizon</b>	Year 2020	Same as Baseline Conditions
<b>Period of simulation</b>	100 years (1922–2021)	Same as Baseline Conditions
<b>HYDROLOGY</b>		
<b>Inflows/Supplies</b>	Inflows based on <u>Adjusted</u> Historical Hydrology	Same as Baseline Conditions
<b>Level of development</b>	2020 level <sup>1</sup>	Same as Baseline Conditions
<b>WATER RIGHTS, CVP/SWP CONTRACTS</b>		
<b>Sacramento River Region</b> (excluding American River)		
CVP	Land-use-based demands, full build-out of contract amounts	Same as Baseline Conditions
SWP (FRSA)	Land-use-based demands, limited by contract amounts	Same as Baseline Conditions
Non-project	Land-use-based demands, limited by water rights and State Water Board Decisions for Existing Facilities	Same as Baseline Conditions
Antioch Water Works	Pre-1914 water right	Same as Baseline Conditions
Federal refuges	Firm Level 2 water supply needs. Refuge Level 4 (and incremental Level 4) water is not included.	Same as Baseline Conditions
<b>Sacramento River Region - American River</b>		
Water rights	Year 2020, full water rights	Same as Baseline Conditions
CVP	Year 2020, full contracts	Same as Baseline Conditions

Baseline Conditions		Proposed Project
<b>San Joaquin River Region</b>		
Friant Unit	Limited by contract amounts, based on current allocation policy	Same as Baseline Conditions
Lower Basin	Land-use based demands, based on district level operations and constraints	Same as Baseline Conditions
Stanislaus River	Land-use based demands, Stepped Release Plan (SRP)	Same as Baseline Conditions
<b>San Francisco Bay, Central Coast, Tulare Lake and South Coast Regions (CVP/SWP project facilities)</b>		
CVP	Demand based on contract amounts	Same as Baseline Conditions
CCWD	195 TAF/yr CVP contract supply, water rights and in-Delta transfers	Same as Baseline Conditions
SWP <sup>2</sup>	Demand based on full Table A amounts	Same as Baseline Conditions
Article 56	Based on 2014–2019 initial contractor requests	Same as Baseline Conditions
Article 21	Metropolitan Water District (MWD) delivery up to 286.17 TAF/year (January–May) subject to conveyance capacity, Kern County Water Agency (KCWA) delivery up to 543.69 TAF/year (November–June), and other contractor deliveries up to maximum of 333.45 TAF/year, subject to conveyance capacity. All demands have been scaled up by 20% to not constrain Article 21 demands strictly by historical data.	Same as Baseline Conditions
North Bay Aqueduct (NBA)	77 TAF/yr demand under SWP contracts. Up to 2.635 TAF/month of excess flow (i.e., when Standard Water Right Term 91 is not in effect, UWFE used as surrogate) under Fairfield, Vacaville, and Benecia Settlement Agreement. NOD Allocation Settlement Agreement terms for Napa and Solano.	Same as Baseline Condition, limited to a maximum seven-day average diversion rate of 100 cfs in January through March of Dry and Critical water years (according to the Sacramento 40-30-30 water year type).
Federal refuges	Firm Level 2 water supply needs. Refuge Level 4 (and incremental Level 4) water is not included.	Same as Baseline Conditions
<b>FACILITIES</b>		
<b>Systemwide</b>		
Systemwide	Existing facilities	Same as Baseline Conditions
<b>Sacramento River Region</b>		
Shasta Lake	Existing, 4,552 TAF capacity	Same as Baseline Conditions

	<b>Baseline Conditions</b>	<b>Proposed Project</b>
Red Bluff Diversion Dam	Diversion dam gates out all year, Pumping Plant operated to deliver CVP water	Same as Baseline Conditions
Fremont Weir	Notched Fremont Weir as represented in Yolo Bypass Salmonid Habitat Restoration and Fish Passage EIS/EIR Alternative 1 (preferred alternative)	Same as Baseline Conditions
Colusa Basin	Existing conveyance and storage facilities	Same as Baseline Conditions
Lower American River	Hodge criteria for diversion at Fairbairn	Same as Baseline Conditions
Upper American River	PCWA American River Pump Station	Same as Baseline Conditions
Lower Sacramento River	Freeport Regional Water Project	Same as Baseline Conditions
<b>San Joaquin River Region</b>		
Millerton Lake (Friant Dam)	Existing, 524 TAF capacity	Same as Baseline Conditions
Lower San Joaquin River	City of Stockton Delta Water Supply Project, 30-mgd capacity	Same as Baseline Conditions
SWP Banks Pumping Plant (South Delta)	Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months; up to 10,300 cfs during December 15–March 15, depending on Vernalis flow conditions; <sup>4</sup> additional capacity of 500 cfs (up to 7,180 cfs) allowed July–September for reducing impact of export restrictions for ESA or CESA.	Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months; up to 10,300 cfs during <b>December 1–March 31</b> , depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed July–September for reducing impact of export restrictions for ESA or CESA.
CVP C.W. “Bill” Jones Pumping Plant (formerly Tracy PP)	Permit capacity is 4,600 cfs in all months (allowed for by the Delta-Mendota Canal–California Aqueduct Intertie)	Same as Baseline Conditions
Upper Delta-Mendota Canal Capacity	Existing plus 400 cfs Delta-Mendota Canal–California Aqueduct Intertie	Same as Baseline Conditions
CCWD Intakes	Los Vaqueros existing storage capacity, 160 TAF, existing intakes except for Mallard Slough Intake.	Same as Baseline Conditions
Head of Old River Barrier (HORB)	Not installed	Same as Baseline Conditions
<b>San Francisco Bay Region</b>		
South Bay Aqueduct (SBA)	SBA rehabilitation, 430 cfs capacity from junction with California Aqueduct to Alameda County FC&WSD Zone 7 diversion point	Same as Baseline Conditions

	Baseline Conditions	Proposed Project
<b>South Coast Region</b>		
California Aqueduct East Branch	Existing capacity	Same as Baseline Conditions
<b>REGULATORY STANDARDS</b>		
<b>North Coast Region</b>		
<i>Trinity River</i>		
Minimum flow below Lewiston Dam	Trinity EIS Preferred Alternative (369–815 TAF/yr)	Same as Baseline Conditions
Trinity River Fall Augmentation Flows	50 TAF August 1 through September 30 in all but very wet years	Same as Baseline Conditions
Trinity Reservoir end-of-September minimum storage	Trinity EIS Preferred Alternative (600 TAF as able)	Same as Baseline Conditions
<b>Sacramento River Region</b>		
<i>Clear Creek</i>		
Minimum flow below Whiskeytown Dam	<del>Downstream water rights, 1963 USBR Proposal to USFWS and NPS; and 200 cfs October through May or 150 cfs in Critical years and 150 cfs June through September with 10 TAF for channel maintenance in February of BN, AN and Wet years and 10 TAF for spring pulse flows in June of non-Critical years; in June of Critical years, 3-day pulse of 900 cfs</del> <u>Clear Creek seasonally variable hydrograph minimum flows (200 cfs annual average; oscillating from 300 cfs in winter to 100 cfs in summer) with 10 TAF for pulse flows except in C years. 5 TAF for pulse flows in C years. Additionally: target 150 cfs in C years; not to exceed 840 cfs (safe outflow works capacity of Whiskeytown).</u>	Same as Baseline Conditions
<i>Upper Sacramento River</i>		
Shasta Lake end-of-September storage target	1900 TAF in non-critically dry years (not explicitly modeled; achieved through project allocation profiles when hydrologically feasible)	Same as Baseline Conditions
Minimum flow below Keswick Dam	State Water Board WR 90-5, and 2019 BOs (stabilize fall flows to reduce redd dewatering and rebuild cold-water pool; and spring pulse flow up to 150 TAF if projected May 1 storage > 4.1 MAF) . <u>Shasta storage thresholds for fall flows and spring pulse releases are as follows:</u>	Same as Baseline Conditions

	Baseline Conditions	Proposed Project
	<u>Fall Flows: Fall flow target of:</u> <ul style="list-style-type: none"><li>• <u>3,250 cfs when end of September (EOS) Shasta storage is less than 2.4 MAF.</u></li><li>• <u>4,000 cfs when EOS Shasta storage exceeds 2.4 MAF.</u></li><li>• <u>4,500 cfs when EOS Shasta storage exceeds 2.8 MAF.</u></li><li>• <u>5,000 cfs when EOS Shasta storage exceeds 3.2 MAF.</u></li></ul> <u>Spring Pulse: In March of 40-30-30 Wet and Above Normal years releases occur if end-of-February Shasta storage exceeds 3.7 MAF. In April of 40-30-30 Wet and Above Normal years releases occur if end of March Shasta storage exceeds 4.1 MAF, respectively.</u>	
<i>Feather River</i>		
Minimum flow below Thermalito Diversion Dam	2006 Settlement Agreement (700 Apr 1– Sep 8, 800 cfs Sep 9–Mar 31)	Same as Baseline Conditions
Minimum flow below Thermalito Afterbay outlet	1983 DWR, DFG Agreement (750-1,700 cfs)	Same as Baseline Conditions
Land fallowing	No action	Assume land fallowing occurs in Above Normal, Below Normal and Dry water years. This results in a 50 TAF total increase (dedicated to Delta outflow) to Delta inflow between March and May depending on water year type as follows: <ul style="list-style-type: none"><li>• Above Normal:<ul style="list-style-type: none"><li>◦ March: 25 TAF</li><li>◦ April: 12.5 TAF</li><li>◦ May: 12.5 TAF</li></ul></li><li>• Below Normal:<ul style="list-style-type: none"><li>◦ March: 12.5 TAF</li><li>◦ April: 25 TAF</li><li>◦ May: 12.5 TAF</li></ul></li><li>• Dry:<ul style="list-style-type: none"><li>◦ March: 16.66 TAF</li><li>◦ April: 16.67 TAF</li><li>◦ May: 16.67 TAF</li></ul></li></ul>

Baseline Conditions		Proposed Project
		The 50 TAF volume is assumed to originate from water purchases made possible through the collection of diversion fees from SWP contractors. For modeling purposes, the 50 TAF is introduced at Freeport.
<i>Yuba River</i>		
Minimum flow below Englebright (Smartville gage) and below Daguerre Point Dam (Marysville gage)	State Water Board D-1644 Operations/WR 2008-0014 (LYRA)	Same as Baseline Conditions
<i>American River</i>		
Minimum flow below Nimbus Dam	<del>American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end of December storage target of 275 TAF</del> <u>American River Flow Management Standard, per 2017 Water Forum Agreement using a 75% forecast, no reduction Apr--Jun for March pulse, with a planning minimum end of December storage target modeled as 275 TAF</u>	Same as Baseline Conditions
Minimum Flow at H Street Bridge	State Water Board D-893	Same as Baseline Conditions
<i>Lower Sacramento River</i>		
Minimum flow near Rio Vista	State Water Board D-1641	Same as Baseline Conditions
<b>San Joaquin River Region</b>		
<i>Mokelumne River</i>		
Minimum flow below Camanche Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (100–325 cfs)	Same as Baseline Conditions
Minimum flow below Woodbridge Diversion Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (25–300 cfs)	Same as Baseline Conditions
<i>Stanislaus River</i>		
Minimum flow below Goodwin Dam	Flows per New Melones SRP	Same as Baseline Conditions
Minimum dissolved oxygen	State Water Board D-1422	Same as Baseline Conditions

