

**EAST BAY M.U.D.**

Contractor ID: 201717

American River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:32 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1993 normal	150,000*	0	0	371,000	Mokelumne	0	0	0	0		0	371,000
1994 dry	150,000*	0	0	176,000	Mokelumne	0	0	0	0		0	176,000
1995 critical	150,000*	0	0	129,000	Mokelumne	0	0	0	0		0	129,000
2023 normal	150,000*	150,000	0	364,000	Mokelumne	0	0	0	0		0	514,000
2024 dry	150,000*	112,500	0	100,000	Mokelumne	0	0	0	0		0	212,500
2025 critical	150,000*	112,500	0	80,000	Mokelumne	0	0	0	0		0	192,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1993												
1994												
1995												
2023												
2024												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instiit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1993	1,200,000	95.2	128,000	28,000	43,150	71,150	25,600	177.0	167.2	224,750	224,750	-146,250
1994	1,200,000	71.4	96,000	21,000	32,363	53,363	19,200	177.0	125.4	168,563	168,563	-7,437
1995	1,200,000	71.4	96,000	21,000	32,363	53,363	19,200	177.0	125.4	168,563	168,563	39,563
2023	1,317,000	95.9	141,500	34,200	53,800	88,000	28,200	169.0	174.7	257,700	257,700	-256,300
2024	1,317,000	86.4	127,400	30,800	48,400	79,200	25,400	169.0	157.3	232,000	232,000	19,500
2025	1,317,000	71.9	106,100	25,700	40,300	66,000	21,100	169.0	131.0	193,200	193,200	700

\* Represents Maximum Contract Amount

**Notes:** 1 in 20 yr demand for 150 TAF when Mokelumne R System off-line for repairs in wet year. Possible future normal yr need for conjunctive use. CVP dry/critical yr supplies reduced by 25%; EBMUD dry/critical yr demands reduced by 10% and 25%, respectively.

**EL DORADO ID**

Contractor ID: 201780

American River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:37 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1992 Repres Year	18,304	19,305	0	20,078	Consumn/PG &E	244	2,116	50	1,905		0	39,466
1995	30,550	23,959	0	19,055	Consumn/PG &E	0	0	0	0		0	43,014
2025	30,550	15,050	0	59,134		1,800	0	0	0		0	75,984

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 23,608

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1992	15,322	42	8,466	4,251	16,246	11,808	5,025	4,723	3.23	2.50	7,261	23,507
1995	14,905	75	4,008	4,297	14,529	10,980	5,139	4,774	2.83	2.30	1,360	15,889
2025	27,246	85	8,432	8,432	22,134	22,134	10,540	10,540	2.10	2.10	2,332	24,466

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instiit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1992	78,140	110.6	9,677	267	3,567	3,834	2,441	274.0	182.3	15,952	39,459	-7
1995	85,000	190.0	18,094	207	4,610	4,817	4,214	274.0	284.9	27,125	43,014	0
2025	177,802	170.1	33,870	0	7,903	7,903	7,484	257.0	247.3	49,257	73,723	-2,261

\* Represents Maximum Contract Amount

**Notes:** El Dorado - 3 contracts including Sly Park for Historic use. Title to Sly Park has been transferred to El Dorado and will show up as a local supply in future years. Unaccounted beneficial use is added to distribution system loss and shown as Distribution system loss. In 2025, BOR supply includes 7,500 AF (Fazio Water), local supply include 17 TAF in new project supply, 700 from Crawford Ditch, 15,080 from south fork 154 from Strawberry and Outingale, 23,000 AF covering to local supply through the title transfer of Sly Park facility and 2,400 AF from other rights. Uses 2025 SACOG population projects for El Dorado minus Pilot Hill and Georgetown area. 2025 Industrial demand included under Commercial and Institutional.

**FORESTHILL P.U.D.**

# Water Needs Assessment

Contractor ID: 201720

American River

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:37 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1997	2,800 *	723	0	152	Mill Creek	0	0	0	0		0	875
2025	2,800 *	2,800 *	0	117	Mill Creek	0	0	0	0		0	2,917
2026	2,800 *	2,800 *	0	117	Mill Creek	0	0	0	0		0	2,917
2027	2,800 *	2,800 *	0	117	Mill Creek	0	0	0	0		0	2,917

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,841

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1997												
2025												
2026												
2027												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1997	5,300	112.0	665	5	149	154	32	274.0	143.3	851	851	-24
2025	15,000	112.0	1,882	100	436	536	91	257.0	149.3	2,509	2,509	-408
2026	13,000	112.0	1,631	100	436	536	91	0.0	155.1	2,258	2,258	-659
2027	28,000	80.5	2,526	100	436	536	91	0.0	100.5	3,153	3,153	236

\* Represents Maximum Contract Amount

**Notes:** As stated in data submittal, no ag demand assumed. 2025 and 2026 contain the high and low population estimates (15,000 and 13,000) as proposed in the Draft Foresthill Divide Community Plan dated June, 2001. 2027 is based on the population estimate of 28,000 contained in the existing Community Plan..

**PLACER COUNTY WATER AGEN**

**Water Needs Assessment**

Contractor ID: 201755

American River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:37 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1999	117,000 *	0	0	114,400	Amer/Yuba/Be ar	0	10,000	0	0		0	104,400
2025	117,000 *	35,000	0	220,400	American River	0	64,000	0	0		0	191,400
2040	117,000 *	35,000	0	220,400	American River	0	64,000	0	0		0	191,400
2041	117,000 *	35,000	0	220,400	American River	0	64,000	0	0		0	191,400

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 13,650

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1999	36,153	53	3,708	1,854	61,217	63,963	9,270	9,270	6.60	6.90	17,895	79,112
2025	55,818	80	4,784	4,784	63,792	63,792	15,948	15,948	4.00	4.00	17,895	81,687
2040	55,818	80	4,784		63,793		15,948		4.00		17,895	81,688
2041	55,818	80	4,784		63,793						17,895	81,688

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1999	65,990	208.7	15,426	998	4,226	5,224	3,347	274.0	324.6	23,997	103,109	-1,291
2025	199,569	203.5	45,500	10,000	14,000	24,000	5,000	257.0	333.3	74,500	156,187	-35,213
2040	268,594	204.2	61,425	13,500	18,900	32,400	6,750	257.0	334.3	100,575	182,263	-9,138
2041	310,922	204.3	71,136	15,600	21,840	37,440	7,800	257.0	334.1	116,376	198,064	6,664

\* Represents Maximum Contract Amount

**Notes:** Demands are just for PCWA Zones 1 & 5. San Juan and Northridge are shown as transfers out in 2025, 2040 and 2041. In 2040 projects a 2% growth rate and 2041 projects a 3% growth rate based on 2025 population projection. Environmental water needs are reflected in conveyance losses and estimated to be 720 ac-ft. Ag. Demands are held constant for future years.

ROSEVILLE, CITY OF

Contractor ID: 201752

American River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1995	32,000	19,800	0	0		0	0	0	0		0	19,800
2025	32,000	32,000	0	0	PCWA>*	13,000	0	6,500	0		0	51,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1995												
2025												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1995	59,804	206.7	13,844	1,275	3,097	4,372	1,584	274.0	295.6	19,800	19,800	0
2025	120,000	206.7	27,779	6,566	16,163	22,729	4,392	257.0	408.4	54,900	54,900	3,400

\* Represents Maximum Contract Amount

**Notes:** \*2025 Year local source includes 10,000 AF from PCWA and 3,000 AF of Recycled water. The city has an option agreement with PCWA for an additional 20,000 AF of PCWA water, but availability of this supply is subject to State Board and Reclamation approval and is subject to early termination for any reason by PCWA.

**SACRAMENTO CO. WA**

**Water Needs Assessment**

Contractor ID: 201740

American River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1995	0	0	0	12,747	FlsmWtrRght	1,200	0	8,578	0		0	22,525
1996 WC Plan	0	0	0	13,605	FlsmWtrRght	1,146	49	13,583	0		0	28,285
2025	0	22,000	0	27,000	WtrRght/ACW S Agreement	30,000	5,600	34,792	0		14,893	93,299

**Contractor's Agricultural Water Demands**

Maximum Productive Acres:

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995												
1996												
2025												

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995	61,510	222.0	15,298	4,042	3,095	7,137	986	274.0	339.9	23,421	23,421	896
1996	65,529	284.6	20,893	4,246	1,991	6,237	1,311	274.0	387.5	28,441	28,441	156
2025	411,815	137.9	63,605	9,200	17,076	26,276	3,673	257.0	202.8	93,554	93,554	255

\* Represents Maximum Contract Amount

**Notes:** 1995/96 transfer in is from Browns Valley I.D. Includes Folsom supplies/demands since Folsom will be a BOR subcontractor (7 TAF). 2025 transfer in is 30TAF from SMUD; transfer out is to Aerojet. 2025 system loss reflects 1/2 wtr forum conserv.

**SACRAMENTO MUD**

Contractor ID: 201741

American River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	60,000*	2,959	0	17,008	wtrrght/Sacto	0	0	0	0		0	19,967
2025	60,000*	60,000	0	18,024	wtrrght/Sacto	0	45,000	0	0		0	33,024
2040	60,000*	60,000	0	18,024		0	30,000	0	0		0	48,024

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,030

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995												
2025												
2040												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995		0	0.0	0	19,967	0	19,967	0		19,967	19,967	0
2025				0	33,942	0	33,942	0		33,942	33,942	918
2040		0	0.0	0	46,186	0	46,186	0	0.0	46,186	46,186	-1,838

\* Represents Maximum Contract Amount

**Notes:** Industrial water demand is for dilution of discharge, cooling of power plants, cogeneration & recreation at Rancho Seco. In 1995, 2025 & 2040, existing cogen plants used 3,024 AF from City of Sacramento. 2025 includes annual transfers of 45 TAF with 30 TAF to SCWA, and 15 TAF to South County Ag. Interests q. 2040 includes only annual transfers of 30 TAF to SCWA. It is anticipated that the State Board will continue to permit the place of use at Rancho Seco for 15,000 acre feet of local supply provided by agreement with the City of Sacramento through 2040..

**SAN JUAN WD**

Contractor ID: 201760

American River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deltiv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	11,200*	5,083	0	33,000	WR + PCWA	10,014		0	0		0	48,097
2025	11,200*	24,200	0	33,000	WR+PCWA	25,000	0	0	0		5,700	76,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	5,562	75	795	795	6,356	6,356	1,589	1,589	4.00	4.00		
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995	141,959	251.7	40,016	0	7,298	7,298	3,574	274.0	320.0	50,888	50,888	2,791
2025	214,234	244.3	58,616	0	11,896	11,896	6,120	257.0	319.3	76,632	76,632	132

\* Represents Maximum Contract Amount

**Notes:** The higher-than-reference-value per capita usage is justified based on large lots size. GW recharge is done in normal and wet years for use in dry years on a conjunctive use basis. Distribution losses estimated at 8% in 2025.

**BANTA-CARBONA ID**

Contractor ID: 201840

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	22,355	21,023	0	29,248	S. Joaquin	0	7,150	0	0		0	43,121
2025 Future	25,000	*	*	30,000	S. Joaquin	0	8,250	0	230		230	46,750

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 14,893

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	46,032	75	9,143	6,200	49,185	49,603	15,130	15,501	3.25	3.20	1,200	50,385
2025	44,408	85	6,200	6,200	44,950	44,950	15,500	15,500	2.90	2.90	970	45,920

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	50,385	7,264
2025							0			0	45,920	-830

\* Represents Maximum Contract Amount

**Notes:** Year 2025 includes average local supply and transfers out of 5,000 AF to the City of Tracy and 3,250 AF intra-division transfer.

**BROADVIEW WD**

Contractor ID: 201850

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	19,394	32,975	0	0		0	8,104	0	0		0	24,871
2025	27,000 *	27,000 *	0	0		0	1,900	0	0		0	25,100

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 8,725

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	20,596	75	810	2,606	26,381	23,452	8,696	8,686	3.03	2.70	360	26,741
2025	23,355	85	2,700	2,700	24,300	24,300	9,000	9,000	2.70	2.70	800	25,100

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	26,741	1,870
2025						0	0			0	25,100	0

\* Represents Maximum Contract Amount

**Notes:** In order to limit this to an assessment of ag water needs, M&I water in the amount of 20 AF is shown as transfer out in year 2025. Transfers in year 2025 limited by amount of water available.

**CENTINELLA WD**

Contractor ID: 201860

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 756

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	2,045	75	282	282	2,350	2,350	940	940	2.50	2.50		
1999	1,553	75	138	138	1,886	1,886	460	460	4.10	4.10		
2025	2,599	85	282	282	2,726	2,726	940	940	2.90	2.90		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	0	0
1999							0			0	0	0
2025							0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**COELHO FAMILY TRUST**

Contractor ID: 202130

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1999	2,080	*	2,080	1,336	0		0	0	0	1,336	0	4,752
2025	2,080	*	2,000	1,336	0		0	0	0	3,334	0	6,670

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,823

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1999	7,331	80	593	302	8,423	2,923	2,250	1,008	3.74	2.90	337	8,760
2025	6,030	85	675	675	6,300	6,300	2,250	2,250	2.80	2.80	337	6,637

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1999						0	0			0	8,760	4,008
2025						0	0			0	6,637	-33

\* Represents Maximum Contract Amount

**Notes:**

**CONTRA COSTA WD**

Contractor ID: 201820

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	123,657	133,224	0	8,000		0	0	960	2,040		0	144,224
2025	195,000 *	195,000	0	8,200	E Contra Costa ID	0	0	960	2,040		0	206,200

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 15,751

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	2,889	75	0	596	3,852	2,384	1,100	1,192	3.50	2.00	0	3,852
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989	370,000	185.1	76,706	50,000		50,000	13,666	301.0	338.7	140,372	144,224	0
2025	568,000	220.4	140,200	57,000		57,000	10,000	269.0	325.7	207,200	207,200	1,000

\* Represents Maximum Contract Amount

**Notes:** In 2025, Local supply is existing water sales agreement with East Contra Costa Irrigation District. This sale of water is available in any year. Mallard Slough water is available only when quality and hydrologic conditions are suitable. In 2025 100 acre-feet was incorporated into the Commercial and Institutional Demand section to account for agricultural deliveries at the FY 2003 level of usage.

**DEL PUERTO WD**

Contractor ID: 201890

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	11,866	128,395	0	0		0	0	0	0		0	128,395
2025	140,210 *	140,210 *	0	0		0	0	0	3,000		3,000	140,210

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 43,525

Timeframe	Crop Water Requirement	District Irrig. Efficiency	Effective Precip	Reference Effective Precip	Calculated Net Crop Water Req	USBR Net Crop Water Req	Average Irrigated Acres	Reference Irrigated Acres	Calculated FDR	USBR FDR	Conveyance Loss	Total Ag Demand
1	(acre-feet)	(%)	(acre-feet)	(acre-ft)	(acre-feet)	(acre-feet)	(acres)	(acres)	(AF/acre)	(AF/acre)	(acre-feet)	(acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1989	111,545	75	8,164	12,107	137,841	141,250	40,819	40,357	3.38	3.50	6,420	144,261
2025	131,341	85	13,425	13,425	138,725	138,725	44,750	44,750	3.10	3.10	4,010	142,735

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd	Calc Urban Per Capita Dmd	Total M&I Demand	Total Ag + M&I Dmd	Unmet Demand
	Population	Per Capita Demand	Total Demand	Industrial	Comm / Instit.	Total Demand	Unacc. / Distr.					
1	28	(gpcd)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	25	36	37	38	39
1989						0	0			0	144,261	15,866
2025						0	0			0	142,735	2,525

\* Represents Maximum Contract Amount

**Notes:** Conveyance losses estimated at 5% of surface deliveries. These losses assumed to recharge gw, limited by the amount of gw pumping.

**EAGLE FIELD WD**

Contractor ID: 201900

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:38 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,281

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	3,629	75	403	403	4,301	4,301	1,344	1,344	3.20	3.20		
1999	4,378	75	373	373	5,341	5,341	1,242	1,242	4.30	4.30		
2025	3,117	85	400	400	3,197	3,197	1,332	1,332	2.40	2.40		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	0	0
1999							0			0	0	0
2025							0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**FRESNO SLOUGH WD**

**Water Needs Assessment**

Contractor ID: 201920

Delta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dllv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

**Contractor's Agricultural Water Demands**

Maximum Productive Acres:

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	2,792	75	329	329	3,285	3,285	1,095	1,095	3.00	3.00		
1999	2,542	75	308	308	2,978	2,978	1,027	1,027	2.90	2.90		
2025	3,773	85	365	365	4,010	4,010	1,215	1,215	3.30	3.30		

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	0	0
1999						0	0			0	0	0
2025						0	0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**JAMES ID**

Contractor ID: 201950

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12		
1996 WC Plan/revised	35,300	*	35,300	0	35,116	Kings R/riprn	2,054	0	7,235	7,517		12,534	74,688
2025	35,300	*	35,300 *	0	9,700	Kings R/riprn	0	0	12,000	300		12,534	44,766

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 22,443

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1996	61,726	75	411	6,943	81,753	69,429	23,350	23,143	3.50	3.00	2,432	84,185
2025	55,775	85	6,900	6,900	57,500	57,500	23,000	23,000	2.50	2.50	2,432	59,932

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1996							0			0	84,185	9,497
2025							0			0	59,932	15,166

\* Represents Maximum Contract Amount

**Notes:** In WC Plan, convey. includes 100 AF envirn use; recharge includes 9,534 convey loss component. In 2025, local supply = 10 year avg Kings R + riparian water; same conveyance loss/recharge split assumed as in 1996.

