Appendix D

Supplemental Municipal Supply Analysis Information

D.1 Introduction

This appendix contains supplemental material supporting the analysis of the potential effects of new and revised flow requirements on municipalities. Section D.2, *Municipal Demand and Supply Projections for the 5th Consecutive Dry Year*, contains data from 2020 Urban Water Management Plans (UWMP) used in the analysis in Section 7.20, *Utilities and Service Systems*. Section D.3, *Municipal Supply Economic Effects Analysis*, summarizes the approach and information used in the analysis in Chapter 8, *Economic Analysis and Other Considerations*.

D.2 Municipal Demand and Supply Projections for the 5th Consecutive Dry Year

This section provides information about water service reliability for each of the geographic regions in the study area to supplement information presented in Section 7.20, *Utilities and Service Systems*. The data presented in Tables D-1 through D7 are based on entries for UWMPs, Table 7-4, *Multiple Dry Years Supply and Demand Comparison,* which summarizes projected water demand and supply for municipal suppliers that rely on Sacramento/Delta supply as a part of their water portolio. The tables below show 2030 projected population, estimated annual demand and supply (in acre-feet [AF]), and expected surplus (positive values, blue bars) or shortage (negative values, red bars) after 5 consecutive dry years.

The California Department of Water Resources provides aggregated data from the 2020 and 2015 tables for over 420 submitted UWMPs in *Submitted 2020 Urban Water Management Plans (UWMP) Data Exports*. Compiled data for individual UWMP tables are provided in a downloadable Excel spreadsheet format.

Data from the following 2020 UWMP compiled tables were used in this analysis:

- UWMP Table 3-1: 2030 projected population served for retail and wholesale suppliers.
- UWMP Table 7-4: Demand and supply in 2030 for the 5th consecutive dry year.

The data presented in Tables D-1 through D-7 were obtained by filtering the UWMP table data by Staff Report geographical study region and water suppliers who receive Sacramento/Delta supply.

D.2.1 Sacramento River Watershed

Table D-1. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—Sacramento River Watershed (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Sacramento City Of	603,209	119,911	350,200	230,289
California American Water Company - Sacramento District	256,325	34,565	128,439	93,874
Sacramento County Water Agency	249,454	64,771	118,270	53,499
Sacramento Suburban Water District	182,817	38,617	48,000	9,383
Roseville City Of	170,526	56,990	55,005	(1,985)
Placer County Water Agency	144,125	107,071	156,156	49,085
Vacaville City Of	109,426	19,719	25,187	5,468
Folsom City Of	98,114	22,746	32,720	9,974
Redding City Of	95,808	24,622	37,922	13,301
Davis City Of	78,659	11,470	19,856	8,386
Yuba City	75,901	16,817	23,099	6,282
West Sacramento City Of	74,570	18,119	32,478	14,359
Citrus Heights Water District	68,398	10,347	10,347	-
Woodland City Of	67,726	13,975	20,837	6,862
Lincoln City Of	61,300	15,980	15,980	-
Nevada Irrigation District	54,927	193,187	282,920	89,733
Elk Grove Water District	53,100	8,798	13,000	4,202
Golden State Water Company - Cordova	46,303	15,653	15,653	-
Carmichael Water District	39,000	9,496	43,920	34,424
Fair Oaks Water District	36,555	10,614	23,718	13,104
San Juan Water District	30,379	12,050	12,050	-
Bella Vista Water District	19,164	10,353	8,030	(2,323)
Paradise Irrigation District	18,955	4,356	6,421	2,065
South Feather Water and Power	18,306	9,443	236,516	227,073
Orangevale Water Company	17,438	4,000	4,000	-
Shasta Lake City Of	11,738	2,922	3,243	321
California Water Service Company Oroville	10,987	2,775	2,775	-
Georgetown Divide Public Utility District	10,115	9,275	11,060	1,785

D.2.2 Delta Eastside Tributaries

Table D-2. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—Delta Eastside Tributaries (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Stockton City Of	192,800	42,104	86,300	44,196
El Dorado Irrigation District	139,100	42,720	55,300	12,580
Lodi City Of	76,024	13,960	15,000	1,040
Calaveras County Water District	23,144	22,348	74,502	52,154
Amador Water Agency	16,709	7,001	20,042	13,041

D.2.3 Delta

Table D-3. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—Delta (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Tracy City Of	120,367	25,167	25,345	178
Antioch City Of	118,560	14,620	18,683	4,063
Mountain House Community Services District	31,781	7,134	7,134	-

D.2.4 San Francisco Bay Area

Table D-4. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—San Francisco Bay Area (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
East Bay Municipal Utility District	1,542,000	196,025	196,025	-
San Jose Water Company	1,127,593	135,875	135,875	-
Alameda County Water District	371,100	55,600	56,700	1,100
Contra Costa Water District	236,100	98,600	98,600	-
Sunnyvale City Of	174,880	20,649	26,103	5,454
San Jose City Of	168,092	26,705	24,420	(2,285)
Santa Clara City Of	142,425	25,836	33,097	7,261
Vallejo City Of	138,645	30,807	31,862	1,055
Fairfield City Of	119,980	23,468	38,272	14,804
Dublin San Ramon Services District	104,625	16,762	16,762	-
Milpitas City Of	98,100	13,733	13,411	(322)
Mountain View City Of	98,080	12,548	10,038	(2,510)
Napa City Of	94,066	15,750	16,326	576
Pleasanton City Of	91,430	19,287	19,287	-
Pittsburg City Of	89,492	12,341	11,886	(455)
Brentwood City Of	72,589	13,632	21,666	8,034
California Water Service Company Los Altos/Suburban	70,815	14,066	14,066	-
California Water Service Company Livermore	62,970	9,846	9,846	-
Diablo Water District	54,000	10,005	13,304	3,299
Livermore City Of	39,101	8,737	8,737	-
Martinez City Of	29,657	3,626	3,626	-
Benicia City Of	28,966	10,301	18,650	8,349
Golden State Water Company - Bay Point	24,666	2,012	2,012	-
American Canyon City Of	23,732	3,785	3,251	(534)
California Water Service Company Redwood Valley	3,283	360	360	-