	Baseline Conditions	Proposed Project
<i>Merced River</i>		
Minimum flow below Crocker-Huffman Diversion Dam	Cowell Agreement	Same as Baseline Conditions
Minimum flow at Shaffer Bridge	FERC 2179 (25–100 cfs), with 12.5 TAF in October based on 2002 Merced ID and CDFW Memorandum of Understanding	Same as Baseline Conditions
<i>Tuolumne River</i>		
Minimum flow at Lagrange Bridge	FERC 2299-024, 1995 (Settlement Agreement) (94–301 TAF/yr)	Same as Baseline Conditions
<i>San Joaquin River</i>		
San Joaquin River below Friant Dam/Mendota Pool	Full San Joaquin River Restoration Program flows, not constrained by current channel capacities, model implementation includes recapture on the lower San Joaquin River.	Same as Baseline Conditions
Maximum salinity near Vernalis	Stanislaus contribution per New Melones SRP	Same as Baseline Conditions
Minimum flow near Vernalis	Stanislaus contribution per New Melones SRP	Same as Baseline Conditions
<b>Sacramento River–San Joaquin Delta Region</b>		
Delta Outflow Index (flow and salinity)	State Water Board D-1641; X2 of 80 km in September and October of wet and above normal years with transitional flows in last half of August; modeled as In-Basin Use and shared according to COA Article 6(c).	Same as Baseline Conditions
Additional 100 TAF for Delta Outflow under ITP	SWP 100 TAF developed through export cut in Sacramento 40-30-30 Wet and AN years during spring, summer, or fall months to provide a flexible water block to enhance Delta Outflow. All or a portion of 100 TAF can be deployed in the current year or carried over in Oroville for use in later years (subject to spill). Carryover use depends on WY: <ul style="list-style-type: none"> <li>• Critical: SWP keeps water</li> <li>• Dry: Facilitate SMSCG operations</li> <li>• BN/AN/W: Augment outflow when necessary to meet X2 at 80 km</li> </ul>	Not operated



	<b>Baseline Conditions</b>	<b>Proposed Project</b>
Delta Cross Channel gate operation	State Water Board D-1641 with additional days closed from Oct 1–Jan 31 based on water quality conditions, 2020 ROD and 2020 SWP ITP. <u>Delta water quality calculations consider additional days closed Oct 1–Jan 31.</u>	Same as Baseline Conditions
South Delta export limits (Jones PP and Banks PP)	State Water Board D-1641 (additional 500 cfs allowed for Jul–Sep for reducing impact on SWP)	Same as Baseline Conditions
Combined Flow in OMR	<p><b>Adult Delta Smelt (First Flush)</b></p> <ul style="list-style-type: none"> <li>• Trigger: Freeport &gt; 50 NTU &amp; Freeport &gt; 25,000 cfs</li> <li>• Period: December 1 to January 31</li> <li>• CalSim assumption: Sacramento River Runoff &gt; 20,000 then OMR = -2,000 cfs for 14 days</li> </ul> <p><b>Adult Delta Smelt (Turbidity Bridge)</b></p> <ul style="list-style-type: none"> <li>• January to March &amp; Sacramento River Runoff &gt; 20,000</li> <li>• OMR = -2,000 cfs for five days</li> </ul> <p><b>Adult Longfin Smelt Entrainment Protection</b></p> <ul style="list-style-type: none"> <li>• Not explicitly modeled</li> </ul> <p><b>Larval and Juvenile Delta &amp; Longfin Smelt</b></p> <ul style="list-style-type: none"> <li>• Larval delta smelt historical monthly percentage by water year type: -3,500 to -5,000 cfs; juvenile delta smelt, larval longfin smelt and juvenile longfin smelt were not explicitly modeled</li> </ul> <p><b>Winter Run/Steelhead</b></p> <ul style="list-style-type: none"> <li>• Historical monthly percentage by water year type: -3,500 to -5,000 cfs</li> </ul> <p><b>OMR Flex (storm flex)</b></p> <p>If first flush or turbidity bridge are not triggered, then</p> <ul style="list-style-type: none"> <li>• OMR = 6 days at OMR -6,250 cfs:</li> <li>• Delta in Excess</li> <li>• X2 &lt; 81 km</li> <li>• Sacramento River Runoff &lt; 20,000 cfs</li> <li>• Qwest &gt; +1,000 cfs</li> <li>• January and February</li> </ul>	<p><b>Winter-Run Early Season Migration</b></p> <ul style="list-style-type: none"> <li>• Not explicitly modeled</li> </ul> <p><b>Adult Delta Smelt (First Flush)</b></p> <ul style="list-style-type: none"> <li>• Trigger: Freeport &gt; 50 NTU &amp; Freeport &gt; 25,000 cfs</li> <li>• Period: December 1 to January 31</li> <li>• CalSim assumption: Sacramento River Runoff &gt; 20,000 then OMR = -2,000 cfs for 14 days</li> </ul> <p><b>Adult Delta Smelt (Turbidity Bridge)</b></p> <ul style="list-style-type: none"> <li>• January to March &amp; Sacramento River Runoff &gt; 20,000</li> <li>• OMR = -3,500 cfs for <del>10</del> 12 days</li> <li>• Highflow Offramp when Vernalis flows above 10,000 cfs</li> </ul> <p><b>Adult Longfin Smelt Entrainment Protection</b></p> <ul style="list-style-type: none"> <li>• Historical monthly percentage by water year type: -3,500 to -5,000 cfs</li> </ul> <p><b>Larval and Juvenile Delta &amp; Longfin Smelt</b></p> <ul style="list-style-type: none"> <li>• Historical monthly percentage by water year type: -3,500 to -5,000 cfs</li> <li>• Highflow offramp when Rio Vista flows above 55,000 cfs or Vernalis flows above 8,000 cfs.</li> </ul> <p><b>Winter Run/Steelhead Weekly and Annual</b></p> <ul style="list-style-type: none"> <li>• Historical monthly percentage by water year type: -3,500 to -5,000 cfs</li> </ul>

Baseline Conditions	Proposed Project
	<p><u>Spring Run Chinook Salmon</u></p> <ul style="list-style-type: none"> <li>• <u>Historical monthly percentage by water year type: -3,500 to -5,000 cfs</u></li> </ul> <p><b>OMR Flex (storm flex)</b></p> <p>If first flush or turbidity bridge are not triggered, then</p> <ul style="list-style-type: none"> <li>• OMR = 6 days at OMR -6,250 cfs:</li> <li>• Delta in Excess</li> <li>• <math>X2 &lt; 81</math> km</li> <li>• Sacramento River Runoff &lt; 20,000 cfs</li> <li>• Qwest &gt; + <del>1,000</del> <u>1,500</u> cfs</li> <li>• January and February</li> </ul>
Water Quality (EC) Standards	State Water Board D-1641
Spring Outflow Requirement	<p>Same as Baseline Condition <u>s</u></p> <p>As part of the SWP Delta Voluntary Agreement (VA), reduce SWP Exports during Delta Excess (or Restricted) Conditions OR Balanced Conditions when UWFE &gt; 0 to increase Delta Outflow</p> <p>SWP export reduction by water year type (in TAF) are listed below:</p> <ul style="list-style-type: none"> <li>• 0 in W</li> <li>• 117.5 in AN</li> <li>• 92.5 in BN</li> <li>• 92.5 in D</li> <li>• 0 in C</li> </ul> <p>Decision based on dynamic monthly Sacramento Valley 40-30-30 water year type. Based on 90% Exceedance Forecast in March <del>and</del> <u>75% in April</u>, and 50% <del>Exceedance</del> in May.</p>
Interim Operations Plan (IOP)	<p>Maximum allowable CVP export is the maximum of 900 cfs or 60% of the total export under the SJR:IE regulation (listed below) when Delta outflow is less than 44,500 cfs.</p> <ul style="list-style-type: none"> <li>• April to May when SJR &lt; 21,750 cfs</li> <li>• <del>Wet and Above Normal: SJR IE = 4:1</del></li> <li>• Below Normal: SJR IE = 3:1</li> <li>• Dry: SJR IE = 2:1</li> <li>• Critical: SJR IE = 1:1</li> </ul> <p>The Spring Outflow requirement may limit SWP exports by up to 150 TAF in San Joaquin Valley 60-20-20 Wet years.</p>

	Baseline Conditions	Proposed Project
	SWP does not operate to this outflow requirement.	
Summer/Fall Habitat (X2)	September to October <ul style="list-style-type: none"> <li>Wet and Above Normal years = 80 KM X2</li> </ul>	Same as Baseline Conditions
Summer/Fall Habitat (SMSCG)	<p>Salinity Trigger: Use last seven-day average Martinez EC from previous month and compare against threshold values for triggering. May (17.5 mS/cm), June and July (22.2 mS/cm).</p> <ul style="list-style-type: none"> <li>AN and BN years = continuous SMSCG operations for up to 60 days in June through August. If EC triggered in June, operate gate June and July, otherwise operate July and August.</li> <li>CVP and SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> <li>Dry years following Wet and AN years = continuous SMSCG operations for up to 60 days in June through August and limited to the amount of 100 TAF water carried over from previous year to compensate for increased salinity costs. If EC triggered in June, operate gate June and July, otherwise operate July and August. CVP and SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> <li>Dry years following BN years = continuous SMSCG operations for up to 30 days in June through August. If EC triggered in June or July, operate for entire month. If operation is not triggered in neither June nor July, gate operate entire August. SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> </ul> <p>SMSCG gate operations are considered when estimating salinity at D1641 water quality compliance locations.</p>	<p>Salinity Trigger: Same as Baseline Conditions</p> <ul style="list-style-type: none"> <li>AN and BN years = 7 days on 7 days off SMSCG operations for up to 60 days in June through October. If EC triggered in June, operate gate June–September, otherwise operate July–October. CVP and SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> <li>Dry years following Wet and AN years = 7 days on 7 days off SMSCG operations for up to 60 days in June through October. If EC triggered in June, operate gate June–September, otherwise operate July–October. CVP and SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> <li>Dry years following BN years = 7 days on 7 days off SMSCG operations for up to 30 days in June through September. If EC triggered in June or July, operate for two months. If operation is not triggered in neither June nor July, gate operate August–September. CVP and SWP operations compensate for any change to salinity as a result of SMSCG operations.</li> </ul> <p>SMSCG gate operations (including 7 days on, 7 days off) are considered when estimating salinity at D-1641 water quality compliance locations.</p>