**LAGUNA WD**

Contractor ID: 201970

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 396

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	1,131	75	129	129	1,336	1,336	431	431	3.10	3.10		
1999	1,208	75	118	118	1,454	1,454	393	393	3.70	3.70		
2025	1,752	85	120	120	1,920	1,920	400	400	4.80	4.80		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	0	0
1999							0			0	0	0
2025							0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**MERCY SPRINGS WD**

**Water Needs Assessment**

Contractor ID: 201980

Delta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	9,766	13,850	0	0		550	4,084	0	0		0	10,316
2025	7,040 *	7,040 *	0	0			0	0	0		0	7,040

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 3,042

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	7,697	75	515	755	9,576	10,571	2,345	2,517	4.08	4.20	488	10,064
2025	14,853	85	1,017	1,017	16,277	16,277	3,391	3,391	4.80	4.80	488	16,765

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	10,064	-252
2025						0	0			0	16,765	9,725

\* Represents Maximum Contract Amount

**Notes:** The contract supply was reduced in 2025 due to contract reassignment. Transfers out reduced to 0 in 2025. District has no conveyance system. Convey.losses estimated at 5% from farm convey. systems.

**ORO LOMA WD**

Contractor ID: 202010

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 973

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	4,154	75	256	256	5,197	5,197	852	852	6.10	6.10		
1999	4,514	75	301	301	5,617	5,617	1,003	1,003	5.60	5.60		
2025	4,901	85	306	306	5,406	5,406	1,020	1,020	5.30	5.30		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	0	0
1999						0	0			0	0	0
2025						0	0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**PACHECO WD-DMC**

# Water Needs Assessment

Contractor ID: 202020

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	9,384	9,362	0	4,400	CCID			0	0		0	13,762
1993 WC Plan	10,080 *	2,644	0	3,181	CCID	0	0	95	1,075		0	6,995
2025	10,080 *	10,080 *	0	4,399	CCID	0	2,849	0	0		0	11,630

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 3,964

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	8,564	75	830	1,022	10,312	8,853	4,024	3,405	2.56	2.60	1,534	11,846
1993	8,339	75	2,032	1,043	8,409	8,340	3,972	3,475	2.12	2.40	1,235	9,644
2025	10,166	85	1,215	1,215	10,530	10,530	4,050	4,050	2.60	2.60	1,100	11,630

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	11,846	-1,916
1993						0	0			0	9,644	2,649
2025						0	0			0	11,630	0

\* Represents Maximum Contract Amount

**Notes:** In 2025, 12 AF of urban water transferred out in order to limit analysis to assessment of agricultural water needs. In 2025, no gw pumping assumed because of poor water quality.

**PATTERSON WD**

Contractor ID: 202040

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989  WC Plan	13,055	20,428	0	25,483	S. Joaquin	0	2,400	535	4,000		5,000	43,046
2025	16,500 *	16,500 *	0	23,000	S. Joaquin	0	1,000	535	2,000		5,000	36,035

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 12,056

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	37,557	75	2,804	1,768	46,337	22,393	13,469	5,893	3.44	3.80	725	47,062
2025	48,680	85	4,040	4,040	52,517	52,517	13,466	13,466	3.90	3.90	725	53,242

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	47,062	4,016
2025							0			0	53,242	17,207

\* Represents Maximum Contract Amount

**Notes:** Operational spills of 5,334 AF in 1989 assumed to be from local supply and to recharge gw in the amount of 5,000 AF; the rest shown as conveyance loss. In 2025, 1000 AF M&I supply is treated as transfer out.

**PLAINVIEW WATER DISTRICT**

**Water Needs Assessment**

Contractor ID: 202050

Delta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	18,964	18,351	0	0		0	1,636	0	0		0	16,715
2025	20,600 *	20,600 *	0	0		0	12,100	0	0		0	8,500

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 5,647

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	16,449	75	2,114	2,209	19,113	18,223	5,594	5,522	3.42	3.30	0	19,113
2025	7,980	85	1,184	1,184	7,995	7,995	2,961	2,961	2.70	2.70	0	7,995

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	19,113	2,398
2025	0	0.0	0	800	0	800	0	0.0	0.0	800	8,795	295

\* Represents Maximum Contract Amount

**Notes:** Based upon the information in the 1989 WC Plan the quantity of water transferred out of the District was 1,636 acre-feet. The ten-year historic average transfer-out, however, is 3,400 acre-feet. In 2025, 800 acre-feet of the water previously transferred out of the District is included under industrial demand to match the District's present industrial use. The remaining 2,600 acre-feet from the ten-year historic average is included in the 2025 transfer out amount and is expected to be assigned to the City of Tracy along with an additional 9,500 acre-feet of M&I water based on an estimated average use of 2.5 acre-feet per acre on 3,800 acres of land expected to be incorporated into the City and detached from the District.

**RECL. DISTRICT 1606**

# Water Needs Assessment

Contractor ID: 202070

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 5

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	257	75	35	35	295	295	118	118	2.50	2.50		
1999	306	75	36	36	360	360	120	120	3.00	3.00		
2025	499	85	51	51	527	527	170	170	3.10	3.10		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	0	0
1999						0	0			0	0	0
2025						0	0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**SAN LUIS WD-DMC**

Contractor ID: 202100

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	120,261	106,092	0	0		13,038	1,864	0	10,000		0	127,266
1998 WC Plan	125,080 *	70,409	0	0		4,458	2,894	0	10,000		0	81,973
2025	125,080 *	125,080 *	0	0		0	4,894	0	5,000		0	125,186

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 50,523

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	128,994	75	9,289	13,385	159,607	129,389	44,764	44,617	3.57	2.90	442	160,049
1998	104,656	75	33,107		95,399		47,924		1.99		1,906	97,305
2025	112,883	85	13,050	13,050	117,450	117,450	43,500	43,500	2.70	2.70	1,906	119,356

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989		0	0.0	0	0	0	0	0.0	0.0	0	160,049	32,783
1998							0	0		0	97,305	15,332
2025		0	0.0	0	0	0	0	0.0	0.0	0	119,356	-5,830

\* Represents Maximum Contract Amount

**Notes:** Historic transfers out include M&I deliveries. Drainage water of 3,785 for 1989 and 2,621 for 1998 not included. In 2025, 2000 AF M&I water use included in transfers out due to increase in development of I-5 businesses.

**THE WEST SIDE ID**

**Water Needs Assessment**

Contractor ID: 202120

Delta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	7,927	7,500	0	19,823	S. Joaquin	600	0	0	0		0	27,923
2025	7,500 *	7,500 *	0	22,046	S. Joaquin	600	6,300	0	0		0	23,846

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 6,080

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	25,240	75	3,056	3,133	29,579	28,199	7,871	7,833	3.76	3.60	1,026	30,605
2025	19,965	85	2,560	2,560	20,477	20,477	6,399	6,399	3.20	3.20	1,575	22,052

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	30,605	2,682
2025							0			0	22,052	-1,794

\* Represents Maximum Contract Amount

**Notes:** transfers in = transfer + upslope drain. Transfers out for 2025 based on historical average of 1,300 acre feet plus anticipated 5,000 transfer to the City of Tracy. Conveyance losses assumed to be a 5%.

TRACY, CITY OF

Contractor ID: 202135

# Water Needs Assessment

Delta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:39 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	10,000	0	0	0		0	0	5,000	0		0	5,000
2025	10,000	10,000	0	0		32,500	0	5,000	0		0	47,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 3,962

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population 28	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
	29	30	31	32	33	34	25	36	37	38	39	
1995	46,000	242.3	12,487	0	0	0	0	301.0	242.3	12,487	12,487	7,487
2025	160,000	256.7	46,000	0	0	0	0	269.0	256.7	46,000	46,000	-1,500

\* Represents Maximum Contract Amount

**Notes:** In 2025, transfers in = 10,000 ac-ft (So. San Joaquin ID), 3,000 ac-ft (Widren), 5,000 ac-ft (Banta Carbona), 5,000 ac-ft (The West Side) and 9,500 ac-ft (Plain View). Many of these transfers are uncertain.

**TRANQUILLITY ID**

Contractor ID: 202140

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	7,825	7,825	0	20,200		0	5,975	547	0		0	22,597
1995	13,800*	3,694	0	37,973		0	5,100	853	0		4,116	33,304
2025	13,800*	13,800	0	20,200	SJR Exchange Water	0	1,000	0	2,600		2,600	33,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 8,960

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	25,015	75	2,432	2,590	30,111	25,033	8,631	8,632	3.49	2.90	2,654	32,765
1995	25,687	75	4,514	2,466	28,231	42,739	9,243	8,219	3.05	5.20	3,300	31,531
2025	24,056	85	2,781	2,781	25,029	25,029	9,270	9,270	2.70	2.70	4,200	29,229

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989		0	0.0	300	0	0	0	0.0	0.0	300	33,065	10,468
1995		0	0.0	324	0	0	0	0.0	0.0	324	31,855	-1,449
2025		0	0.0	324	0	0	0	0.0	0.0	324	29,553	-3,447

\* Represents Maximum Contract Amount

**Notes:**

**WEST STANISLAUS ID**

**Water Needs Assessment**

Contractor ID: 202180

Delta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dllv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	51,454	50,000	0	51,610	S.J. River	1,454	15,490	3,692	4,000		15,000	80,266
2025	50,000 *	50,000 *	0	45,000	S.J. River	0	3,993	3,692	5,000		15,000	84,699

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 19,768

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	66,450	75	897	7,033	87,404	60,952	23,727	23,443	3.68	2.60	2,799	90,203
2025	77,312	85	7,680	7,680	81,920	81,920	25,600	25,600	3.20	3.20	2,779	84,699

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	90,203	9,937
2025							0			0	84,699	0

\* Represents Maximum Contract Amount

**Notes:** For 1989 and 2025, majority of conveyance losses were from local supplies and used for ground-water recharge. In 2025, transfers out limited to supply available.

**WIDREN WD**

Contractor ID: 202192

Delta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1999	0	0										0
2025	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 725

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	1,925	75	227	227	2,265	2,265	755	755	3.00	3.00		
1999	1,079	75	127	127	1,269	1,269	423	423	3.00	3.00		
2025	3,302	85	251	251	3,591	3,591	835	835	4.30	4.30		

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	0	0
1999							0			0	0	0
2025							0			0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**STOCKTON-EAST WD**

Contractor ID: 203249

East Side

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1984 Representative year	0	95,097	0	22,000		0	0	27	153,132		26,000	244,256
1989	0	23,787	0	22,000		0	0	3,456	179,198		6,881	221,560
1996	12,240	95,907	0	22,000		0	0	0	134,000		26,000	225,907
2025	75,000 *	95,907	0	22,000		0	0	0	166,093		34,000	250,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 69,648

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1984	122,366	75	17,125	3,864	140,321	32,841	55,671	9,659	2.52	3.40	2,333	142,654
1989	121,189	75	17,125		138,752		54,949		2.53		837	139,589
1996	122,366	75	17,125		140,321		49,555		2.83		2,333	142,654
2025	144,554	85	20,799	20,799	145,594	145,594	51,998	51,998	2.80	2.80	2,333	147,927

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1984	225,000	126.2	31,800	4,414	11,919	16,333	314	301.0	192.2	48,447	191,101	-53,155
1989	250,000	120.2	33,651	5,392	13,041	18,433	3,866	301.0	199.8	55,950	195,539	-26,021
1996	259,300	140.1	40,703	3,887	18,712	22,599	4,236	301.0	232.5	67,538	210,192	-15,715
2025	363,445	125.1	50,940	3,560	23,872	27,432	5,313	269.0	205.6	83,685	231,612	-18,388

\* Represents Maximum Contract Amount

**Notes:** Unaccounted beneficial use it totaled with the distribution system loss. The total for both is shown under Distribution system loss.  
1995 - indicates the representative year.

**TUOLUMNE UTILITIES DISTRICT**

**Water Needs Assessment**

Contractor ID: 203242

East Side

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:40 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1995	0	0								0		0

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 0

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	t	(%)	(acre-feet)	(acre-ft)	(acre-feet)	(acre-feet)	(acres)	(acres)	(AF/acre)	(AF/acre)	(acre-feet)	(acre-feet)
1	(acre-feet)	16	17	18	19	20	21	22	23	24	25	26
1995 - 1996												

**Contractor's M&I Water Demands**

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Population	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	25	36	37	38	39
1995 - 1996							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**ALPAUGH ID**

Contractor ID: 202235

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0	0	0		0	300	19,623	0	1,370	0	19,323
2025	0	1,054	0	0		0	0	19,623	0	1,370	0	20,677

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 4,902

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	14,369	75	0	2,078	19,159	17,140	5,194	5,194	3.69	3.30	2,396	21,555
2025	21,505	85	2,198	2,198	22,714	22,714	7,327	7,327	3.10	3.10	242	22,956

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	21,555	2,232
2025						0	0			0	22,956	2,279

\* Represents Maximum Contract Amount

**Notes:** In 1989, conveyance loss includes seepage to saline areas and enviromental use. In 2025, conveyance losses assumed to be 10% of supplies; groundwater pumping limited to safe yield.

**ARVIN-EDISON WSD**

Contractor ID: 202240

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plans	0	40,687	0	0	Kern River	121,037	42,044	36,278	198,388	89,900	5,907	348,439
1996 WC Plans	163,078	233,167	0	23,336	Kern River	55,004	84,158	0	234,297	89,900	71,587	390,059
2025	164,670 *	164,670	0	0	Kern River	40,000	42,000	9,000	80,900	89,900	14,670	237,900

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 112,935

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	259,862	75	0	25,352	346,483	211,268	109,882	84,507	3.15	2.50	1,956	348,439
1996	324,690	78	30,962		376,574		129,340		2.91		13,485	390,059
2025	267,734	85	25,868	38,802	284,548	258,680	129,340	129,340	2.00	2.00	11,000	295,548

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	348,439	0
1996						0	0			0	390,059	0
2025						0	0			0	295,548	57,648

\* Represents Maximum Contract Amount

**Notes:** 1989 - no effective precip.  
2025 - 164,670 AF represents 100% Class I and 40% Class II. No normal hydrologic year supply from Kern River.

**ATWELL ISLAND WD**

Contractor ID: 202245

# Water Needs Assessment

Friant

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	0	0	0	0		0	0	0	12,982	1,250	0	12,982
2025	0	1,055	0	0		0	0	1,250	0	1,250	0	2,305

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 6,232

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	9,903	75	556	1,858	12,463	12,542	4,645	4,645	2.68	2.70	2,323	14,786
2025	12,079	85	1,793	1,793	12,101	12,101	4,482	4,482	2.70	2.70	230	12,331

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	14,786	1,804
2025						0	0			0	12,331	10,026

\* Represents Maximum Contract Amount

**Notes:** In 1989, conveyance loss includes seepage to saline area. In 2025, conveyance loss assumed to be 10% of supplies; groundwater pumping limited to safe yield

**CHOWCHILLA WD**

Contractor ID: 202640

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	57,306	0	0	Chowchilla R.	0	0	0	205,000		22,922	239,384
1996 WC Plans	138,738	174,728	0	31,345	Chowchilla R.	0	28,000	0	119,280		44,164	253,189
2025	143,000 *	143,000	0	31,345	Chowchilla R.	0	0	0	56,185		44,164	186,366

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 72.096

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	180,267	75	0	20,456	240,356	153,420	66,638	51,140	3.61	3.00	0	240,356
1996	191,346	75	15,193	25,714	234,871	192,855	63,637	64,285	3.69	3.00	13,255	248,126
2025	201,761	85	29,030	29,030	203,213	203,213	72,576	72,576	2.80	2.80	13,255	216,468

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	240,356	972
1996							0			0	248,126	-5,063
2025							0			0	216,468	30,102

\* Represents Maximum Contract Amount

**Notes:** Buchanan supply is included in USBR supply 1989- no conveyance loss indicated  
 2025 - 143,000AF represents 100% Class I, 100% Buchanan Contract, and 40% Class II; groundwater pumping= 18 TAF safe yield + 38,185 AF recharge.