D.2.5 San Joaquin Valley

Table D-5. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—San Joaquin Valley (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
California Water Service Company Bakersfield	314,753	64,504	64,504	-
Bakersfield City Of	193,610	46,642	46,642	-
Oildale Mutual Water Company	45,382	12,559	26,726	14,167
East Niles Community Services District	38,868	9,187	16,806	7,619
Coalinga City Of	22,671	5,254	5,110	(144)
West Kern Water District	22,542	15,703	15,703	-

D.2.6 Central Coast

Table D-6. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—Central Coast (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Santa Maria City Of	122,402	17,247	25,396	8,149
Santa Barbara City Of	102,033	11,680	13,900	2,220
Goleta Water District	86,787	12,118	12,118	-
San Luis Obispo City Of	53,924	7,713	10,537	2,824
Hollister City Of	37,365	7,334	7,334	-
Golden State Water Company - Orcutt	35,959	7,039	7,039	-
Sunnyslope County Water District	23,704	7,334	7,334	-
Nipomo Community Service District	17,042	3,369	4,013	644
Carpinteria Valley Water District	16,716	3,691	3,691	-
Grover Beach City Of	14,536	1,464	1,624	160
Montecito Water District	12,250	5,333	4,817	(516)
Morro Bay City Of	11,525	1,366	1,720	354
Pismo Beach City Of	9,060	1,924	2,471	547

D.2.7 Southern California

Table D-7. Projected Water Demand and Supply for 5th Consecutive Dry Year in 2030, Urban Water Suppliers with Sacramento/Delta Supplies—Southern California (acre-feet)

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Los Angeles City Department Of Water And Power	4,374,240	673,600	673,600	-
San Diego City Of	1,531,174	202,843	202,843	-
Eastern Municipal Water District	695,500	150,800	150,800	-
Long Beach City Of	517,822	51,861	84,752	32,891
Irvine Ranch Water District	454,165	94,687	176,679	81,992
Anaheim City Of	388,045	63,326	65,949	2,623
Santa Clarita Valley Water Agency	349,596	85,910	118,490	32,580
Santa Ana City Of	347,511	36,459	36,459	-
Riverside City Of	333,652	97,803	121,893	24,090
Coachella Valley Water District	315,202	144,982	144,982	-
Helix Water District	282,644	40,130	47,376	7,246
Golden State Water Company - Southwest	281,025	30,446	30,446	-
Ontario City Of	266,339	52,820	52,820	-
San Gabriel Valley Water Company Fontana Division	253,789	37,580	37,580	-
Otay Water District	239,627	44,200	44,200	-
Los Angeles County Waterworks District 40 - Antelope Valley	227,000	58,002	58,002	-
Cucamonga Valley Water District	225,483	47,407	50,707	3,300
San Bernardino City Of	223,806	47,803	54,974	7,171
Oxnard City Of	219,220	28,350	28,350	-
Sweetwater Authority	214,059	23,523	23,523	-
Glendale City Of	206,908	25,973	13,026	(12,947)
Huntington Beach City Of	206,499	28,115	28,115	-
Elsinore Valley Municipal Water District	190,310	41,994	49,983	7,989
Santa Margarita Water District	185,430	39,963	49,963	10,000
Garden Grove City Of	184,520	24,336	24,336	-
Oceanside City Of	182,527	26,215	26,215	-
Pasadena City Of	181,466	25,000	31,943	6,943
Fullerton City Of	179,070	29,091	29,091	-
Suburban Water Systems - San Jose Hills	179,040	24,610	36,662	12,053
Corona City Of	176,100	38,977	46,222	7,245
Moulton Niguel Water District	174,202	31,646	31,646	-
Pomona City Of	165,589	25,441	25,441	-
Rancho California Water District	163,731	76,100	76,211	111

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
California Water Service Company East Los Angeles	156,185	14,144	14,144	-
Jurupa Community Service District	150,923	20,666	43,608	22,942
Escondido City Of	150,245	32,217	35,912	3,695
California Water Service Company Dominguez	148,144	33,768	33,768	-
Orange City Of	146,023	29,821	29,821	-
Vista Irrigation District	145,523	22,234	22,234	-
Palmdale Water District	132,003	21,310	26,390	5,080
Burbank City Of	131,129	31,806	31,806	-
Mesa Water District	130,063	20,256	20,256	-
Suburban Water Systems - Whittier/La Mirada	124,780	19,836	20,104	268
Western Municipal Water District Of Riverside	118,100	33,879	38,265	4,386
Golden State Water Company - West Orange	115,267	16,330	16,330	-
Downey City Of	114,047	15,532	15,532	-
Vallecitos Water District	110,484	23,627	23,627	-
West Valley Water District	110,410	27,539	31,670	4,131
Santa Monica City Of	109,243	15,102	15,508	406
Torrance City Of	108,869	24,663	36,793	12,130
East Valley Water District	108,224	22,408	25,769	3,361
California American Water Company - Los Angeles Division	104,523	19,607	19,607	-
Walnut Valley Water District	102,433	18,116	18,116	-
California American Water Company - San Diego District	101,246	10,557	11,324	767
Indio City Of	99,659	31,592	31,592	-
Ventura County Waterworks District No 08 - Simi Valley	99,437	23,676	25,423	1,747
Padre Dam Municipal Water District	98,624	16,391	16,391	-
Carlsbad Municipal Water District	98,359	22,728	22,728	-
Westminster City Of	98,153	11,683	11,683	-
California Water Service Company Hermosa/Redondo	98,087	11,055	11,055	-
Chino City Of	98,035	22,342	22,342	-
Chino Hills City Of	94,068	17,549	33,684	16,135
Inglewood City Of	89,353	11,593	12,000	407
Buena Park City Of	88,073	14,354	14,354	-
Alhambra City Of	85,432	9,918	9,918	-