Baseline Conditions		Proposed Project
<b>OPERATIONS CRITERIA: RIVER-SPECIFIC</b>		
<b>Sacramento River Region</b>		
Upper Sacramento River: Flow objective for navigation (Wilkins Slough)	Flow objective of 3,250–5,000 cfs based on month, CVP NOD agricultural allocation, and Shasta storage to reflect CVP operations for local delivery	Same as Baseline Conditions
American River: Folsom Dam flood control	Fixed 400 TAF flood control diagram	Same as Baseline Conditions
<b>San Joaquin River Region</b>		
Stanislaus River: Flow below Goodwin Dam	Flows per New Melones SRP	Same as Baseline Conditions
<b>OPERATIONS CRITERIA: SYSTEMWIDE</b>		
<b>CVP water allocation</b>		
Settlement / Exchange	100% (75% in Shasta critical years)	Same as Baseline Conditions
Refuges	100% (75% in Shasta critical years)	Same as Baseline Conditions
Agriculture Service	100%–0% based on supply. South-of-Delta allocations are additionally limited due to D-1641 and 2020 ROD export restrictions	Same as Baseline Conditions
Municipal & Industrial Service	100%–50% based on supply. South-of-Delta allocations are additionally limited due to D-1641 and ROC on TLO export restrictions	Same as Baseline Conditions
<b>SWP water allocation</b>		
North of Delta (FRSA)	Contract-specific NOD Allocation Settlement Agreement terms for Napa and Solano	Same as Baseline Conditions
South of Delta (including North Bay Aqueduct)	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are limited due to D-1641, 2020 ROD, and 2020 SWP ITP export restriction NOD Allocation Settlement Agreement terms for Napa and Solano	Same as Baseline Conditions
<b>CVP-SWP coordinated operations</b>		
Sharing of responsibility for in-basin use	According to COA (2018), sharing responsibility for meeting Sacramento Valley In-basin use during balance condition with water year type in percentage for CVP and SWP, respectively are:	Same as Baseline Conditions

	<b>Baseline Conditions</b>	<b>Proposed Project</b>
	<ul style="list-style-type: none"> <li>• 80/20 in W/AN</li> <li>• 75/25 in BN</li> <li>• 65/35 in D</li> <li>• 60/40 in C</li> </ul> <p>As per NAPA agreement, Freeport Regional Water Project (FRWP) and East Bay Municipal District (EBMUD) 2/3 of the North Bay Aqueduct diversions are considered as Delta export, 1/3 of the NBA diversion is considered as in-basin use</p>	
Sharing of surplus flows	According to COA (2018), CVP and SWP sharing responsibility for UWFE during balanced condition for all year type is 55% and 45%, respectively.	Same as Baseline Conditions
Sharing of restricted export capacity for project- specific priority pumping	<p>The percentage sharing of export capacity under export limits due to (1) State Water Board D-1641, 2020 ROD and 2020 SWP ITP export restrictions</p> <ul style="list-style-type: none"> <li>• 60/40 CVP/SWP during excess conditions</li> <li>• 65/35 CVP/SWP during balanced conditions</li> <li>• No restrictions on Inter-tie use to meet these shares</li> </ul>	Same as Baseline Conditions
Water transfers	Acquisitions by SWP contractors are wheeled at priority in Banks Pumping Plant over non-SWP users; LYRA included for SWP contractors <sup>3</sup>	Same as Baseline Conditions
Sharing of export capacity for lesser priority and wheeling-related pumping	Cross Valley Canal wheeling (max of 128 TAF/yr), CALFED ROD defined Joint Point of Diversion (JPOD)	Same as Baseline Conditions
San Luis Reservoir	San Luis Reservoir is allowed to operate to a minimum storage of 80 TAF	Same as Baseline Conditions
<b>CVPIA 3406(b)(2)</b>		
Policy Decision	Per May 2003 Dept. of Interior decision	Same as Baseline Conditions
Allocation	800 TAF, 700 TAF in 40-30-30 Dry years, and 600 TAF in 40-30-30 Critical years as a function of Ag allocation	Same as Baseline Conditions

	<b>Baseline Conditions</b>	<b>Proposed Project</b>
Actions	Pre-determined upstream fish flow objectives below Whiskeytown Dams, non-discretionary NMFS BO (Jun 2009) actions for the American and Stanislaus Rivers, and NMFS BO (Jun 2009) and USFWS BO (Dec 2008) actions leading to export restrictions. These are not currently modeled	Same as Baseline Conditions
Accounting Adjustments	Releases for non-discretionary USFWS BO (Dec 2008) and NMFS BO (Jun 2009) actions may or may not always be deemed (b)(2) actions; in general, it is anticipated, that accounting of these actions using (b)(2) metrics, the sum would exceed the (b)(2) allocation in many years; therefore no additional actions are considered and no accounting logic is included in the model	Same as Baseline Conditions

## Notes:

<sup>1</sup> The Sacramento and San Joaquin Valleys reflect land-use based on the average from 2004 through 2013. Urban demand is represented with the 2020 UWMPS.

<sup>2</sup> It is assumed that SWP Contractors can take delivery of all Table A allocations and Article 21 supplies. Article 56 provisions are assumed and allow for SWP Contractors to manage storage and delivery conditions such that full Table A allocations can be delivered. Detailed analysis of the South Coast and Tulare regions support these assumptions. NBA Article 21 deliveries are dependent on excess conditions only, all other Article 21 deliveries also require that San Luis Reservoir be at capacity and that Banks Pumping Plant and the California Aqueduct has available capacity to divert from the Delta for direct delivery.

<sup>3</sup> Acquisitions of Component 1 water under the Lower Yuba River Accord and use of 500 cfs dedicated capacity at Banks Pumping Plant during July–September, are assumed to be used to reduce as much of the impact of the April–May fish-related Delta export restrictions on SWP contractors as possible.

<sup>4</sup> Current ACOE permit for Banks Pumping Plant allows for an average diversion rate of 6,680 cfs in all months. Diversion rate can increase up to 1/3 of the rate of San Joaquin River flow at Vernalis during Dec 15–Mar 15 up to a maximum diversion of 10,300 cfs, if Vernalis flow exceeds 1,000 cfs.

## 4A-2.3 CalSim 3 Model Delivery Specifications

This compilation of delivery specifications for the CalSim 3 model provides additional detail in support of Appendix E.

The delivery specifications for the CalSim 3 model include CVP and SWP contract amounts and other water rights assumptions used. These specifications are detailed in the following tables<sup>1</sup>:

- Table 4A-2-1. CVP Sacramento River Settlement Contracts
- Table 4A-2-2. CVP San Joaquin River Exchange Contracts
- Table 4A-2-3. CVP Schedule 2 Water Rights and Contract Amounts
- Table 4A-2-4. CVP Water Service Contracts for Service Areas North of Delta
- Table 4A-2-5. CVP Water Service Contracts for Service Areas South of Delta
- Table 4A-2-6. Refuge Level 2 and Level 4 Amounts per Exhibit B of Water Service Contracts
- Table 4A-2-7. SWP Delta Contracts
- Table 4A-2-8. SWP North-of-the-Delta: Feather River Service Area Contracts and Water Rights
- Table 4A-2-9. SWP South-of-the-Delta – Existing and Future Conditions

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<sup>1</sup> Tables 4A-2-1 through 4A-2-6 display the existing CVP contract amounts as of 2023; however, there are some slight variations to how these quantities are represented in CalSim 3.

**Table 4A-2-1. CVP Sacramento River Settlement Contracts**

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
<b>Water Budget Area 02: Sacramento River Right Bank, RM 254.1 – RM 309.5</b>										
Redding, City of <sup>a</sup>	14-06-200-2871A	District	02_SU	SAC296	246.25	295.3		8,926	1,574	10,500
<b>Subtotal</b>										<b>10,500</b>
Anderson-Cottonwood ID <sup>c</sup>	14-06-200-3346A	District	02_SA	SAC296	246.0	295.0		102,850	5,950	108,800
Lake California Property Owners As. Inc.	14-06-200-4961A	Short	02_SA	SAC296	221.0	269.4		580	200	780
Leviathan, Inc.	14-06-200-7308A	Short	02_SA	SAC296	221.0	269.4	160	355	345	700
<b>Subtotal</b>										<b>110,280</b>
<b>Water Budget Area 03: Sacramento River Left Bank, RM 250.1 – RM 309.5</b>										
Redding, City of <sup>b</sup>	14-06-200-2871A	District	03_SU	SAC296	246.7	295.7		8,925	1,575	10,500
<b>Subtotal</b>										<b>10,500</b>
Anderson-Cottonwood ID <sup>d</sup>	14-06-200-3346A	District	03_SA	SAC289	240.5	289.3		18,150	1,050	19,200
Riverview Golf and Country Club	14-60-200-8286A	Short	03_SA	SAC289	240.8	289.9	100	255	25	280
Daniell, Harry W.	14-06-200-4348A	Short	03_SA	SAC289	240.3	289.0	6	13	7	20
Redding Rancheria Tribe	7-07-20-W0006	Short	03_SA	SAC289	240.2	288.8	73	70	135	205
Driscoll Strawberry Associates, Inc.	14-06-200-4736A	Short	03_SA	SAC289	207.5	255.2	160	330	490	820
<b>Subtotal</b>										<b>20,525</b>
<b>Water Budget Area 04: Sacramento River Right Bank, RM 206.1 – RM 254.1</b>										
Exchange Bank (Nature Conservancy)	14-06-200-3774A	Short	04_NA	SAC224	168.85	219.5	320	210	570	780
Rubio, Exequiel P. and Elsa A.	14-06-200-2368A	Short	04_NA	SAC224	166.8	217.4	8	11	5	16
Penner, Roger & Leona	14-06-200-960A	Short	04_NA	SAC224	156.8	207.6	52	159	21	180
Freeman, Vola	2212A	Short	Not renewed	SAC224	156.1	207.2	8	0	0	0
Mclane, Robert and Naomi	4446A	Short	Not renewed	SAC224	155.6	206.5	13	0	0	0



Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
Alexander, Thomas and Karen	14-06-200-7754A	Short	04_NA	SAC224	155.6	206.5	5	9	13	22
<b>Subtotal</b>										<b>998</b>
<b>Water Budget Area 05: Sacramento River Left Bank, RM 195.7 – RM 250.1</b>										
J. B. Unlimited, Inc.	14-06-200-2519A	Short	05_NA	SAC240	197.0	245.7	154	220	290	510
Micke, Daniel H. and Nina J.	14-06-200-7995A	Short	05_NA	SAC240	196.6	245.3	34	81	19	100
Gjermann, Hal	14-06-200-4010A	Short	05_NA	SAC240	196.55	245.0	5	8	4	12
<b>Subtotal</b>										<b>622</b>
<b>Water Budget Area 08N: Sacramento River Right Bank, RM 153.7 – RM 206.1</b>										
<b>Princeton-Cordora-Glenn ID</b>	<b>14-06-200-849A</b>	<b>District</b>	<b>08N_SA1</b>	<b>SAC178</b>	<b>154.8, 123.9</b>	<b>178.0</b>		<b>52,810</b>	<b>15,000</b>	<b>67,810</b>
<b>Provident ID</b>	<b>14-06-200-856A</b>	<b>District</b>	<b>08N_SA1</b>	<b>SAC178</b>	<b>123.9</b>	<b>178.0</b>		<b>49,730</b>	<b>5,000</b>	<b>54,730</b>
<b>Maxwell ID <sup>e</sup></b>	<b>14-06-200-6078A</b>	<b>District</b>	<b>08N_SA1</b>	<b>SAC159</b>	<b>103.8, 104.1</b>	<b>159.6</b>		<b>599</b>	<b>300</b>	<b>899</b>
Green Valley Corporation	14-06-200-5210A	Long	08N_SA1	SAC159	106.0	161.5	286	680	210	890
Swenson Farms, LLC	14-06-200-5211A	Short	08N_SA1	SAC159	106.0	161.5	184	555	325	880
Tuttle, Charles, Jr. and Noack, Sue T., Trustees	14-06-200-7296A	Short	08N_SA1	SAC159	103.9	159.6	140	120	270	390
Cachil Dehe Band of Wintun Indians	14-06-200-7206A	Short	08N_SA1	SAC159	103.7	159.4	23	80	100	180
Seaver, Charles W. and B.J., Trustees	14-06-200-3296A	Short	08N_SA1	SAC159	99.3	154.4	161	210	270	480
<b>Subtotal</b>										<b>126,259</b>
<b>Glenn-Colusa ID <sup>g</sup></b>	<b>14-06-200-855A</b>	<b>District</b>	<b>08N_SA2</b>	<b>SAC207</b>	<b>154.8</b>	<b>206.6</b>		<b>396,000</b>	<b>57,750</b>	<b>453,750</b>
<b>Subtotal</b>										<b>453,750</b>
<b>Water Budget Area 08S: Sacramento River Right Bank, RM 92.8 – RM 153.7</b>										
<b>Maxwell ID <sup>f</sup></b>	<b>14-06-200-6078A</b>	<b>District</b>	<b>08S_SA1</b>	<b>SAC159</b>	<b>103.8, 104.1</b>	<b>159.6</b>		<b>11,381</b>	<b>5,700</b>	<b>17,081</b>
Odysseus Farms Partnership	1664A	Long	Not renewed	SAC159	93.15	149.2	758	0	0	0

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
Roberts Ditch Irrigation Company, Inc.	14-06-200-935A	District	08S_SA1	SAC159	90.7	146.8		4,140	300	4,440
King, Benjamin and Laura	14-06-200-1086Y	Short	08S_SA1	SAC159	89.2	144.7	5	12	7	19
King, Laura	14-06-200-1086Z	Short	08S_SA1	SAC159	89.2	144.7	6	13	13	26
Wisler, John W., Jr.	14-06-200-5215A	Short	08S_SA1	SAC159	88.0	144.6	18	8	27	35
Empire Group, LLC	14-06-200-2145A	Short	08S_SA1	SAC159	87.7	144.0	65	164	16	180
Steidlmayer, Anthony E. et al.	874A	Short	Not renewed	SAC159	83.0	139.0	168	0	0	0
<b>Sycamore MWC</b>	<b>14-06-200-2146A</b>	<b>Long</b>	<b>08S_SA1</b>	<b>SAC159</b>	<b>77.8, 78.15, 78.75, 78.8</b>	<b>135.5</b>		<b>22,000</b>	<b>9,800</b>	<b>31,800</b>
<b>Subtotal</b>										<b>53,581</b>
<b>Glenn-Colusa ID <sup>h</sup></b>	<b>14-06-200-855A</b>	<b>District</b>	<b>08S_SA2</b>	<b>SAC207</b>	<b>154.8</b>	<b>206.6</b>		<b>324,000</b>	<b>47,250</b>	<b>371,250</b>
<b>Subtotal</b>										<b>371,250</b>
Jansen, Peter and Sandy	14-06-200-1426A	Short	08S_SA3	SAC121	70.4	128.1	61	150	40	190
Gillaspy, William F., Trustee	14-06-200-8117A	Short	08S_SA3	SAC121	70.4	128.1	64	120	90	210
Charter, Kristine	14-06-200-8118A	Short	08S_SA3	SAC121	70.4	128.1	92	165	135	300
Driver, Gary, et al.	14-06-200-8585A	Short	08S_SA3	SAC121	69.2	127.0	10	8	22	30
<b>Reclamation District 108</b>	<b>14-06-200-876A</b>	<b>District</b>	<b>08S_SA3</b>	<b>SAC121</b>	<b>43.1, 43.3, 51.1, 56.4, 59.15, 61.05, 61.2, 62.3, 63.2, 70.4</b>	<b>120.9</b>		<b>199,000</b>	<b>33,000</b>	<b>232,000</b>
<b>River Garden Farms Company</b>	<b>14-06-200-878A</b>	<b>Long</b>	<b>08S_SA3</b>	<b>SAC109</b>	<b>34.5, 41.0, 43.1</b>	<b>101.5</b>		<b>29,300</b>	<b>500</b>	<b>29,800</b>
Driver, John A. & Clare M., Trustees	14-06-200-1314A	Short	08S_SA3	SAC109	36.45	95.2	84	150	80	230
Driver, John A. & Clare M., Trustees	14-06-200-2398A	Short	08S_SA3	SAC109	36.45	95.2	6	6	10	16
<b>Subtotal</b>										<b>262,776</b>

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
<b>Water Budget Area 09: Sacramento River Left Bank, RM 140.6 – RM 195.7</b>										
Pacific Realty Associates, L.P. (M&T Chico Ranch)	14-06-200-940A	Long	09_SA1	SAC196	140.8, 141.5	195.6		16,980	976	17,956
<b>Subtotal</b>										<b>17,956</b>
<b>Reclamation District 1004</b>	<b>14-06-200-890A</b>	<b>District</b>	<b>09_SA2</b>	<b>SAC162</b>	<b>84.28, 85.3, 89.12, 111.8</b>	<b>164.8</b>		<b>56,400</b>	<b>15,000</b>	<b>71,400</b>
Spence, Ruthann (Spence Farms)	4829A	Long	Not renewed	SAC162	104.8	160.4	209	0	0	0
Anderson, Arthur L. et al.	14-06-200-3591A	Short	09_SA2	SAC162	102.5	158.1	200	445	45	490
Carter Mutual Water Company	14-06-200-2401A	District	09_SA2	SAC162	99.25, 101.8,102.9	158.1		6,450	672	7,122
Forry, Laurie and Adams, Louise	14-06-200-7691A	Long	09_SA2	SAC162	99.8	154.8	506	2,285	0	2,285
Otterson, Mike, Trustee	14-06-200-2896A	Long	09_SA2	SAC162	98.9	154.7	422	1,515	300	1,815
T&P Farms	14-06-200-2993A	Long	09_SA2	SAC162	98.6	153.7	409	1,360	200	1,560
Griffin, Joseph and Prater, Sharon	14-06-200-2895A	Long	09_SA2	SAC162	95.8	151.3	552	1,610	1,150	2,760
Baber, Jack W. et al.	14-06-200-1604A	Long	09_SA2	SAC162	95.6	151.1	1,068	3,630	2,630	6,260
Eastside Mutual Water Company	14-06-200-1053A	District	09_SA2	SAC162	95.25	150.8	1,006	2,170	634	2,804
Zelmar Ranch, Inc.	14-06-200-1827A	Short	09_SA2	SAC162	92.5	148.7	120	112	52	164
Gomes, Judith A., Trustee	14-06-200-1827X	Short	09_SA2	SAC162	92.5	149.7	72	168	78	246
Butte Creek Farms, Inc.	14-06-200-2851A	Short	09_SA2	SAC162	89.26	145.7	17	20	16	36
Butte Creek Farms, Inc.	14-06-200-5206A	Short	09_SA2	SAC162	89.24	145.6	36	40	55	95
Butte Creek Farms, Inc.	14-06-200-1976A	Short	09_SA2	SAC162	88.7	145.2	114	196	8	204
Butte Creek Farms, Inc.	14-06-200-7744X	Short	09_SA2	SAC162	88.7	145.2	180	300	340	640
Howard, Theodore W. and Linda M.	14-06-200-1976X	Short	09_SA2	SAC162	88.7	145.2	31	74	2	76
Locvich, Loyd	1945A	Short	Not renewed	SAC162	88.2	144.7	160	0	0	0
Ehrke, Allen A. and Bonnie E.	14-06-200-8330A	Short	09_SA2	SAC162	86.8	143.3	165	220	160	380
<b>Subtotal</b>										<b>98,337</b>

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
<b>Water Budget Area 18: Sacramento River Left Bank, RM 121.8 – RM 140.6</b>										
Fedora, Sibley G. and Margaret L., Trustees	14-60-200-2916A	Short	18_SA	SAC136	82.7	139.3	86	190	20	210
Reische, Laverne C. et al.	14-06-200-1150A	Short	18_SA	SAC136	82.5	139.1	104	183	267	450
Reische, Eric L.	14-06-200-1150X	Short	18_SA	SAC136	82.5	139.1	18	37	53	90
Tarke, Stephen E. and D.F., Trustees	14-06-200-1949A	Long	18_SA	SAC136	81.5	138.1	492	1,700	1,000	2,700
<b>Meridian Farms Water Company</b>	<b>14-06-200-838A</b>	<b>District</b>	<b>18_SA</b>	<b>SAC136</b>	<b>71.1, 74.8, 80.0</b>	<b>136.5</b>		<b>23,000</b>	<b>12,000</b>	<b>35,000</b>
Churkin, Michael Jr. et al.	14-06-200-7227A	Short	18_SA	SAC136	79.5	135.8	49	75	55	130
Eggleston, Ronald H. et ux.	14-06-200-7339A	Short	18_SA	SAC136	79.0	135.3	28	53	12	65
Hale, Judith A. and Marks, Alice K.	14-06-200-7572A	Short	18_SA	SAC136	79.0	135.3	54	117	13	130
Hale, Judith A. and Marks, Alice K.	14-06-200-1638A	Short	18_SA	SAC136	79.0	135.3	31	58	17	75
Pires, Lawrence and Beverly	7744A	Short	Not renewed	SAC136	77.9	134.6	111	0	0	0
Davis, Ina M.	14-06-200-1851A	Short	18_SA	SAC136	76.2	132.5	34	71	14	85
Chesney, Adona, Trustee	14-06-200-930A	Short	18_SA	SAC136	76.15	132.5	149	310	390	700
Andreotti, Beverly F. et al.	14-06-200-1898A	Long	18_SA	SAC136	72.1	128.8	462	2,060	1,560	3,620
Mclaughlin, Jack E. and Margery L.	2514A	Short	Not renewed	SAC136	72.0	128.7	142	0	0	0
Lomo Cold Storage and Micheli, Justin J.	14-06-200-931A	Long	18_SA	SAC136	67.5	125.1		6,410	700	7,110
Anderson R. and J., Properties, LP	14-06-200-1726A	Short	18_SA	SAC136	67.1	124.7	95	149	88	237
Lonon, Michael E.	14-06-200-8658A	Short	18_SA	SAC136	67.1	124.7	260	715	440	1,155
Tisdale Irrigation and Drainage Company	14-06-200-2781A	District	18_SA	SAC136	64.4, 67.1	124.3		7,900	2,000	9,900
<b>Sutter MWC <sup>i</sup></b>	<b>14-06-200-815A</b>	<b>District</b>	<b>18_SA</b>	<b>SAC136</b>	<b>63.75</b>	<b>121.2</b>		<b>10,170</b>	<b>3,390</b>	<b>13,560</b>
<b>Subtotal</b>										<b>75,217</b>

