

**Water Resources Planning Department**

**Water Supply / Demand Analysis and Projections**  
**for**  
**Redwood Valley District**

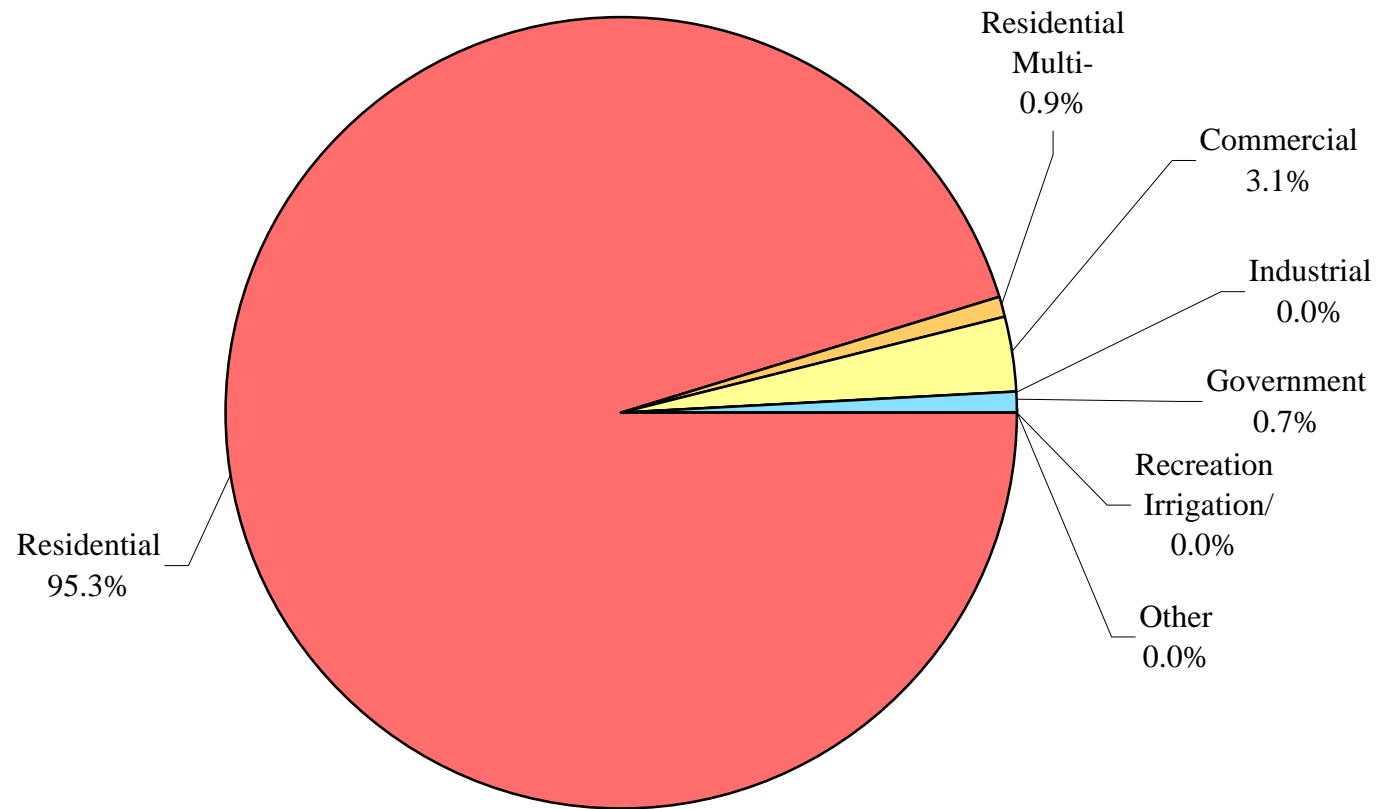
**2010**



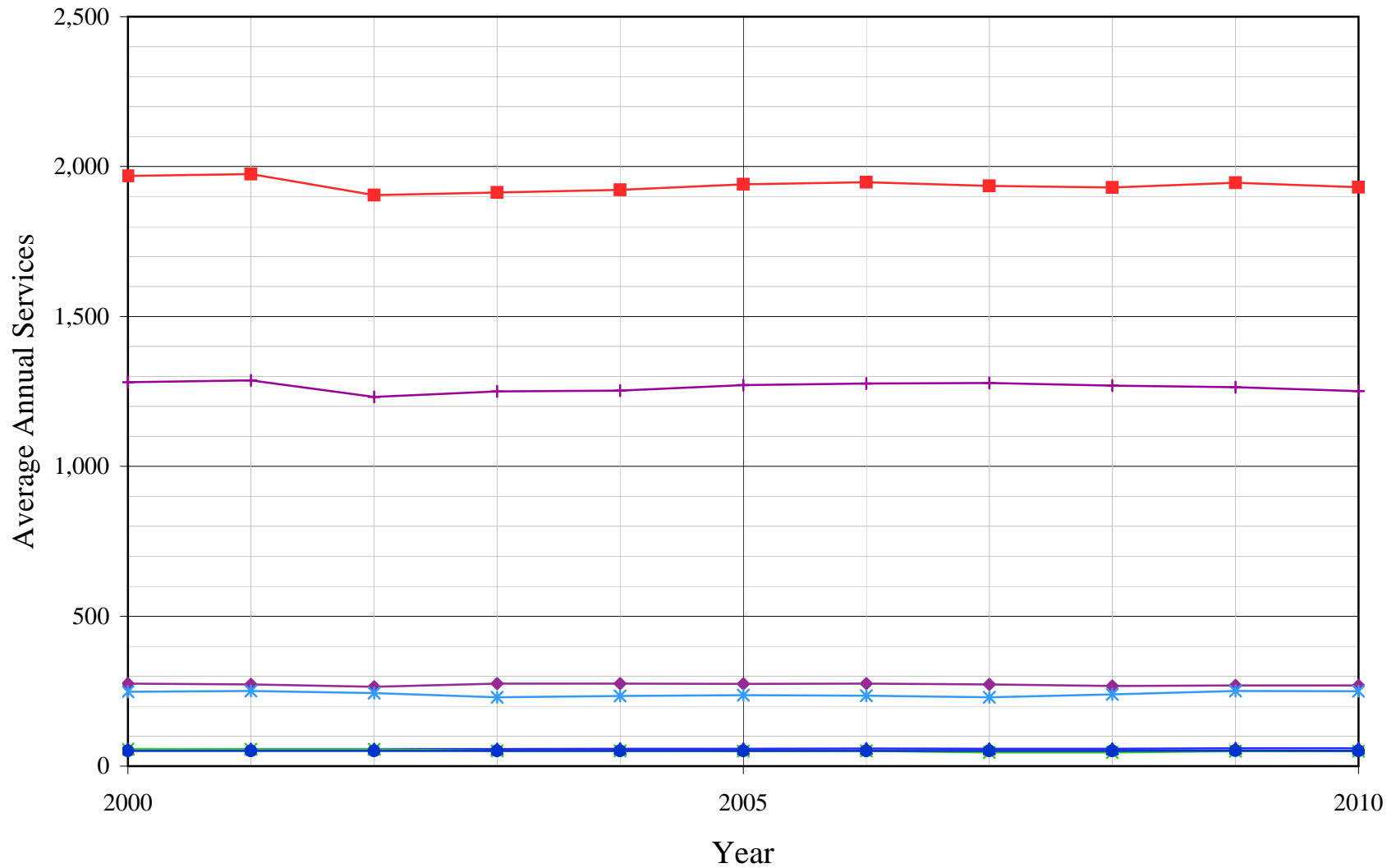
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# Redwood Valley District Distribution of Services (2010)



# Redwood Valley District Historical Annual Services



**California Water Service Company - Redwood Valley District  
Water Supply and Demand Analysis and Projections  
Annual Services**

Year	Residential	Multi-Residential	Multi-Res. units	Commercial	Industrial	Government	Irrigation/Recreation	Other	Total	Annual Change
1990										
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999										
2000	1,870	18		67	0	14	0	0	1,969	
2001	1,876	18		67	0	14	0	0	1,975	6
2002	1,806	18	10	67	0	14	0	0	1,905	-70
2003	1,823	18	183	62	0	11	0	0	1,914	9
2004	1,829	18	183	63	0	12	0	0	1,922	8
2005	1,848	18	183	62	0	13	0	0	1,941	19
2006	1,856	17	183	61	0	13	0	0	1,947	6
2007	1,848	17	183	60	0	11	0	0	1,936	-12
2008	1,843	17	183	59	0	11	0	0	1,930	-6
2009	1,855	17	183	60	0	14	0	0	1,946	16
2010	1,841	17		59	0	14	0	0	1,931	-15
5 Yr Avg.	1,850	17	183	60	0	12	0	0	1,940	5
10 Yr Avg.	1,845	18	161	63	0	13	0	0	1,939	-3

Five year average is from years 2005 through 2009.

Ten year average is from years 2000 through 2009.

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Service Growth Percentage**

Year	Residential	Multi-Residential	Multi-Res. units	Commercial	Industrial	Government	Irrigation/Recreation	Other	Total
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%			0.31%
2002	-3.74%	0.00%	0.00%	0.00%	0.00%	0.00%			-3.56%
2003	0.95%	0.00%	0.00%	-7.46%	0.00%	-21.43%			0.48%
2004	0.33%	0.00%	0.00%	1.61%	0.00%	9.09%			0.42%
2005	1.04%	0.00%	0.00%	-1.59%	0.00%	8.33%			0.99%
2006	0.43%	-5.56%	0.00%	-1.61%	0.00%	3.21%			0.33%
2007	-0.44%	0.00%	0.00%	-1.64%	0.00%	-18.01%			-0.59%
2008	-0.27%	0.00%	0.00%	-1.67%	0.00%	0.00%		0.00%	-0.31%
2009	0.65%	0.00%	0.00%	1.69%	0.00%	27.27%		0.00%	0.83%
2010	-0.75%	0.00%		-1.67%	0.00%	0.00%			-0.77%
3 Yr. Avg.	-0.02%	0.00%	0.00%	-0.54%		3.09%			-0.02%
5 Yr. Avg.	0.28%	-1.11%	0.00%	-0.96%		4.16%			0.25%

Three year average is from years 2007 through 2009.

Five year average is from years 2005 through 2009.