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Redlands City Of	84,822	30,836	35,461	4,625
Upland City Of	84,071	23,943	23,943	-
Las Virgenes Municipal Water District	81,175	26,642	26,642	-
South Gate City Of	80,155	6,933	11,383	4,450
Desert Water Agency	79,495	41,175	41,175	-
Yorba Linda Water District	78,219	20,566	20,566	-
Compton City Of	75,157	6,685	7,580	895
Beaumont - Cherry Valley Water District	73,739	11,671	10,697	(974)
California Water Service Company Palos Verdes	71,658	18,576	18,576	-
Golden State Water Company - Florence Graham	70,852	5,531	5,531	-
Valley County Water District	69,655	4,695	6,871	2,176
Olivenhain Municipal Water District	69,530	18,079	18,079	-
Tustin City Of	67,880	10,729	10,729	-
Lynwood City Of	65,437	6,266	7,943	1,677
Newport Beach City Of	65,015	16,293	16,293	-
La Habra City Of	64,434	9,339	9,339	-
California American Water Company - Ventura District	63,980	15,451	18,559	3,108
Rialto City Of	63,738	11,236	12,922	1,686
Monte Vista Water District	61,276	11,397	11,397	-
Lakewood City Of	60,664	6,746	9,882	3,136
Rowland Water District	60,147	11,343	11,343	-
Paramount City Of	58,919	7,683	7,823	140
Golden State Water Company - Bell-Bell Gardens	58,725	5,162	5,162	-
Fountain Valley City Of	58,442	10,505	10,505	-
Huntington Park City Of	57,879	4,431	5,100	669
Golden State Water Company - Placentia	56,510	7,357	7,357	-
Yucaipa Valley Water District	56,429	9,230	52,000	42,770
Cerritos City Of	56,199	11,904	11,904	-
Thousand Oaks City Of	55,921	10,962	10,962	-
Arcadia City Of	55,548	13,144	13,144	-
Mission Springs Water District	54,414	10,874	10,874	-
Golden State Water Company - San Dimas	53,545	9,397	9,397	-
San Clemente City Of	53,145	9,709	9,709	-
Whittier City Of	52,177	7,027	7,027	-
Colton City Of	51,954	11,311	13,007	1,696
Rubidoux Community Service District	51,303	10,914	14,302	3,388
El Toro Water District	51,093	9,958	9,958	-
Poway City Of	50,960	11,723	11,723	-

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Bellflower - Somerset Mutual Water Company	50,507	6,059	6,423	364
Golden State Water Company - Simi Valley	48,056	6,921	6,921	-
Brea City Of	46,615	10,277	10,277	-
Glendora City Of	46,551	9,993	9,993	-
Pico Rivera City Of	46,251	4,417	5,644	1,227
Hawthorne City Of	45,742	4,006	4,006	-
Camarillo City Of	45,498	5,182	11,554	6,372
Banning City Of	45,235	10,911	10,911	-
Golden State Water Company - Norwalk	45,049	4,806	4,806	-
Monrovia City Of	44,950	7,095	7,095	-
Beverly Hills City Of	44,618	12,167	12,167	-
San Gabriel County Water District	40,980	6,067	6,067	-
San Dieguito Water District	39,653	7,446	7,446	-
Ventura County Waterworks District No 01 - Moorpark	38,500	11,073	12,373	1,300
Golden State Water Company - Claremont	37,933	9,410	9,410	-
Rincon Del Diablo Municipal Water District	37,032	9,353	9,353	-
Golden State Water Company - Culver City	36,922	5,672	5,672	-
Ramona Municipal Water District	36,127	4,768	4,768	-
Manhattan Beach City Of	36,051	5,277	5,277	-
South Coast Water District	35,657	7,512	7,512	-
Fallbrook Public Utility District	35,323	10,552	10,552	-
Lakeside Water District	34,466	4,830	4,889	59
Camrosa Water District	33,648	15,052	26,800	11,748
Crescenta Valley Community Water District	33,494	3,849	5,748	1,899
La Verne City Of	33,416	5,640	6,981	1,341
Los Angeles County Waterworks District 29 - Malibu & Marina Del Rey	32,897	9,308	9,308	-
Valley Center Municipal Water District	31,870	23,865	23,865	-
Hemet City Of	31,581	4,092	4,092	-
Covina City Of	29,593	4,847	4,847	-
Golden State Water Company - South San Gabriel	29,328	2,686	2,686	-
Temescal Valley Water District	29,242	9,441	10,289	848
Norco City Of	27,900	7,035	14,400	7,365
Loma Linda City Of	26,300	6,378	7,334	956
San Fernando City Of	26,075	2,942	3,570	628
Rainbow Municipal Water District	25,862	13,200	13,200	-
South Pasadena City Of	25,857	3,928	3,928	-

Water Supplier Name	Population Served	Estimated Demand	Estimated Supply	Expected Surplus or Shortage
Montebello Land And Water Company	25,772	3,385	4,379	994
Port Hueneme City Of	25,087	2,017	3,420	1,403
Seal Beach City Of	24,527	3,570	3,570	-
Riverside Highland Water Company	24,199	5,212	5,994	782
El Monte City Of	22,040	2,444	2,444	-
San Jacinto City Of	20,976	2,818	2,818	-
Lomita City Of	20,802	2,261	4,000	1,739
Quartz Hill Water District	20,492	4,373	4,373	-
Orchard Dale Water District	20,377	1,412	1,821	409
Norwalk City Of	20,339	2,178	3,694	1,516
Santa Fe Irrigation District	20,121	10,963	10,963	-
California Water Service Company Westlake	19,663	7,533	7,533	-
Laguna Beach County Water District	18,410	3,708	3,708	-
El Segundo City Of	16,511	14,334	9,940	(4,394)
La Palma City Of	15,764	2,006	2,006	-
Santa Fe Springs City Of	15,627	6,664	6,664	-
Trabuco Canyon Water District	14,612	3,488	3,488	-
Lincoln Avenue Water Company	14,127	1,878	3,633	1,755
Triunfo Sanitation District/Oak Park Water Service	13,379	2,712	2,962	250
Signal Hill City Of	12,045	1,961	4,322	2,361
Sierra Madre City Of	10,831	2,310	2,310	-
Valley Water Company	10,457	3,039	4,166	1,127
Rubio Canyon Land And Water Association	9,508	1,737	2,419	682
Crestline Village Water District	8,584	469	914	445
Lake Arrowhead Community Services District	7,817	1,381	2,302	920
East Orange County Water District	4,500	954	954	-
Running Springs Water District	4,219	360	360	-
California Water Service Company Antelope Valley	3,526	706	706	-
Vernon City Of	100	10,860	10,860	-