**DELANO-EARLIMART ID**

# Water Needs Assessment

Contractor ID: 202300

Friant

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	99,087	0	0		6,359	2,129	0	79,937		13,698	169,556
1996 WC Plan	140,294	161,581	0	0		0	15,659	0	39,961		12,847	173,036
2025	138,600 *	138,600	0	0		0	0	0	1,100		720	138,980

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 53,215

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	141,399	80	5,063	18,535	170,420	134,377	49,699	46,337	3.43	2.90	2,109	172,529
1996	144,136	80	6,414	20,133	172,153	150,996	50,971	50,332	3.38	3.00	2,918	175,071
2025	137,370	85	20,389	20,389	137,624	137,624	50,972	50,972	2.70	2.70	2,918	140,542

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989		0	0.0	0	0	0	0	274.0	0.0	0	172,529	2,973
1996		0	0.0	0	0	0	0	274.0	0.0	0	175,071	2,035
2025						0	0			0	140,542	1,562

\* Represents Maximum Contract Amount

**Notes:** 2025 - 138,600AF represents 100% Class I and 40% Class II. GIS land class shows 7,093 productive acres but there is a large area not yet classified.

**EXETER ID**

Contractor ID: 202310

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:40 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	11,690	0	0		150	2,400	0	23,860		0	33,300
1996 WC Plan	18,547	18,520	0	0		0	6,400	0	18,540		0	30,660
2025	19,100 *	19,100	0	0		0	0	0	11,400		0	30,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 12,998

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	35,450	75	2,300	2,301	44,200	46,028	12,630	11,507	3.50	4.00	0	44,200
1996	34,190	75	2,300	2,303	42,520	46,056	12,670	11,514	3.36	4.00	100	42,620
2025	40,227	85	2,534	2,534	44,345	44,345	12,670	12,670	3.50	3.50	100	44,445

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	44,200	10,900
1996						0	0			0	42,620	11,960
2025						0	0			0	44,445	13,945

\* Represents Maximum Contract Amount

**Notes:** 1989 & 1996 Transfers Out & private pumping include 2,400 AF each to depict groundwater extraction by City of Exeter. 2025 - 19,100AF represents 100% Class I and 40% Class II.

**FRESNO ID**

Contractor ID: 202330

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1966 Combined Submitta	0	59,312	0	357,104	Kings Rvr	12,327	0	0	293,000		154,000	567,743
1990	0	37,330	0	90,000		0	0	0	0		0	127,330
1996 WC Plan	15,107	90,081	0	508,895	Kings River	7,862	0	0	295,585		156,585	745,838
2025	30,000 *	90,000	0	391,840	Kings Rvr	16,250	0	0	263,291		180,000	581,381
2026	30,000 *	60,000	0	90,000		0	0	0	0		0	150,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 149,347

Timeframe 1	Crop Water Requirement 15 (acre-feet)	District Irrig. Efficiency 16 (%)	Effective Precip 17 (acre-feet)	Reference Effective Precip 18 (acre-ft)	Calculated Net Crop Water Req 19 (acre-feet)	USBR Net Crop Water Req 20 (acre-feet)	Average Irrigated Acres 21 (acres)	Reference Irrigated Acres 22 (acres)	Calculated FDR 23 (AF/acre)	USBR FDR 24 (AF/acre)	Conveyance Loss 25 (acre-feet)	Total Ag Demand 26 (acre-feet)
1989	430,580	75	47,033	64,993	511,396	487,449	163,120	162,483	3.14	3.00	8,000	519,396
1990	405,339	75	61,183	61,183	458,874	458,874	152,958	152,958	3.00	3.00		
1996	434,096	75	65,287	63,219	491,745	458,339	163,218	158,048	3.01	2.90	8,000	499,745
2025	424,298	85	67,216	67,216	420,098	420,098	168,039	168,039	2.50	2.50	8,000	428,098
2026												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd 25 (gpcd)	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989	481,522	252.6	136,265	5,241	21,288	26,529	4,884	301.0	310.9	167,678	687,074	119,331
1990	354,202	253.4	100,530	5,241	21,288	26,529	4,884	0.0	332.6	131,943	131,943	4,613
1996	571,009	252.6	161,549	5,527	26,296	31,823	5,801	301.0	311.4	199,173	698,918	-46,920
2025	977,850	225.7	247,186	8,611	30,074	38,685	10,000	269.0	270.1	295,871	723,969	142,588
2026	633,034	226.4	160,535	8,611	30,074	38,685	6,400	269.0	290.0	205,620	205,620	55,620

\* Represents Maximum Contract Amount

**Notes:** COMBINED ANALYSIS: CITY OF FRESNO/FRESNO ID: 2025 - 90,000 AF represents 100% Class I + 40% Class II. Transfer In = reclaimed water. 124,291 AF of gw recharge assumed to be available for pumping in a normal year in addition to 139,000 AF safe yield. 1990 is for 1989 data for City of Fresno M&I population only. 2026 is for 2025 data for City of Fresno M&I population projections only.

FRESNO, COUNTY OF

# Water Needs Assessment

Contractor ID: 202325

Friant

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1995	3,000	500	0	0		0	0	0	0		0	500
2025	3,000	3,000					0		0			3,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1995												
2025											0	

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial	Comm / Instit.	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1995	0	0.0	500	0	0	0	0	0.0	0.0	500	500	0
2025	29,000	126.9	4,122	0	0	0	0	274.0	126.9	4,122	4,122	1,122

\* Represents Maximum Contract Amount

**Notes:**

**GRAVELY FORD WD**

Contractor ID: 202650

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	69	0	0		0		0	21,100		69	21,100
1995	0	9,840	0	5,000	Cottonwood Cr	0	0	0	17,020		5,472	26,388
1996	8,402	15,831	0	5,491	Cottonwood	0	0	0	0		5,472	15,850
2025	5,600 *	5,600	0	1,049	Cottonwood Cr	0	0	0	21,008		5,472	22,185

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 6,747

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	18,602	75	449		24,204		6,275		3.86		0	24,204
1995	24,440	75	1,029	3,377	31,215	23,638	7,847	8,442	3.98	2.80	1,948	33,163
1996	20,404	74	883	3,387	26,380	22,864	8,498	8,468	3.10	2.70	1,948	28,328
2025	20,662	85	3,387	3,387	20,323	20,323	8,468	8,468	2.40	2.40	1,948	22,271

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	24,204	3,104
1995							0			0	33,163	6,775
1996							0			0	28,328	12,478
2025							0			0	22,271	86

\* Represents Maximum Contract Amount

**Notes:** 2025 - 5,600 AF represents 40% Class II. Groundwater pumping assumed to be available in a normal year = 15,837 AF safe yield + 5, 171 AF or recharge.

**HILLS VALLEY ID**

Contractor ID: 202350

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	3,072	3,072	0	0		1,390	0	0	4,000	1,048	0	8,462
1996 WC Plan	3,346 *	3,517	0	0		0	465	0	7,611	1,048	0	10,663
2025	3,346 *	4,300	0	0		0	0	0	1,048	1,048	0	5,348

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 3,380

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	7,260	75	1,049	300	8,281	5,696	3,067	1,499	2.70	3.80	0	8,281
1996	9,484	84	465	1,199	10,737	14,785	3,353	3,996	3.20	3.70	0	10,737
2025	9,841	85	1,006	1,006	10,394	10,394	3,353	3,353	3.10	3.10	0	10,394

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	8,281	-181
1996						0	0			0	10,737	74
2025						0	0			0	10,394	5,046

\* Represents Maximum Contract Amount

**Notes:** 1989 - ag water demand calculated assuming USBR FDR. 2025 - CVP supply is the sum of 3,346 AF max contract amount and 954 AF subcontract through Tulare County.

**IVANHOE ID**

Contractor ID: 202370

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	9,126	0	2,850	Wutchumna	1,428	0	0	14,900		273	28,031
1996 WC Plan	12,598	12,432	0	3,578	Wutchumna	0	0	0	24,000		775	39,235
2025	10,860 *	10,860	0	3,578	Wutchumna	0	0	0	10,500		775	24,163

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	26,400	75	5,007	1,950	28,524	38,996	10,435	9,749	2.73	4.00	474	28,998
1996	30,871	75	1,498	2,106	39,164	43,181	10,514	10,532	3.72	4.10	0	39,164
2025	34,276	85	2,103	2,103	37,850	37,850	10,514	10,514	3.60	3.60	0	37,850

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	28,998	967
1996						0	0			0	39,164	-71
2025						0	0			0	37,850	13,687

\* Represents Maximum Contract Amount

**Notes:** 2025 - 10,860 AF represents 100% Class I and 40% Class II.

**KERN-TULARE WD**

Contractor ID: 202385

# Water Needs Assessment

**Friant**

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	16,552	9,230	0	15,768	Kern River	0	0	0	23,000		0	47,998
1996 WC Plan	40,000 *	2,829	0	26,922	Kern River	0	0	0	20,320		0	50,071
2025	40,000 *	40,000	0	0	Kern River	0	7,000	0	33,156		20,000	46,156

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 18,776

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	37,054	75	1,549	2,416	47,340	42,273	12,477	12,078	3.79	3.50	360	47,700
1996	43,947	81	3,284	2,226	50,201	38,955	13,700	11,130	3.66	3.50	956	51,157
2025	41,177	85	3,301	3,301	44,561	44,561	16,504	16,504	2.70	2.70	956	45,517

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	47,700	-298
1996						0	0			0	51,157	1,086
2025						0	0			0	45,517	-639

\* Represents Maximum Contract Amount

**Notes:** In 2025, groundwater pumping assumed to be available in a normal year = 18,000 AF safe yield + 15,156 AF recharge; no normal year supply is available from the Kern River; and 7000 AF of intra-divisional transfers are assumed.

**LINDMORE ID**

Contractor ID: 202440

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	35,034	0	0		0	0	204	32,171		0	67,409
1996 WC Plan	46,383	45,760	0	0		7,643	6,400	87	35,753		4,048	78,795
2025	41,800 *	41,800	0	0		0	0	87	13,000		0	54,887

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 24,491

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	71,009	75	3,800	7,096	89,612	87,520	25,545	23,654	3.51	3.70	200	89,812
1996	65,577	78	5,340	7,251	77,227	87,012	24,167	24,170	3.20	3.60	200	77,427
2025	70,731	85	7,674	7,674	74,185	74,185	25,581	25,581	2.90	2.90	200	74,385

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	89,812	22,403
1996						0	0			0	77,427	-1,368
2025						0	0			0	74,385	19,498

\* Represents Maximum Contract Amount

**Notes:** 2025 - 41,800AF represents 100% Class I and 40% Class II.

**LINDSAY, CITY OF**

Contractor ID: 202445

# Water Needs Assessment

**Friant**

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellov/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	0	1,769	0	0		0	0	0	0		0	1,769
1998	2,500 *	1,906	0	0		0	0	0	0		0	1,906
2025	2,500 *	2,550	0	0		0	0	0	0		0	2,550

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 666

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995		75									0	
1998		75									0	
2025											0	

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995	8,875	123.5	1,228	173	222	395	146	311.0	177.9	1,769	1,769	0
1998	8,981	131.5	1,323	186	239	425	157	311.0	189.4	1,905	1,905	-1
2025	18,890	131.2	2,777	391	503	894	330	274.0	189.1	4,001	4,001	1,451

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP supply = 2,500 ac-ft Friant Class I supply + 50 ac-ft Tulare County subcontract supply.

**LINDSAY-STRATHMORE ID**

Contractor ID: 202450

# Water Needs Assessment

Friant

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	21,450	0	5,703	Kaweah	0	0	0	8,500		0	35,653
1996 WC Plan	24,541	24,441	0	93	Kaweah	0	400	93	6,000		0	30,227
2025	27,500 *	27,500	0	4,018	Kaweah	0	4,000	93	5,600		0	33,211

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 13,372

Timeframe 1	Crop Water Requiremen t (acre-feet) 16	District Irrig. Efficiency (%) 17	Effective Precip (acre-feet) 18	Reference Effective Precip (acre-ft) 19	Calculated Net Crop Water Req (acre-feet) 20	USBR Net Crop Water Req (acre-feet) 21	Average Irrigated Acres (acres) 22	Reference Irrigated Acres (acres) 23	Calculated FDR (AF/acre) 24	USBR FDR (AF/acre) 25	Conveyance Loss (acre-feet) 26	Total Ag Demand (acre-feet) 27
1989	35,647	75	8,912	2,546	35,647	48,378	12,731	12,731	2.80	3.80	0	35,647
1996	31,115	75	8,903	2,595	29,616	49,301	12,700	12,974	2.33	3.80	490	30,106
2025	39,830	85	2,509	2,509	43,908	43,908	12,545	12,545	3.50	3.50	490	44,398

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	35,647	-6
1996						0	0			0	30,106	-121
2025						0	0			0	44,398	11,187

\* Represents Maximum Contract Amount

**Notes:** 1989 - ag water demand calculated using USBR FDR, acreage and effective precipitation data. 2025 - Transfer Out to Tulare ID

**LOWER TULE RIVER ID**

**Water Needs Assessment**

Contractor ID: 202460

Friant

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	63,922	0	87,851	Lower Tule	0	0	0	41,200		44,802	148,171
1996 WC Plan	195,219	208,798	0	83,744	Lower Tule	0	23,118	0	209,829		49,479	429,774
2025	187,502 *	187,502	0	70,000	Lower Tule	2,300	0	0	43,219		49,479	253,542

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 85,925

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	156,577	70	9,352	32,017	210,321	256,138	77,934	80,043	2.70	3.20	730	211,051
1996	346,456	78	14,409	35,156	425,701	281,248	110,875	87,890	3.84	3.20	730	426,431
2025	250,021	85	33,262	44,350	255,011	299,360	110,874	110,874	2.30	2.70	730	255,741

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	211,051	62,880
1996						0	0			0	426,431	-3,343
2025						0	0			0	255,741	2,199

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP water = 31,102 AF XValley, 61,200 AF 100% Class I & 95,200 AF 40% Class II supply. Calculated 730 ac-ft evap from open system; seepage accounted in recharge. Transfer In from Terra Bella ID. GW=22,100 AF safe yield + 21,119 AF recharge.

**MADERA ID**

Contractor ID: 202660

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:41 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	84,120	0	21,950	water rghts	5,150	0	0	204,461		39,498	276,183
1996 WC Plan	246,640	223,775	0	41,889	water rghts	0	19,000		237,374		66,779	417,259
2025	183,400 *	183,400	0	41,889	water rghts	0	0		113,430		66,779	271,940

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 112,207

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	235,232	75	6,756	38,110	304,635	247,712	94,322	95,274	3.23	2.60	1,855	306,490
1996	387,435	78	22,983	38,667	467,246	261,001	107,658	96,667	4.34	2.70	25,080	492,326
2025	280,987	85	43,063	43,063	279,911	279,911	107,658	107,658	2.60	2.60	25,080	304,991

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	306,490	30,307
1996							0			0	492,326	75,067
2025							0			0	304,991	33,051

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP supply = 24 TAF Hidden Unit, 85 TAF Friant Class I and 74.4 TAF 40% Friant Class II. Groundwater assumed to be available = 49 TAF safe yield + 64.43 TAF recharge.

**ORANGE COVE ID**

Contractor ID: 202490

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	37,338	0	0		0	3,900	0	57,000		0	90,438
1996 WC Plan	34,822	34,793	0	0		184	1,500	0	53,000		0	86,477
2025	39,200 *	39,200	0	0		0	0	0	12,800		0	52,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 16,690

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	77,909	75	11,940	7,156	87,959	88,260	26,788	23,854	3.28	3.70	2,614	90,573
1996	78,344	75	13,246		86,797		28,000		3.10		0	86,797
2025	77,485	85	7,487	7,487	82,352	82,352	24,955	24,955	3.30	3.30	0	82,352

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	90,573	135
1996						0	0			0	86,797	320
2025						0	0			0	82,352	30,352

\* Represents Maximum Contract Amount

**Notes:** 1989 - Private pumping estimated to be 57,000 AF; 1996 - Private pumping estimated to be 53,000 AF

**PIXLEY ID**

Contractor ID: 202500

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	5,289	12,189	0	0		0	0	0	132,000		0	144,189
1996 WC Plan	31,102	31,102	0	17,199	Natural Runoff	20,150	0	0	232,455		21,461	279,445
2025	31,102	31,102	0	17,199	Natural Runoff	19,900	0	0	26,621		21,461	73,361

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 53,245

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	115,426	75	8,842	17,685	142,112	141,478	44,410	44,212	3.20	3.20	1,900	144,012
1996	212,527	76	3,944	24,290	274,451	182,178	67,419	60,726	4.07	3.00	1,900	276,351
2025	163,491	85	20,226	26,968	168,547	155,064	67,419	67,419	2.50	2.30	1,900	170,447

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	144,012	-177
1996						0	0			0	276,351	-3,094
2025						0	0			0	170,447	97,086

\* Represents Maximum Contract Amount

**Notes:** 1989 - ag water demand calculated using USBR FDR; gw pumping assumed to meet remaining demand after surface water utilized. 2025 - Transfer In from Poterville ID. GW pumping = 11,200 AF(2x Delano-Earlimart ID Safe Yield) + 15,421 AF recharge.