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Sales (ccf)**

Worksheet 3

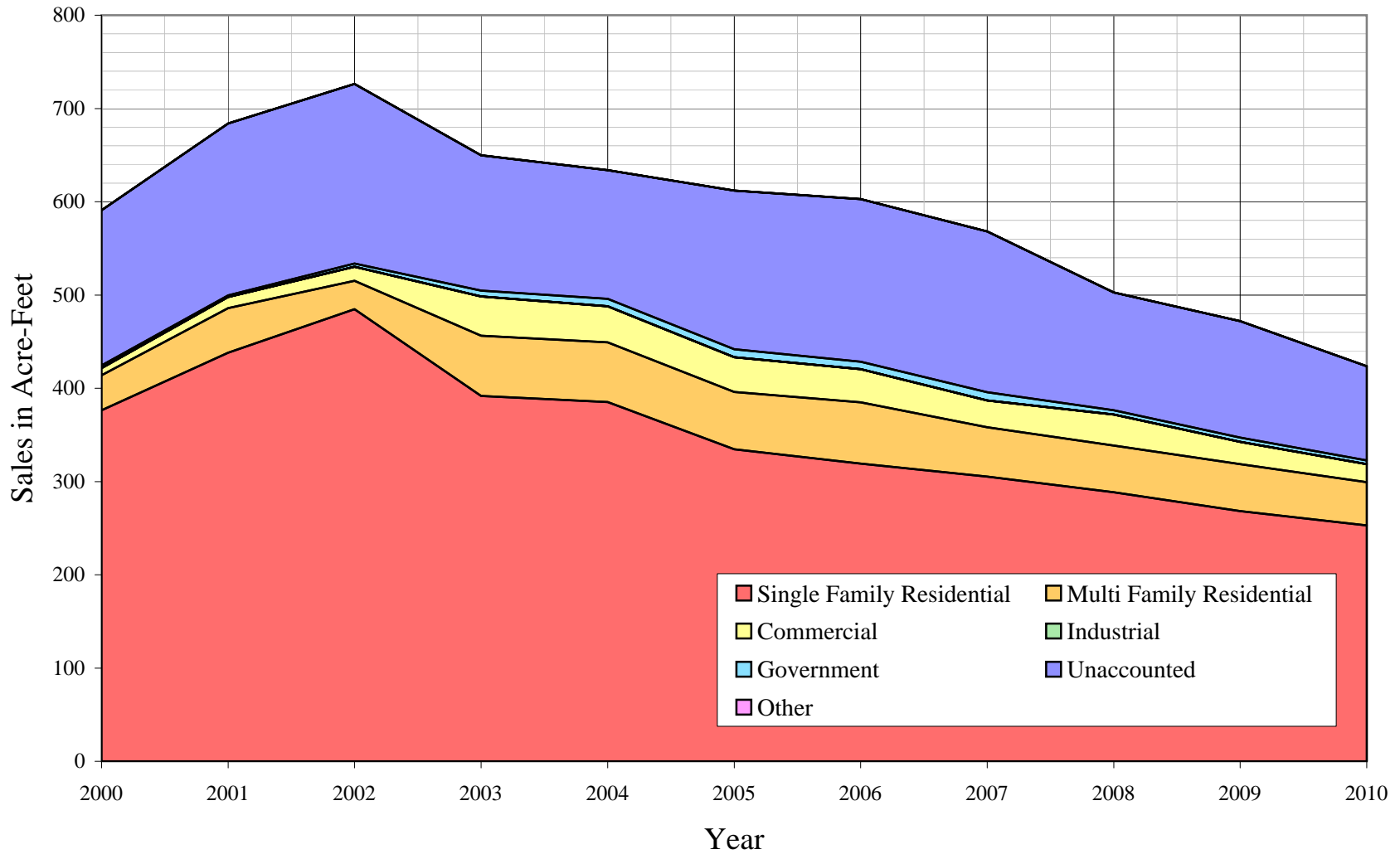
Year	Multi-Residential	Residential	Commercial	Industrial	Government	Irrigation/ Recreation	Other	Unaccounted Water	Total(ccf) Sales	Total(ccf) Demand	Total(kgal) Demand
1990											
1991											
1992											
1993											
1994											
1995											
1996											
1997											
1998											
1999											
2000	<u>163,896</u>	<u>16,417</u>	<u>3,355</u>	<u>0</u>	<u>1,172</u>	<u>0</u>	<u>0</u>	72,564	184,840	257,404	192,552
2001	<u>190,799</u>	<u>20,812</u>	<u>5,235</u>	<u>0</u>	<u>797</u>	<u>0</u>	<u>0</u>	80,214	217,643	297,857	222,812
2002	<u>211,184</u>	<u>13,203</u>	<u>6,651</u>	<u>0</u>	<u>1,460</u>	<u>0</u>	<u>0</u>	83,849	232,498	316,347	236,644
2003	170,691	28,126	18,290	0	2,732	0	0	63,195	219,839	283,034	211,724
2004	167,800	27,941	16,795	0	3,477	0	0	60,080	216,013	276,093	206,532
2005	145,748	26,817	16,216	0	3,619	0	0	74,223	192,400	266,623	199,448
2006	139,063	28,583	15,503	0	3,513	0	0	75,955	186,662	262,617	196,451
2007	132,971	23,070	12,536	0	3,754	0	0	75,166	172,331	247,497	185,141
2008	125,663	21,848	14,452	0	1,956	0	0	55,025	163,919	218,944	163,782
2009	116,902	21,861	10,417	0	1,988	0	0	54,422	151,168	205,590	153,792
2010	110,207	20,224	8,341	0	1,770	0	0	43,963	140,542	184,505	138,019
5 Yr. Avg.	132,069	24,436	13,825	0	2,966	0	0	66,958	173,296	240,254	179,723
10 Yr. Avg.	156,472	22,868	11,945	0	2,447	0	0	69,469	193,731	263,201	196,888

Five year average is from years 2005 through 2009.

Ten year average is from years 2000 through 2009.

Note: Data for 2000-2002 is based on District total, 2003-present data is based on individual system subtotals

# Redwood Valley District Historical Sales





**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Sales (AF)**

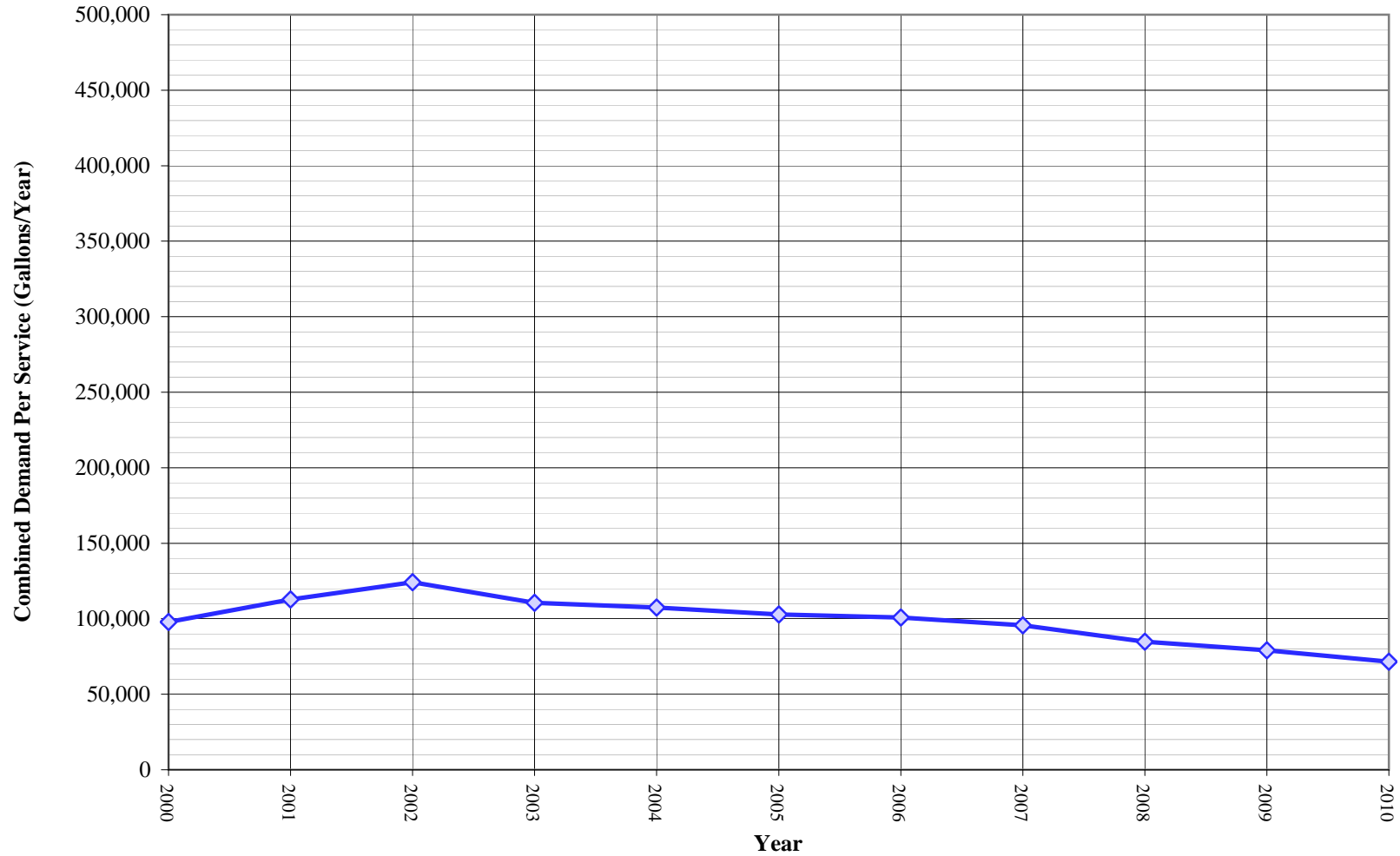
Worksheet 4

Year	Residential	Multi-Residential	Commercial	Industrial	Government	Irrigation/ Recreation	Other	Unaccounted Water	Total(AF) Sales	Total(AF) Demand	Total(Mgal) Demand
1990											
1991											
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	376.3	37.7	7.7	0.0	2.7	0.0	0.0	166.6	424.3	590.9	192.6
2001	438.0	47.8	12.0	0.0	1.8	0.0	0.0	184.1	499.6	683.8	222.8
2002	484.8	30.3	15.3	0.0	3.4	0.0	0.0	192.5	533.7	726.2	236.6
2003	391.9	64.6	42.0	0.0	6.3	0.0	0.0	145.1	504.7	649.8	211.7
2004	385.2	64.1	38.6	0.0	8.0	0.0	0.0	137.9	495.9	633.8	206.5
2005	334.6	61.6	37.2	0.0	8.3	0.0	0.0	170.4	441.7	612.1	199.4
2006	319.2	65.6	35.6	0.0	8.1	0.0	0.0	174.4	428.5	602.9	196.5
2007	305.3	53.0	28.8	0.0	8.6	0.0	0.0	172.6	395.6	568.2	185.1
2008	288.5	50.2	33.2	0.0	4.5	0.0	0.0	126.3	376.3	502.6	163.8
2009	268.4	50.2	23.9	0.0	4.6	0.0	0.0	124.9	347.0	472.0	153.8
2010	253.0	46.4	19.1	0.0	4.1	0.0	0.0	100.9	322.6	423.6	138.0
5 Yr. Avg.	303.2	56.1	31.7	0.0	6.8	0.0	0.0	153.7	397.8	551.5	179.7
10 Yr. Avg.	359.2	52.5	27.4	0.0	5.6	0.0	0.0	159.5	444.7	604.2	196.9

Five year average is from years 2005 through 2009.

Ten year average is from years 2000 through 2009.

# Redwood Valley District Historical Demand Per Service



## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

#### Demand per Service (Gallons per Year)

Year	Residential	Multi-Residential (Service)	(Unit)	Commercial	Industrial	Government	Irrigation/ Recreation	Total Other	Unaccounted/ Total Services	Combined Demand/Service
1990										
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999										
2000	65,565	682,265	13,714	37,458	0	62,623			27,569	97,795
2001	76,079	864,914	21,399	58,449	0	42,586	0		30,381	112,814
2002	87,483	548,696	27,187	74,258	0	78,011	0		32,929	124,236
2003	70,042	1,168,873	74,764	220,675	0	185,789	0		24,699	110,619
2004	68,629	1,161,184	68,653	199,421	0	216,748	0		23,384	107,457
2005	58,997	1,114,473	109,620	195,652	0	208,246	0		28,605	102,755
2006	56,049	1,257,739	116,839	190,116	0	195,869	0		29,176	100,878
2007	53,828	1,015,151	94,304	156,293	0	255,290	0		29,045	95,635
2008	51,005	961,379	89,308	183,235	0	133,017	0		21,327	84,861
2009	47,142	961,951	89,362	129,874	0	106,223	0		20,920	79,030
2010	44,780	889,918		105,754	0	94,575	0		17,031	71,476
5 Yr. Avg.	53,404	1,062,139	99,887	171,034	0	179,729	0		25,815	92,632
10 Yr. Avg.	63,482	973,663	70,515	144,543	0	148,440	0		26,803	101,608

Five year average is from years 2005 through 2009.

Ten year average is from years 2000 through 2009.

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Demand per Service (Gallons per Day)**

Year	Multi-Residential					Irrigation/ Recreation	Total Other	Unaccounted/ Total Services	Combined Demand/Serv
	Residential	(Service)	(Unit)	Commercial	Industrial				
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	180	1,869	38	103	0	172	0	76	268
2001	208	2,370	59	160	0	117	0	83	309
2002	240	1,503	74	203	0	214	0	90	340
2003	192	3,202	205	605	0	509	0	68	303
2004	188	3,181	188	546	0	594	0	64	294
2005	162	3,053	300	536	0	571	0	78	282
2006	154	3,446	320	521	0	537	0	80	276
2007	147	2,781	258	428	0	699	0	80	262
2008	140	2,634	245	502	0	364	0	58	232
2009	129	2,635	245	356	0	291	0	57	217
2010	123	2,438		290	0	259	0	47	196
5 Yr. Avg.	146	2,910	274	469	0	492	0	71	254
10 Yr. Avg.	174	2,668	193	396	0	407	0	73	278

Five year average is from years 2005 through 2009.