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
<b>Water Budget Area 19: Sacramento River Left Bank, RM 87.5 – RM 121.8</b>										
Oji Brothers Farm, Inc.	14-06-200-3753A	Long	19_SA	SAC122	63.9	121.3		1,340	1,860	3,200
<b>Sutter MWC</b>	<b>14-06-200-815A</b>	<b>District</b>	<b>19_SA</b>	<b>SAC091,S AC 099, SAC122</b>	<b>32.4, 40.6, 63.75</b>	<b>121.2</b>		<b>159,330</b>	<b>53,110</b>	<b>212,440</b>
Young, Troy Brady and Susan Elizabeth	14-06-200-2552A	Short	19_SA	SAC122	63.3	121.1	4	2	8	10
Sekhon, Arjinderpal and Daljit	W0001	Short	Not renewed	SAC115	62.3	119.8	155	0	0	0
Butler, Dianne E., Trust	14-06-200-2365A	Short	19_SA	SAC115	60.5, 61.8	119.4	142	180	280	434
Hatfield, Paul and Crystal	14-06-200-2365X	Short	19_SA	SAC115						26
Howald Farms, Inc.	14-06-200-1042A	Long	19_SA	SAC115	60.4	118.9	512	1,350	1,410	2,760
Kary, Carol Trustee	14-06-200-2520A	Short	19_SA	SAC115	59.8	117.4	280	400	600	1,000
Wallace, Joseph V., and Janice C.	14-06-200-5200A	Short	19_SA	SAC115	58.9	116.7	80	295	60	355
Lockett, William P. and Jean B.	14-06-200-4105A	Short	19_SA	SAC115	58.3	116.8	490	370	47	417
O'Brien, Frank J., and Janice C.	14-06-200-4105X	Long	19_SA	SAC115	58.3	116.0	290	550	289	839
Dyer, Jeffrey E., and Wing-Dyer, Jan	14-06-200-2486A	Short	19_SA	SAC115	57.75	115.6	120	180	340	520
Pelger Mutual Water Company	14-06-200-2073A	District	19_SA	SAC115	56.96	114.8		7,110	1,750	8,860
<b>Bardis, Cristo D. et al.</b>	<b>14-06-200-1286A</b>	<b>Long</b>	<b>19_SA</b>	<b>SAC109</b>	<b>55.1</b>	<b>112.8</b>	<b>2,055</b>	<b>8,070</b>	<b>2,000</b>	<b>10,070</b>
Van Ruiten Brothers	14-06-200-1415A	Short	19_SA	SAC109			164	50	275	325
Van Ruiten Brothers	14-06-200-5200X	Short	19_SA	SAC109	52.3	110.3	80	25	135	160
Nelson, Henry E., Trustee	14-06-200-1954A	Short	19_SA	SAC109	52.0	110.0	43	38	98	136
Saeed, Faraz A.	8-07-20-W0117	Long	19_SA	SAC109	50.0	108.0	483	2,450	710	3,160
Van Ruiten Brothers	14-06-200-880A	Long	19_SA	SAC109	49.0, 49.7	107.5	375	947	538	1,485
Van Ruiten Brothers	14-06-200-880X	Long	19_SA	SAC109	49.0	106.8		372	212	584
Oji, Mitsue, Family Partnership et al.	14-06-200-2427A	Long	19_SA	SAC109	48.7	106.8		3,430	1,310	4,740
Henle, Thomas N., Trustee	14-06-200-932A	Long	19_SA	SAC109	46.5	105.6	393	935	0	935

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
Windswept Land and Livestock Company	14-06-200-2045A	Long	19_SA	SAC109	44.2, 45.6, 46.45	105.1	738	4,040	0	4,040
Knights Landing Properties, LLC	14-06-200-889A	Short	19_SA	SAC099	38.8	97.3	112	180	20	200
Sooch, Jagar S., et al.	14-06-200-7049A	Short	19_SA	SAC099	37.75	96.4	78	70	85	155
KLSY LLC	14-06-200-7556A	Short	19_SA	SAC099	37.2	95.8	63	80	90	170
Quad-H Ranches, Inc.	14-06-200-2153A	Short	19_SA	SAC099	36.2	94.9	74	190	310	500
Giusti, Richard J. and Sandra A., Trustees	14-06-200-4076A	Short	19_SA	SAC099	36.2	95.0	304	850	760	1,610
Drew, Jerry	2250A	Short	Not renewed	SAC099	35.85	94.4	9	0	0	0
Jaeger, William L. and Patricia A.	7-07-20-W0002	Short	19_SA	SAC091	Sutter Bypass		112	385	485	870
Morehead, Joseph A. and Brenda	14-06-200-5789A	Short	19_SA	SAC091	Sutter Bypass		48	115	140	255
Heidrick & McGinnis Properties, LP	14-06-200-1176A	Short	19_SA	SAC091	33.75	92.4	72	360	200	560
B&D Family Partnership	14-06-200-4178A	Short	19_SA	SAC091	33.75	92.4	14	36	24	60
MCM Properties, Inc.	14-06-200-7827A	Long	19_SA	SAC091	33.75	91.8	201	860	610	1,470
Richter, Henry D. et al.	14-06-200-4362A	Long	19_SA	SAC091	33.2	92.0	583	1,750	1,030	2,780
Furlan, Emile and Simone, Family Trust	14-06-200-1175A	Short	19_SA	SAC091	32.5	90.9	195	23	30	53
Wallace, Kenneth L. Living Trust X	14-06-200-1175A-X	Short	19_SA	SAC091	32.5, 33.2	91.6	195	547	320	867
Byrd, Anna C., and Osborne, Jane <sup>12</sup>	14-06-200-1595A	Long	19_SA	SAC091	26.8, 30.5	89.6	316	1,065	200	1,265
<b>Subtotal</b>										<b>267,311</b>
<b>Water Budget Area 21: Sacramento River Right Bank, RM 62.1 – RM 92.8</b>										
Edson, Wallace L. and Mary O.	906A	Short	Not renewed	SAC083	33.85	92.5	25	0	0	0
Driver, William A., et al.	14-06-200-939A-1	Short	21_SA	SAC083	32.5	91.2	82	54	106	160
Driver, Gregory E.	14-06-200-939A-2	Short	21_SA	SAC083	32.5	91.2	80	6	14	20
Giovannetti, Emil Joseph	14-06-200-991A	Short	21_SA	SAC083	31.5	90.5	150	470	50	520

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversio Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
Heidrick, James E. and Terry E., Trustee	14-06-200-1616A	Short	21_SA	SAC083	30.6	89.5	42	69	16	85
Knights Landing Investors, LLC	14-06-200-4604A	Long	21_SA	SAC083	32.1, 30.7, 29.7	88.6	820	2,680	960	3,640
Heidrick, James E. and Terry E., Trustee	14-06-200-8322A	Short	21_SA	SAC083	29.2, 30.3	89.6	204	370	60	430
Hershey Land Company	7972A	Long	Not renewed	SAC083	28.1	87.2	727	0	0	0
Sacramento River Ranch LLC	14-06-200-2149A	Long	21_SA	SAC083	16.6, 17.0, 22.5	84.5		4,000	0	4,000
Yolo Land Trust	14-06-200-2148A	Long	21_SA	SAC083	16.1	78.1		630	0	630
<b>Conaway Preservation Group</b>	<b>14-06-200-7422A</b>	<b>Long</b>	<b>21_SA</b>	<b>SAC074</b>	<b>12.0</b>	<b>73.6</b>		<b>40,190</b>	<b>672</b>	<b>40,862</b>
Wilson Ranch Partnership	14-06-200-4520A	Long	21_SA	SAC074	11.1	72.9		370	0	370
Woodland-Davis Clean Water Agency	14-06-200-7422X	Long	21_SA	SAC074	12.0	73.6		10,000	0	10,000
Reclamation District 900 and 1000	14-06-200-1779A	Short	21_SA	SAC074	9.35	71.1	142	281	123	404
McClatchy Partners, LLC and Riveryby LLC	14-06-200-934A	Short	21_SA	SAC074	5.25	66.9	177	470	30	500
<b>Subtotal</b>										<b>61,621</b>
<b>Water Budget Area 17: Sacramento River Left Bank, RM 82.7 – RM 87.5</b>										
Byrd, Anna C., and Osborne, Jane <sup>l</sup>	14-06-200-1595A	Long						0	0	0
<b>Subtotal</b>										<b>0</b>
<b>Water Budget Area 22: Sacramento River Left Bank, RM 64.9 – RM 82.7</b>										
<b>Pleasant Grove-Verona MWC <sup>k</sup></b>	<b>14-06-200-5520A</b>	<b>District</b>	<b>22_SA1</b>	<b>SAC082</b>	<b>19.6</b>	<b>81.7</b>		<b>23,790</b>	<b>2,500</b>	<b>26,290</b>
<b>Natomas Central MWC <sup>k</sup></b>	<b>14-06-200-885A</b>	<b>Long</b>	<b>22_SA1</b>	<b>SAC082</b>	<b>2.15, 6.1, 7.5, 4.1, 16.0, 19.6</b>	<b>81.5</b>		<b>98,200</b>	<b>22,000</b>	<b>120,200</b>
Odysseus Farms Partnership	14-06-200-8574A	Short	22_SA1	SAC076	19.6	81.7	121	220	410	630
Cummings, William C.	7-07-20-W0054	Short	22_SA1	SAC076	18.7	81.0	130	180	120	300
Lauppe, Burton H., and Kathryn L.	14-06-200-1289A	Short	22_SA1	SAC076	18.45	80.6	264	720	230	950

Central Valley Project Settlement Contractor	Contract		CalSim 3 Representation		Geographic Location			Contract Amount (acre-feet per year)		
	Number	Form	Demand Unit	Diversion Node	Contract River Mile	Adjusted River Mile <sup>m</sup>	Size (acres)	Base	Project	Total
Natomas Basin Conservancy	14-06-200-1364A	Short	22_SA1	SAC076	18.2	80.2	271	221	269	490
Lauppe, Alan, Joan Johnson, and Warren Lauppe	14-06-200-1364Y	Short	22_SA1	SAC076	18.2	80.2	12	6	14	20
Lauppe, Burton H., and Kathryn L.	14-06-200-1364X	Short	22_SA1	SAC076	18.2	80.2	110	153	197	350
Siddiqui, Javed and Amna	2065A	Short	Not renewed	SAC076	10.75	72.5	88	0	0	0
Wiley, Edwin E. and Marjorie E.	14-06-200-3556A	Short	22_SA1	SAC076	10.75	72.5	46	75	20	95
Siddiqui, Javed and Amna	7941A	Long	Not renewed	SAC076	10.25	71.8	280	0	0	0
Sacramento, County of	14-06-200-2404A	Short	22_SA1	SAC076	9.3	71.2	250	520	230	750
<b>Subtotal</b>										<b>150,075</b>
<b>Total</b>								<b>1,761,376</b>	<b>330,182</b>	<b>2,091,558</b>

Source: [http://www.usbr.gov/mp/cvpia/3404c/lt\\_contracts/2005\\_exec\\_cts\\_sac\\_river/index.html](http://www.usbr.gov/mp/cvpia/3404c/lt_contracts/2005_exec_cts_sac_river/index.html). Patricia Stewart, personal communication, November 28, 2011.