D.3 Municipal Supply Economic Effects Analysis

The analysis of municipal supply economic effects in Chapter 8, *Economic Analysis and Other Considerations*, examines the range of potential economic costs that could be incurred by municipalities in responding to reduced Sacramento/Delta supply. Responses are expected to vary depending on the extent of reliance on Sacramento/Delta supplies, the balance between supplies and existing demand, water sources in their existing water portfolio, ability for water transfers or exchanges, and the extent of availability and access to groundwater. Municipal water conservation and efficiency measures are among management actions all service providers could implement to meet current and future water needs. A series of three tables for each region provides details showing the range of potential costs associated with the flow scenarios. The tables are described below.

The amount of Sacramento/Delta supply was obtained from the Sacramento Water Allocation Model (SacWAM) results for existing conditions and the modeled flow scenarios. The first table shows the quantity of supply associated with demand management measures (DMM) as 10 percent of annual average existing supply in AF for each SacWAM demand node or water provider receiving export water (see Appendix A1, *Sacramento Water Allocation Model Methods and Results*, for SacWAM node descriptions). The "Lower Bound" shows the volume of replacement supply (in AF) required after DMM are implemented. The "Upper Bound" value shows the total volume of water needed to fully replace the reduction in the Sacramento/Delta water supply. Dashed horizontal lines in the tables designate that rows between the upper and lower dashed lines are the same provider with different surface water sources and are thus combined into one row.

The second table provides a series of water portfolio options along with representative unit costs (annual cost per AF). Non-zero weighting factors are provided to indicate that a portfolio option may be considered as a replacement source of supply for that provider. The values indicate relative weighting, where a higher number indicates greater potential reliance on that option in terms of water supply volume. The weighting factors were developed through review of individual UWMP documents and consideration of the California Department of Water Resources aggregated 2020 UWMP database for most of the affected water suppliers. For affected water suppliers for which UWMPs were not available, other local planning documents, such as Integrated Regional Water Management Plans and water district planning documents, were relied upon. Documents relied upon to develop the weighting factors are provided in Section D.4, *References Consulted*.

The weighting factors were developed based on review of the projected future water supply content found in these documents. The values of the weighting factors applied for each water supply category for an individual supplier were approximated based on the following.

- The relative amount of projected water supply volume anticipated to be received from any one water supply category compared with the overall projected future water supply, and
- The relative emphasis placed on any one water supply category in the future water supply discussion of the documents reviewed.

This approach was taken to ensure that the analysis did not omit any reasonably foreseeable water supply categories and to ensure that the costs were not underestimated.

The analysis uses the assumed unit costs of alternative water supplies, as well as other water supplies that are likely to be used, to estimate the monetary costs for these providers to replace

reduced Sacramento/Delta supply. The third table shows the total annual costs by flow scenario, as the product of volumes in the first table times the weighted average of the portfolio in the second table. The costs are estimated as a range representing the extent to which municipal providers may rely on demand management measures first, versus the cost of acquiring additional water supplies to fully replace the reduction in the Sacramento/Delta water supply.

D.3.1 Sacramento River Watershed

Table D-8. Sacramento River Watershed: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
Sacramento River Watershed													
	U_02_NU	500	0	0	0	0	0						
	U_02_PU	891	0	406	1,170	2,623	5,003		832	1,298	2,061	3,514	5,894
	U_02_SU	1,100	0	0	0	0	0		7	6	35	184	864
	U_03_NU	500	0	0	0	0	0						
	U_03_PU	2,300	0	0	1,674	5,991	8,188		1,453	2,290	3,974	8,291	10,488
	U_03_SU	1,100	0	0	0	0	201		59	80	178	460	1,301
	U_04_06_NU		0	0	0	0	0						
	U_05_NU		0	0	0	0	0						
	U_07_NU		0	0	0	0	0						
	U_08_NU		0	0	0	0	0						
	U_09_NU		0	0	0	0	0						
	U_10_NU1		0	0	0	0	0						
	U_10_NU2		0	0	0	0	0						
	U_11_NU1	300	0	0	0	0	0		0	0	0	2	9
	U_11_NU2		0	0	0	0	0						
	U_12_13_NU1	900	0	0	0	0	0		30	107	182	211	185
	U_12_13_NU2	480	0	0	0	0	0		0	0	0	0	0
	U_14_15N_NU	801	0	0	0	0	0		0	0	0	0	0
	U_15S_NU	1,300	0	0	0	0	0						
	U_16_NU	1,000	0	0	0	0	0						
	U_16_PU	1,600	0	0	0	0	0		0	0	3	3	44
	U_17_NU	80	0	0	0	0	0						
	U_18_19_NU	70	0	0	0	0	0						
	U_20_25_NU	4,001	0	0	0	0	0						
	U_20_25_PU	1,821	0	0	0	0	0		1,015	2,300	3,899	5,768	7,648
	U_20_25_SU												