Ten year average is from years 2000 through 2009.

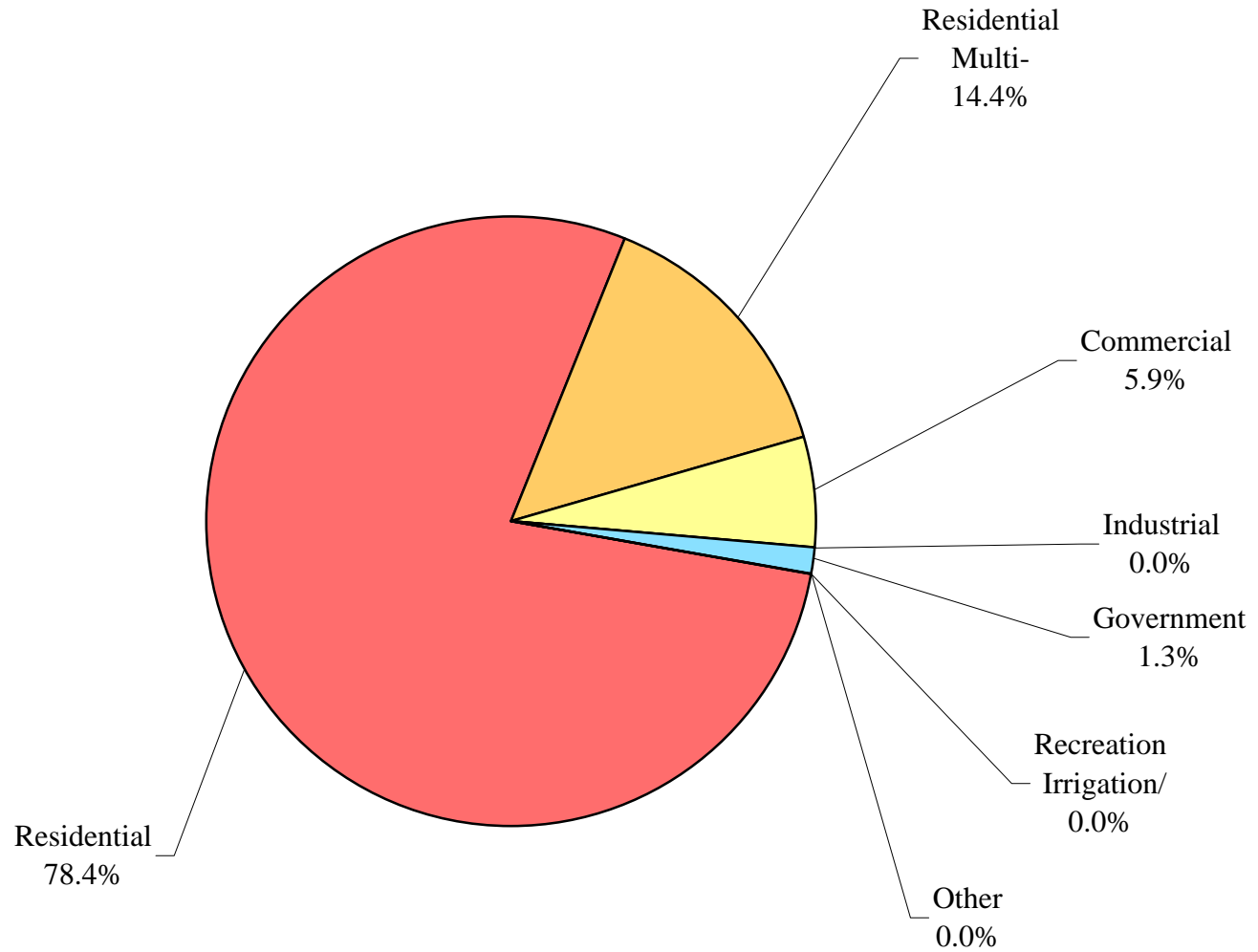
**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Percentage Change in Annual Demand**

Year	Residential	Multi-Residential	Commercial	Industrial	Government	Irrigation/ Recreation	Other	Unaccounted Water	Total
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001	16.41%	26.77%	56.04%	0.00%	-32.00%			10.54%	15.72%
2002	10.68%	-36.56%	27.05%	0.00%	83.19%			4.53%	6.21%
2003	-19.17%	113.03%	175.00%	0.00%	87.12%			-24.63%	-10.53%
2004	-1.69%	-0.66%	-8.17%	0.00%	27.27%	0.00%		-4.93%	-2.45%
2005	-13.14%	-4.02%	-3.45%	0.00%	4.08%	0.00%		23.54%	-3.43%
2006	-4.59%	6.59%	-4.40%	0.00%	-2.93%	0.00%		2.33%	-1.50%
2007	-4.38%	-19.29%	-19.14%	0.00%	6.86%	0.00%		-1.04%	-5.76%
2008	-5.50%	-5.30%	15.28%	0.00%	-47.90%	0.00%		-26.80%	-11.54%
2009	-6.97%	0.06%	-27.92%	0.00%	1.64%	0.00%		-1.10%	-6.10%
2010	-5.73%	-7.49%	-19.93%	0.00%	-10.97%	0.00%		-19.22%	-10.26%
5 Yr. Avg.	-5.86%	-4.54%	-3.98%	0.00%	-2.52%	0.00%		-1.38%	-4.94%
10 Yr. Avg.	-2.67%	10.07%	29.78%	0.00%	15.71%	0.00%		5.83%	-1.66%

Five year average is from years 2004 through 2008.

Ten year average is from years 1999 through 2008.

# Redwood Valley District Percent of Total Sales by Type of Use (2010)



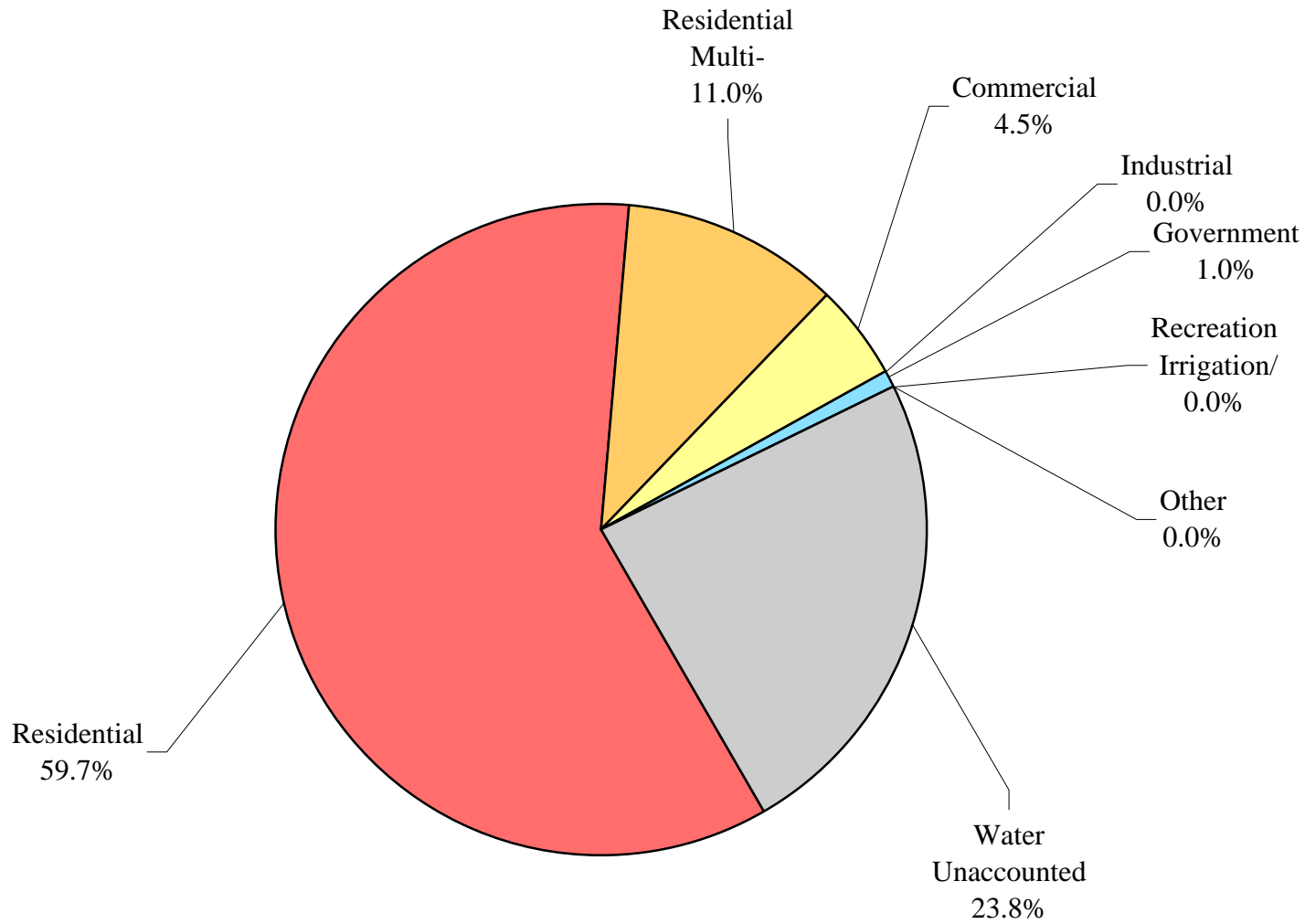
**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Percentage of Total Sales**

Year	Residential	Multi-Residential	Commercial	Industrial	Government	Irrigation/Recreation	Other	Percent Total
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000	88.67%	8.88%	1.82%	0.00%	0.63%	0.00%	0.00%	100.00%
2001	87.67%	9.56%	2.41%	0.00%	0.37%	0.00%	0.00%	100.00%
2002	90.83%	5.68%	2.86%	0.00%	0.63%	0.00%	0.00%	100.00%
2003	77.64%	12.79%	8.32%	0.00%	1.24%	0.00%	0.00%	100.00%
2004	77.68%	12.93%	7.77%	0.00%	1.61%	0.00%	0.00%	100.00%
2005	75.75%	13.94%	8.43%	0.00%	1.88%	0.00%	0.00%	100.00%
2006	74.50%	15.31%	8.31%	0.00%	1.88%	0.00%	0.00%	100.00%
2007	77.16%	13.39%	7.27%	0.00%	2.18%	0.00%	0.00%	100.00%
2008	76.66%	13.33%	8.82%	0.00%	1.19%	0.00%	0.00%	100.00%
2009	77.33%	14.46%	6.89%	0.00%	1.32%	0.00%	0.00%	100.00%
2010	78.42%	14.39%	5.93%	0.00%	1.26%	0.00%	0.00%	100.00%
5 Yr. Avg.	76.35%	13.78%	8.12%	0.00%	1.75%	0.00%	0.00%	100.00%
10 Yr. Avg.	80.73%	11.76%	6.22%	0.00%	1.29%	0.00%	0.00%	100.00%

Five year average is from years 2004 through 2008.

Ten year average is from years 1999 through 2008.

# Redwood Valley District Percent of Total Demand by Type of Use (2010)





**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Percentage of Total Demand**

Year	Residential	Multi-Residential	Commercial	Industrial	Government	Irrigation/Recreation	Other	Unaccounted Water	Percent Total
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	63.67%	6.38%	1.30%	0.00%	0.46%	0.00%	0.00%	28.19%	100.00%
2001	64.06%	6.99%	1.76%	0.00%	0.27%	0.00%	0.00%	26.93%	100.00%
2002	66.76%	4.17%	2.10%	0.00%	0.46%	0.00%	0.00%	26.51%	100.00%
2003	60.31%	9.94%	6.46%	0.00%	0.97%	0.00%	0.00%	22.33%	100.00%
2004	60.78%	10.12%	6.08%	0.00%	1.26%	0.00%	0.00%	21.76%	100.00%
2005	54.66%	10.06%	6.08%	0.00%	1.36%	0.00%	0.00%	27.84%	100.00%
2006	52.95%	10.88%	5.90%	0.00%	1.34%	0.00%	0.00%	28.92%	100.00%
2007	53.73%	9.32%	5.07%	0.00%	1.52%	0.00%	0.00%	30.37%	100.00%
2008	57.40%	9.98%	6.60%	0.00%	0.89%	0.00%	0.00%	25.13%	100.00%
2009	56.86%	10.63%	5.07%	0.00%	0.97%	0.00%	0.00%	26.47%	100.00%
2010	59.73%	10.96%	4.52%	0.00%	0.96%	0.00%	0.00%	23.83%	100.00%
5 Yr. Avg.	55.90%	10.07%	5.95%	0.00%	1.27%	0.00%	0.00%	26.80%	100.00%
10 Yr. Avg.	59.37%	8.65%	4.60%	0.00%	0.95%	0.00%	0.00%	26.44%	100.00%

Five year average is from years 2004 through 2008.