**PORTERVILLE ID**

# Water Needs Assessment

Contractor ID: 202510

**Friant**

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	15,680	0	2,609	Tule R/other	0	0	0	26,000		3,120	41,169
1996 WC Plan	13,786	24,514	0	27,711	Tule R/other	0	19,900	0	37,000		21,571	47,754
2025	28,000 *	28,000	0	27,711	Tule R/other	0	23,900	0	32,480		21,571	42,720

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 14,216

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	34,976	75	3,860	5,146	41,488	43,741	12,965	12,865	3.20	3.40	0	41,488
1996	37,826	75	1,947	3,997	47,839	45,302	13,250	13,324	3.61	3.40	0	47,839
2025	41,221	85	5,285	5,285	42,278	42,278	13,212	13,212	3.20	3.20	0	42,278

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	41,488	319
1996							0			0	47,839	85
2025							0			0	42,278	-442

\* Represents Maximum Contract Amount

**Notes:** 1989 - ag demand calculated assuming USBR FDR.

In 2025, CVP supply = 16 TAF Friant Class I + 12 TAF 40% Friant Class II; Transfer Out = 19.9 TAF to Pixley ID + 4 TAF intra-divisional; GW available for pumping = 16.1 TAF safe yield + 16.38 TAF recharge.

**RAG GULCH WD**

Contractor ID: 202520

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	13,384	2,671	0	0	Kern River	9,507	0	0	2,000		0	14,178
1996 WC Plan	13,300 *	0	0	12,330	Kern River	0	0	0	8,277		0	20,607
2025	13,300 *	13,300	0	0	Kern River	0	0	0	10,717		10,000	14,017

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 5,391

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	11,079	75	551	1,332	14,037	11,547	4,441	4,441	3.16	2.60	0	14,037
1996	14,968	71	728	1,551	20,056	14,996	5,171	5,171	3.88	2.90	247	20,303
2025	14,077	85	1,742	1,742	14,513	14,513	5,805	5,805	2.50	2.50	247	14,760

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	14,037	-141
1996						0	0			0	20,303	-304
2025						0	0			0	14,760	743

\* Represents Maximum Contract Amount

**Notes:** 2025 - No normal year Kern River supply available; groundwater assumed to be available = 2,000 AF safe yield + 8,717 AF recharge.

**SAUCELITO ID**

Contractor ID: 202540

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	25,837	0	0		4,142	2,729	0	19,371		33	46,588
1996 WC Plan	47,369	49,975	0	0		0	0	0	16,181		9,989	56,167
2025	34,320 *	34,420	0	0		0	0	0	20,167		9,989	44,598

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 17,304

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1989	41,205	80	3,900	7,483	46,631	50,512	17,730	18,708	2.63	2.70	500	47,131
1996	47,511	80	3,224	7,509	55,359	56,319	17,702	18,773	3.13	3.00	1,000	56,359
2025	48,946	85	5,311	7,081	51,335	46,025	17,702	17,702	2.90	2.60	1,100	52,435

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	47,131	543
1996						0	0			0	56,359	192
2025						0	0			0	52,435	7,837

\* Represents Maximum Contract Amount

**Notes:** Conveyance Loss is assumed to be 2% of surface water supply based on WC Plan, pg 3-41. In 2025, CVP supply = 21,200 AF Friant Class I + 13,120 AF 40% Friant Class II + 100 AF Tulare Subcontract; GW = 13,900 AF safe yield + 6,267 AF recharge.

**SHAFTER-WASCO ID**

Contractor ID: 202550

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	53,013	0	0		0	1,538	0	61,925		0	113,400
1996 WC Plan	67,283	70,591	0	0		7,700	10,061	0	60,293		270	128,253
2025	65,840 *	65,840	0	0		0	0	0	28,500		0	94,340

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 33,957

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	90,581	75	0	9,211	120,775	92,112	30,725	30,704	3.93	3.00	0	120,775
1996	101,882	75	6,356	9,533	127,368	98,512	32,504	31,778	3.92	3.10	0	127,368
2025	92,659	85	9,754	9,751	97,535	87,761	32,512	32,504	3.00	2.70	0	97,535

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	120,775	7,375
1996						0	0			0	127,368	-885
2025						0	0			0	97,535	3,195

\* Represents Maximum Contract Amount

**Notes:** In 2025, 100% Class I CVP supply of 50,000 AF and 40% of the Class II CVP supply of 39,600 AF.

**SOUTHERN SAN JOAQUIN MUD**

**Water Needs Assessment**

Contractor ID: 202560

Friant

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	96,293	0	0		0	0	0	40,000		0	136,293
1996 WC Plan	0	124,230	0	0		0	0	0	74,887		15,567	183,550
2025	0	117,000	0	0		0	2,500	0	21,237		15,567	120,170

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 48,454

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	105,957	75	5,636	14,270	133,761	147,458	46,973	47,567	2.85	3.10	1,900	135,661
1996	146,435	78	4,187	14,711	182,369	152,009	49,045	49,035	3.72	3.10	2,500	184,869
2025	135,609	85	14,714	14,714	142,231	142,231	49,045	49,045	2.90	2.90	2,900	145,131

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	135,661	-632
1996						0	0			0	184,869	1,319
2025						0	0			0	145,131	24,961

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss assumed to be 2% of surface water supply based on WC Plan, pg 3-41. In 2025, CVP supply = 97,000 AF 100% Class I + 20,000 AF 40% Class II. Transfer Out to city of Delano M&I use. GW available = 15,800 AF safe yield + 5,437 AF recharge.

**STONE CORRAL ID**

Contractor ID: 202570

# Water Needs Assessment

**Friant**

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	10,001	0	0		0	0	0	6,800		0	16,801
1996 WC Plan	8,394	8,974	0	0		0	0	0	9,626		703	17,897
2025	10,000 *	10,950	0	0		0	0	0	200		703	10,447

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	15,116	80	1,995	1,666	16,401	18,884	5,781	5,554	2.84	3.40	502	16,903
1996	15,856	83	1,206	1,628	17,651	20,084	5,163	5,428	3.42	3.70	0	17,651
2025	16,031	85	1,549	1,549	17,038	17,038	5,163	5,163	3.30	3.30	0	17,038

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	16,903	102
1996						0	0			0	17,651	-246
2025						0	0			0	17,038	6,591

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP supply = 10,000 AF 100% Friant Class I + 950 AF Tulare County Subcontract.

**TEA POT DOME WD**

Contractor ID: 202580

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	7,350	0	0		485	1,411	0	0		0	6,424
1996 WC Plan	6,701	7,500	0	0		0	0	0	0		831	6,669
2025	7,500 *	7,500	0	0		0	0	0	453		831	7,122

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 3,186

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	7,769	75	422	671	9,796	12,745	3,281	3,354	2.99	3.80	12	9,808
1996	7,907	75	1,726	548	8,241	11,226	3,128	2,738	2.63	4.10	12	8,253
2025	10,463	85	696	696	11,491	11,491	3,482	3,482	3.30	3.30	12	11,503

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	9,808	3,384
1996						0	0			0	8,253	1,584
2025						0	0			0	11,503	4,381

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP supply = 7,500 AF 100% Friant Class I supply. GW available for pumping = 400 AF safe yield + 53 AF recharge.

**TERRA BELLA ID**

Contractor ID: 202590

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:42 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989 WC Plan	0	28,872	0	0		0	5,500	331	0		0	23,703
1996 WC Plan	19,866	27,892	0	0		1,854	9,900	847	0		0	20,693
2025	29,000 *	29,000	0	0		0	2,300	2,200	0		0	28,900

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 12,178

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	26,477	75	1,158	2,223	33,759	43,352	11,165	11,116	3.02	3.90	474	34,233
1996	28,794	75	1,321	2,168	36,631	44,436	10,068	10,838	3.64	4.10	0	36,631
2025	39,576	85	2,428	2,428	43,704	43,704	12,140	12,140	3.60	3.60	0	43,704

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	34,233	10,530
1996						0	0			0	36,631	15,938
2025						0	0			0	43,704	14,804

\* Represents Maximum Contract Amount

**Notes:** In 2025, CVP supply = 29 TAF 100% Friant Class I supply. Transfer Out to Lower Tule River ID.

**TULARE ID**

Contractor ID: 202610

Friant

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	0	27,212	0	29,636	Kaweah R.	5,000	0	0	184,000		47,000	198,848
1996 WC Plan	112,753	108,841	0	160,841	Kaweah R.	0	0	0	42,005		133,288	178,399
2025	86,400 *	86,400	0	50,000	Kaweah R.	4,000	16,000	0	203,173		133,288	194,285

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 62,520

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	159,220	75	14,208	35,521	193,349	191,811	70,351	71,041	2.75	2.70	5,685	199,034
1996	190,850	75	37,792	33,308	204,077	179,861	75,582	66,615	2.70	2.70	2,975	207,052
2025	184,668	85	22,072	36,787	191,289	183,933	73,573	73,573	2.60	2.50	2,975	194,264

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	199,034	186
1996							0			0	207,052	28,653
2025							0			0	194,264	-21

\* Represents Maximum Contract Amount

**Notes:** In 1989, Eff Precip = USBR number. In 2025, CVP supply = 30,000 AF 100% Class I + 56,400 AF 40% Class II; Kaweah River supply = LT avg. Transfers: In from Lindsay-Strathmore ID; Out intra-divisional. GW = 89,500 AF safe yield + 113,673 AF recharge.

4-M WD (POOL)

Contractor ID: 202779

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	2,609	2,609	0	0		0	0	0	0		0	2,609

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,567

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1989	2,376	75	635	654	2,321	2,709	934	934	2.49	2.90	0	2,321

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1989							0	0		0	2,321	-288

\* Represents Maximum Contract Amount

**Notes:**

**COLUSA COUNTY WD**

Contractor ID: 202770

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	59,892	60,631	0	0		0	150	0	22,039	22,000	0	82,520
1995	68,165 *	49,178	0	0		0	150	0	9,182	22,000	0	58,210
2025	68,165 *	68,165	0	0		25,000	150	0	22,000	22,000	0	115,015
2026	68,165 *	68,165	0	0		0	150	0	22,000	22,000	0	90,015

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 38,869

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	81,747	75	25,012	19,619	75,647	92,489	28,086	28,027	2.69	3.30	0	75,647
1995	54,542	75	19,756	18,960	46,381	86,672	26,883	27,085	1.73	3.20	3,818	50,199
2025	128,922	80	23,299	23,299	132,029	132,029	38,832	38,832	3.40	3.40	4,000	136,029
2026	128,922	80	23,299	23,299	132,029	132,029	38,832	38,832	3.40	3.40	4,000	136,029

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	75,647	-6,873
1995						0	0			0	50,199	-8,011
2025						0	0			0	136,029	21,014
2026						0	0			0	136,029	46,014

\* Represents Maximum Contract Amount

**Notes:** 1996 agreement for long-term transfer of 25,000 AF from Westside WD incorporated into 2025 water supply. 150 ac-ft transfer out is for M&I purposes.

**COLUSA, COUNTY OF**

**Water Needs Assessment**

Contractor ID: 202774

Sacramento River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Dellv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

**Contractor's Agricultural Water Demands**

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

**Contractor's M&I Water Demands**

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**CORNING WD**

Contractor ID: 202690

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	22,142	22,142	0	0		0	0	0	1,000	5,800	0	23,142
1993	23,000 *	15,962	0	0		0	0	0	7,500	5,800	0	23,462
2025	23,000 *	23,000 *	0	0		0	0	0	5,800	5,800	0	28,800

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 10,402

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	25,654	70	6,169	4,634	27,836	22,013	6,690	5,793	4.16	3.80	500	28,336
1993	23,085	75	5,170	4,717	23,887	19,916	6,106	5,241	3.91	3.80	500	24,387
2025	36,663	85	8,136	8,136	33,561	33,561	10,170	10,170	3.30	3.30	500	34,061

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	28,336	5,194
1993						0	0			0	24,387	925
2025						0	0			0	34,061	5,261

\* Represents Maximum Contract Amount

**Notes:** Conveyance losses are for environmental water use

**DAVIS WD (TC)**

Contractor ID: 202776

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 917

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**DUNNIGAN WD**

Contractor ID: 202778

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	13,809	13,813	0	0		0	0	0	2,700		0	16,513
1995	19,000 *	13,813	0	0		0	0	0	2,700		0	16,513
2025	19,000 *	19,000 *	0	0		0	0	0	6,500		0	25,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 9,355

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	15,342	75	3,012	5,167	16,440	18,085	5,662	6,459	2.90	2.80	330	16,770
1995	15,342	75	3,012	3,171	16,440	14,270	5,662	5,285	2.90	2.70	330	16,770
2025	31,120	80	5,909	5,909	31,514	31,514	9,848	9,848	3.20	3.20	330	31,844

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	16,770	257
1995						0	0			0	16,770	257
2025						0	0			0	31,844	6,344

\* Represents Maximum Contract Amount

**Notes:** 494 AF of Drainage water not included. Conveyance losses are for consumptive use of non-agricultural crops.

**EL CAMINO ID**

Contractor ID: 202700

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 6,014

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**ELDER CREEK WD**

Contractor ID: 202710

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,886

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**GLENN VALLEY WD (POOL)**

**Water Needs Assessment**

Contractor ID: 202782

Sacramento River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	1,197	1,219	0	0		0	0	0	0		0	1,219
2025	1,730 *	1,730 *	0	0	0	0	0	0	0		0	1,730

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 811

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	1,231	75	84	274	1,277	1,277	456	456	2.80	2.80	85	1,362
2025	3,310	85	556	556	3,241	3,241	926	926	3.50	3.50	0	3,241

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	1,362	143
2025						0	0			0	3,241	1,511

\* Represents Maximum Contract Amount

**Notes:**

**GLIDE WD**

Contractor ID: 202780

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dello/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	12,873	10,500	0	0		2,373	0	0	0		0	12,873
1995	10,500*	10,500	0	0		2,373	0	0	0		0	12,873
2025	10,500*	10,500	0	0		0	0	0	0		0	10,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 7,532

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	11,733	75	1,482	1,917	13,668	14,569	3,899	3,834	3.51	3.80	0	13,668
1995	11,733	75	1,482	1,984	13,668	18,352	3,899	4,960	3.51	3.70	0	13,668
2025	30,817	80	4,165	4,165	33,316	33,316	8,329	8,329	4.00	4.00	0	33,316

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	13,668	795
1995						0	0			0	13,668	795
2025						0	0			0	33,316	22,816

\* Represents Maximum Contract Amount

**Notes:**

**HOLTHOUSE WD (POOL)**

Contractor ID: 202786

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	1,510	1,510	0	0		0	0	0	0		0	1,510

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,634

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1989	1,510	75	324	518	1,581	1,359	647	647	2.44	2.10	0	1,581

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1989							0	0		0	1,581	71

\* Represents Maximum Contract Amount

**Notes:** 1989 Effective Precipitation assumed to be at 50%.

**KANAWHA WD**

Contractor ID: 202790

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:43 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	36,571	38,632	0	0		0	2,000	0	174		0	36,806
1995	45,000*	38,632	0	0		0	2,000	0	174		0	36,806
2025	45,000*	45,000	0	0		0	2,000	0	174		0	43,174

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 14,034

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	39,577	85	5,614	7,586	39,956	42,986	12,955	12,643	3.08	3.40	0	39,956
1995	39,577	85	5,614	6,728	39,956	34,986	12,955	13,456	3.08	2.60	0	39,956
2025	54,942	80	8,128	8,128	58,518	58,518	16,255	16,255	3.60	3.60	0	58,518

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	39,956	3,150
1995						0	0			0	39,956	3,150
2025						0	0			0	58,518	15,344

\* Represents Maximum Contract Amount

**Notes:** Because of water quality concerns in the Colusa Basin Drain, the district's 2025 irrigation efficiency is assumed to be decrease to 80%

**KIRKWOOD WD**

Contractor ID: 202800

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 966

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**LOUISIANA-PACIFIC CORP.**

**Water Needs Assessment**

Contractor ID: 201794

Sacramento River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:44 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

**Contractor's Agricultural Water Demands**

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

**Contractor's M&I Water Demands**

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**M&I USERS (SAC. RIVER)**

Contractor ID: 202905

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0										0

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
0												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
0							0	0		0	0	0

\* Represents Maximum Contract Amount

**Notes:**

**MYERS-MARSH MWC (POOL)**

**Water Needs Assessment**

Contractor ID: 202815

Sacramento River

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:44 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsr / Rtn / Recycle In	Trsr / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	440	440	0	50	cannery waste water	0	0	0	0		0	490

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 251

Timeframe	Crop Water Requirement	District Irrig. Efficiency	Effective Precip	Reference Effective Precip	Calculated Net Crop Water Req	USBR Net Crop Water Req	Average Irrigated Acres	Reference Irrigated Acres	Calculated FDR	USBR FDR	Conveyance Loss	Total Ag Demand
1	(acre-feet)	(%)	(acre-feet)	(acre-ft)	(acre-feet)	(acre-feet)	(acres)	(acres)	(AF/acre)	(AF/acre)	(acre-feet)	(acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1989	544	75	160	144	512	176	160	160	3.20	1.10	66	578

**Contractor's M&I Water Demands**

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd	Calc Urban Per Capita Dmd	Total M&I Demand	Total Ag + M&I Dmd	Unmet Demand
	Population	Per Capita Demand	Total Demand	Industrial	Comm / Instit.	Total Demand	Unacc. / Distr.					
1	28	(gpcd)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)	(gpcd)	(gpcd)	(acre-feet)	(acre-feet)	(acre-feet)
	29	30	31	32	33	34	25	36	37	38	39	
1989						0	0			0	578	88

\* Represents Maximum Contract Amount

**Notes:**

**ORLAND ARTOIS WD**

Contractor ID: 202820

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	67,572	40,452	0	0		27,500	0	0	12,104		0	80,056
1995	53,000 *	40,452	0	0		27,500	0	0	12,104		0	80,056
2025	53,000 *	53,000 *	0	0		0	0	0	13,700		0	66,700

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 25,572

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	74,791	75	15,740	14,248	78,735	83,115	23,819	23,747	3.31	3.50	0	78,735
1995	74,791	75	15,740	16,551	78,735	80,390	23,819	23,644	3.31	3.40	0	78,735
2025	100,313	80	19,541	19,541	100,964	100,964	32,569	32,569	3.10	3.10	0	100,964

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	78,735	-1,321
1995						0	0			0	78,735	-1,321
2025						0	0			0	100,964	34,264

\* Represents Maximum Contract Amount

**Notes:** Because of water quality concerns in the Colusa Basin Drain, the district's 2025 irrigation efficiency is assumed to be 80%. 2025 Ground water pumping based on Bookman-Edmonston 1988 OAWD report.