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
Sacramento River Watershed													
	U_21_NU	29	0	0	0	0	0						
	U_21_PU	1,500	0	0	0	0	0		1,730	2,513	4,116	6,100	10,107
	U_22_NU		0	0	0	0	0						
	U_23_NU		0	0	0	0	0						
	U_24_NU1	1,000	0	0	0	0	0		1,289	2,524	4,212	5,556	5,790
	U_24_NU2	4,100	0	0	0	0	0		2,330	4,932	9,804	16,158	17,723
	U_26_NU1	6,600	0	0	0	0	0						
	U_26_NU2	1,100	0	0	0	0	0		0	0	0	0	66
	U_26_NU3	12,599	0	0	0	0	0		0	0	0	0	784
	U_26_NU4	3,000	0	0	0	0	0						
	U_26_NU5	300	0	0	0	0	0		0	0	0	0	0
	U_26_NU6	100	0	0	0	0	0		0	0	0	0	12
	U_26_PU1	3,300	0	0	0	0	0		0	0	0	1,733	1,946
	U_26_PU2	5,100	0	0	0	0	0						
	U_26_PU3	2,500	0	0	0	1,269	4,039		3,625	7,604	14,345	19,374	22,144
	U_26_PU4	4,200	0	0	0	0	0		1,441	2,303	3,022	4,869	8,287
	U_26_PU5	1,799	0	0	0	0	0		1,533	3,041	5,346	7,009	7,947
	U_CLLPT_NU	1,063	0	0	0	0	0		234	355	417	492	400
	U_ELDID_NU1_NU2	2,761	0	0	0	0	0						
	U_ELDID_NU3	732	0	0	0	0	0		0	33	176	2,058	1,254
	U_GDPUD_NU	240	0	0	0	0	0						
	U_NIDBR_NU	76	0	0	0	0	0		1	2	5	15	46
	U_NIDDC_NU	906	0	0	0	0	0		44	111	234	373	473
	U_PCWA3_NU	892	0	0	0	0	0		2	3	4	4	45

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-9. Sacramento River Watershed: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Sacramento River Watershed																
	U_02_NU	1														
	U_02_PU	1														
	U_02_SU	1														
	U_03_NU															
	U_03_PU	1														
	U_03_SU	1														
	U_04_06_NU															
	U_05_NU															
	U_07_NU															
	U_08_NU															
	U_09_NU															
	U_10_NU1															
	U_10_NU2															
	U_11_NU1	1														
	U_11_NU2															
	U_12_13_NU1	1														
	U_12_13_NU2	1														
	U_14_15N_NU	1														
	U_15S_NU															
	U_16_NU															
	U_16_PU	1														
	U_17_NU															
	U_18_19_NU															
	U_20_25_NU															
	U_20_25_PU	1							1							
	U_20_25_SU	1														

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Sacramento River Watershed																
	U_21_NU	1														
	U_21_PU	1														
	U_22_NU	1														
	U_23_NU	1														
	U_24_NU1		10										1			
	U_24_NU2		1													
	U_26_NU1	1														
	U_26_NU2		1													
	U_26_NU3	1	1													
	U_26_NU4		1													
	U_26_NU5		1													
	U_26_NU6		1													
	U_26_PU1						1									
	U_26_PU2		1													
	U_26_PU3		1													
	U_26_PU4		1													
	U_26_PU5		1													
	U_CLLPT_NU		1													
	U_ELDID_NU1_NU2		1													
	U_ELDID_NU3		1													
	U_GDPUD_NU		1													
	U_NIDBR_NU		1													
	U_NIDDC_NU		1													
	U_PCWA3_NU		1													

GW = groundwater

Table D-10. Sacramento River Watershed: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
Sacramento River Watershed											
	U_02_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_02_PU	$0	$30,450	$87,750	$196,725	$375,225	$62,400	$97,350	$154,575	$263,550	$442,050
	U_02_SU	$0	$0	$0	$0	$0	$525	$450	$2,625	$13,800	$64,800
	U_03_NU										
	U_03_PU	$0	$0	$125,550	$449,325	$614,100	$108,975	$171,750	$298,050	$621,825	$786,600
	U_03_SU	$0	$0	$0	$0	$15,075	$4,425	$6,000	$13,350	$34,500	$97,575
	U_04_06_NU										
	U_05_NU										
	U_07_NU										
	U_08_NU										
	U_09_NU										
	U_10_NU1										
	U_10_NU2										
	U_11_NU1	$0	$0	$0	$0	$0	$0	$0	$0	$150	$675
	U_11_NU2										
	U_12_13_NU1	$0	$0	$0	$0	$0	$2,250	$8,025	$13,650	$15,825	$13,875
	U_12_13_NU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_14_15N_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_15S_NU										
	U_16_NU										
	U_16_PU	$0	$0	$0	$0	$0	$0	$0	$225	$225	$3,300
	U_17_NU										
	U_18_19_NU										
	U_20_25_NU										
	U_20_25_PU	$0	$0	$0	$0	$0	$291,813	$661,250	$1,120,963	$1,658,300	$2,198,800
	U_20_25_SU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
Sacramento River Watershed											
	U_21_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_21_PU	$0	$0	$0	$0	$0	$129,750	$188,475	$308,700	$457,500	$758,025
	U_22_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_23_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_24_NU1	$0	$0	$0	$0	$0	$281,236	$550,691	$918,982	$1,212,218	$1,263,273
	U_24_NU2	$0	$0	$0	$0	$0	$116,500	$246,600	$490,200	$807,900	$886,150
	U_26_NU1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_26_NU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,300
	U_26_NU3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$49,000
	U_26_NU4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_26_NU5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_26_NU6	$0	$0	$0	$0	$0	$0	$0	$0	$0	$600
	U_26_PU1	$0	$0	$0	$0	$0	$0	$0	$0	$693,200	$778,400
	U_26_PU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_26_PU3	$0	$0	$0	$63,450	$201,950	$181,250	$380,200	$717,250	$968,700	$1,107,200
	U_26_PU4	$0	$0	$0	$0	$0	$72,050	$115,150	$151,100	$243,450	$414,350
	U_26_PU5	$0	$0	$0	$0	$0	$76,650	$152,050	$267,300	$350,450	$397,350
	U_CLLPT_NU	$0	$0	$0	$0	$0	$11,700	$17,750	$20,850	$24,600	$20,000
	U_ELDID_NU1_NU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_ELDID_NU3	$0	$0	$0	$0	$0	$0	$1,650	$8,800	$102,900	$62,700
	U_GDPUD_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_NIDBR_NU	$0	$0	$0	$0	$0	$50	$100	$250	$750	$2,300
	U_NIDDC_NU	$0	$0	$0	$0	$0	$2,200	$5,550	$11,700	$18,650	$23,650
	U_PCWA3_NU	$0	$0	$0	$0	$0	$100	$150	$200	$200	$2,250
		$0	**$30,000**	**$213,000**	**$710,000**	**$1,206,000**	**$1,342,000**	**$2,603,000**	**$4,499,000**	**$7,489,000**	**$9,376,000**