Ten year average is from years 1999 through 2008.

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2000's Projections**

Scenario #1: Based on Maintaining Growth at the

- Selected  
 Alternative

Average Annual Growth and

- Low  
 Average  
 High

Demand per Service for each Customer Class.

Summary of Historical Growth Rate from Worksheet 2			
Customer Type	3 Yr. Avg. Historical Growth Rate	Estimated Growth Rate Selected	Notes
Single Family Residential	-0.02%	0.24%	
Multi Family Residential	0.00%	0.32%	
Commercial	-0.54%	0.34%	
Industrial			
Government	3.09%	0.86%	
Irrigation/Recreation			
Other	0.00%		
Overall	-0.02%	0.26%	

Summary of Lowest Demand per Service from Worksheets 5 and 6										
Demand/Serv. Units	Multi-Residential						Reclaimed	Total Other	Unaccounted Total Serv.	Combined Demand/Serv.
	Residential	(service)	(unit)	Commercial	Industrial	Government				
Gal/Service/Yr	47,142	548,696	13,714	37,458	-	42,586	-	-	-	79,030
AF/Service/Yr	0.145	1.684	0.042	0.115	-	0.131	-	-	-	0.243
Gal/Service/Day	129.2	1,503.3	37.6	102.6	-	116.7	-	-	-	216.5

## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

Worksheet 10

#### 30-year projection Summary

Scenario #1: Based on Maintaining Growth at the

 Low  
 High

Average Annual Growth and

 Low  
 Average  
 High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2010	Projected Services 2015	Projected Services 2020	Projected Services 2025	Projected Services 2030	Projected Services 2035	Projected Services 2040	Services projected to be added from 2010 - 2040
Single Family Residential	1,859	1,882	1,904	1,927	1,951	1,974	1,998	139
Multi Family Residential	17	17	18	18	18	18	19	2
Commercial	60	61	62	63	64	65	67	6
Industrial	-	-	-	-	-	-	-	-
Government	14	15	15	16	17	17	18	4
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,951</b>	<b>1,975</b>	<b>1,999</b>	<b>2,024</b>	<b>2,050</b>	<b>2,076</b>	<b>2,102</b>	<b>151</b>

Customer Type	Projected Demand 2010 (ccf)	Projected Demand 2015 (ccf)	Projected Demand 2020 (ccf)	Projected Demand 2025 (ccf)	Projected Demand 2030 (ccf)	Projected Demand 2035 (ccf)	Projected Demand 2040 (ccf)	Projected demand to be added from 2010 - 2040 (ccf)
Single Family Residential	117,137	118,417	119,714	121,028	122,359	123,708	125,074	7,938
Multi Family Residential	21,499	21,786	22,079	22,379	22,687	23,003	23,327	1,828
Commercial	10,177	10,333	10,493	10,660	10,832	11,011	11,196	1,019
Industrial	-	-	-	-	-	-	-	-
Government	1,982	2,020	2,060	2,101	2,143	2,188	2,234	251
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	51,742	52,321	52,907	53,502	54,103	54,713	55,331	3,589
<b>Total</b>	<b>202,538</b>	<b>204,877</b>	<b>207,253</b>	<b>209,669</b>	<b>212,125</b>	<b>214,622</b>	<b>217,162</b>	<b>14,624</b>

Customer Type	Projected Demand 2010 (AF)	Projected Demand 2015 (AF)	Projected Demand 2020 (AF)	Projected Demand 2025 (AF)	Projected Demand 2030 (AF)	Projected Demand 2035 (AF)	Projected Demand 2040 (AF)	Projected demand to be added from 2010 - 2040 (AF)
Single Family Residential	269	272	275	278	281	284	287	18
Multi Family Residential	49	50	51	51	52	53	54	4
Commercial	23	24	24	24	25	25	26	2
Industrial	-	-	-	-	-	-	-	-
Government	5	5	5	5	5	5	5	1
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	119	120	121	123	124	126	127	8
<b>Total</b>	<b>465</b>	<b>470</b>	<b>476</b>	<b>481</b>	<b>487</b>	<b>493</b>	<b>499</b>	<b>34</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2000's Projections**

Scenario #1: Based on Maintaining Growth at the

- Low  
 High

Average Annual Growth and

- Low  
 Average  
 High

Demand per Service for each Customer Class.

Customer Type	Actual Services 2001	Actual Services 2002	Actual Services 2003	Actual Services 2004	Actual Services 2005	Actual Services 2006	Actual Services 2007	Actual Services 2008	Actual Services 2009	Projected Services 2010
Resident	1,876	1,806	1,823	1,829	1,848	1,856	1,848	1,843	1,855	1,859
Multi- Residential	18	18	18	18	18	17	17	17	17	17
Commercial	67	67	62	63	62	61	60	59	60	60
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	11	12	13	13	11	11	14	14
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,975</b>	<b>1,905</b>	<b>1,914</b>	<b>1,922</b>	<b>1,941</b>	<b>1,947</b>	<b>1,936</b>	<b>1,930</b>	<b>1,946</b>	<b>1,951</b>

Customer Type	Demand 2001(ccf)	Demand 2002(ccf)	Demand 2003(ccf)	Demand 2004(ccf)	Demand 2005(ccf)	Demand 2006(ccf)	Demand 2007(ccf)	Demand 2008(ccf)	Demand 2009(ccf)	Demand 2010(ccf)
Resident	118,385	113,851	115,623	115,860	117,048	117,608	117,311	116,566	116,883	117,137
Multi- Residential	22,803	22,803	22,803	22,803	22,803	21,443	21,443	21,443	21,443	21,499
Commercial	11,284	11,284	10,486	10,486	10,486	10,147	10,147	9,978	10,147	10,177
Industrial	-	-	-	-	-	-	-	-	-	-
Government	1,975	1,975	1,641	1,806	1,811	2,039	1,641	1,641	1,975	1,982
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	52,594	50,434	51,083	51,215	51,867	52,081	52,026	51,672	51,627	51,742
<b>Total</b>	<b>207,041</b>	<b>200,347</b>	<b>201,636</b>	<b>202,170</b>	<b>204,015</b>	<b>203,317</b>	<b>202,568</b>	<b>201,299</b>	<b>202,074</b>	<b>202,538</b>

Customer Type	Demand 2001(AF)	Demand 2002(AF)	Demand 2003(AF)	Demand 2004(AF)	Demand 2005(AF)	Demand 2006(AF)	Demand 2007(AF)	Demand 2008(AF)	Demand 2009(AF)	Demand 2010(AF)
Resident	272	261	265	266	269	270	269	268	268	269
Multi- Residential	52	52	52	52	52	49	49	49	49	49
Commercial	26	26	24	24	24	23	23	23	23	23
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5	5	4	4	4	5	4	4	5	5
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	121	116	117	118	119	120	119	119	119	119
<b>Total</b>	<b>475</b>	<b>460</b>	<b>463</b>	<b>464</b>	<b>468</b>	<b>467</b>	<b>465</b>	<b>462</b>	<b>464</b>	<b>465</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2010's Projections**

Scenario #1: Based on Maintaining Growth at the

- Low  
 High

Average Annual Growth and

- Low  
 Average  
 High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2011	Projected Services 2012	Projected Services 2013	Projected Services 2014	Projected Services 2015	Projected Services 2016	Projected Services 2017	Projected Services 2018	Projected Services 2019	Projected Services 2020
Resident	1,864	1,868	1,873	1,877	1,882	1,886	1,891	1,895	1,900	1,904
Multi- Residential	17	17	17	17	17	17	17	17	18	18
Commercial	60	61	61	61	61	61	62	62	62	62
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	14	15	15	15	15	15	15	15
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,956</b>	<b>1,960</b>	<b>1,965</b>	<b>1,970</b>	<b>1,975</b>	<b>1,980</b>	<b>1,985</b>	<b>1,990</b>	<b>1,994</b>	<b>1,999</b>

Customer Type	Demand 2011(ccf)	Demand 2012(ccf)	Demand 2013(ccf)	Demand 2014(ccf)	Demand 2015(ccf)	Demand 2016(ccf)	Demand 2017(ccf)	Demand 2018(ccf)	Demand 2019(ccf)	Demand 2010(ccf)
Resident	117,391	117,647	117,903	118,159	118,417	118,675	118,934	119,193	119,453	119,714
Multi- Residential	21,556	21,613	21,670	21,728	21,786	21,844	21,902	21,961	22,020	22,079
Commercial	10,208	10,239	10,270	10,301	10,333	10,364	10,396	10,429	10,461	10,493
Industrial	-	-	-	-	-	-	-	-	-	-
Government	1,990	1,997	2,005	2,013	2,020	2,028	2,036	2,044	2,052	2,060
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	51,857	51,973	52,088	52,205	52,321	52,438	52,555	52,672	52,790	52,907
<b>Total</b>	<b>203,002</b>	<b>203,469</b>	<b>203,937</b>	<b>204,406</b>	<b>204,877</b>	<b>205,349</b>	<b>205,823</b>	<b>206,298</b>	<b>206,775</b>	<b>207,253</b>

Customer Type	Demand 2011(AF)	Demand 2012(AF)	Demand 2013(AF)	Demand 2014(AF)	Demand 2015(AF)	Demand 2016(AF)	Demand 2017(AF)	Demand 2018(AF)	Demand 2019(AF)	Demand 2010(AF)
Resident	269	270	271	271	272	272	273	274	274	275
Multi- Residential	49	50	50	50	50	50	50	50	51	51
Commercial	23	24	24	24	24	24	24	24	24	24
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5	5	5	5	5	5	5	5	5	5
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	119	119	120	120	120	120	121	121	121	121
<b>Total</b>	<b>466</b>	<b>467</b>	<b>468</b>	<b>469</b>	<b>470</b>	<b>471</b>	<b>473</b>	<b>474</b>	<b>475</b>	<b>476</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2020's Projections**

Scenario #1: Based on Maintaining Growth at the

- Low
- High

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2021	Projected Services 2022	Projected Services 2023	Projected Services 2024	Projected Services 2025	Projected Services 2026	Projected Services 2027	Projected Services 2028	Projected Services 2029	Projected Services 2030
Resident	1,909	1,914	1,918	1,923	1,927	1,932	1,937	1,941	1,946	1,951
Multi- Residential	18	18	18	18	18	18	18	18	18	18
Commercial	62	63	63	63	63	63	64	64	64	64
Industrial	-	-	-	-	-	-	-	-	-	-
Government	15	15	16	16	16	16	16	16	16	17
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,004</b>	<b>2,009</b>	<b>2,014</b>	<b>2,019</b>	<b>2,024</b>	<b>2,029</b>	<b>2,034</b>	<b>2,040</b>	<b>2,045</b>	<b>2,050</b>

Customer Type	Demand 2021(ccf)	Demand 2022(ccf)	Demand 2023(ccf)	Demand 2024(ccf)	Demand 2025(ccf)	Demand 2026(ccf)	Demand 2027(ccf)	Demand 2028(ccf)	Demand 2029(ccf)	Demand 2030(ccf)
Resident	119,975	120,237	120,500	120,763	121,028	121,293	121,558	121,824	122,091	122,359
Multi- Residential	22,139	22,198	22,258	22,319	22,379	22,440	22,502	22,563	22,625	22,687
Commercial	10,526	10,559	10,593	10,626	10,660	10,694	10,728	10,762	10,797	10,832
Industrial	-	-	-	-	-	-	-	-	-	-
Government	2,068	2,076	2,084	2,092	2,101	2,109	2,118	2,126	2,135	2,143
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	53,026	53,144	53,263	53,382	53,502	53,621	53,741	53,862	53,982	54,103
<b>Total</b>	<b>207,734</b>	<b>208,215</b>	<b>208,698</b>	<b>209,183</b>	<b>209,669</b>	<b>210,157</b>	<b>210,647</b>	<b>211,138</b>	<b>211,631</b>	<b>212,125</b>