**PROBERTA WD**

Contractor ID: 202720

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	5,498	5,500	0	0		0	0	0	0	1,000	0	5,500
1995	3,500 *	2,260	0	0		0	0	0	1,000	1,000	0	3,260
2025	3,500 *	3,500 *	0	0		0	0	0	1,000	1,000	0	4,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,316

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	6,152	70	2,652	982	5,000	6,221	1,693	1,637	2.95	3.80	0	5,000
1995	7,082	75	1,342	1,342	7,653	6,041	2,428	1,678	3.15	3.60	0	7,653
2025	7,985	85	1,443	1,443	7,696	7,696	2,405	2,405	3.20	3.20	0	7,696

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	5,000	-500
1995						0	0			0	7,653	4,393
2025						0	0			0	7,696	3,196

\* Represents Maximum Contract Amount

**Notes:** Does not include estimated 1,000 AF leaving district

**THOMES CREEK WD**

Contractor ID: 202740

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	5,167	5,167	0	0		0	0	0	2,500	700	0	7,667
1995	6,400*	4,240	0	0		0	0	0	700	700	0	4,940
2025	6,400*	6,400	0	0		0	0	0	700	700	0	7,100

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,929

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	5,671	70	1,438	677	6,047	2,708	1,521	967	3.98	2.80	120	6,167
1995	3,773	75	736	736	4,049	3,994	1,191	1,051	3.40	3.80	120	4,169
2025	6,376	85	1,096	1,096	6,212	6,212	1,827	1,827	3.40	3.40	120	6,332

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	6,167	-1,500
1995						0	0			0	4,169	-771
2025						0	0			0	6,332	-768

\* Represents Maximum Contract Amount

**Notes:** Conveyance losses include environmental water but not estimated 30 AF leaving district boundaries. Year 1995 demands estimated using district's acreages & BOR FDR and effective precip values.

**WESTSIDE WD**

Contractor ID: 202834

Sacramento River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	33,657	34,657	0	0		0	1,000	0	0		0	33,657
1995	65,000 *	28,465	0	0		0	56	0	0		0	28,409
2025	65,000 *	65,000	0	0		0	25,000	0	0		0	40,000
2026	65,000 *	65,000	0	0		0	0	0	0		0	65,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 14,618

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	27,100	70	6,521	7,592	29,399	28,197	10,845	10,845	2.71	2.60	150	29,549
1995	29,533	70	5,291	7,034	34,631	32,827	11,430	11,724	3.03	2.80	1,992	36,623
2025	48,580	80	7,544	7,544	51,296	51,296	15,087	15,087	3.40	3.40	2,800	54,096
2026	55,682	80	7,048	10,573	56,387	56,387	17,621	17,621	3.20	3.20	4,550	60,937

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989						0	0			0	29,549	-4,108
1995						0	0			0	36,623	8,214
2025						0	0			0	54,096	14,096
2026						0	0			0	60,937	-4,063

\* Represents Maximum Contract Amount

**Notes:** 6,939 AF of drainage water not included. 1996 transfer of 25,000 AF to Colusa County WD is incorporated into 2025 and 2026 represents 2025 without this transfer. Conveyance losses for 1995, 2025, and 2026 are set at 7% of total supply.

**PAJARO VALLEY WMA**

Contractor ID: 202843

San Felipe

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1997	0	0	0	500		0	0	0	70,900	0	0	71,400
2009	0	31,695	0	1,000		0	0	0	47,000	0	0	79,695
2030	0	33,260	0	1,000		0	0	0	47,000	0	0	81,260
2040	0	33,260	0	1,000		0	0	0	47,000	0	0	81,260

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 0

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1997	60,731	73	23,900	23,900	50,455	50,455	26,555	26,555	1.90	1.90	5,860	56,315
2009	66,216	85	21,782	21,782	52,276	52,276	43,563	43,563	1.20	1.20	5,130	57,406
2030	66,216	85	21,782	21,782	52,276	52,276	43,563	43,563	1.20	1.20	5,400	57,676
2040	66,216	85	21,782	21,782	52,276	52,276	43,563	43,563	1.20	1.20	5,520	57,796

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1997	82,900	72.5	6,732	5,432	0	5,432	1,216	179.0	144.1	13,380	69,695	-1,706
2009	87,100	70.0	6,830	5,451	0	5,451	1,228	166.0	138.5	13,509	70,915	-8,780
2030	101,600	70.0	7,966	6,442	0	6,442	1,441	166.0	139.3	15,849	73,525	-7,735
2040	109,600	70.0	8,594	6,989	0	6,989	1,558	166.0	139.6	17,141	74,937	-6,323

\* Represents Maximum Contract Amount

**Notes:** 1997; Water demand used total annual water demand for multi-cropped acreage  
 2009, 2030 and 2040; Water demand used individual crop water demand and included the acreage of multi-cropped lands for each crop in the total acreage.

**SAN BENITO COUNTY WC & FCD**

**Water Needs Assessment**

Contractor ID: 204360

San Felipe

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:44 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	0										0
1995	43,800 *	30,000	0	0		0	0	26,000	0		7,000	49,000
2025	43,800 *	43,000	0	0		0	0	26,000	0		7,500	61,500

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 33,014

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989 - 1996	40,106	75	12,340	12,340	37,021	37,021	20,567	20,567	1.80	1.80	0	37,021
1995	44,133	75	11,463	11,463	43,559	43,559	22,926	22,926	1.90	1.90	2,000	45,559
2025	44,133	78	11,463	12,850	41,885	48,830	22,926	25,700	1.83	1.90	2,000	43,885

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989 - 1996						0	0			0	37,021	37,021
1995	36,193	186.0	7,541	0	0	0	0	274.0	186.0	7,541	53,100	4,100
2025	72,000	177.0	14,273	1,000	1,000	2,000	0	257.0	201.8	16,273	60,158	-1,342

\* Represents Maximum Contract Amount

**Notes:** A 78 percent irrigation efficiency was assumed to avoid worsening the water quality of the ground water aquifer. Future crop acreage kept at 1995 levels. Held constant because recent trends indicate an increase in double/triple cropping but this is counteracted by anticipated land conversions.

SANTA CLARA VALLEY WD

# Water Needs Assessment

Contractor ID: 202845

San Felipe

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	152,500	109,250	28,756	168,536	HetchH/Local resv	15	16,000	0	159,078		114,402	335,233
2003	0	0										0
2025	152,500	152,500	74,000	164,800	HetchH/Local resv	14,400	0	0	165,000		132,000	438,700

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 11,304

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	71,266	75	45,953	18,879	33,751	75,514	37,757	37,757	0.89	2.00	0	33,751
2003	49,213	75	10,471		51,656		26,177		1.97		0	51,656
2025	49,213	85	10,471	10,471	45,579	47,119	26,177	26,177	1.74	1.80	0	45,579

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instiit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995	1,599,100	174.0	311,620	0	0	0	0	274.0	174.0	311,620	345,371	10,138
2003						0	0			0	51,656	51,656
2025	2,175,800	117.3	285,998	263,997		0	263,997	0	225.7	549,995	595,574	156,874

\* Represents Maximum Contract Amount

**Notes:** 2025 M&I Demand Data: from 2020 average data submitted by SCWD 5/2/00 FAX; no breakdown of industrial & commercial demnds. 2025 supply: CVP supply = max contract amount; Transfer In=recycled water; 40 TAF env demnd could decrease local supply--not shown. 2003 only includes information on currently agricultural cropping and water use and assumes a 75% irrigation efficiency. 2025 agricultural information based on 2003 cropping and water use and assumes an 85% efficiency.

**ANDERSON-COTTONWOOD ID**

**Water Needs Assessment**

Contractor ID: 202870

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1979	0	0								3,400		0
1980	0	0								3,400		0
1981	0	0								3,400		0
1982	0	0								3,400		0
1983	0	0								3,400		0
1984	0	0								3,400		0
1985	0	0								3,400		0
1986	0	0								3,400		0
1987	0	0								3,400		0
1988	0	0								3,400		0
1989 WC Plan	0	18,205	0	0		0	0	0	0	3,400	0	18,205
1990	0	0								3,400		0
1991	0	0								3,400		0
1992	0	0								3,400		0
1993	0	0								3,400		0
1994	0	0								3,400		0
1995 BWMP	103,270	139,801	0	0		5,000	10,000	3,400	0	3,400	32,705	105,496
1996	0	0								3,400		0
1997	0	0								3,400		0
1998	0	0								3,400		0
1999	0	0								3,400		0
2000	0	0								3,400		0
2020 BWMP	175,000 *	175,000	0	0		5,000	10,000	3,400	0	3,400	23,868	149,532
2021	175,000 *	175,000	0	0		5,000	10,000	3,400	0	3,400	5,856	167,544
2022	175,000 *	175,000	0	0		0	0	0	0	3,400	0	175,000

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 20,017

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1979	77,598	75	19,400	19,400	77,598	77,598	21,555	21,555	3.60	3.60		
1980	78,625	75	20,075	20,075	78,068	78,068	22,305	22,305	3.50	3.50		

**ANDERSON-COTTONWOOD ID**

**Water Needs Assessment**

Contractor ID: 202870

1981	78,368	75	20,009	20,009	77,812	77,812	22,232	22,232	3.50	3.50		
1982	76,270	75	19,067	19,067	76,270	76,270	21,186	21,186	3.60	3.60		
1983	76,342	75	19,085	19,085	76,342	76,342	21,206	21,206	3.60	3.60		
1984	76,856	75	19,214	19,214	76,856	76,856	21,349	21,349	3.60	3.60		
1985	67,049	75	17,119	17,119	66,574	66,574	19,021	19,021	3.50	3.50		
1986	69,098	75	17,275	17,275	69,098	69,098	19,194	19,194	3.60	3.60		
1987	69,098	75	17,275	17,275	69,098	69,098	19,194	19,194	3.60	3.60		
1988	67,976	75	17,356	17,356	67,494	67,494	19,284	19,284	3.50	3.50		
1989	68,011	75	17,365	17,365	67,529	67,529	19,294	19,294	3.50	3.50		
1990	68,329	75	17,446	17,446	67,844	67,844	19,384	19,384	3.50	3.50		
1991	68,329	75	17,446	17,446	67,844	67,844	19,384	19,384	3.50	3.50		
1992	68,329	75	17,446	17,446	67,844	67,844	19,384	19,384	3.50	3.50		
1993	50,510	75	13,469	13,469	49,388	49,388	14,966	14,966	3.30	3.30		
1994	33,617	75	7,818	7,818	34,399	34,399	7,818	7,818	4.40	4.40		
1995	56,100	66	13,900	7,750	64,200	34,100	13,900	7,750	4.62	4.40	24,227	88,427
1996	30,538	75	7,228	7,228	31,080	31,080	7,228	7,228	4.30	4.30		
1997	30,027	75	7,107	7,107	30,560	30,560	7,107	7,107	4.30	4.30		
1998	30,096	75	6,999	6,999	30,796	30,796	6,999	6,999	4.40	4.40		
1999	30,775	75	7,157	7,157	31,491	31,491	7,157	7,157	4.40	4.40		
2000	30,663	75	7,131	7,131	31,376	31,376	7,131	7,131	4.40	4.40		
2020	51,876	85	11,790	11,790	47,160	47,160	13,100	13,100	3.60	3.60	17,680	64,840
2021	51,876	85	11,790	11,790	47,160	47,160	13,100	13,100	3.60	3.60	5,856	53,016
2022	51,876	85	11,790	11,790	47,160	47,160	13,100	13,100	3.60	3.60	11,712	58,872

# Water Needs Assessment

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	25	36	37	38	39
1979						0	0			0	0	0
1980						0	0			0	0	0
1981						0	0			0	0	0
1982						0	0			0	0	0
1983						0	0			0	0	0
1984						0	0			0	0	0
1985						0	0			0	0	0
1986						0	0			0	0	0
1987						0	0			0	0	0
1988						0	0			0	0	0
1989						0	0			0	0	-18,205
1990						0	0			0	0	0
1991						0	0			0	0	0
1992						0	0			0	0	0
1993						0	0			0	0	0
1994						0	0			0	0	0
1995						0	0			0	88,427	-17,069
1996						0	0			0	0	0
1997						0	0			0	0	0
1998						0	0			0	0	0
1999						0	0			0	0	0
2000						0	0			0	0	0
2020						0	0			0	64,840	-84,692
2021						0	0			0	53,016	-114,528
2022						0	0			0	58,872	-116,128

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 20% operational spills [col. 25] and 27% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 10,000 ac-ft transfer to Pool during critical months/normal year from (TM 6, pg 3-1). 3,400 ac-ft groundwater (from Groundwater Hydrology Tech. Memo, pg. 4). Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 139,801 ac-ft = ave. deliveries through 1997 excluding 1975-1980, 1983, 1991, 1992, and 1994. Trsfrr/Rtrn/Recycle In and GW Recharge quantities are from TM-3. 2021 Conveyance and Seepage losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19]. Future efficiencies are set to 85% because there are no drainwater supplies or water quality concerns.

**COLUSA DRAIN MWC**

Contractor ID: 202875

# Water Needs Assessment

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1991s Analysis - rep	0	15,411	34,021	6,635	see notes	0	0	0	0		0	56,067
1995	0	26,322	66,973	11,671		5,500	0	0	0		0	110,466
2020	0	56,730	115,320	23,343		0	0	0	0		0	195,393
2021	0	29,280	59,520	12,048		0	0	0	0		0	100,848
2025	0	72,530	104,844	29,843		0	0	0	0		0	207,217

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requirement 15 (acre-feet)	District Irrig. Efficiency 16 (%)	Effective Precip 17 (acre-feet)	Reference Effective Precip 18 (acre-ft)	Calculated Net Crop Water Req 19 (acre-feet)	USBR Net Crop Water Req 20 (acre-feet)	Average Irrigated Acres 21 (acres)	Reference Irrigated Acres 22 (acres)	Calculated FDR 23 (AF/acre)	USBR FDR 24 (AF/acre)	Conveyance Loss 25 (acre-feet)	Total Ag Demand 26 (acre-feet)
1991	40,756	75	1,762	1,762	51,991	51,991	8,812	8,812	5.90	5.90	4,076	56,067
1995	80,299	75	3,472	3,472	102,436	102,436	17,362	17,362	5.90	5.90	8,030	110,466
2020	155,930	80	3,100	3,100	179,800	179,800	31,000	31,000	5.80	5.80	15,593	195,393
2021	80,480	80	1,600	1,600	92,800	92,800	16,000	16,000	5.80	5.80	8,048	100,848
2025	169,642	80	7,927	7,927	190,253	190,253	39,636	39,636	4.80	4.80	16,964	207,217

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd 25 (gpcd)	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1991						0	0			0	56,067	0
1995						0	0			0	110,466	0
2020						0	0			0	195,393	0
2021						0	0			0	100,848	0
2025						0	0			0	207,217	0

\* Represents Maximum Contract Amount

**Notes:** SW USBR AG is the Project water for June to September CU. SW Local is the Post -1938 water for June to September CU. SW SWP is the water required, in addition to the June to September CU quantities, to meet gross water demands through diversions and the undetermined amount of GW pumped by individual members.