DMM = demand management measures; UF = unimpaired flow

D.3.2 Delta Eastside Tributaries

Table D-11. Delta Eastside Tributaries, Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first					Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed					Replacement Water Supply (AF) Needed				
Delta Eastside Tributaries												
	U_60N_NU1	2,200	0	0	0	0	0	123	153	284	594	866
	U_60N_NU2	190	0	0	0	0	0	17	23	37	63	72
	U_60N_PU	1,700	1,175	4,295	8,166	11,052	13,217	2,874	5,994	9,866	12,752	14,916
	U_60S_NU1	6,800	0	0	0	0	0	5,253	5,869	6,337	9,863	12,328
	U_60S_NU2		0	0	0	0	0	0	0	0	0	0
	U_AMADR_NU	905	0	0	0	0	0	0	0	0	1	18
	U_CaCWD_NU	20	0	0	0	0	0	0	0	0	0	0
	U_CaPUD_NU	197	0	0	0	0	0	0	0	0	0	3
	U_JLIND_NU	201	0	0	0	0	87	34	57	58	117	287

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-12. Delta Eastside Tributaries: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Delta Eastside Tributaries																
	U_60N_NU1		1										1			
	U_60N_NU2		1													
	U_60N_PU		1													
	U_60S_NU1		1							1						
	U_60S_NU2		1													
	U_AMADR_NU		1													
	U_CaCWD_NU													1		
	U_CaPUD_NU													1		
	U_JLIND_NU									1						

GW = groundwater

Table D-13. Delta Eastside Tributaries: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
Delta Eastside Tributaries											
	U_60N_NU1	$0	$0	$0	$0	$0	$119,925	$149,175	$276,900	$579,150	$844,350
	U_60N_NU2	$0	$0	$0	$0	$0	$850	$1,150	$1,850	$3,150	$3,600
	U_60N_PU	$58,750	$214,750	$408,300	$552,600	$660,850	$143,700	$299,700	$493,300	$637,600	$745,800
	U_60S_NU1	$0	$0	$0	$0	$0	$1,444,575	$1,613,975	$1,742,675	$2,712,325	$3,390,200
	U_60S_NU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_AMADR_NU	$0	$0	$0	$0	$0	$0	$0	$0	$50	$900
	U_CaCWD_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_CaPUD_NU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,730
	U_JLIND_NU	$0	$0	$0	$0	$43,500	$17,000	$28,500	$29,000	$58,500	$143,500
		$59,000	**$215,000**	**$408,000**	**$553,000**	**$704,000**	**$1,726,000**	**$2,093,000**	**$2,544,000**	**$3,991,000**	**$5,137,000**

DMM = demand management measures; UF = unimpaired flow

D.3.3 Delta

Table D-14. Delta: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first					Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed					Replacement Water Supply (AF) Needed				
Delta												
	U_ANTOC_NU	1,023	0	0	0	0	0	0	0	72	27	1,249
	Tracy, City of (inc Banta-Carbona & West Side ID)	814	0	0	0	0	0	0	116	509	2,118	3,219

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-15. Delta: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Delta																
	U_ANTOC_NU								1							
	Tracy, City of (inc Banta-Carbona & West Side ID)							1		1						

GW = groundwater

Table D-16. Delta: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)						**Upper Bound Costs (*No Use of Reserve Supplies*)**				
		35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
Delta												
	U_ANTOC_NU	$0	$0	$0	$0	$0		$0	$0	$36,000	$13,500	$624,500
	Tracy, City of (inc Banta-Carbona & West Side ID)	$0	$0	$0	$0	$0		$0	$88,160	$386,840	$1,609,680	$2,446,440
		$0	**$0**	**$0**	**$0**	**$0**		**$0**	**$88,000**	**$423,000**	**$1,623,000**	**$3,071,000**

DMM = demand management measures; UF = unimpaired flow

D.3.4 San Francisco Bay Area

Table D-17. San Francisco Bay Area: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
San Francisco Bay Area													
	U_BNCIA_PU	992	0	0	0	0	0		196	558	955	1,670	2,376
	U_BNCIA_SU												
	U_CCWD_NU	13,815	0	0	0	0	0		0	0	21	63	63
	U_CSPS_NU	99	142	274	443	619	834		241	374	542	718	933
	U_EBMUD_NU	21,125	0	8,058	37,854	70,239	96,246		46,638	66,167	95,963	128,348	154,355
	U_FRFLD_PU	2,176	0	0	0	0	0		957	2,404	4,163	6,645	9,035
	U_FRFLD_SU												
	U_NAPA_PU	2,556	0	0	0	0	0		2,139	5,449	9,261	13,245	19,090
	U_SUISN_NU	495	0	562	1,485	2,179	3,103		1,492	2,149	3,072	3,767	4,691
	U_TRAFB_PU	113	0	87	240	369	678		51	200	354	482	791
	U_VLLJO_PU	1,860	0	0	542	2,540	4,737		2,763	4,517	6,608	8,607	10,804
	Alameda County FC&WCD, Zone 7	5,112	0	0	0	0	0		2,127	8,275	14,274	16,990	18,553
	Alameda County WD	2,667	0	0	0	0	0		1,095	4,265	7,396	8,814	9,655
	Santa Clara Valley WD	16,858	0	0	0	0	0		2,543	12,288	25,952	51,976	68,442
	Santa Clara Valley WD - M&I												

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-18. San Francisco Bay Area: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
San Francisco Bay Area																
	U_BNCIA_PU								1							
	U_BNCIA_SU								1							
	U_CCWD_NU				1				1							
	U_CSPS_NU								1							
	U_EBMUD_NU	1			2				10				2		2	
	U_FRFLD_PU								1							
	U_FRFLD_SU								1							
	U_NAPA_PU				3				3				1			
	U_SUISN_NU								1							
	U_TRAFB_PU								1							
	U_VLLJO_PU								1							
	Alameda County FC&WCD, Zone 7								1							
	Alameda County WD						1		1							
	Santa Clara Valley WD					1		1	1				3	3	1	
	Santa Clara Valley WD - M&I					1		1	1				3	3	1	