Customer Type	Demand 2021(AF)	Demand 2022(AF)	Demand 2023(AF)	Demand 2024(AF)	Demand 2025(AF)	Demand 2026(AF)	Demand 2027(AF)	Demand 2028(AF)	Demand 2029(AF)	Demand 2030(AF)
Resident	275	276	277	277	278	278	279	280	280	281
Multi- Residential	51	51	51	51	51	52	52	52	52	52
Commercial	24	24	24	24	24	25	25	25	25	25
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5	5	5	5	5	5	5	5	5	5
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	122	122	122	123	123	123	123	124	124	124
<b>Total</b>	<b>477</b>	<b>478</b>	<b>479</b>	<b>480</b>	<b>481</b>	<b>482</b>	<b>484</b>	<b>485</b>	<b>486</b>	<b>487</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2030's Projections**

Scenario #1: Based on Maintaining Growth at the

- Low
- High

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2031	Projected Services 2032	Projected Services 2033	Projected Services 2034	Projected Services 2035	Projected Services 2036	Projected Services 2037	Projected Services 2038	Projected Services 2039	Projected Services 2040
Resident	1,955	1,960	1,965	1,970	1,974	1,979	1,984	1,989	1,993	1,998
Multi- Residential	18	18	18	18	18	19	19	19	19	19
Commercial	65	65	65	65	65	66	66	66	66	67
Industrial	-	-	-	-	-	-	-	-	-	-
Government	17	17	17	17	17	18	18	18	18	18
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,055</b>	<b>2,060</b>	<b>2,065</b>	<b>2,070</b>	<b>2,076</b>	<b>2,081</b>	<b>2,086</b>	<b>2,091</b>	<b>2,097</b>	<b>2,102</b>

Customer Type	Demand 2031(ccf)	Demand 2032(ccf)	Demand 2033(ccf)	Demand 2034(ccf)	Demand 2035(ccf)	Demand 2036(ccf)	Demand 2037(ccf)	Demand 2038(ccf)	Demand 2039(ccf)	Demand 2040(ccf)
Resident	122,627	122,896	123,166	123,437	123,708	123,980	124,252	124,525	124,800	125,074
Multi- Residential	22,750	22,813	22,876	22,939	23,003	23,067	23,132	23,196	23,262	23,327
Commercial	10,867	10,903	10,938	10,974	11,011	11,047	11,084	11,121	11,158	11,196
Industrial	-	-	-	-	-	-	-	-	-	-
Government	2,152	2,161	2,170	2,179	2,188	2,197	2,206	2,215	2,224	2,234
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	54,225	54,346	54,468	54,591	54,713	54,836	54,959	55,083	55,207	55,331
<b>Total</b>	<b>212,621</b>	<b>213,119</b>	<b>213,618</b>	<b>214,119</b>	<b>214,622</b>	<b>215,127</b>	<b>215,633</b>	<b>216,141</b>	<b>216,650</b>	<b>217,162</b>

Customer Type	Demand 2031(AF)	Demand 2032(AF)	Demand 2033(AF)	Demand 2034(AF)	Demand 2035(AF)	Demand 2036(AF)	Demand 2037(AF)	Demand 2038(AF)	Demand 2039(AF)	Demand 2040(AF)
Resident	282	282	283	283	284	285	285	286	287	287
Multi- Residential	52	52	53	53	53	53	53	53	53	54
Commercial	25	25	25	25	25	25	25	26	26	26
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5	5	5	5	5	5	5	5	5	5
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	124	125	125	125	126	126	126	126	127	127
<b>Total</b>	<b>488</b>	<b>489</b>	<b>490</b>	<b>492</b>	<b>493</b>	<b>494</b>	<b>495</b>	<b>496</b>	<b>497</b>	<b>499</b>

**California Water Service Company - Redwood Valley District  
Water Supply and Demand Analysis and Projections**

**2000's Projections**

Scenario #2: Based on Maintaining Growth at the  Selected Average Annual Growth and  Average Demand per Service for each Customer Class.  
 Alternative  Low  High

Summary of Historical Growth Rate from Worksheet 2			
Customer Type	5 Yr. Avg. Historical Growth Rate	Estimated Growth Rate Selected	Notes
Single Family Residential	0.28%	0.24%	
Multi Family Residential	-1.11%	0.32%	
Commercial	-0.96%	0.34%	
Industrial			
Government	4.16%	0.86%	
Irrigation/Recreation			
Other			
Overall	0.25%	0.26%	

Summary of Lowest Demand per Service from Worksheets 5 and 6										
Demand/Serv. Units	Multi-Residential			Commercial	Industrial	Government	Reclaimed	Total Other	Unaccounted Total Serv.	Combined Demand/Serv.
	Residential	(service)	(unit)							
Gal/Service/Yr	63,482	973,663	70,515	144,543	-	148,440	-	26,803	101,608	
AF/Service/Yr	0.195	2.988	0.216	0.444	-	0.456	-	0.082	0.312	
Gal/Service/Day	173.9	2,667.6	193.2	396.0	-	406.7	-	73.4	278.4	



# California Water Service Company - Redwood Valley District

## Water Supply and Demand Analysis and Projections

Worksheet 11

## 30-year projection Summary

Scenario #2: Based on Maintaining Growth at the  Selected  Alternative Average Annual Growth and  Low  Average  High Demand per Service for each Customer Class.

Customer Type	Projected Services 2010	Projected Services 2015	Projected Services 2020	Projected Services 2025	Projected Services 2030	Projected Services 2035	Projected Services 2040	Services projected to be added from 2010 - 2040
Single Family Residential	1,859	1,882	1,904	1,927	1,951	1,974	1,998	139
Multi Family Residential	17	17	18	18	18	18	19	2
Commercial	60	61	62	63	64	65	67	6
Industrial	-	-	-	-	-	-	-	-
Government	14	15	15	16	17	17	18	4
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,951</b>	<b>1,975</b>	<b>1,999</b>	<b>2,024</b>	<b>2,050</b>	<b>2,076</b>	<b>2,102</b>	<b>151</b>

Customer Type	Projected Demand 2010 (ccf)	Projected Demand 2015 (ccf)	Projected Demand 2020 (ccf)	Projected Demand 2025 (ccf)	Projected Demand 2030 (ccf)	Projected Demand 2035 (ccf)	Projected Demand 2040 (ccf)	Projected demand to be added from 2010 - 2040 (ccf)
Single Family Residential	143,249	144,794	146,358	147,943	149,549	151,175	152,823	9,574
Multi Family Residential	24,819	25,145	25,479	25,821	26,172	26,531	26,899	2,081
Commercial	14,729	14,947	15,171	15,402	15,642	15,890	16,148	1,418
Industrial	-	-	-	-	-	-	-	-
Government	3,379	3,437	3,497	3,560	3,625	3,692	3,763	383
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	61,528	62,224	62,930	63,646	64,371	65,106	65,851	4,323
<b>Total</b>	<b>247,704</b>	<b>250,547</b>	<b>253,436</b>	<b>256,373</b>	<b>259,359</b>	<b>262,395</b>	<b>265,484</b>	<b>17,780</b>

Customer Type	Projected Demand 2010 (AF)	Projected Demand 2015 (AF)	Projected Demand 2020 (AF)	Projected Demand 2025 (AF)	Projected Demand 2030 (AF)	Projected Demand 2035 (AF)	Projected Demand 2040 (AF)	Projected demand to be added from 2010 - 2040 (AF)
Single Family Residential	329	332	336	340	343	347	351	22
Multi Family Residential	57	58	58	59	60	61	62	5
Commercial	34	34	35	35	36	36	37	3
Industrial	-	-	-	-	-	-	-	-
Government	8	8	8	8	8	8	9	1
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	141	143	144	146	148	149	151	10
<b>Total</b>	<b>569</b>	<b>575</b>	<b>582</b>	<b>589</b>	<b>595</b>	<b>602</b>	<b>609</b>	<b>41</b>

# California Water Service Company - Redwood Valley District

## Water Supply and Demand Analysis and Projections

Worksheet 11

## 2000's Projections

Scenario #2: Based on Maintaining Growth at the  Selected  Alternative Average Annual Growth and  Low  Average  High Demand per Service for each Customer Class.

Customer Type	Actual Services 2001	Actual Services 2002	Actual Services 2003	Actual Services 2004	Actual Services 2005	Actual Services 2006	Actual Services 2007	Actual Services 2008	Actual Services 2009	Projected Services 2010
Resident	1,876	1,806	1,823	1,829	1,848	1,856	1,848	1,843	1,855	1,859
Multi- Residential	18	18	18	18	18	17	17	17	17	17
Commercial	67	67	62	63	62	61	60	59	60	60
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	11	12	13	13	11	11	14	14
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,975</b>	<b>1,905</b>	<b>1,914</b>	<b>1,922</b>	<b>1,941</b>	<b>1,947</b>	<b>1,936</b>	<b>1,930</b>	<b>1,946</b>	<b>1,951</b>

Customer Type	Demand 2001(ccf)	Demand 2002(ccf)	Demand 2003(ccf)	Demand 2004(ccf)	Demand 2005(ccf)	Demand 2006(ccf)	Demand 2007(ccf)	Demand 2008(ccf)	Demand 2009(ccf)	Demand 2010(ccf)
Resident	144,743	139,212	141,480	141,764	143,200	143,890	143,553	142,592	142,942	143,249
Multi- Residential	26,333	26,333	26,333	26,333	26,333	24,754	24,754	24,754	24,754	24,819
Commercial	16,297	16,297	15,186	15,186	15,186	14,687	14,687	14,437	14,687	14,729
Industrial	-	-	-	-	-	-	-	-	-	-
Government	3,368	3,368	2,756	3,057	3,067	3,483	2,756	2,756	3,368	3,379
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	62,496	60,003	60,704	60,869	61,611	61,859	61,751	61,359	61,390	61,528
<b>Total</b>	<b>253,237</b>	<b>245,213</b>	<b>246,460</b>	<b>247,209</b>	<b>249,397</b>	<b>248,673</b>	<b>247,502</b>	<b>245,898</b>	<b>247,141</b>	<b>247,704</b>

Customer Type	Demand 2001(AF)	Demand 2002(AF)	Demand 2003(AF)	Demand 2004(AF)	Demand 2005(AF)	Demand 2006(AF)	Demand 2007(AF)	Demand 2008(AF)	Demand 2009(AF)	Demand 2010(AF)
Resident	332	320	325	325	329	330	330	327	328	329
Multi- Residential	60	60	60	60	60	57	57	57	57	57
Commercial	37	37	35	35	35	34	34	33	34	34
Industrial	-	-	-	-	-	-	-	-	-	-
Government	8	8	6	7	7	8	6	6	8	8
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	143	138	139	140	141	142	142	141	141	141
<b>Total</b>	<b>581</b>	<b>563</b>	<b>566</b>	<b>568</b>	<b>573</b>	<b>571</b>	<b>568</b>	<b>565</b>	<b>567</b>	<b>569</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2010's Projections**

Scenario #2: Based on Maintaining Growth at the

- Selected
- Alternative

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2011	Projected Services 2012	Projected Services 2013	Projected Services 2014	Projected Services 2015	Projected Services 2016	Projected Services 2017	Projected Services 2018	Projected Services 2019	Projected Services 2020
Resident	1,864	1,868	1,873	1,877	1,882	1,886	1,891	1,895	1,900	1,904
Multi- Residential	17	17	17	17	17	17	17	17	18	18
Commercial	60	61	61	61	61	61	62	62	62	62
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	14	15	15	15	15	15	15	15
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,956</b>	<b>1,960</b>	<b>1,965</b>	<b>1,970</b>	<b>1,975</b>	<b>1,980</b>	<b>1,985</b>	<b>1,990</b>	<b>1,994</b>	<b>1,999</b>