**CONAWAY CONSERVANCY GRO**

**Water Needs Assessment**

Contractor ID: 206020

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1993	0	23,852	0	0		0	0	0	0	0	0	23,852
1994	0	34,011	0	0		0	0	0	0	0	0	34,011
1995	0	14,083	0	0		0	0	0	0	0	0	14,083
1996	0	15,625	0	0		0	0	0	0	0	0	15,625
1997	0	41,126	0	0		0	0	0	0	0	0	41,126
1998	0	5,957	0	0		0	0	0	0	0	0	5,957
1999	0	29,699	0	0		0	0	0	0	0	0	29,699
2000	0	36,361	0	0		0	0	0	0	0	0	36,361
2001	0	36,971	0	0		0	0	0	0	0	0	36,971
2005	0	50,862	0	0		0	0	0	0	0	0	50,862
2020	0	50,862	0	0		0	0	0	0	0	0	50,862

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 16,088

Timeframe 1	Crop Water Requirement t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1993	47,862	75	17,697	17,697	40,220	40,220	16,088	16,088	2.50	2.50	2,385	42,605
1994	48,190	75	8,203	8,203	53,317	53,317	13,671	13,671	3.90	3.90	3,401	56,718
1995	27,346	75	2,279	2,279	33,422	33,422	7,596	7,596	4.40	4.40	1,408	34,830
1996	48,943	75	9,106	9,106	53,116	53,116	15,176	15,176	3.50	3.50	1,563	54,679
1997	52,389	75	4,030	4,030	64,478	64,478	13,433	13,433	4.80	4.80	4,113	68,591
1998	31,430	75	3,085	3,085	37,794	37,794	7,713	7,713	4.90	4.90	596	38,390
1999	55,003	75	3,929	3,929	68,099	68,099	13,096	13,096	5.20	5.20	2,970	71,069
2000	54,478	75	3,891	3,891	67,449	67,449	12,971	12,971	5.20	5.20	3,636	71,085
2001	53,789	75	3,842	3,842	66,596	66,596	12,807	12,807	5.20	5.20	3,697	70,293
2005	46,644	85	6,253	6,253	47,519	47,519	12,505	12,505	3.80	3.80	5,086	52,605
2020	54,021	85	3,929	3,929	58,932	58,932	13,096	13,096	4.50	4.50	5,086	64,018

# Water Needs Assessment

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1993						0	0			0	42,605	18,753
1994						0	0			0	56,718	22,707
1995						0	0			0	34,830	20,747
1996						0	0			0	54,679	39,054
1997						0	0			0	68,591	27,465
1998						0	0			0	38,390	32,433
1999						0	0			0	71,069	41,370
2000						0	0			0	71,085	34,724
2001						0	0			0	70,293	33,322
2005						0	0			0	52,605	1,743
2020						0	0			0	64,018	13,156

\* Represents Maximum Contract Amount

**Notes:**

**DAVIS, OLIVE P ET AL**

Contractor ID: 206019

# Water Needs Assessment

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	0	21,748	0	0		0	0	8	0	0	0	21,756
2020	0	24,939	0	0		0	0	179	0	0	0	25,118
2021	0	31,800	0	0		0	0	0	0	0	0	31,800

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 9,110

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	23,876	75	1,910	1,910	29,288	29,288	6,367	6,367	4.60	4.60	2,175	31,463
2020	29,040	85	1,357	1,357	32,568	32,568	6,785	6,785	4.80	4.80	2,494	35,062
2021	29,040	85	1,357	1,357	32,568	32,568	6,785	6,785	4.80	4.80	3,180	35,748

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	31,463	9,707
2020						0	0			0	35,062	9,944
2021						0	0			0	35,748	3,948

\* Represents Maximum Contract Amount

**Notes:**

**GLENN-COLUSA ID**

# Water Needs Assessment

Contractor ID: 202900

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	514,390	732,708	0	44,990	Water Rights	155,000	20,000	17,000	0	100,000	97,296	832,402
2020 BWMP	825,000 *	825,000	0	44,990	Water Rights	155,000	20,000	17,000	0	100,000	108,441	913,549
2021	825,000 *	825,000	0	44,990	Water Rights	155,000	20,000	17,000	0	100,000	85,500	936,490
2022	825,000 *	825,000	0	0		0	0	0	0	100,000	0	825,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 127,136

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	433,660	64	39,060	34,284	613,695	639,968	130,200	114,280	4.71	5.60	37,423	651,118
2020	588,240	80	41,040	41,040	684,000	684,000	136,800	136,800	5.00	5.00	41,710	725,710
2021	588,240	80	41,040	41,040	684,000	684,000	136,800	136,800	5.00	5.00	41,710	725,710
2022	588,240	80	41,040	41,040	684,000	684,000	136,800	136,800	5.00	5.00	127,210	811,210

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	651,118	-181,284
2020						0	0			0	725,710	-187,839
2021						0	0			0	725,710	-210,780
2022						0	0			0	811,210	-13,790

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col. 25] and 13% seepage loss [col. 12] (TM2) of the crop water requirement (col. 19). 17,000 ac-ft groundwater from Groundwater Hydrology Tech. Memo, pg. 13. GW Safe Yield from (TM 3). Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 732,708 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance and Seepage losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**JOHN REYNEN ET AL.**

Contractor ID: 206021

# Water Needs Assessment

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:45 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1970	0	3,153	0	0		0	0	0	0	0	0	3,153
1971	0	2,971	0	0		0	0	0	0	0	0	2,971
1972	0	2,840	0	0		0	0	0	0	0	0	2,840
1973	0	5,313	0	0		0	0	0	0	0	0	5,313
1974	0	6,534	0	0		0	0	0	0	0	0	6,534
1975	0	5,123	0	0		0	0	0	0	0	0	5,123
1976	0	6,638	0	0		0	0	0	0	0	0	6,638
1977	0	6,007	0	0		0	1,279	0	0	0	0	4,728
1978	0	7,071	0	0		0	2,000	0	0	0	0	5,071
1979	0	8,194	0	0		941	2,000	0	0	0	0	7,135
1980	0	7,645	0	0		259	2,000	0	0	0	0	5,904
1981	0	7,716	0	0		250	282	0	0	0	0	7,684
1982	0	9,202	0	0		1,817	0	0	0	0	0	11,019
1983	0	5,044	0	0		0	0	0	0	0	0	5,044
1984	0	7,603	0	0		0	0	0	0	0	0	7,603
1985	0	9,263	0	0		0	0	0	0	0	0	9,263
1986	0	8,311	0	0		0	0	0	0	0	0	8,311
1987	0	8,712	0	0		0	0	0	0	0	0	8,712
1988	0	6,022	0	0		0	0	0	0	0	0	6,022
1989	0	7,335	0	0		0	0	0	0	0	0	7,335
1990	0	4,185	0	0		100	0	0	0	0	0	4,285
1991	0	699	0	0		0	0	0	0	0	0	699
1992	0	5,542	0	0		0	0	0	0	0	0	5,542
1993	0	6,737	0	0		0	0	0	0	0	0	6,737
1994	0	7,167	0	0		0	0	0	0	0	0	7,167
1996	0	5,271	0	0		0	0	0	0	0	0	5,271
2000	0	6,204	0	0		0	0	0	0	0	0	6,204
2001	0	6,275	0	0		0	0	0	0	0	0	6,275
2005	0	10,070	0	0		0	0	0	0	0	0	10,070
2020	0	10,070	0	0		0	0	0	0	0	0	10,070

### Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,055

Crop Water Requirement	District Irrig. Efficiency	Effective Precip.	Reference Effective Precip.	Calculated Net Crop Water Req.	USBR Net Crop Water Req.	Average Irrigated Acres	Reference Irrigated Acres	Calculated EWP	USBR EWP	Conveyance Loss	Total Ag Demand

**JOHN REYNEN ET AL.**

**Water Needs Assessment**

Contractor ID: 206021

Timeframe	Requirement (acre-feet)	Efficiency (%)	Precip (acre-feet)	Precip (acre-ft)	Water Req (acre-feet)	Water Req (acre-feet)	Acres (acres)	Acres (acres)	FDR (AF/acre)	FDR (AF/acre)	Loss (acre-feet)	Demand (acre-feet)
1		16	17	18	19	20	21	22	23	24	25	26
1970	3,763	75	1,158	1,158	3,473	3,473	1,654	1,654	2.10	2.10	315	3,788
1971	4,074	75	1,176	1,176	3,864	3,864	1,680	1,680	2.30	2.30	297	4,161
1972	4,365	75	1,260	1,260	4,140	4,140	1,800	1,800	2.30	2.30	284	4,424
1973	4,486	75	1,295	1,295	4,255	4,255	1,850	1,850	2.30	2.30	531	4,786
1974	4,796	75	1,760	1,760	4,048	4,048	1,760	1,760	2.30	2.30	653	4,701
1975	5,350	75	2,200	2,200	4,200	4,200	2,000	2,000	2.10	2.10	513	4,713
1976	6,375	75	2,550	2,550	5,100	5,100	2,550	2,550	2.00	2.00	664	5,764
1977	5,516	75	1,970	1,970	4,728	4,728	1,970	1,970	2.40	2.40	601	5,329
1978	5,855	75	1,266	1,266	6,119	6,119	2,110	2,110	2.90	2.90	707	6,826
1979	6,114	75	1,028	1,028	6,782	6,782	2,055	2,055	3.30	3.30	819	7,601
1980	6,983	75	2,205	2,205	6,370	6,370	2,450	2,450	2.60	2.60	765	7,135
1981	7,979	75	1,719	1,719	8,347	8,347	2,455	2,455	3.40	3.40	772	9,119
1982	8,141	75	651	651	9,987	9,987	2,171	2,171	4.60	4.60	920	10,907
1983	3,763	75	633	633	4,175	4,175	1,265	1,265	3.30	3.30	504	4,679
1984	5,263	75	1,203	1,203	5,414	5,414	2,005	2,005	2.70	2.70	760	6,174
1985	5,323	75	1,202	1,202	5,494	5,494	1,717	1,717	3.20	3.20	926	6,420
1986	5,162	75	347	347	6,420	6,420	1,735	1,735	3.70	3.70	831	7,251
1987	4,523	75	883	883	4,854	4,854	1,471	1,471	3.30	3.30	871	5,725
1988	4,523	75	883	883	4,854	4,854	1,471	1,471	3.30	3.30	602	5,456
1989	4,628	75	903	903	4,967	4,967	1,505	1,505	3.30	3.30	734	5,701
1990	4,805	75	1,085	1,085	4,960	4,960	1,550	1,550	3.20	3.20	419	5,379
1991	1,989	75	852	852	1,515	1,515	947	947	1.60	1.60	70	1,585
1992	4,609	75	838	838	5,028	5,028	1,676	1,676	3.00	3.00	554	5,582
1993	4,105	75	764	764	4,456	4,456	1,273	1,273	3.50	3.50	674	5,130
1994	5,067	75	610	610	5,944	5,944	1,524	1,524	3.90	3.90	717	6,661
1996	3,567	75	246	246	4,428	4,428	1,230	1,230	3.60	3.60	527	4,955
2000	5,617	75	743	743	6,500	6,500	1,857	1,857	3.50	3.50	620	7,120
2001	5,402	75	844	844	6,077	6,077	1,688	1,688	3.60	3.60	628	6,705
2005	6,250	80	1,021	1,021	6,536	6,536	2,043	2,043	3.20	3.20	1,070	7,606
2020	6,658	80	1,233	1,233	6,782	6,782	2,055	2,055	3.30	3.30	1,070	7,852

# Water Needs Assessment

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1970						0	0			0	3,788	635
1971						0	0			0	4,161	1,190
1972						0	0			0	4,424	1,584
1973						0	0			0	4,786	-527
1974						0	0			0	4,701	-1,833
1975						0	0			0	4,713	-410
1976						0	0			0	5,764	-874
1977						0	0			0	5,329	601
1978						0	0			0	6,826	1,755
1979						0	0			0	7,601	466
1980						0	0			0	7,135	1,231
1981						0	0			0	9,119	1,435
1982						0	0			0	10,907	-112
1983						0	0			0	4,679	-366
1984						0	0			0	6,174	-1,430
1985						0	0			0	6,420	-2,843
1986						0	0			0	7,251	-1,061
1987						0	0			0	5,725	-2,987
1988						0	0			0	5,456	-566
1989						0	0			0	5,701	-1,635
1990						0	0			0	5,379	1,094
1991						0	0			0	1,585	886
1992						0	0			0	5,582	40
1993						0	0			0	5,130	-1,608
1994						0	0			0	6,661	-506
1996						0	0			0	4,955	-316
2000						0	0			0	7,120	916
2001						0	0			0	6,705	430
2005						0	0			0	7,606	-2,464
2020						0	0			0	7,852	-2,219

\* Represents Maximum Contract Amount

**Notes:**

**Lomo Cold Storage**

Contractor ID: 203007

Settlement Contractors

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Dllv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
2001	0	7,110	0	0		0	0	0	0	0	0	7,110
2025	0	7,110	0	0		0	0	0	0	0	0	7,110

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,700

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
2001	7,274	75	1,616	1,616	7,543	7,543	2,694	2,694	2.80	2.80	1,422	8,965
2025	8,019	85	1,662	1,662	7,479	7,479	2,770	2,770	2.70	2.70	1,422	8,901

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
2001							0			0	8,965	1,855
2025							0			0	8,901	1,791

\* Represents Maximum Contract Amount

**Notes:**

**M. AND T. CHICO RANCH INC.**

**Water Needs Assessment**

Contractor ID: 206071

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1997	0	16,496	0	3,865	Butte Creek	0	0	1,540	0	0	0	21,901
2020	0	16,500	0	4,000	Butte Creek	0	0	2,000	0	0	0	22,500
2021	0	17,956	0	4,000	Butte Creek	0	0	0	0	0	0	21,956

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 6,364

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1997	20,365	75	3,182	3,182	22,910	22,910	6,364	6,364	3.60	3.60	1,650	24,560
2020	21,574	85	3,182	3,182	21,638	21,638	6,364	6,364	3.40	3.40	1,650	23,288
2021	21,574	85	3,182	3,182	21,638	21,638	6,364	6,364	3.40	3.40	1,796	23,433

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1997							0	0		0	24,560	2,659
2020							0	0		0	23,288	788
2021							0	0		0	23,433	1,477

\* Represents Maximum Contract Amount

**Notes:**

**MAXWELL ID**

Contractor ID: 202910

# Water Needs Assessment

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	11,480	4,028	0	41,670	Water Rights	0	5,500	0	0		4,781	35,417
2020 BWMP	17,980 *	17,980	0	41,670	Water Rights	0	5,500	0	0		5,250	48,900
2021	17,980 *	17,980	0	41,670	Water Rights	0	5,500	0	0		3,500	50,650
2022	17,980 *	17,980	0	0		0	0	0	0		0	17,980

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 3,367

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995	17,300	64	1,000	676	25,500	20,618	5,000	3,380	5.10	6.10	1,594	27,094
2020	23,400	80	1,000	1,000	28,000	28,000	5,000	5,000	5.60	5.60	1,750	29,750
2021	23,400	80	1,000	1,000	28,000	28,000	5,000	5,000	5.60	5.60	1,750	29,750
2022	23,400	80	1,000	1,000	28,000	28,000	5,000	5,000	5.60	5.60	5,250	33,250

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34						
1995						0	0			0	27,094	-8,323	
2020						0	0			0	29,750	-19,150	
2021						0	0			0	29,750	-20,900	
2022						0	0			0	33,250	15,270	

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col. 25] and 15% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 5,500 ac-ft transferred to Colusa Drain MWC in 1995 (USBR records). Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 4,028 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance and Seepage Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**MERIDIAN FARMS WATER CO.**

**Water Needs Assessment**

Contractor ID: 202920

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	19,235	24,741	0	12,688		28,720	26	1,000	0		6,860	60,263
2020 BWMP	35,000 *	35,000	0	12,688		26,950	26	1,000	0		6,984	68,628
2021	35,000 *	35,000	0	12,688		26,950	26	1,000	0		4,365	71,247
2022	35,000 *	35,000	0	0		0	0	0	0		0	35,000

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 9,130

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995	22,660	58	2,760	2,293	34,300	25,222	9,200	7,643	3.73	3.30	4,573	38,873
2020	29,876	80	1,940	1,940	34,920	34,920	9,700	9,700	3.60	3.60	4,656	39,576
2021	29,568	80	1,920	1,920	34,560	34,560	9,600	9,600	3.60	3.60	4,365	38,925
2022	6,984	80	1,920	1,920	34,560	34,560	9,600	9,600	3.60	3.60	8,730	43,290

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	38,873	-21,390
2020						0	0			0	39,576	-29,052
2021						0	0			0	38,925	-32,322
2022						0	0			0	43,290	8,290

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 10% operational spills [col. 25] and 15% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 26 ac-ft transferred to SRWCA Pool in 1995 (USBR records). 1,000 ac-ft groundwater pumping during critical months/normal year (TM 6, pg. 10-1). Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 24,741 ac-ft = ave. deliveries through 1997 excluding 1977, 1991, 1992, 1994. Trsr/Rtn/Recycle In quantities are from TM-3 and represents 40% of crop water requirement plus 15,000 ac-ft from outside sources. 2021 Conveyance and Seepage Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**NATOMAS CENTRAL MWC**

**Water Needs Assessment**

Contractor ID: 202940

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	70,911	96,539	0	2,500	Water Rights	36,000	0	15,000	0		20,763	129,276
2018 M&I Use	120,200 *	120,200	0	0		0	0	0	0		0	120,200
2020 BWMP	120,200 *	120,200	0	2,500	Water Rights	36,000	0	15,000	0		9,159	164,541
2021	120,200 *	120,200	0	2,500	Water Rights	36,000	0	15,000	0		9,159	164,541
2022	120,200 *	120,200	0	0		0	0	0	0		0	120,200

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 32,876

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	95,210	55	3,410	2,406	166,100	132,341	34,100	24,062	4.87	5.50	20,763	186,863
2018	68,425	85	3,400	3,400	76,500	76,500	17,000	17,000	4.50	4.50	15,300	91,800
2020	82,112	85	4,260	4,260	91,590	91,590	21,300	21,300	4.30	4.30	9,159	100,749
2021	82,112	85	4,260	4,260	91,590	91,590	21,300	21,300	4.30	4.30	9,159	100,749
2022	82,112	85	4,260	4,260	91,590	91,590	21,300	21,300	4.30	4.30	18,318	109,908

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	186,863	57,587
2018	26,300	203.7	6,000	0	21,000	21,000	0	257.0	916.5	27,000	118,800	-1,400
2020						0	0			0	100,749	-63,792
2021						0	0			0	100,749	-63,792
2022						0	0			0	109,908	-10,292

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 10% operational spills [col. 25] and 10% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 15,000 ac-ft groundwater from Groundwater Hydrology Tech. Memo, pg. 70. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 96,539 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance and Seepage Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19]. Future efficiencies are set to 85% because there are no drainwater supplies or water quality concerns.