Notes:

<sup>a</sup> Contract for City of Redding estimated as 50% of 21,000 acre-feet based on Census 2000 population located within Foothill, Hill 900 and Cascade pressure zones.

<sup>b</sup> Contract for City of Redding estimated as 50% of 21,000 acre-feet based on Census 2000 population located within Enterprise Zone.

<sup>c</sup> Contract for Anderson-Cottonwood ID estimated as 85% of 125,000 acre-feet based on historical delivery data. Additional 85% of 3,000 acre-feet water rights.

<sup>d</sup> Contract for Anderson-Cottonwood ID estimated as 15% of 125,000 acre-feet based on historical delivery data. Additional 15% of 3,000 acre-feet water rights.

<sup>e</sup> Contract for Maxwell ID estimated as 5% of 18,000 acre-feet based on GIS land-use surveys of cropped area.

<sup>f</sup> Contract for Maxwell ID estimated as 95% of 18,000 acre-feet based on GIS land-use surveys of cropped area.

<sup>g</sup> Contract for Glenn-Colusa ID estimated as 55% of 825,000 acre-feet based on GIS land-use surveys of cropped area.

<sup>h</sup> Contract for Glenn-Colusa ID estimated as 45% of 825,000 acre-feet based on GIS land-use surveys of cropped area.

<sup>i</sup> Contract for Sutter MWC estimated as 94% of 226,000 acre-feet based on GIS land-use surveys of cropped area. Diversion from Tisdale Pumping Plant.

<sup>j</sup> Contract for Sutter MWC estimated as 6% of 226,000 acre-feet based on GIS land-use surveys of cropped area.

<sup>k</sup> Pleasant Grove-Verona MWC and Natomas Central MWC also divert water from the Natomas Cross Canal.

<sup>l</sup> Contractor located in WBA 17S and WBA 19. For modeling purposes, land assumed to be located in WBA 19

<sup>m</sup> CalSim 3 river mile refers to most upstream diversion point. RM 61.7 corresponds to the I Street Bridge in the city of Sacramento. This is RM 0.0 for Reclamation Contract river miles.

Key:

CVP = Central Valley Project, GIS = geographical information system, ID = Irrigation District

LLC = Limited Liability Company, LP = Limited Partnership, MWC = Mutual Water Company

RM = river mile, WBA = Water Budget Area



**Table 4A-2-2. CVP San Joaquin River Exchange Contracts**

<b>Central Valley Project (CVP) Exchange Contractor</b>	<b>Contract Number</b>	<b>CalSim 3 Representation</b>		<b>Point of Diversion</b>	<b>Contract Amount (acre-feet/year)</b>
		<b>Demand Unit</b>	<b>Diversion Node</b>		
Columbia Canal Company	I1r-1144	64_XA	MDOTA	Mendota Pool	59,000
San Luis Canal Company	I1r-1144	72_XA1	SJR180, ARY010	San Joaquin River at Sack Dam via Arroyo Canal	163,600
Central California Irrigation District (north) <sup>a</sup>	I1r-1144	72_XA3	XCC055	Delta-Mendota Canal via Wolfson Bypass and Outside and Main canals	139,000
Central California Irrigation District (South)	I1r-1144	72_XA2	MDOTA, XCC010	Mendota Pool via Outside and Main canals	392,400
Firebaugh Canal Company	I1r-1144	73_XA	DMC111, MDOTA	Delta-Mendota Canal, Check 20 and Mendota Pool	85,000

Note:

<sup>a</sup> Under an exchange agreement with Reclamation (contract 9-07-20-W0812), Central California ID makes available up to 2,500 acre-feet of exchange water to be delivered by Reclamation from the California Aqueduct (MP 89.7) to the Dos Palos Area Joint Powers Authority (JPA).

**Table 4A-2-3. CVP Schedule 2 Water Rights and Contract Amounts**

Central Valley Project (CVP) Schedule 2 Contractor <sup>a</sup>	Contract Number	CalSim 3 Representation			Contract Amount (acre-feet per year)	
		Demand Unit	Diversion Node	Point of Diversion	Irrigation	Schedule 2
Dudley & Indart/Coelho/Hansen	14-06-200-4448A	91_PA	MDOTA	Fresno Slough	-	2,280
Fresno Slough Water District	14-06-200-4019A	91_PA	MDOTA	Fresno Slough	4,000	866
James Irrigation District	14-06-200-700A	91_PA	MDOTA	Fresno Slough	35,300	9,700
Meyers Farms Family Trust	9-07-20-W1608	91_PA	MDOTA	Fresno Slough	-	210
Kenneth and Karen Carvalho Revocable Trust	11-WC-20-0026	91_PA	MDOTA	Fresno Slough	-	600
Reclamation District 1606	14-06-200-3802A	91_PA	MDOTA	Fresno Slough	228	342
Terra Linda Farms (formerly Coelho Family Trust)	14-06-200-7859A	91_PA	MDOTA	Fresno Slough	2,080	1,332
Tranquility Irrigation District	14-06-200-701A	91_PA	MDOTA	Fresno Slough	13,800	20,200
Tranquility Public Utility District	14-06-200-3537A	91_PA	MDOTA	Fresno Slough	70	93
<b>Total</b>					<b>55,478</b>	<b>35,623</b>

Note:

<sup>a</sup> Schedule 2 water is all water delivered without charge under the authority of Section 14 of the Reclamation Project Act of 1939, as a permanent adjustment and settlement of a district's asserted claims to water in the Fresno Slough tributary to the San Joaquin River in fulfillment of such rights pursuant to Contract No. I7R-1145, "Contract for Purchaser of Miller & Lux Water Rights," dated July 27, 1939.

**Table 4A-2-4. CVP Water Service Contracts for Service Areas North of Delta**

Central Valley Project (CVP) Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Sacramento and Trinity River Divisions <sup>d</sup>					
Clear Creek Community Service District	489-A	02_PA	WKYTN	7,300 <sup>a</sup>	-
Centerville Community Service District	14-06-200-3367X	02_PU	WTPCSD	-	2,900 <sup>c</sup>
Clear Creek Community Service District	14-06-200-489-A		WTPCSD	-	8,000 <sup>a</sup>
Shasta Community Service District	14-06-200-862A		WKYTN	-	1,000
Shasta County Water Agency	14-06-200-3367A		WTPCSD	-	332 <sup>b</sup>
Keswick Community Service Area	N/A		WKYTN	-	400 <sup>b</sup>
Bella Vista Water District	14-06-200-851A	03_PA	SAC294	18,000 <sup>h</sup>	-
Bella Vista Water District	14-06-200-851A	03_PU2	SAC294	-	6,578 <sup>h</sup>
City of Shasta Lake	4-07-20-W1134	03_PU1	SHSTA	-	4,400
Mountain Gate Community Service District	14-06-200-6998		SHSTA	-	1,350
Jones Valley Community Service Area	N/A		SHSTA	-	290 <sup>b</sup>
Redding, City of (Buckeye Water Treatment Plant)	14-06-200-5272A	03_PU3	WKYTN	-	6,140
Subtotal				25,300	31,390
Corning Canal Unit					
Corning Water District	14-06-200-6575	04_PA1	CCL005	20,000	-
Proberta Water District	14-06-200-7311			3,500	-
Thomes Creek Water District	14-06-200-5271A			6,400	-
Subtotal				29,900	0
Tehama-Colusa Canal Unit					
Kirkwood Water District	7-07-20-W0056	04_PA2	TCC022	2,100	-
Glide Water District	W0040	07N_PA	TCC036	10,500	-
Kanawha Water District	466-A			45,000	-
Orland-Artois Water District	14-06-200-8382A			53,000	-

Central Valley Project (CVP) Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Colusa, County of					
Holthouse Water District (65%) (assigned)	1-07-20-W0224			1,513	-
Colusa, County of	14-06-200-8310A	07S_PA	TCC081 TCC111	j	-
4-M Water District (assigned)	0-07-20-W0183			5,415	-
Colusa County Water District (assigned)	1-07-20-W0220			5,667	-
Cortina Water District (assigned)	0-07-20-W0206			1,615	
Glenn Valley Water District (assigned)	1-07-20-W0219			1,730	-
Holthouse Water District (35%) (assigned)	1-07-20-W0224			814	-
La Grande Water District (assigned)	0-07-20-W0190			2,090	-
Myers-Marsh MWC (assigned)	1-07-20-W0225			242	-
Colusa County Water District	14-06-200-304-A			62,200	-
Colusa, County of	14-06-200-8310A			914	
Davis Water District	14-06-200-6001A			4,000	-
Dunnigan Water District	14-06-200-399-A			19,000	-
La Grande Water District	7-07-20-W0022			5,000	-
Westside Water District	14-06-200-8222			65,000	-
<b>Subtotal</b>				<b>285,800</b>	<b>0</b>
<b>Black Butte Unit</b>					
4-E Water District	3-07-20-W0312	N/A	N/A	35	-
Elk Creek Community Service District	3-07-20-W0312				100
Stony Creek Water District	2-07-20-W0261	SCKWD	EPARK		3,345
U.S. Forest Service (Salt Creek)	14-06-200-3621A	N/A	N/A		45
Whitney Construction, Inc.	14-06-200-5749A	N/A	N/A		25
U.S. Forest Service	14-06-200-3464A	N/A	N/A		10
Colusa, County of (Stonyford)	4-07-20-W0348	N/A	N/A		40
<b>Subtotal</b>				<b>35</b>	<b>3,565</b>

Central Valley Project (CVP) Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Colusa Basin Drain					
Colusa Drain Mutual Water Company <sup>e</sup>	8-07-20-W0693	08N_PA	CBD049	5,600	-
Colusa Drain Mutual Water Company <sup>e</sup>	8-07-20-W0693	08S_PA	CBD028	49,000	-
Colusa Drain Mutual Water Company <sup>e</sup>	8-07-20-W0693	21_PA	KLR005	15,400	-
Subtotal				70,000	0
American River Division					
El Dorado Irrigation District	14-06-200-1357A	ELDID	FOLSM	-	7,550
El Dorado County Water Agency <sup>k</sup>	07-WC-20-3534	ELDID	FOLSM		15,000
City of Roseville	14-06-200-3474A	26N_PU1	FOLSM	-	32,000
Sacramento County Water Agency	6-07-20-W1372	26S_PU4, 26S_PU6	SAC052, SAC062	-	22,000
San Juan Water District	6-07-20-W1373	26N_PU2, 26N_PU3	FOLSM	-	24,200
East Bay Municipal Utility District	14-06-200-5183A	EBMUD	FOLSM	-	133,000
Sacramento Municipal Utility District	14-06-200-5198A	60N_PU	FOLSM	-	30,000
Sacramento County Water Agency (SMUD assignment)	N/A	26S_PU4, 26S_PU6	SAC052, SAC062	-	30,000
Placer County Water Agency	14-06-200-5082A	<sup>f</sup>	FOLSM	-	35,000
Subtotal				0	328,750
Delta Division					
Contra Costa Water District	I75r-3401A	CCWD	RSL004, OMR021, VCT002	-	195,000
Subtotal				0	195,000
Other					
Feather Water District	14-06-200-171-A	16_PA	FTR020	20,000	
City of West Sacramento <sup>g,i</sup>	0-07-20-W0187	21_PU	SAC066		23,600
Subtotal				20,000	23,600
Total				431,035	582,305

## Notes:

<sup>a</sup> Split between irrigation and M&I use based on an urban demand of 8,000 acre-feet per year.