Customer Type	Demand 2011(ccf)	Demand 2012(ccf)	Demand 2013(ccf)	Demand 2014(ccf)	Demand 2015(ccf)	Demand 2016(ccf)	Demand 2017(ccf)	Demand 2018(ccf)	Demand 2019(ccf)	Demand 2010(ccf)
Resident	143,556	143,864	144,173	144,483	144,794	145,105	145,417	145,730	146,044	146,358
Multi- Residential	24,883	24,948	25,014	25,079	25,145	25,211	25,278	25,345	25,412	25,479
Commercial	14,772	14,815	14,859	14,903	14,947	14,991	15,035	15,080	15,125	15,171
Industrial	-	-	-	-	-	-	-	-	-	-
Government	3,391	3,402	3,414	3,425	3,437	3,449	3,461	3,473	3,485	3,497
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	61,666	61,805	61,945	62,084	62,224	62,365	62,506	62,647	62,788	62,930
<b>Total</b>	<b>248,269</b>	<b>248,835</b>	<b>249,404</b>	<b>249,974</b>	<b>250,547</b>	<b>251,121</b>	<b>251,697</b>	<b>252,275</b>	<b>252,854</b>	<b>253,436</b>

Customer Type	Demand 2011(AF)	Demand 2012(AF)	Demand 2013(AF)	Demand 2014(AF)	Demand 2015(AF)	Demand 2016(AF)	Demand 2017(AF)	Demand 2018(AF)	Demand 2019(AF)	Demand 2010(AF)
Resident	330	330	331	332	332	333	334	335	335	336
Multi- Residential	57	57	57	58	58	58	58	58	58	58
Commercial	34	34	34	34	34	34	35	35	35	35
Industrial	-	-	-	-	-	-	-	-	-	-
Government	8	8	8	8	8	8	8	8	8	8
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	142	142	142	143	143	143	143	144	144	144
<b>Total</b>	<b>570</b>	<b>571</b>	<b>573</b>	<b>574</b>	<b>575</b>	<b>576</b>	<b>578</b>	<b>579</b>	<b>580</b>	<b>582</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2020's Projections**

Scenario #2: Based on Maintaining Growth at the  Selected  Alternative Average Annual Growth and  Low  Average  High Demand per Service for each Customer Class.

Customer Type	Projected Services 2021	Projected Services 2022	Projected Services 2023	Projected Services 2024	Projected Services 2025	Projected Services 2026	Projected Services 2027	Projected Services 2028	Projected Services 2029	Projected Services 2030
Resident	1,909	1,914	1,918	1,923	1,927	1,932	1,937	1,941	1,946	1,951
Multi- Residential	18	18	18	18	18	18	18	18	18	18
Commercial	62	63	63	63	63	63	64	64	64	64
Industrial	-	-	-	-	-	-	-	-	-	-
Government	15	15	16	16	16	16	16	16	16	17
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,004</b>	<b>2,009</b>	<b>2,014</b>	<b>2,019</b>	<b>2,024</b>	<b>2,029</b>	<b>2,034</b>	<b>2,040</b>	<b>2,045</b>	<b>2,050</b>

Customer Type	Demand 2021(ccf)	Demand 2022(ccf)	Demand 2023(ccf)	Demand 2024(ccf)	Demand 2025(ccf)	Demand 2026(ccf)	Demand 2027(ccf)	Demand 2028(ccf)	Demand 2029(ccf)	Demand 2030(ccf)
Resident	146,674	146,990	147,307	147,625	147,943	148,263	148,583	148,904	149,226	149,549
Multi- Residential	25,547	25,615	25,683	25,752	25,821	25,891	25,961	26,031	26,101	26,172
Commercial	15,216	15,263	15,309	15,356	15,402	15,450	15,497	15,545	15,594	15,642
Industrial	-	-	-	-	-	-	-	-	-	-
Government	3,510	3,522	3,535	3,547	3,560	3,573	3,586	3,599	3,612	3,625
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	63,073	63,215	63,358	63,502	63,646	63,790	63,934	64,079	64,225	64,371
<b>Total</b>	<b>254,019</b>	<b>254,605</b>	<b>255,192</b>	<b>255,781</b>	<b>256,373</b>	<b>256,966</b>	<b>257,561</b>	<b>258,158</b>	<b>258,757</b>	<b>259,359</b>

Customer Type	Demand 2021(AF)	Demand 2022(AF)	Demand 2023(AF)	Demand 2024(AF)	Demand 2025(AF)	Demand 2026(AF)	Demand 2027(AF)	Demand 2028(AF)	Demand 2029(AF)	Demand 2030(AF)
Resident	337	337	338	339	340	340	341	342	343	343
Multi- Residential	59	59	59	59	59	59	60	60	60	60
Commercial	35	35	35	35	35	35	36	36	36	36
Industrial	-	-	-	-	-	-	-	-	-	-
Government	8	8	8	8	8	8	8	8	8	8
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	145	145	145	146	146	146	147	147	147	148
<b>Total</b>	<b>583</b>	<b>584</b>	<b>586</b>	<b>587</b>	<b>589</b>	<b>590</b>	<b>591</b>	<b>593</b>	<b>594</b>	<b>595</b>

# California Water Service Company - Redwood Valley District

## Water Supply and Demand Analysis and Projections

Worksheet 11

## 2030's Projections

Scenario #2: Based on Maintaining Growth at the  Low  High Average Annual Growth and  Average  High Demand per Service for each Customer Class.

Customer Type	Projected Services 2031	Projected Services 2032	Projected Services 2033	Projected Services 2034	Projected Services 2035	Projected Services 2036	Projected Services 2037	Projected Services 2038	Projected Services 2039	Projected Services 2040
Resident	1,955	1,960	1,965	1,970	1,974	1,979	1,984	1,989	1,993	1,998
Multi- Residential	18	18	18	18	18	19	19	19	19	19
Commercial	65	65	65	65	65	66	66	66	66	67
Industrial	-	-	-	-	-	-	-	-	-	-
Government	17	17	17	17	17	18	18	18	18	18
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,055</b>	<b>2,060</b>	<b>2,065</b>	<b>2,070</b>	<b>2,076</b>	<b>2,081</b>	<b>2,086</b>	<b>2,091</b>	<b>2,097</b>	<b>2,102</b>

Customer Type	Demand 2031(ccf)	Demand 2032(ccf)	Demand 2033(ccf)	Demand 2034(ccf)	Demand 2035(ccf)	Demand 2036(ccf)	Demand 2037(ccf)	Demand 2038(ccf)	Demand 2039(ccf)	Demand 2040(ccf)
Resident	149,873	150,197	150,522	150,848	151,175	151,503	151,832	152,161	152,492	152,823
Multi- Residential	26,243	26,314	26,386	26,459	26,531	26,604	26,677	26,751	26,825	26,899
Commercial	15,691	15,740	15,790	15,840	15,890	15,941	15,992	16,044	16,096	16,148
Industrial	-	-	-	-	-	-	-	-	-	-
Government	3,638	3,652	3,665	3,679	3,692	3,706	3,720	3,734	3,748	3,763
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	64,517	64,664	64,811	64,958	65,106	65,254	65,403	65,552	65,701	65,851
<b>Total</b>	<b>259,962</b>	<b>260,567</b>	<b>261,174</b>	<b>261,784</b>	<b>262,395</b>	<b>263,009</b>	<b>263,624</b>	<b>264,242</b>	<b>264,862</b>	<b>265,484</b>

Customer Type	Demand 2031(AF)	Demand 2032(AF)	Demand 2033(AF)	Demand 2034(AF)	Demand 2035(AF)	Demand 2036(AF)	Demand 2037(AF)	Demand 2038(AF)	Demand 2039(AF)	Demand 2040(AF)
Resident	344	345	346	346	347	348	349	349	350	351
Multi- Residential	60	60	61	61	61	61	61	61	62	62
Commercial	36	36	36	36	36	37	37	37	37	37
Industrial	-	-	-	-	-	-	-	-	-	-
Government	8	8	8	8	8	9	9	9	9	9
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	148	148	149	149	149	150	150	150	151	151
<b>Total</b>	<b>597</b>	<b>598</b>	<b>600</b>	<b>601</b>	<b>602</b>	<b>604</b>	<b>605</b>	<b>607</b>	<b>608</b>	<b>609</b>

**California Water Service Company - Redwood Valley District  
Water Supply and Demand Analysis and Projections**

**2000's Projections**

Scenario #3: Based on Maintaining Growth at the  Selected  Alternative Average Annual Growth and  Low  Average  High Demand per Service for each Customer Class.

Summary of Historical Growth Rate from Worksheet 2			
Customer Type	5 Yr. Avg. Historical Growth Rate	Estimated Growth Rate Selected	Notes
Single Family Residential	0.28%	0.24%	
Multi Family Residential	-1.11%	0.32%	
Commercial	-0.96%	0.34%	
Industrial			
Government	4.16%	0.86%	
Irrigation/Recreation			
Other	0.00%		
Overall	0.25%	0.26%	

Summary of Lowest Demand per Service from Worksheets 5 and 6										
Demand/Serv. Units	Multi-Residential						Total Reclaimed	Total Other	Unaccounted Total Serv.	Combined Demand/Serv.
	Residential	(service)	(unit)	Commercial	Industrial	Government				
Gal/Service/Yr	87,483	1,257,739	116,839	220,675	-	255,290	-	-	32,929	124,236
AF/Service/Yr	0.268	3.860	0.359	0.677	-	0.783	-	-	0.101	0.381
Gal/Service/Day	239.7	3,445.9	320.1	604.6	-	699.4	-	-	90.2	340.4

## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

Worksheet 12

#### 30-year projection Summary

Scenario #3: Based on Maintaining Growth at the

 Low  
 High

Average Annual Growth and

 Low  
 Average  
 High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2010	Projected Services 2015	Projected Services 2020	Projected Services 2025	Projected Services 2030	Projected Services 2035	Projected Services 2040	Services projected to be added from 2010 - 2040
Single Family Residential	1,859	1,882	1,904	1,927	1,951	1,974	1,998	139
Multi Family Residential	17	17	18	18	18	18	19	2
Commercial	60	61	62	63	64	65	67	6
Industrial	-	-	-	-	-	-	-	-
Government	14	15	15	16	17	17	18	4
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,951</b>	<b>1,975</b>	<b>1,999</b>	<b>2,024</b>	<b>2,050</b>	<b>2,076</b>	<b>2,102</b>	<b>151</b>

Customer Type	Projected Demand 2010 (ccf)	Projected Demand 2015 (ccf)	Projected Demand 2020 (ccf)	Projected Demand 2025 (ccf)	Projected Demand 2030 (ccf)	Projected Demand 2035 (ccf)	Projected Demand 2040 (ccf)	Projected demand to be added from 2010 - 2040 (ccf)
Single Family Residential	173,504	175,354	177,228	179,125	181,047	182,993	184,965	11,460
Multi Family Residential	29,445	29,834	30,231	30,639	31,056	31,484	31,922	2,477
Commercial	18,139	18,417	18,705	19,003	19,311	19,631	19,963	1,824
Industrial	-	-	-	-	-	-	-	-
Government	5,107	5,194	5,283	5,377	5,474	5,576	5,683	576
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	90,632	91,593	92,567	93,555	94,557	95,574	96,605	5,973
<b>Total</b>	<b>81,218</b>	<b>320,392</b>	<b>324,015</b>	<b>327,699</b>	<b>331,446</b>	<b>335,258</b>	<b>339,137</b>	<b>257,919</b>

Customer Type	Projected Demand 2010 (AF)	Projected Demand 2015 (AF)	Projected Demand 2020 (AF)	Projected Demand 2025 (AF)	Projected Demand 2030 (AF)	Projected Demand 2035 (AF)	Projected Demand 2040 (AF)	Projected demand to be added from 2010 - 2040 (AF)
Single Family Residential	398	403	407	411	416	420	425	26
Multi Family Residential	68	68	69	70	71	72	73	6
Commercial	42	42	43	44	44	45	46	4
Industrial	-	-	-	-	-	-	-	-
Government	12	12	12	12	13	13	13	1
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Unaccounted	208	210	213	215	217	219	222	14
<b>Total</b>	<b>727</b>	<b>736</b>	<b>744</b>	<b>752</b>	<b>761</b>	<b>770</b>	<b>779</b>	<b>51</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2000's Projections**