**NATOMAS CENTRAL MWC**

# **Water Needs Assessment**

Contractor ID: 202940

2018 - M&I pecap is 1.0 acre-foot per acre residential. Wetland Habitat is Commercial demand for 7000 acres at 3ac-ft/ac

**PELGER MWC**

Contractor ID: 202950

# Water Needs Assessment

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	6,230	4,139	0	0		5,060	0	0	0		1,082	8,117
2020 BWMP	8,860 *	8,860	0	0		4,147	0	0	0		1,024	11,983
2021	8,860 *	8,860	0	0		4,147	0	0	0		1,024	11,983
2022	8,860 *	8,860	0	0		0	0	0	0		0	8,860

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 2,485

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
		16	17	18	19	20	21	22	23	24	25	26
1995	6,280	62	580	517	9,200	12,915	2,900	2,583	3.17	5.00	541	9,741
2020	7,540	80	580	580	8,700	8,700	2,900	2,900	3.00	3.00	512	9,212
2021	7,540	80	580	580	8,700	8,700	2,900	2,900	3.00	3.00	512	9,212
2022	7,540	80	580	580	8,700	8,700	2,900	2,900	3.00	3.00	1,536	10,236

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	9,741	1,624
2020						0	0			0	9,212	-2,771
2021						0	0			0	9,212	-2,771
2022						0	0			0	10,236	1,376

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col.25] and 10% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 4,139 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle In quantities are from TM-3 and represents 55% of Crop Water Requirement. 2021 Conveyance and Seepage Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**PLEASANT GROVE-VERONA MW**

# Water Needs Assessment

Contractor ID: 202960

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1997	26,290*	18,105	0	0		13,000	0	0	0		0	31,105
1999	26,290*	18,837	0	0		13,000	0	0	0		0	31,837
2000	26,290*	19,370	0	0		13,000	0	0	0		0	32,370
2022	26,290*	26,290	0	0		0	0	0	0		0	26,290

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 6,514

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1997	23,803	75	1,205	1,205	30,130	30,130	6,026	6,026	5.00	5.00	1,810	31,940
1999	24,755	75	1,253	1,253	31,335	31,335	6,267	6,267	5.00	5.00	1,884	33,219
2000	25,434	75	1,264	1,264	32,227	32,227	6,319	6,319	5.10	5.10	1,937	34,164
2022	25,669	85	1,303	1,303	28,666	28,666	6,515	6,515	4.40	4.40	2,629	31,295

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1997						0	0			0	31,940	835
1999						0	0			0	33,219	1,382
2000						0	0			0	34,164	1,794
2022						0	0			0	31,295	5,005

\* Represents Maximum Contract Amount

**Notes:**

**PRINCETON-CODORA-GLENN ID**

**Water Needs Assessment**

Contractor ID: 202970

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	43,377	56,240	0	8,930	Water Rights	20,000	26	3,800	0		13,371	75,573
2020 BWMP	67,810 *	67,810	0	8,930	Water Rights	25,000	26	3,800	0		15,008	90,506
2021	67,810 *	67,810	0	8,930	Water Rights	25,000	26	3,800	0		6,566	98,948
2022	67,810 *	67,810	0	0		0	0	0	0		0	67,810

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 10,187

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	32,680	64	1,980	1,751	47,600	49,904	9,900	8,755	4.81	5.70	6,686	54,286
2020	45,114	80	3,090	3,090	52,530	52,530	10,300	10,300	5.10	5.10	7,504	60,034
2021	45,492	80	3,060	3,060	53,040	53,040	10,200	10,200	5.20	5.20	6,566	59,606
2022	45,492	80	3,060	3,060	53,040	53,040	10,200	10,200	5.20	5.20	13,132	66,172

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	54,286	-21,287
2020						0	0			0	60,034	-30,472
2021						0	0			0	59,606	-39,342
2022						0	0			0	66,172	-1,638

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 10% operational [col. 25] spills and 20% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 26 ac-ft transferred to SRWCA Pool in 1995 (USBR records). 3,800 ac-ft groundwater from Groundwater Hydrology Tech. Memo, pg. 30. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 56,240 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance and Seepage Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**PROVIDENT ID**

Contractor ID: 202980

Settlement Contractors

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:46 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	41,028	43,159	0	7,880	Water Rights	90,000	0	3,000	0		11,770	132,269
2020 BWMP	54,730 *	54,730	0	7,880	Water Rights	110,000	0	4,000	0		13,385	163,225
2021	54,730 *	54,730	0	7,880	Water Rights	105,000	0	4,000	0		10,875	160,735
2022	54,730 *	54,730	0	0		0	0	0	0		0	54,730

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 14,556

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995	51,560	64	2,960	2,672	76,500	82,844	14,800	13,362	5.17	6.20	9,808	86,308
2020	72,600	80	3,000	3,000	87,000	87,000	15,000	15,000	5.80	5.80	11,154	98,154
2021	72,600	80	3,000	3,000	87,000	87,000	15,000	15,000	5.80	5.80	10,875	97,875
2022	72,600	80	3,000	3,000	87,000	87,000	15,000	15,000	5.80	5.80	21,750	108,750

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	86,308	-45,961
2020						0	0			0	98,154	-65,071
2021						0	0			0	97,875	-62,860
2022						0	0			0	108,750	54,020

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 10% operational spills [col. 25] and 12% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 43,159 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsr/Rtrn/Recycle in quantities are from TM-3. GW is from TM-3. 2021 Conveyance Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

RECL. DISTRICT 1004

# Water Needs Assessment

Contractor ID: 203000

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	48,641	56,126	0	20,830	Water Rights	20,000	0	500	0		14,025	83,431
2020 BWMP	71,400 *	71,400	0	20,830	Water Rights	20,000	0	500	0		15,469	97,261
2021	71,400 *	71,400	0	20,830	Water Rights	20,000	0	500	0		10,313	102,417
2022	71,400 *	71,400	0	0		0	0	0	0		0	71,400

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 18,799

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995	48,970	64	1,570	1,403	74,330	85,571	15,700	14,028	4.73	6.10	4,675	79,005
2020	67,650	80	1,650	1,650	82,500	82,500	16,500	16,500	5.00	5.00	5,156	87,656
2021	67,650	80	1,650	1,650	82,500	82,500	16,500	16,500	5.00	5.00	5,156	87,656
2022	67,650	80	1,650	1,650	82,500	82,500	16,500	16,500	5.00	5.00	15,469	97,969

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	79,005	-4,426
2020						0	0			0	87,656	-9,605
2021						0	0			0	87,656	-14,761
2022						0	0			0	97,969	26,569

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col. 25] and 15% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 500 ac-ft groundwater from Groundwater Hydrology Tech. Memo, pg. 49. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 56,126 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsrfr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

RECL. DISTRICT 108

# Water Needs Assessment

Contractor ID: 202990

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995 BWMP	126,435	162,870	0	27,200	Water Rights	0	66	0	0		21,342	168,662
2020 BWMP	232,000 *	232,000	0	27,200	Water Rights	0	66	0	0		21,618	237,516
2021	232,000 *	232,000	0	27,200	Water Rights	0	66	0	0		21,618	237,516
2022	232,000 *	232,000	0	0		0	0	0	0		0	232,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 48,707

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1995	122,820	62	9,920	8,170	181,400	191,995	49,600	40,850	3.66	4.70	10,670	192,070
2020	168,000	80	21,000	21,000	183,750	183,750	52,500	52,500	3.50	3.50	10,808	194,558
2021	168,000	80	21,000	21,000	183,750	183,750	52,500	52,500	3.50	3.50	10,808	194,558
2022	168,000	80	21,000	21,000	183,750	183,750	52,500	52,500	3.50	3.50	32,426	216,176

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995						0	0			0	192,070	23,408
2020						0	0			0	194,558	-42,958
2021						0	0			0	194,558	-42,958
2022						0	0			0	216,176	-15,824

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col. 25] and 10% seepage loss [col. 12] (TM 2) of the crop water requirement [col. 19]. 66 ac-ft transferred to SRWCA Pool in 1995. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 162,870 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994. Trsfir/Rtrn/Recycle In quantities are from TM-3. GW is not quantified. 2021 Conveyance Losses are limited to no more than 10% of crop water requirement [col.19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

**RIVER GARDEN FARMS CO.**

**Water Needs Assessment**

Contractor ID: 206097

Settlement Contractors

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
2000	0	22,691	0	0		0	0	1,222	0	0	0	23,913
2001	0	22,691	0	0		0	0	1,122	0	0	0	23,813
2020	0	22,700	0	0		0	0	1,140	0	0	0	23,840
2025	0	29,800	0	0		0	0	0	0	0	0	29,800

**Contractor's Agricultural Water Demands**

Maximum Productive Acres: 6,739

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
2000	21,157	75	1,801	1,801	25,809	25,809	6,002	6,002	4.30	4.30	2,381	28,190
2001	30,700	75	1,616	1,616	38,779	38,779	8,079	8,079	4.80	4.80	2,381	41,161
2020	30,583	85	2,424	2,424	33,128	33,128	8,080	8,080	4.10	4.10	2,384	35,512
2025	23,688	85	1,348	1,348	26,282	26,282	6,739	6,739	3.90	3.90	2,980	29,262

**Contractor's M&I Water Demands**

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
2000						0	0			0	28,190	4,277
2001						0	0			0	41,161	17,348
2020						0	0			0	35,512	11,672
2025						0	0			0	29,262	-538

\* Represents Maximum Contract Amount

**Notes:**

**SUTTER MWC**

Contractor ID: 203030

Settlement Contractors

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1976	0	0										0
1977	0	0										0
1978	0	0										0
1979	0	211,251	0	0		0	0	0	0		0	211,251
1980	0	245,039	0	0		0	0	0	0		0	245,039
1981	0	234,148	0	0		0	0	0	0		0	234,148
1982	0	236,747	0	0		0	0	0	0		0	236,747
1983	0	150,333	0	0		0	0	0	0		0	150,333
1984	0	209,727	0	0		0	0	0	0		0	209,727
1985	0	204,854	0	0		0	0	0	0		0	204,854
1986	0	200,171	0	0		0	0	0	0		0	200,171
1987	0	197,985	0	0		0	0	0	0		0	197,985
1988	0	189,366	0	0		0	0	0	0		0	189,366
1989	0	198,790	0	0		0	0	0	0		0	198,790
1990	0	197,051	0	0		0	0	0	0		0	197,051
1991	0	174,792	0	0		0	0	0	0		0	174,792
1992	0	170,105	0	0		0	0	0	0		0	170,105
1993	0	181,643	0	0		0	0	0	0		0	181,643
1994	0	191,957	0	0		0	0	0	0		0	191,957
1995	BWMP	184,409	215,541	0	0		15,000	39	0	0	35,981	194,521
1996		267,900 *	174,797	0	0		0	0	0	0	0	174,797
1997		267,900 *	208,902	0	0		0	0	0	0	0	208,902
1998		267,900 *	136,372	0	0		0	0	0	0	0	136,372
1999		267,900 *	202,965	0	0		0	0	0	0	0	202,965
2000		267,900 *	224,784	0	0		0	0	0	0	0	224,784
2020	BWMP	267,900 *	267,900	0	0		30,000	39	0	0	29,644	268,217
2021		267,900 *	267,900	0	0		30,000	39	0	0	19,763	278,098
2022		267,900 *	267,900	0	0		0	0	0	0	0	267,900
2031	Draft	267,900 *	267,900	0	0		0	0	0	0	0	267,900
2032	Draft	267,900 *	267,900	0	0		0	0	0	0	0	267,900
2033	Draft	267,900 *	267,900	0	0		0	0	0	0	0	267,900
2034	Draft	267,900 *	267,900	0	0		0	0	0	0	0	267,900
2035	Draft	267,900 *	267,900	0	0		0	0	0	0	0	267,900

**SUTTER MWC**

Contractor ID: 203030

2036	Draft	267,900	*	267,900	0	0	0	0	0	0	0	267,900
2037	Draft	267,900	*	267,900	0	0	0	0	0	0	0	267,900
2038	Draft	267,900	*	267,900	0	0	0	0	0	0	0	267,900
2039	Draft	0		0								0

# Water Needs Assessment

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 43,517

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1976	153,462	80	27,210	27,210	157,815	157,815	54,419	54,419	2.90	2.90	29,644	187,459
1977	143,330	80	21,078	21,078	152,816	152,816	52,695	52,695	2.90	2.90	29,644	182,460
1978	144,350	80	8,491	8,491	169,824	169,824	42,456	42,456	4.00	4.00	29,644	199,468
1979	131,545	80	12,730	12,730	148,519	148,519	42,434	42,434	3.50	3.50	29,644	178,163
1980	148,881	80	14,045	14,045	168,545	168,545	46,818	46,818	3.60	3.60	29,644	198,189
1981	148,268	80	13,988	13,988	167,850	167,850	46,625	46,625	3.60	3.60	29,644	197,494
1982	149,452	80	8,396	8,396	176,320	176,320	41,981	41,981	4.20	4.20	29,644	205,964
1983	96,976	80	5,986	5,986	113,738	113,738	29,931	29,931	3.80	3.80	29,644	143,382
1984	122,503	80	11,557	11,557	138,683	138,683	38,523	38,523	3.60	3.60	29,644	168,327
1985	111,009	80	14,606	14,606	120,503	120,503	36,516	36,516	3.30	3.30	29,644	150,147
1986	104,190	80	6,766	6,766	121,781	121,781	33,828	33,828	3.60	3.60	29,644	151,425
1987	111,434	80	14,662	14,662	120,965	120,965	36,656	36,656	3.30	3.30	29,644	150,609
1988	127,496	80	16,346	16,346	138,938	138,938	40,864	40,864	3.40	3.40	29,644	168,582
1989	120,156	80	11,336	11,336	136,026	136,026	37,785	37,785	3.60	3.60	29,644	165,670
1990	135,364	80	18,292	18,292	146,339	146,339	45,731	45,731	3.20	3.20	29,644	175,983
1991	122,121	80	7,729	7,729	142,990	142,990	38,646	38,646	3.70	3.70	29,644	172,634
1992	129,064	80	7,592	7,592	151,840	151,840	37,960	37,960	4.00	4.00	29,644	181,484
1993	122,820	80	7,059	7,059	144,701	144,701	35,293	35,293	4.10	4.10	29,644	174,345
1994	145,988	80	13,113	13,113	166,094	166,094	43,709	43,709	3.80	3.80	29,644	195,738
1995	118,120	58	9,320	8,419	185,999	155,748	46,600	42,094	3.99	3.70	11,994	197,993
1996	125,088	80	7,535	7,535	146,940	146,940	37,677	37,677	3.90	3.90	29,644	176,584
1997	136,970	80	13,255	13,255	154,644	154,644	44,184	44,184	3.50	3.50	29,644	184,288
1998	111,643	80	7,066	7,066	130,721	130,721	35,330	35,330	3.70	3.70	29,644	160,365
1999	122,604	80	7,386	7,386	144,023	144,023	36,929	36,929	3.90	3.90	29,644	173,667
2000	160,325	80	13,742	13,742	183,228	183,228	45,807	45,807	4.00	4.00	29,644	212,872
2020	141,780	80	15,300	15,300	158,100	158,100	51,000	51,000	3.10	3.10	9,881	167,981
2021	141,780	80	15,300	15,300	158,100	158,100	51,000	51,000	3.10	3.10	9,881	167,981
2022	141,780	80	15,300	15,300	158,100	158,100	51,000	51,000	3.10	3.10	29,644	187,744
2031	135,520	80	8,800	8,800	158,400	158,400	44,000	44,000	3.60	3.60	29,644	188,044
2032	144,838	80	15,630	15,630	161,510	161,510	52,100	52,100	3.10	3.10	29,644	191,154