GW = groundwater

Table D-19. San Francisco Bay Area: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					**Upper Bound Costs (*No Use of Reserve Supplies*)**				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
San Francisco Bay Area											
	U_BNCIA_PU	$0	$0	$0	$0	$0	$98,000	$279,000	$477,500	$835,000	$1,188,000
	U_BNCIA_SU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_CCWD_NU	$0	$0	$0	$0	$0	$0	$0	$10,500	$31,500	$31,500
	U_CSPS_NU	$71,000	$137,000	$221,500	$309,500	$417,000	$120,500	$187,000	$271,000	$359,000	$466,500
	U_EBMUD_NU	$0	$6,567,270	$30,851,010	$57,244,785	$78,440,490	$38,009,970	$53,926,105	$78,209,845	$104,603,620	$125,799,325
	U_FRFLD_PU	$0	$0	$0	$0	$0	$478,500	$1,202,000	$2,081,500	$3,322,500	$4,517,500
	U_FRFLD_SU	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_NAPA_PU	$0	$0	$0	$0	$0	$1,497,300	$3,814,300	$6,482,700	$9,271,500	$13,363,000
	U_SUISN_NU	$0	$281,000	$742,500	$1,089,500	$1,551,500	$746,000	$1,074,500	$1,536,000	$1,883,500	$2,345,500
	U_TRAFB_PU	$0	$43,500	$120,000	$184,500	$339,000	$25,500	$100,000	$177,000	$241,000	$395,500
	U_VLLJO_PU	$0	$0	$271,000	$1,270,000	$2,368,500	$1,381,500	$2,258,500	$3,304,000	$4,303,500	$5,402,000
	Alameda County FC&WCD, Zone 7	$0	$0	$0	$0	$0	$1,063,500	$4,137,500	$7,137,000	$8,495,000	$9,276,500
	Alameda County WD	$0	$0	$0	$0	$0	$492,750	$1,919,250	$3,328,200	$3,966,300	$4,344,750
	Santa Clara Valley WD	$0	$0	$0	$0	$0	$5,070,742	$24,502,272	$51,748,288	$103,640,144	$136,473,348
	Santa Clara Valley WD - M&I	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		$71,000	**$7,029,000**	**$32,206,000**	**$60,098,000**	**$83,116,000**	**$48,984,000**	**$93,400,000**	**$154,764,000**	**$240,953,000**	**$303,603,000**

DMM = demand management measures; UF = unimpaired flow

D.3.5 San Joaquin Valley

Table D-20. San Joaquin Valley: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
San Joaquin Valley													
	U_61N_NU1	2,100	0	0	0	0	0		0	0	0	0	0
	U_61N_NU2	500	0	0	0	0	0		0	0	0	0	0
	Kern County WA	8,542	0	0	0	0	0		3,722	11,074	21,621	30,934	43,726
	Avenal, City of	283	0	0	0	580	1,014		1	70	241	864	1,297
	Coalinga, City of	810	0	0	0	1,658	2,898		3	199	687	2,468	3,707
	Huron, City of	243	0	0	0	498	869		1	60	206	740	1,112

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-21. San Joaquin Valley: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
San Joaquin Valley																
	U_61N_NU1									1						
	U_61N_NU2									1						
	Kern County WA						1			1						
	Avenal, City of									1						
	Coalinga, City of									1						
	Huron, City of									1						

GW = groundwater

Table D-22. San Joaquin Valley: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
San Joaquin Valley											
	U_61N_NU1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	U_61N_NU2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Kern County WA	$0	$0	$0	$0	$0	$1,674,900	$4,983,300	$9,729,450	$13,920,300	$19,676,700
	Avenal, City of	$0	$0	$0	$290,000	$507,000	$500	$35,000	$120,500	$432,000	$648,500
	Coalinga, City of	$0	$0	$0	$829,000	$1,449,000	$1,500	$99,500	$343,500	$1,234,000	$1,853,500
	Huron, City of	$0	$0	$0	$249,000	$434,500	$500	$30,000	$103,000	$370,000	$556,000
		$0	**$0**	**$0**	**$1,368,000**	**$2,391,000**	**$1,677,000**	**$5,148,000**	**$10,296,000**	**$15,956,000**	**$22,735,000**

DMM = demand management measures; UF = unimpaired flow

D.3.6 Central Coast

Table D-23. Central Coast: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
Central Coast													
	San Benito County WD - M&I	448	0	0	0	881	1,496		0	98	363	1,330	1,944
	San Luis Obispo County	1,559	0	854	2,775	4,477	6,650		793	2,413	4,335	6,036	8,210
	Santa Barbara County FC&WCD	2,837	0	1,554	5,050	8,146	12,100		1,442	4,391	7,887	10,983	14,937

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-24. Central Coast: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Central Coast																
	San Benito County WD - M&I								1							
	San Luis Obispo County			1							1					
	Santa Barbara County FC&WCD			1							1		1			1

GW = groundwater

Table D-25. Central Coast: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
Central Coast											
	San Benito County WD - M&I	$0	$0	$0	$440,500	$748,000	$0	$49,000	$181,500	$665,000	$972,000
	San Luis Obispo County	$0	$384,300	$1,248,750	$2,014,650	$2,992,500	$356,850	$1,085,850	$1,950,750	$2,716,200	$3,694,500
	Santa Barbara County FC&WCD	$0	$2,432,010	$7,903,250	$12,748,490	$18,936,500	$2,256,730	$6,871,915	$12,343,155	$17,188,395	$23,376,405
		$0	**$2,816,000**	**$9,152,000**	**$15,204,000**	**$22,677,000**	**$2,614,000**	**$8,007,000**	**$14,475,000**	**$20,570,000**	**$28,043,000**

DMM = demand management measures; UF = unimpaired flow

D.3.7 Southern California

Table D-26. Southern California: Replacement Water Supply Needed, Lower and Upper Bound (acre-feet)