<sup>b</sup> Shasta County WA provides water to water purveyors in Shasta County, including 500 acre-feet to Keswick Community Service Area, 190 acre-feet to Jones Valley Community Service Area, and 332 acre-feet elsewhere. For modeling purposes, it is assumed that 332 acre-feet are made available to contractors in 02\_PU. Under a 2008 transfer agreement, 100 acre-feet of Shasta County Water Agency water were transferred from Keswick Community Service Area to Jones Valley Community Service Area.

<sup>c</sup> Centerville Community Service District as part of the liquidation of the Townsend Flat Water Ditch Company's pre-1914 water rights holdings on Clear Creek has secured 900 acre-feet of CVP supplies in addition to the 2,900 acre-feet. These quantities of supply are not subject to cutbacks, and the water may be transferred to any other purveyor in the Redding Basin.

<sup>d</sup> The McConnell Foundation as part of the liquidation of the Townsend Flat Water Ditch Company's pre-1914 water rights holdings on Clear Creek, has secured 5,100 acre-feet of CVP supplies. These quantities of supply are not subject to cutbacks, and the water may be transferred to any other purveyor in the Redding Basin. For modeling purposes, it is assumed that this water is available to urban municipalities.

<sup>e</sup> Division of the 70,000 acre-feet per year contract for the Colusa Drain Mutual Water Company is based on GIS land use (irrigated area) and split 8%, 70%, and 22% among the 3 demand units 08N\_PA, 08S\_PA, and 21\_PA.

<sup>f</sup> Placer County Water Agency currently has no facilities to take delivery of CVP water from Folsom Lake.

<sup>g</sup> Contract amount for City of West Sacramento includes water right water and CVP project water.

<sup>h</sup> Split between irrigation and M&I use for Bella Vista Water District based on Reclamation delivery data for water years 2000 – 2009.

<sup>i</sup> The City of West Sacramento also could be categorized as a CVP settlement contractor.

<sup>j</sup> Seven districts have assigned a total of 20,000 acre-feet to Colusa County Water District.

## Key:

CVP = Central Valley Project, M&I = municipal and industrial, N/A = not applicable

**Table 4A-2-5. CVP Contract Amounts for Service Areas South of Delta**

Central Valley Project Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Upper Delta-Mendota Canal					
Byron-Bethany ID (former Plainview ID)	14-06-200-785	71_PA8	DMC011	20,600	-
Tracy, City of	14-06-200-7858A	50_PU	DMC016	-	10,000
Tracy, City of (from Banta-Carbona ID)	14-06-200-4305A-B		-	5,000	
Tracy, City of (from West Side ID)	7-07-20-W0045-B		-	5,000	
Banta-Carbona ID	14-06-200-4305A	50_PA1	DMC021	20,000	-
West Side ID	7-07-20-W0045		5,000	-	
Hospital WD	14-06-200-922	71_PA1	DMC030	34,105	-
West Stanislaus ID	14-06-200-1072	71_PA2	DMC034	50,000	-
Kern Canon WD	14-06-200-922	71_PA3	DMC034	7,700	-
Patterson ID <sup>a</sup>	14-06-200-3598A	71_PA4	DMC044	22,500	-
Del Puerto WD	14-06-200-922	71_PA5	DMC044	12,060	-
Salado WD	14-06-200-922		DMC044	9,130	-
Orestimba WD	14-06-200-922		DMC044	15,860	-
Sunflower WD	14-06-200-922		DMC044	16,625	-
Davis WD	14-06-200-922		DMC044	5,400	-
Foothill WD	14-06-200-922	71_PA6	DMC064	10,840	-
Mustang WD	14-06-200-922		DMC064	14,680	-
Quinto WD	14-06-200-922		DMC064	8,620	-
Romero WD	14-06-200-922		DMC064	5,190	-
Subtotal					258,310
Lower Delta-Mendota Canal, Volta Wasteway, Mendota Pool					
Laguna WD	2-07-20-W0266	72_PA	XCC025	800	-
San Luis WD (north) <sup>b</sup>	14-06-200-7773A (part)	73_PA1	DMC070	62,540	-
Eagle Field WD	14-06-200-7754	73_PA2	DMC105	4,550	-
Mercy Springs WD	14-06-200-3365A		DMC105	2,842	-
Oro Loma WD	14-06-200-7823		DMC105	600	-

Central Valley Project Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Panoche WD <sup>c</sup>	14-06-200-7864A (part)	73_PA3	DMC091	27,000	-
Westlands WD (from Broadview WD)	14-06-200-8092	90_PA1		27,000	-
Westlands WD DD No. 2 (from Mercy Springs WD)	14-06-200-3365A-C			<del>4,198</del> 8,893	-
Westlands WD DD No. 1 (from Widren WD)	14-06-200-8018-B		COC001	2,990	-
Westlands WD DD No. 1 (from Centinella WD)	7-07-20-W0055-B			2,500	-
Westlands WD DD No. 1 (from Oro Lomo WD)	14-06-200-7823			4,000	
<b>Subtotal</b>				<del>139,020</del> 143,715	<b>0</b>
<b>San Felipe Division</b>					
San Benito County WD	8-07-20-W0130	N/A	SLUIS	35,550	8,250
Santa Clara Valley WD	7-07-20-W0023	N/A	SLUIS	<del>33,100</del> 34,665	119,400
Pajaro Valley WD	14-06-200-3365A-B	N/A	SLUIS	<del>6,260</del> -	
State of California	14-06-200-8033A	N/A	SLUIS	-	10
<b>Subtotal</b>				<del>74,910</del> 70,215	<b>127,660</b>
<b>California Aqueduct</b>					
U.S. Department of Veteran Affairs	3-07-20-W1124	71_PU2	CAA066	-	850
California State Parks and Recreation <sup>d</sup>	14-06-200-4353A		CAA071	2,250	-
Los Banos Gravel Company (from C. Affonso)	8-07-20-W0151		CAA071	250	-
San Luis WD (south) <sup>b</sup>	14-06-200-7773A (part)	73_PA3	CAA087	62,540	-
Panoche WD <sup>c</sup>	14-06-200-7864A (part)		CAA109	67,000	-
Pacheco WD	6-07-20-W0469		CAA109	10,080	-
Westlands WD, CA Joint Reach 4	14-06-200-495A	90_PA1, 90_PA2	CAA109	219,000	-
Westlands WD, CA Joint Reach 5			CAA143, COC001	570,000	-
Westlands WD, CA Joint Reach 6			CAA155	219,000	-
Westlands WD, CA Joint Reach 7			CAA172	142,000	-



Central Valley Project Water Service Contractor	Contract Number	CalSim 3 Representation		Contract (acre-feet per year)	
		Demand Unit	Diversion Node	Irrigation	M&I
Avenal, City of	14-06-200-4619A	90_PU	CAA165	-	3,500
Coalinga, City of	14-06-200-4173A		COC001	-	10,000
Huron, City of	14-06-200-7081A		CAA156	-	3,000
<b>Subtotal</b>				<b>1,292,120</b>	<b>17,350</b>
<b>Eastside Division<sup>a</sup></b>					
Central San Joaquin WCD	4-07-20-W0330			80,000	
Stockton East WD	4-07-20-W0329			75,000	
<b>Subtotal</b>				<b>155,000</b>	
<b>Cross Valley Canal</b>					
Fresno, County of	14-06-200-8292A	N/A	D855	3,000	-
Hills Valley ID	14-06-200-8466A	N/A		3,346	-
Kern-Tulare WD	14-06-200-8601A	N/A		40,000	-
Lower Tule River ID	14-06-200-8237A	N/A		31,102	-
Pixley ID	14-06-200-8238A	N/A		31,102	-
Kern-Tulare WD	14-06-200-8367A	N/A		13,300	-
Tri-Valley WD	14-06-200-8565A	N/A		1,142	-
Fresno, County of	14-06-200-8293A	N/A		5,308	-
<b>Subtotal</b>				<b>128,300</b>	<b>0</b>

## Notes:

<sup>a</sup> Patterson ID contract includes 6,000 acre-feet per year of water furnished at no cost to replace for San Joaquin River water rights water.

<sup>b</sup> The total contract amount for San Luis WD is 125,080 acre-feet. This is split between CalSim 3 demand units 73\_PA1 and 73\_PA3, based on GIS analysis of land area, in proportions 50% and 50%.

<sup>c</sup> The contract amount for Panoche WD is split between the Delta-Mendota Canal and Joint Reach of the California Aqueduct based on information received from the San Luis and Delta-Mendota Authority (Tona Mederios, personal communication, June 10, 2006).

<sup>d</sup> The contract with California State Parks and Recreation states that 5,000 acre-feet of water will be provided for use in parks adjacent to San Luis Reservoir and that Reclamation shall provide 45 percent and DWR shall provide 55 percent.

## Key:

DD = Distribution District; ID = Irrigation District; M&I = municipal and industrial; N/A = not applicable; WD = Water District

**Table 4A-2-6. Refuge Level 2 and Level 4 Amounts per Exhibit B of Water Service Contracts**

Wildlife Refuge Area	Contract Number	CalSim 3 Representation			Water Supply Contract Amounts (acre-feet/year) <sup>h</sup>			
		Demand Unit	Diversion Node	Point of Diversion	Level 2 Amount <sup>a,h</sup>	Incremental Level 4 <sup>h</sup>	Replacement Water <sup>b</sup>	Total Level 4 Amount
Sacramento River Hydrologic Region								
Sacramento National Wildlife Refuge	01-WC-20-1757	08N_PR1	GCC027	Glenn-Colusa Canal	46,400	3,600	–	50,000
Delevan National Wildlife Refuge	01-WC-20-1757	08N_PR2	GCC039	Glenn-Colusa Canal	20,950	9,050	–	30,000
Colusa National Wildlife Refuge	01-WC-20-1757	08S_PR	GCC056, CBD037	Glenn-Colusa Canal, Colusa Basin Drain	25,000	–	–	25,000
Sutter National Wildlife Refuge <sup>e</sup>	01-WC-20-1757	17S_PR	SBP028, SEC009	Sutter Bypass, Sutter Extension Canal	23,500 <sup>f</sup>	6,500	–	30,000
Gray Lodge Wildlife Area <sup>e</sup>	01-WC-20-1755	17N_PR	JBC002	Joint Board Canal	35,400 <sup>g</sup>	8,600	–	44,000
Subtotal					151,250	27,750	0	179,000
San Joaquin River and Tulare Lake Hydrologic Regions								
Merced National Wildlife Refuge <sup>d</sup>	01-WC-20-1756	63_PR2	DED010	Deadman Creek	13,500	2,500	–	16,000
San Luis National Wildlife Refuge –East Bear Creek Unit <sup>e</sup>	01-WC-20-1756	63_PR3	EBP048	Eastside Bypass	8,863	4,432	–	13,295
Volta Wildlife Area	01-WC-20-1756	72_PR1	VLW008	Volta Wasteway	13,000 <sup>c</sup>	3,000	3,000	16,000
San Luis National Wildlife Refuge –Kesterson Unit	01-WC-20-1758	72_PR2	XCC033	Main and Outside canals	10,000 <sup>c</sup>	–	6,500	10,000
San Luis National Wildlife Refuge –Freitas Unit	01-WC-20-1758				5,290 <sup>c</sup>	–	1,763	5,290