Scenario #3: Based on Maintaining Growth at the

- Low
- High

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Actual Services 2001	Actual Services 2002	Actual Services 2003	Actual Services 2004	Actual Services 2005	Actual Services 2006	Actual Services 2007	Actual Services 2008	Actual Services 2009	Projected Services 2010
Resident	1,876	1,806	1,823	1,829	1,848	1,856	1,848	1,843	1,855	1,859
Multi- Residential	18	18	18	18	18	17	17	17	17	17
Commercial	67	67	62	63	62	61	60	59	60	60
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	11	12	13	13	11	11	14	14
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,975</b>	<b>1,905</b>	<b>1,914</b>	<b>1,922</b>	<b>1,941</b>	<b>1,947</b>	<b>1,936</b>	<b>1,930</b>	<b>1,946</b>	<b>1,951</b>

Customer Type	Demand 2001(ccf)	Demand 2002(ccf)	Demand 2003(ccf)	Demand 2004(ccf)	Demand 2005(ccf)	Demand 2006(ccf)	Demand 2007(ccf)	Demand 2008(ccf)	Demand 2009(ccf)	Demand 2010(ccf)
Resident	175,285	168,598	171,459	171,797	173,517	174,364	173,980	172,753	173,137	173,504
Multi- Residential	31,239	31,239	31,239	31,239	31,239	29,369	29,369	29,369	29,369	29,445
Commercial	20,118	20,118	18,680	18,680	18,680	18,084	18,084	17,786	18,084	18,139
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5,090	5,090	4,139	4,603	4,627	5,259	4,139	4,139	5,090	5,107
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	92,075	88,633	89,906	90,112	90,952	91,327	90,992	90,212	90,441	90,632
<b>Total</b>	<b>82,804</b>	<b>80,950</b>	<b>81,127</b>	<b>81,319</b>	<b>81,208</b>	<b>81,438</b>	<b>80,243</b>	<b>79,487</b>	<b>81,012</b>	<b>81,218</b>

Customer Type	Demand 2001(AF)	Demand 2002(AF)	Demand 2003(AF)	Demand 2004(AF)	Demand 2005(AF)	Demand 2006(AF)	Demand 2007(AF)	Demand 2008(AF)	Demand 2009(AF)	Demand 2010(AF)
Resident	402	387	394	394	398	400	399	397	397	398
Multi- Residential	72	72	72	72	72	67	67	67	67	68
Commercial	46	46	43	43	43	42	42	41	42	42
Industrial	-	-	-	-	-	-	-	-	-	-
Government	12	12	10	11	11	12	10	10	12	12
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	211	203	206	207	209	210	209	207	208	208
<b>Total</b>	<b>743</b>	<b>720</b>	<b>724</b>	<b>726</b>	<b>732</b>	<b>731</b>	<b>727</b>	<b>721</b>	<b>726</b>	<b>727</b>



## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

Worksheet 12

## 2010's Projections

Scenario #3: Based on Maintaining Growth at the

 Low  
 High

Average Annual Growth and

 Low  
 Average  
 High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2011	Projected Services 2012	Projected Services 2013	Projected Services 2014	Projected Services 2015	Projected Services 2016	Projected Services 2017	Projected Services 2018	Projected Services 2019	Projected Services 2020
Resident	1,864	1,868	1,873	1,877	1,882	1,886	1,891	1,895	1,900	1,904
Multi- Residential	17	17	17	17	17	17	17	17	18	18
Commercial	60	61	61	61	61	61	62	62	62	62
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	14	15	15	15	15	15	15	15
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,956</b>	<b>1,960</b>	<b>1,965</b>	<b>1,970</b>	<b>1,975</b>	<b>1,980</b>	<b>1,985</b>	<b>1,990</b>	<b>1,994</b>	<b>1,999</b>

Customer Type	Demand 2011(ccf)	Demand 2012(ccf)	Demand 2013(ccf)	Demand 2014(ccf)	Demand 2015(ccf)	Demand 2016(ccf)	Demand 2017(ccf)	Demand 2018(ccf)	Demand 2019(ccf)	Demand 2010(ccf)
Resident	173,872	174,241	174,611	174,982	175,354	175,727	176,101	176,475	176,851	177,228
Multi- Residential	29,522	29,600	29,677	29,755	29,834	29,913	29,992	30,071	30,151	30,231
Commercial	18,194	18,249	18,305	18,361	18,417	18,474	18,531	18,589	18,647	18,705
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5,124	5,141	5,159	5,176	5,194	5,211	5,229	5,247	5,265	5,283
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	90,823	91,015	91,207	91,399	91,593	91,786	91,981	92,176	92,371	92,567
<b>Total</b>	<b>317,536</b>	<b>318,246</b>	<b>318,959</b>	<b>319,674</b>	<b>320,392</b>	<b>321,111</b>	<b>321,834</b>	<b>322,558</b>	<b>323,285</b>	<b>324,015</b>

Customer Type	Demand 2011(AF)	Demand 2012(AF)	Demand 2013(AF)	Demand 2014(AF)	Demand 2015(AF)	Demand 2016(AF)	Demand 2017(AF)	Demand 2018(AF)	Demand 2019(AF)	Demand 2010(AF)
Resident	399	400	401	402	403	403	404	405	406	407
Multi- Residential	68	68	68	68	68	69	69	69	69	69
Commercial	42	42	42	42	42	42	43	43	43	43
Industrial	-	-	-	-	-	-	-	-	-	-
Government	12	12	12	12	12	12	12	12	12	12
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	209	209	209	210	210	211	211	212	212	213
<b>Total</b>	<b>729</b>	<b>731</b>	<b>732</b>	<b>734</b>	<b>736</b>	<b>737</b>	<b>739</b>	<b>740</b>	<b>742</b>	<b>744</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2020's Projections**

Scenario #3: Based on Maintaining Growth at the

- Low
- High

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2021	Projected Services 2022	Projected Services 2023	Projected Services 2024	Projected Services 2025	Projected Services 2026	Projected Services 2027	Projected Services 2028	Projected Services 2029	Projected Services 2030
Resident	1,909	1,914	1,918	1,923	1,927	1,932	1,937	1,941	1,946	1,951
Multi- Residential	18	18	18	18	18	18	18	18	18	18
Commercial	62	63	63	63	63	63	64	64	64	64
Industrial	-	-	-	-	-	-	-	-	-	-
Government	15	15	16	16	16	16	16	16	16	17
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,004</b>	<b>2,009</b>	<b>2,014</b>	<b>2,019</b>	<b>2,024</b>	<b>2,029</b>	<b>2,034</b>	<b>2,040</b>	<b>2,045</b>	<b>2,050</b>

Customer Type	Demand 2021(ccf)	Demand 2022(ccf)	Demand 2023(ccf)	Demand 2024(ccf)	Demand 2025(ccf)	Demand 2026(ccf)	Demand 2027(ccf)	Demand 2028(ccf)	Demand 2029(ccf)	Demand 2030(ccf)
Resident	177,605	177,984	178,363	178,744	179,125	179,508	179,891	180,275	180,661	181,047
Multi- Residential	30,312	30,393	30,475	30,556	30,639	30,721	30,804	30,888	30,972	31,056
Commercial	18,764	18,823	18,883	18,943	19,003	19,064	19,125	19,187	19,249	19,311
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5,302	5,320	5,339	5,358	5,377	5,396	5,415	5,435	5,455	5,474
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	92,763	92,961	93,158	93,356	93,555	93,754	93,954	94,155	94,356	94,557
<b>Total</b>	<b>324,747</b>	<b>325,481</b>	<b>326,218</b>	<b>326,957</b>	<b>327,699</b>	<b>328,443</b>	<b>329,190</b>	<b>329,939</b>	<b>330,691</b>	<b>331,446</b>

Customer Type	Demand 2021(AF)	Demand 2022(AF)	Demand 2023(AF)	Demand 2024(AF)	Demand 2025(AF)	Demand 2026(AF)	Demand 2027(AF)	Demand 2028(AF)	Demand 2029(AF)	Demand 2030(AF)
Resident	408	409	409	410	411	412	413	414	415	416
Multi- Residential	70	70	70	70	70	71	71	71	71	71
Commercial	43	43	43	43	44	44	44	44	44	44
Industrial	-	-	-	-	-	-	-	-	-	-
Government	12	12	12	12	12	12	12	12	13	13
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	213	213	214	214	215	215	216	216	217	217
<b>Total</b>	<b>746</b>	<b>747</b>	<b>749</b>	<b>751</b>	<b>752</b>	<b>754</b>	<b>756</b>	<b>757</b>	<b>759</b>	<b>761</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**2030's Projections**

Scenario #3: Based on Maintaining Growth at the

- Low
- High

Average Annual Growth and

- Low
- Average
- High

Demand per Service for each Customer Class.

Customer Type	Projected Services 2031	Projected Services 2032	Projected Services 2033	Projected Services 2034	Projected Services 2035	Projected Services 2036	Projected Services 2037	Projected Services 2038	Projected Services 2039	Projected Services 2040
Resident	1,955	1,960	1,965	1,970	1,974	1,979	1,984	1,989	1,993	1,998
Multi- Residential	18	18	18	18	18	19	19	19	19	19
Commercial	65	65	65	65	65	66	66	66	66	67
Industrial	-	-	-	-	-	-	-	-	-	-
Government	17	17	17	17	17	18	18	18	18	18
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,055</b>	<b>2,060</b>	<b>2,065</b>	<b>2,070</b>	<b>2,076</b>	<b>2,081</b>	<b>2,086</b>	<b>2,091</b>	<b>2,097</b>	<b>2,102</b>

Customer Type	Demand 2031(ccf)	Demand 2032(ccf)	Demand 2033(ccf)	Demand 2034(ccf)	Demand 2035(ccf)	Demand 2036(ccf)	Demand 2037(ccf)	Demand 2038(ccf)	Demand 2039(ccf)	Demand 2040(ccf)
Resident	181,434	181,822	182,212	182,602	182,993	183,386	183,779	184,173	184,568	184,965
Multi- Residential	31,141	31,226	31,311	31,397	31,484	31,570	31,658	31,745	31,833	31,922
Commercial	19,374	19,438	19,502	19,566	19,631	19,697	19,762	19,829	19,896	19,963
Industrial	-	-	-	-	-	-	-	-	-	-
Government	5,494	5,515	5,535	5,556	5,576	5,597	5,618	5,639	5,661	5,683
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	94,759	94,962	95,165	95,369	95,574	95,779	95,984	96,191	96,398	96,605
<b>Total</b>	<b>332,203</b>	<b>332,963</b>	<b>333,725</b>	<b>334,490</b>	<b>335,258</b>	<b>336,028</b>	<b>336,802</b>	<b>337,577</b>	<b>338,356</b>	<b>339,137</b>

Customer Type	Demand 2031(AF)	Demand 2032(AF)	Demand 2033(AF)	Demand 2034(AF)	Demand 2035(AF)	Demand 2036(AF)	Demand 2037(AF)	Demand 2038(AF)	Demand 2039(AF)	Demand 2040(AF)
Resident	417	417	418	419	420	421	422	423	424	425
Multi- Residential	71	72	72	72	72	72	73	73	73	73
Commercial	44	45	45	45	45	45	45	46	46	46
Industrial	-	-	-	-	-	-	-	-	-	-
Government	13	13	13	13	13	13	13	13	13	13
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Unaccounted	218	218	218	219	219	220	220	221	221	222
<b>Total</b>	<b>763</b>	<b>764</b>	<b>766</b>	<b>768</b>	<b>770</b>	<b>771</b>	<b>773</b>	<b>775</b>	<b>777</b>	<b>779</b>

**California Water Service Company -Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

Worksheet 13

**2000's Projections**

Scenario #4: Based on Maintaining Growth at the  Selected Average Annual Growth  
 Alternative

Summary of Historical Growth Rate from Worksheet 2			
Customer Type	3 Yr. Avg. Historical Growth Rate	Estimated Growth Rate Selected	Notes
Single Family Residential	-0.02%	0.39%	
Multi Family Residential	0.00%	0.02%	
Commercial	-0.54%	0.27%	
Industrial	0.00%		
Government	3.09%	1.03%	
Irrigation/Recreation	0.00%		
Other	0.00%		
Overall	-0.02%	0.40%	