**SUTTER MWC**

Contractor ID: 203030

**Water Needs Assessment**

2033	142,560	80	8,800	8,800	167,200	167,200	44,000	44,000	3.80	3.80	29,644	196,844
2034	160,468	80	10,420	10,420	187,560	187,560	52,100	52,100	3.60	3.60	29,644	217,204
2035	123,200	80	8,000	8,000	144,000	144,000	40,000	40,000	3.60	3.60	29,644	173,644
2036	136,000	80	8,000	8,000	160,000	160,000	40,000	40,000	4.00	4.00	29,644	189,644
2037	132,300	80	13,500	13,500	148,500	148,500	45,000	45,000	3.30	3.30	29,644	178,144
2038	145,800	80	9,000	9,000	171,000	171,000	45,000	45,000	3.80	3.80	29,644	200,644
2039	164,000	80	13,743	13,743	187,821	187,821	45,810	45,810	4.10	4.10	29,644	217,465

# Water Needs Assessment

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1976						0	0			0	187,459	187,459
1977						0	0			0	182,460	182,460
1978						0	0			0	199,468	199,468
1979						0	0			0	178,163	-33,088
1980						0	0			0	198,189	-46,850
1981						0	0			0	197,494	-36,654
1982						0	0			0	205,964	-30,783
1983						0	0			0	143,382	-6,951
1984						0	0			0	168,327	-41,400
1985						0	0			0	150,147	-54,707
1986						0	0			0	151,425	-48,746
1987						0	0			0	150,609	-47,376
1988						0	0			0	168,582	-20,784
1989						0	0			0	165,670	-33,120
1990						0	0			0	175,983	-21,068
1991						0	0			0	172,634	-2,158
1992						0	0			0	181,484	11,379
1993						0	0			0	174,345	-7,298
1994						0	0			0	195,738	3,781
1995						0	0			0	197,993	3,472
1996						0	0			0	176,584	1,787
1997						0	0			0	184,288	-24,614
1998						0	0			0	160,365	23,993
1999						0	0			0	173,667	-29,298
2000						0	0			0	212,872	-11,912
2020						0	0			0	167,981	-100,236
2021						0	0			0	167,981	-110,117
2022						0	0			0	187,744	-80,156
2031						0	0			0	188,044	-79,856
2032						0	0			0	191,154	-76,746
2033						0	0			0	196,844	-71,056
2034						0	0			0	217,204	-50,696
2035						0	0			0	173,644	-94,256
2036						0	0			0	189,644	-78,256

**SUTTER MWC**

**Water Needs Assessment**

Contractor ID: 203030

2037	0	0		0	178,144	-89,756
2038	0	0		0	200,644	-67,256
2039	0	0		0	217,465	217,465

\* Represents Maximum Contract Amount

**Notes:** Conveyance loss = 5% operational spills [col. 25] and 15% seepage loss [col. 12] (TM2) of the crop water requirement [col. 19]. 39 ac-ft transferred to SRWCA Pool in 1995. Column 3, 1995 deliveries represent Normalized delivery data to correspond with 1995 Normalized crop data. 215,541 ac-ft = ave. deliveries through 1997 excluding 1977, 1983, 1991, 1992, 1994.

Trsfr/Rtrn/Recycle In quantities are from TM-3. 2021 Conveyance Losses are limited to no more than 10% of crop water requirement [col. 19].

2022 represents 2021 conditions excepting that all supplies are limited to contract quantities. Seepage and spills identified in BWMP are considered conveyance losses but are limited to no more than 10% of crop water requirement [col. 19].

TISDALE IRR AND DRAINAGE CO

# Water Needs Assessment

Contractor ID: 203050

Settlement Contractors

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1960	0	9,900	0	0		0	0	0	0		0	9,900
1995	6,550	6,550	0	0		0	0	0	0		0	6,550
2002	9,900 *	7,455	0	0		0	0	0	0		0	7,455
2025	9,900 *	9,900	0	0		0	0	0	0		0	9,900

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 1,971

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1960	24	75	5	5	26	26	8	8	3.20	3.20	990	1,016
1995	5,141	75	1,003	1,003	5,518	5,518	1,672	1,672	3.30	3.30	1,310	6,828
2002	5,239	85	830	830	5,188	5,188	2,075	2,075	2.50	2.50	1,620	6,808
2025	5,668	85	615	615	5,945	5,945	2,050	2,050	2.90	2.90	1,620	7,565

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1960						0	0			0	1,016	-8,884
1995						0	0			0	6,828	278
2002						0	0			0	6,808	-648
2025						0	0			0	7,565	-2,335

\* Represents Maximum Contract Amount

**Notes:**

REDDING, CITY OF

Contractor ID: 203124

Shasta

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1995	6,140	16,415	0	0		0	0	5,075	0		0	21,490
2025	6,140	27,140	0	0		0	0	6,068	0		0	33,208

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 9,251

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
	16	17	18	19	20	21	22	23	24	25	26	
1995												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1995	72,250	154.0	12,461	436	7,853	8,289	740	274.0	265.5	21,490	21,490	0
2025	108,326	158.7	19,260	660	12,280	12,940	1,000	257.0	273.6	33,200	33,200	-8

\* Represents Maximum Contract Amount

**Notes:** 2025 USBR Total Max Deliveries includes 2,715 acre feet from Sacramento Division and 6,140 acre feet from Shasta Division and 18,285 of base supply from the Sacramento Division.

**SHASTA COUNTY WA**

**Water Needs Assessment**

Contractor ID: 203127

Shasta

**Contractor's Water Supply Sources and Quantities (acre-feet)**

Date: 4/30/2008 8:14:47 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1995	5,000*	1,167	0	0		0	0	0	0		0	1,167
2025	5,000*	5,500	0	0		0	1,844	0	0		0	3,656

**Contractor's Agricultural Water Demands**

Maximum Productive Acres:

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1995												
2025												

**Contractor's M&I Water Demands**

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1995	2,525	382.9	1,083	0	0	0	84	374.0	412.6	1,167	1,167	0
2025	7,965	357.0	3,185	0	0	0	0	357.0	357.0	3,185	3,185	-471

\* Represents Maximum Contract Amount

**Notes:** Detailed demand is for Centerville CSD. The Centerville sub-contract is for 2,900 AF annually. Other subcontractors are for replacement water (266 AF) and project water (1,834 AF).

**SHASTA CSD**

Contractor ID: 203078

# Water Needs Assessment

Shasta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:47 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1997	1,000 *	0	0	0		0	0	0	0		0	0
2025	1,000 *	1,000 *	0	0		0	0	0	0		0	1,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1997												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1997				0		0	0			0	0	0
2025				0		0	0			0	0	-1,000

\* Represents Maximum Contract Amount

**Notes:**

**SHASTA LAKE, CITY OF**

Contractor ID: 203129

# Water Needs Assessment

Shasta

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dlliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	0	2,025	0	0		0	0	0	0		0	2,025
1996	2,750	2,570	0	0		0	0	0	0		0	2,570
2025	2,750	4,400	0	0		0	0	0	0		0	4,400

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 803

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989												
1996												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989	7,020	213.8	1,681	152	224	376	280	274.0	297.2	2,337	2,337	312
1996	9,175	156.7	1,610	60	380	440	520	274.0	250.1	2,570	2,570	0
2025	14,720	182.4	3,007	475	1,035	1,510	830	257.0	324.3	5,347	5,347	947

\* Represents Maximum Contract Amount

**Notes:** Unaccounted beneficial use is totaled with the distribution system loss. The total for both is shown under Distribution system loss.

**BELLA VISTA WD**

Contractor ID: 203110

Trinity River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989	23,956	15,583	0	0		0	0	128	0		0	15,711
1993	24,000 *	11,314	0	0		0	0	469	0		0	11,783
2025	24,000 *	24,000	0	0	Shasta CWA	579	25	1,500	0		0	26,054

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 7,599

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	11,475	75	5,699	2,793	7,701	10,055	2,768	2,793	2.78	3.60	156	7,857
1993	11,623	75	5,699	2,875	7,899	11,500	2,920	2,875	2.71	4.00	113	8,012
2025	11,635	85	2,807	2,807	10,386	10,386	2,807	2,807	3.70	3.70	2,260	12,646

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989	13,000	165.6	2,412	0	468	468	2,066	374.0	339.7	4,946	12,803	-2,908
1993	13,000	295.8	4,307	0	723	723	816	374.0	401.5	5,846	13,858	2,075
2025	52,500	257.0	15,114	0	2,000	2,000	800	357.0	304.6	17,914	30,560	4,506

\* Represents Maximum Contract Amount

**Notes:** The conveyance loss includes 2,160 acre-feet for agricultural needs in 2025. The Reference Per Capita Demand MI was increased by 100 gpcd to account for the large lot size and fire protection needs in the District.

**CLEAR CREEK CSD**

Contractor ID: 203090

Trinity River

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 1995 Plan	12,874	9,875	0	0		2,160	778	0	0		0	11,257
2025	15,300	*	15,300	*	0	0	0	0	0		0	15,300

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 6,659

Timeframe 1	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	14,703	75	10,141	2,989	6,083	11,291	6,063	3,321	1.00	3.40	1,837	7,920
2025	29,205	85	6,638	6,638	26,550	26,550	7,375	7,375	3.60	3.60	0	26,550

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989	5,415	250.1	1,517	0	35	35	2,614	357.0	686.8	4,166	12,086	829
2025	20,721	254.4	5,905	0	1,028	1,028	1,350	357.0	356.9	8,283	34,833	19,533

\* Represents Maximum Contract Amount

**Notes:** 1989= Ag and Urban Water Use based on district's 1995 WCPlan. 1997 information from data submittal omitted because residential water use unreasonably high. 2025 M&I use capped at 357 gpd by reducing Residential Demand.

**AVENAL, CITY OF**

Contractor ID: 203181

West San Joaquin

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe	Surface Water Supply							Groundwater Supply				Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtrn / Recycle In	Trsfir / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1997 representative	3,500	2,432	0	0		0	0	0	0		0	2,432
2025	3,500	3,500	0	0		0	0	0	0		0	3,500

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 11,099

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	16	17	18	19	20	21	22	23	24	25	26	
1997												
2025												

## Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial	Comm / Instit.	Total Demand (acre-feet)	Unacc. / Distr.					
1	28	29	30	31	32	33	34	35	36	37	38	39
1997	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1
2025	12,000	97.2	1,306	57	2,143	2,200	385	274.0	289.5	3,891	3,891	391

\* Represents Maximum Contract Amount

**Notes:** Unaccounted beneficial use is added to distribution system loss; the total is shown under Distribution system loss.

**COALINGA, CITY OF**

Contractor ID: 203182

West San Joaquin

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dellv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1996	10,000*	4,321	0	0		0	0	0	0		0	4,321
1998	10,000*	3,995	0	0		0	0	0	0		0	3,995
2025	10,000*	10,000	0	0		0	0	0	0		0	10,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 34,538

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1996												
1998												
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1996	14,990	257.3	4,321	0	0	0	0	311.0	257.3	4,321	4,321	0
1998	15,400	108.7	1,875	600	1,295	1,895	225	311.0	231.6	3,995	3,995	0
2025	27,000	279.6	8,455	0	0	0	563	274.0	298.2	9,018	9,018	-982

\* Represents Maximum Contract Amount

**Notes:** Unaccounted beneficial uses are added to distribution system losses and shown under Distribution system loss. 2025 system losses based on 1998 system loss rate. The City's population includes 5,000 inmates at the Pleasant Valley State Prison.

**HURON, CITY OF**

Contractor ID: 203186

West San Joaquin

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1996	3,000	982	0	0		0	0	0	0		0	982
2025	3,000	3,000	0	0		0	0	0	0		0	3,000

## Contractor's Agricultural Water Demands

Maximum Productive Acres:

Timeframe 1	Crop Water Requiremen t (acre-feet)	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1996		0									0	
2025												

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1996	5,608	75.9	477	311	114	425	80	311.0	156.3	982	982	0
2025	12,810	76.0	1,090	710	260	970	206	274.0	157.9	2,266	2,266	-734

\* Represents Maximum Contract Amount

**Notes:** Unaccounted beneficial use is totaled with the distribution system loss. The total for both is shown under Distribution system loss. Distribution system losses in 2025 estimated to be 10%.

**PANOCHÉ WD-DMC**

Contractor ID: 202030

West San Joaquin

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Dllv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtrn / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1989 WC Plan	86,081	91,887	0	0		1,792	42	0	0		0	93,637
1999	0	0										0
2025	94,000 *	94,000 *	0	0		0	48	0	0		0	93,952

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 35,786

Timeframe 1	Crop Water Requirement (acre-feet) 16	District Irrig. Efficiency (%) 17	Effective Precip (acre-feet) 18	Reference Effective Precip (acre-ft) 19	Calculated Net Crop Water Req (acre-feet) 20	USBR Net Crop Water Req (acre-feet) 21	Average Irrigated Acres (acres) 22	Reference Irrigated Acres (acres) 23	Calculated FDR (AF/acre) 24	USBR FDR (AF/acre) 25	Conveyance Loss (acre-feet) 26	Total Ag Demand (acre-feet) 27
1989	80,707	75	6,555	10,676	98,869	99,641	35,661	35,586	2.77	2.80	7,903	106,772
1999	81,443	75	10,859	10,859	94,112	94,112	36,197	36,197	2.60	2.60		
2025	85,916	85	11,430	11,430	87,630	87,630	38,100	38,100	2.30	2.30	5,186	92,816

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 26	Total M&I Demand (acre-feet) 27	Total Ag + M&I Dmd (acre-feet) 28	Unmet Demand (acre-feet) 29
	Population 30	Per Capita Demand (gpcd) 31	Total Demand (acre-feet) 32	Industrial (acre-feet) 33	Comm / Insit. (acre-feet) 34	Total Demand (acre-feet) 35	Unacc. / Distr. (acre-feet) 36					
1989						0	0			0	106,772	13,135
1999						0	0			0	0	0
2025						0	0			0	92,816	-1,136

\* Represents Maximum Contract Amount

**Notes:** In 1989 and 2025, USBR total supply includes 42 & 48 AF M&I; these supplies are shown as transfers out to make this solely an assessment of ag water need.

**WESTLANDS WD**

Contractor ID: 203220

West San Joaquin

# Water Needs Assessment

## Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 4/30/2008 8:14:48 A

Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtrn / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	1,062,509	1,130,463	0	0		32,865	5,420	0	175,000		0	1,332,908
1996	0	0										0
1999	0	0										0
2025	*	*	0	0		0	4,938	0	175,000		0	170,062
2026	*	1,150,000	0	0		0	4,938	0	175,000		0	1,320,062
2030 Distrib Dist 2	*	2,675	0	0		4,198	0	0	0		0	6,873

## Contractor's Agricultural Water Demands

Maximum Productive Acres: 532,700

Timeframe 1	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	1,150,449	75	65,249	155,765	1,446,933	1,401,883	515,000	519,216	2.81	2.70	319	1,447,252
1996	1,229,209	75	163,895	163,895	1,420,419	1,420,419	546,315	546,315	2.60	2.60		
1999	1,269,094	75	163,754	163,754	1,473,787	1,473,787	545,847	545,847	2.70	2.70		
2025	1,366,756	85	181,830	181,830	1,394,030	1,394,030	606,100	606,100	2.30	2.30	319	1,394,349
2026	1,139,266	85	151,230		1,162,395		504,100		2.31		66,003	1,228,398
2030	10,560	85	1,330		10,859		3,598		3.02		343	11,202

## Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd) 25	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instiit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34					
1989							0			0	1,447,252	114,344
1996							0			0	0	0
1999							0			0	0	0
2025							0			0	1,394,349	1,224,287
2026							0			0	1,228,398	-91,664
2030							0			0	11,202	4,329

\* Represents Maximum Contract Amount

**Notes:** In order to limit this to an assessment of agricultural water needs, M&I water demand in the amount of 5,420 AF in 1989 and 4,938 AF in 2025 are shown as transfers out. 2030 is 2025 assessment for Westlands Distribution District #2 and includes an assignment of 4198 AF from Mercy Springs Water District, 5% conveyance loss and effective precipitation proportional to WWD 2025 estimate.

**Comments:**

**Water supply and demand information is for a normal year, hydrologically.**

**Crop Water Requirement includes leaching requirement and cultural water, but not irrigation efficiency.**

**Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years**

**Quality control check; information is either calculated by USBR staff, or from reference.**