			Lower Bound - DMM first						Upper Bound - Replace all supply reduction				
		DMM	35% UF	45% UF	55% UF	65% UF	75% UF		35% UF	45% UF	55% UF	65% UF	75% UF
		Upper Limit (AF) from Conserv.	Replacement Water Supply (AF) Needed						Replacement Water Supply (AF) Needed				
Southern California													
	Antelope Valley-East Kern WA	8,882	0	0	0	0	5,327		4,909	13,803	24,842	35,589	48,929
	Castaic Lake WA	5,413	0	0	0	0	0		2,975	6,703	13,573	20,442	29,419
	Coachella Valley WD	8,703	0	0	1,156	11,702	24,817		4,809	13,435	24,258	34,804	47,919
	Crestline-Lake Arrowhead WA	364	0	200	652	1,092	1,636		201	569	1,021	1,460	2,005
	Desert WA	3,559	0	0	2,594	6,979	12,535		1,963	5,107	9,566	13,952	19,507
	Littlerock Creek ID	144	0	81	261	435	651		80	226	405	579	795
	Mojave WA	5,194	0	0	0	0	0		2,871	8,123	14,574	20,849	28,626
	Southern California	122,489	0	0	0	0	0		67,521	172,475	326,187	477,735	670,555
	Palmdale WD	1,336	0	0	0	0	0		739	2,090	3,749	5,363	7,364
	San Bernardino Valley MWD	6,436	0	3,629	11,623	19,399	29,034		3,558	10,065	18,060	25,835	35,471
	San Gabriel Valley MWD	1,807	0	0	1,163	3,345	6,050		999	2,825	5,069	7,252	9,957
	San Gorgonio Pass WA	1,085	0	612	1,960	3,271	4,896		600	1,697	3,045	4,356	5,981
	Ventura County FCD	1,255	0	707	2,266	3,781	5,660		694	1,962	3,520	5,036	6,914

AF = acre-feet; DMM = demand management measures; UF = unimpaired flow

Table D-27. Southern California: Cost Analysis – Water Supply Source Type and Unit Cost by Relative Weighting

		Cost Analysis - Source Type and Unit Costs														
		$75	$50	$400	$500	$2,000	$400	$1,020	$500	$500	$500	$750	$1,900	$2,910	$1,990	$3,460
		GW -Sac	GW-AmR	GW - S. Cal	Surface - Large	Surface - Small	GW Storage & Recovery (GSR)	GSR - Wastewater	Transfer - SF Bay Area	Transfer - SJV	Transfer - Central Coast	Transfer - So. Cal	Recycled - Nonpotable	Recycled - Ind. Potable	Desal - Brackish	Desal - Seawater
Southern California																
	Antelope Valley-East Kern WA						1					1				
	Castaic Lake WA						1					1		1		
	Coachella Valley WD			2										1		
	Crestline-Lake Arrowhead WA			1								1				
	Desert WA			1								1				
	Littlerock Creek ID											1				
	Mojave WA						1									
	Southern California			1		1		2				5	2			1
	Palmdale WD						1					1		1		
	San Bernardino Valley MWD			1				1				1	1			
	San Gabriel Valley MWD			2									1			
	San Gorgonio Pass WA											1				
	Ventura County FCD											1	1			

GW = groundwater

Table D-28. Southern California: Range of Costs to Replace Reduced Sacramento/Delta Supply, Lower Bound and Upper Bound

		Lower Bound Costs (*DMM Used First*)					Upper Bound Costs (*No Use of Reserve Supplies*)				
		35% UF	45% UF	55% UF	65% UF	75% UF	35% UF	45% UF	55% UF	65% UF	75% UF
Southern California											
	Antelope Valley-East Kern WA	$0	$0	$0	$0	$3,063,025	$2,822,675	$7,936,725	$14,284,150	$20,463,675	$28,134,175
	Castaic Lake WA	$0	$0	$0	$0	$0	$4,026,167	$9,071,393	$18,368,793	$27,664,840	$39,813,713
	Coachella Valley WD	$0	$0	$1,429,587	$14,471,473	$30,690,357	$5,947,130	$16,614,617	$29,999,060	$43,040,947	$59,259,830
	Crestline-Lake Arrowhead WA	$0	$115,000	$374,900	$627,900	$940,700	$115,575	$327,175	$587,075	$839,500	$1,152,875
	Desert WA	$0	$0	$1,491,550	$4,012,925	$7,207,625	$1,128,725	$2,936,525	$5,500,450	$8,022,400	$11,216,525
	Littlerock Creek ID	$0	$60,750	$195,750	$326,250	$488,250	$60,000	$169,500	$303,750	$434,250	$596,250
	Mojave WA	$0	$0	$0	$0	$0	$1,148,400	$3,249,200	$5,829,600	$8,339,600	$11,450,400
	Southern California	$0	$0	$0	$0	$0	$86,933,288	$222,061,563	$419,965,763	$615,083,813	$863,339,563
	Palmdale WD	$0	$0	$0	$0	$0	$1,000,113	$2,828,467	$5,073,647	$7,257,927	$9,965,947
	San Bernardino Valley MWD	$0	$3,692,508	$11,826,403	$19,738,483	$29,542,095	$3,620,265	$10,241,138	$18,376,050	$26,287,113	$36,091,743
	San Gabriel Valley MWD	$0	$0	$1,046,700	$3,010,500	$5,445,000	$899,100	$2,542,500	$4,562,100	$6,526,800	$8,961,300
	San Gorgonio Pass WA	$0	$459,000	$1,470,000	$2,453,250	$3,672,000	$450,000	$1,272,750	$2,283,750	$3,267,000	$4,485,750
	Ventura County FCD	$0	$936,775	$3,002,450	$5,009,825	$7,499,500	$919,550	$2,599,650	$4,664,000	$6,672,700	$9,161,050
		$0	**$5,264,000**	**$20,837,000**	**$49,651,000**	**$88,549,000**	**$109,071,000**	**$281,851,000**	**$529,798,000**	**$773,901,000**	**$1,083,629,000**

DMM = demand management measures; UF = unimpaired flow

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