Wildlife Refuge Area	Contract Number	CalSim 3 Representation			Water Supply Contract Amounts (acre-feet/year) <sup>h</sup>			
		Demand Unit	Diversion Node	Point of Diversion	Level 2 Amount <sup>a,h</sup>	Incremental Level 4 <sup>h</sup>	Replacement Water <sup>b</sup>	Total Level 4 Amount
San Luis National Wildlife Refuge –San Luis Unit	01-WC-20-1758	72_PR3	ARY010	Arroyo Canal	19,000 <sup>c</sup>	–	5,650	19,000
San Luis National Wildlife Refuge –West Bear Creek Unit	01-WC-20-1758				7,207	3,603	–	10,810
Los Banos WA	01-WC-20-1756	72_PR4	XCC033	Main and Outside canals	16,670	8,330	–	25,000
North Grasslands Wildlife Area –Salt Slough Unit	01-WC-20-1756		ARY010, XCC033	Arroyo Canal, Main and Outside canals	6,680	3,340	–	10,020
North Grasslands Wildlife Area –China Island Unit	01-WC-20-1756				6,967	3,483	–	10,450
Grassland RCD (north)	01-WC-20-1754	72_PR5	LBN012, XCC054	Los Banos Creek, Main and Outside canals	125,000	55,000	–	180,000
Grassland RCD (south)	01-WC-20-1754	72_PR6	ARY013, XCC025	Los Banos Creek, Main and Outside canals				
Mendota Wildlife Area <sup>e</sup>	01-WC-20-1756	91_PR	MDOTA	Mendota Pool	27,594 <sup>c</sup>	2,056	9,094	29,650
Kern National Wildlife Refuge <sup>e</sup>	01-WC-20-1758	N/A	D856	California Aqueduct	9,950	15,050	–	25,000
Pixley National Wildlife Refuge <sup>e</sup>	01-WC-20-1758			California Aqueduct	1,280	4,720	–	6,000
<b>Subtotal</b>					<b>271,001</b>	<b>105,514</b>	<b>26,007</b>	<b>376,515</b>
<b>Total</b>					<b>422,251</b>	<b>133,264</b>	<b>26,007</b>	<b>555,515</b>

## Notes:

<sup>a</sup> Level 2 amounts do not include conveyance losses.

<sup>b</sup> Replacement water is water that Reclamation provides from CVP yield to certain CVPIA refuges through contracts with management agencies executed before the passage of the CVPIA. It is to be replaced to the CVP when water can be acquired from willing sellers.

<sup>c</sup> Contract amounts include replacement water. Without replacement water the contract amounts are as follows: San Luis Unit, 13,350 acre-feet; Kesterson Unit, 3,500 acre-feet; Freitas Unit, 3,527 acre-feet; Mendota WA, 18,500 acre-feet, and Volta WA, 10,000 acre-feet.

<sup>d</sup> Merced National Wildlife Refuge receives 15,000 acre-feet of mitigation water from Merced ID in accordance with Article 45 of its 1964 Federal Energy Regulatory Commission (FERC) license, which expires 2/28/2014. An additional 1,000 acre-feet is met through groundwater pumping.

<sup>e</sup> Deliveries of Level 2 water are limited by conveyance constraints.

<sup>f</sup> Includes 3,000 acre-feet of non-CVP water to be delivered from Sutter Extension WD

<sup>g</sup> Includes 18,841 acre-feet of non-CVP water to be delivered by Biggs-West Gridley WD and SWP. Biggs-West Gridley WD delivers up to 6,949 acre-feet to primary lands and up to 3,936 acre-feet to secondary lands within the district. The SWP delivers up to 5,079 acre-feet of surplus water to primary lands and 2,877 acre-feet of surplus water to secondary lands

<sup>h</sup> Level 2 and incremental Level 4 amounts differ from Reclamation 1989 reports because of inclusion of replacement water. Level 2 water under the water supply contracts includes 26,007 acre-feet of Replacement water. Under the water supply contracts, incremental Level 4 amounts have been reduced by the same amount.

## Key:

“–” = No contract or water right, CVP = Central Valley Project, CVPIA = Central Valley Project Improvement Act, Reclamation = U.S. Department of the Interior, Bureau of Reclamation, SWP = State Water Project

**Table 4A-2-7. SWP Delta Contracts**

SWP Contractor	Geographic Location	Water Right (TAF/yr)	SWP Table A Amount (TAF)		SWP Article 21 Annual Maximum (TAF)
			Ag	M&I	
North Delta					
City of Vallejo	City of Vallejo	22.78		5.6	
Napa County FC&WCD	North Bay Aqueduct			29.03	7.71
Solano County WA	North Bay Aqueduct			47.76	21.83
Fairfield, Vacaville and Benicia Agreement	North Bay Aqueduct	31.62			
City of Antioch	City of Antioch	18.0			
Total North Delta		72.4	0.0	82.39	29.54
South Delta					
Delta Water Supply Project	City of Stockton	33.6			
Total South Delta		33.6	0.0	0.0	0.0
Total		106	0.0	82.39	29.54

**Table 4A-2-8. SWP North-of-the-Delta: Feather River Service Area Contracts and Water Rights**

SWP Contractor	Geographic Location/ Point-of-Diversion	FRSA Amount (TAF)	Water Right (TAF/yr)	Table A Amount (TAF)		Article 21 Annual Maximums (TAF)
				Ag	M&I	
Western Canal WD	Thermalito Afterbay	150.0	145.0			
Richvale ID		148.5	1.35			
Biggs-West Gridley WD and Butte WD		291.5	2.65			
Sutter Extension WD	Thermalito Afterbay	110	1			
	Sunset Pumps	50				
Butte County	Feather River				27.5	0.00
Thermalito ID	Power Canal		8			
South Feather Water and Power Agency	Lake Oroville		17.56			
Plumas MWC	Feather River	8	6			
Garden Highway MWC		12.87	5.13			
Tudor ID		4.79	0.21			
Oswald WD		2.85	0.15			
City of Yuba City					9.6	1.43
<b>Subtotal</b>		<b>778.51</b>	<b>187.05</b>	<b>0.00</b>	<b>37.1</b>	<b>1.43</b>
Miscellaneous diverters <sup>a</sup>	Feather River	26.65				
Feather WD <sup>b</sup>		20				
<b>Total</b>		<b>1030.51</b>				

Notes:

<sup>a</sup> These include minor diverters who hold riparian and appropriative water rights.<sup>b</sup> Feather WD is a CVP contractor but is included here to show the total demands on Lake Oroville.

**Table 4A-2-9a. SWP South-of-the-Delta – Existing and Future Conditions**

SWP Contractor	Geographic Location	Table A Amount (TAF)		Article 21 Annual Maximums (TAF)	Losses/Seepage (TAF/yr)
		Ag	M&I		
Alameda Co. FC&WCD, Zone 7	SBA reaches 1-4		80.62	1.09	
	SBA reaches 5-6				
Alameda County WD	SBA reaches 7-8		42.00	2.35	
Valley Water (Santa Clara Valley WD)	SBA reach 9		100.00	60	
Oak Flat WD	CA reach 2A	5.70		0.05	
County of Kings	CA reach 8C	9.31		13.58	
Dudley Ridge WD	CA reach 8D	41.35		37.32	
Empire West Side ID	CA reach 8C	3.00		2.16	
Kern County Water Agency	CA reaches 3, 9-13B	848.13	134.60		
	CA reaches 14A-C			543.69	
	CA reaches 15A-16A				
	CA reach 31A				
Tulare Lake Basin WSD	CA reaches 8C-8D	87.47		69.67	
San Luis Obispo Co. FC&WCD	CA reaches 33A-35		25.00	0.99	
Santa Barbara Co. FC&WCD	CA reach 35		45.49	8.17	
Antelope Valley-East Kern WA	CA reaches 19-20B, 22A-B		144.84	26.52	
Castaic Lake WA	CA reach 31A	12.70		2.94	
	CA reach 30		82.50		
Coachella Valley WD	CA reach 26A		138.35	14.54	
Crestline-Lake Arrowhead WA	CA reach 24		5.80	0.00	
Desert WA	CA reach 26A		55.75	5.86	
Littlerock Creek ID	CA reach 21		2.30	0.00	
Mojave WA	CA reaches 19, 22B-23		89.80	0.00	
Metropolitan WDSC	CA reach 26A		1911.50	129.78	
	CA reach 30			107.03	
	CA reaches 28G-H			39.49	
	CA reach 28J			9.87	
	<b>Total</b>			<b>286.17</b>	

**Table 4A-2-9b. SWP South-of-the-Delta**

<b>SWP Contractor</b>	<b>Geographic Location</b>	<b>Table A Amount (TAF)</b>		<b>Article 21 Annual Maximums (TAF)</b>	<b>Losses/Seepage (TAF/yr)</b>
Palmdale WD	CA reaches 20A-B		21.30	1.98	
San Bernardino Valley MWD	CA reach 26A		102.60	4.41	
San Gabriel Valley MWD	CA reach 26A		28.80	5.52	
San Geronio Pass WA	CA reach 26A		17.30	0.02	
Ventura County FCD	CA reach 29H		3.15		
	CA reach 30		16.85	40.92	
	<b>Total</b>		<b>20.00</b>	<b>40.92</b>	
Santa Clarita WA		12.7	82.5	2.94	
Napa County FC&WCD			29.03	7.71	
Solano County WA			47.76	21.83	
SWP Losses	CA reaches 1-2				-7.72
	NBA				0.90
	SBA reaches 1-9				0.60
	CA reach 3				-10.80
	CA reach 4				-2.60
	CA reach 5				-3.90
	CA reach 6				-1.20
	CA reach 7				-1.60
	CA reaches 8C-13B				11.9
	Wheeler Ridge PP and CA reaches 14A-C				3.6
	Chrisman PP and CA reaches 15A-18A				1.8
	Pearblossom PP and CA reaches 17-21				5.1
	Mojave PP and CA reaches 22A-23				4
	REC and CA reaches 24-28J				1.4
	CA reaches 29A-29F				1.9
	Castaic PWP and CA reach 29G-29J				3.1
	REC and CA reach 30				2.4
	<b>Total</b>				<b>8.88</b>
<b>Total</b>		<b>1020.36</b>	<b>3207.84</b>	<b>1160.43</b>	<b>8.88</b>