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

Worksheet 13

**30-year projection Summary**

Scenario #4: Based on Maintaining Growth at the  Selected Average Annual Growth  
 Alternative

Customer Type	Projected Services 2010	Projected Services 2015	Projected Services 2020	Projected Services 2025	Projected Services 2030	Projected Services 2035	Projected Services 2040	Services projected to be added from 2010 - 2040
Single Family Residential	1,855	1,890	1,926	1,964	2,002	2,042	2,084	229
Multi Family Residential	17	17	17	17	17	17	17	0
Commercial	60	61	62	62	63	64	65	5
Industrial	-	-	-	-	-	-	-	-
Government	14	15	16	16	17	18	19	5
Irrigation/Recreation	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,946</b>	<b>1,983</b>	<b>2,020</b>	<b>2,059</b>	<b>2,100</b>	<b>2,142</b>	<b>2,185</b>	<b>239</b>

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

Worksheet 13

**2000's Projections**

Scenario #4: Based on Maintaining Growth at the  Selected Average Annual Growth  
 Alternative

Customer Type	Actual Services 2001	Actual Services 2002	Actual Services 2003	Actual Services 2004	Actual Services 2005	Actual Services 2006	Actual Services 2007	Actual Services 2008	Actual Services 2009	Projected Services 2010
Resident	1,876	1,806	1,823	1,829	1,848	1,856	1,848	1,843	1,855	1,855
Multi- Residential	18	18	18	18	18	17	17	17	17	17
Commercial	67	67	62	63	62	61	60	59	60	60
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	11	12	13	13	11	11	14	14
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,975</b>	<b>1,905</b>	<b>1,914</b>	<b>1,922</b>	<b>1,941</b>	<b>1,947</b>	<b>1,936</b>	<b>1,930</b>	<b>1,946</b>	<b>1,946</b>

**2010's Projections**

Customer Type	Projected Services 2011	Projected Services 2012	Projected Services 2013	Projected Services 2014	Projected Services 2015	Projected Services 2016	Projected Services 2017	Projected Services 2018	Projected Services 2019	Projected Services 2020
Resident	1,862	1,869	1,876	1,883	1,890	1,897	1,904	1,912	1,919	1,926
Multi- Residential	17	17	17	17	17	17	17	17	17	17
Commercial	60	60	60	61	61	61	61	61	61	62
Industrial	-	-	-	-	-	-	-	-	-	-
Government	14	14	14	15	15	15	15	15	15	16
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,953</b>	<b>1,961</b>	<b>1,968</b>	<b>1,975</b>	<b>1,983</b>	<b>1,990</b>	<b>1,998</b>	<b>2,005</b>	<b>2,013</b>	<b>2,020</b>

## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

Worksheet 13

#### 2020's Projections

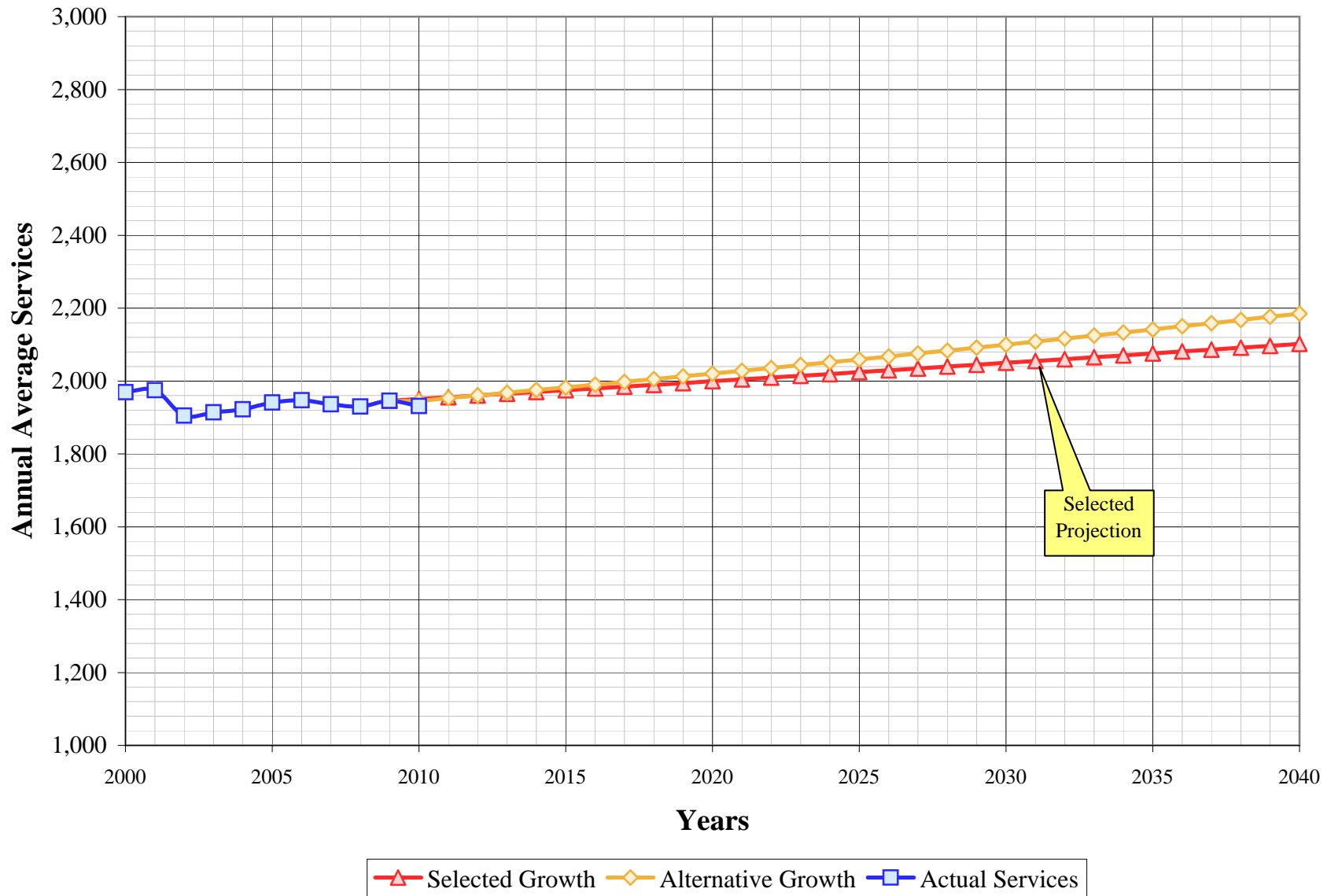
Scenario #4: Based on Maintaining Growth at the  Selected Average Annual Growth  
 Alternative

Customer Type	Projected Services 2021	Projected Services 2022	Projected Services 2023	Projected Services 2024	Projected Services 2025	Projected Services 2026	Projected Services 2027	Projected Services 2028	Projected Services 2029	Projected Services 2030
Resident	1,934	1,941	1,949	1,956	1,964	1,971	1,979	1,987	1,995	2,002
Multi- Residential	17	17	17	17	17	17	17	17	17	17
Commercial	62	62	62	62	62	62	63	63	63	63
Industrial	-	-	-	-	-	-	-	-	-	-
Government	16	16	16	16	16	16	17	17	17	17
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,028</b>	<b>2,036</b>	<b>2,044</b>	<b>2,052</b>	<b>2,059</b>	<b>2,067</b>	<b>2,075</b>	<b>2,083</b>	<b>2,092</b>	<b>2,100</b>

#### 2030's Projections

Customer Type	Projected Services 2031	Projected Services 2032	Projected Services 2033	Projected Services 2034	Projected Services 2035	Projected Services 2036	Projected Services 2037	Projected Services 2038	Projected Services 2039	Projected Services 2040
Resident	2,010	2,018	2,026	2,034	2,042	2,051	2,059	2,067	2,075	2,084
Multi- Residential	17	17	17	17	17	17	17	17	17	17
Commercial	63	63	64	64	64	64	64	65	65	65
Industrial	-	-	-	-	-	-	-	-	-	-
Government	17	18	18	18	18	18	18	19	19	19
Irrigation/Recreation	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,108</b>	<b>2,116</b>	<b>2,125</b>	<b>2,133</b>	<b>2,142</b>	<b>2,150</b>	<b>2,159</b>	<b>2,167</b>	<b>2,176</b>	<b>2,185</b>

## Redwood Valley District Historical & Projected Services



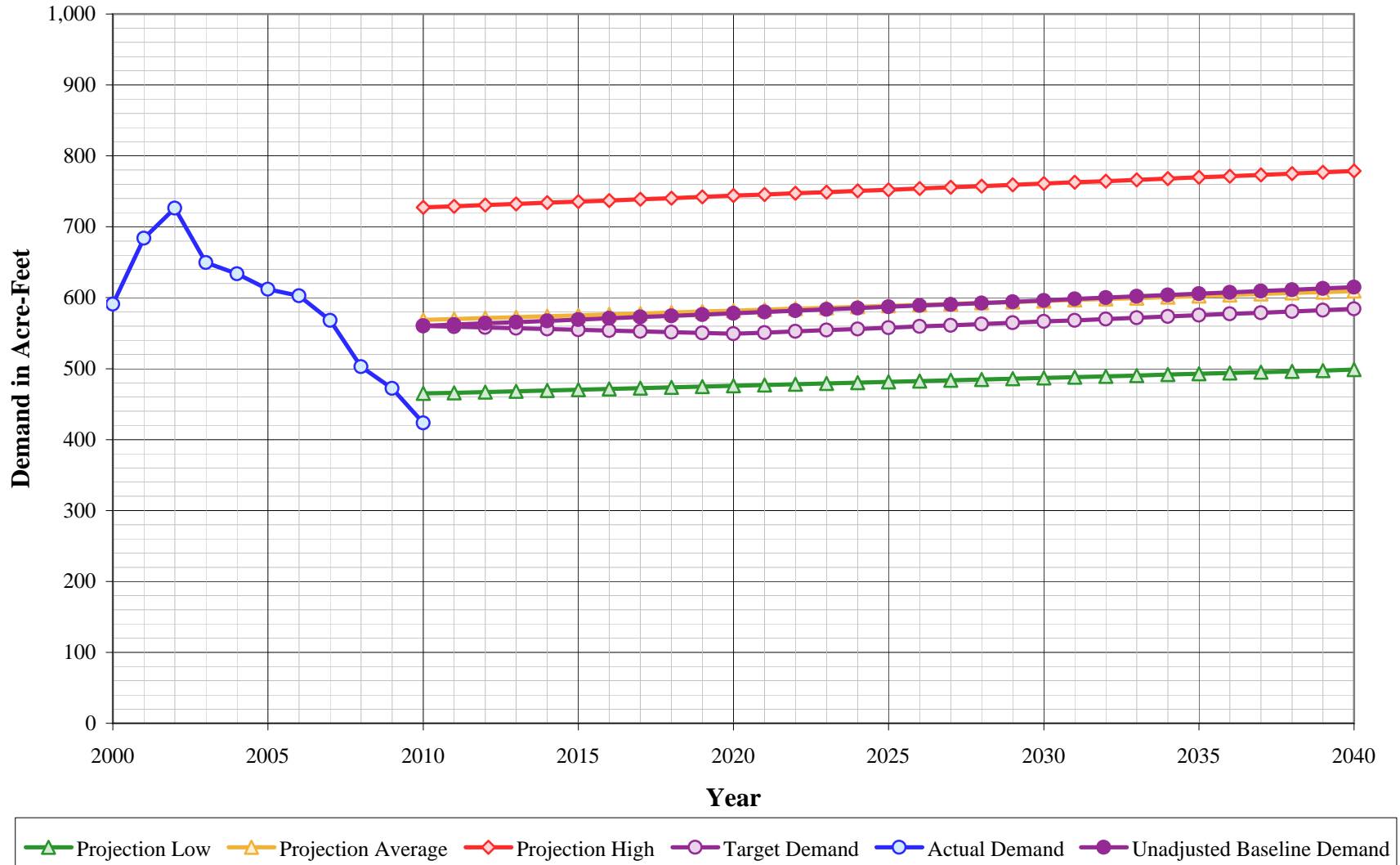


**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Projected Annual Average Services**

Year	Actual Services	Projected Services	
		Selected Growth	Alternative Growth
1990			
1991			
1992			
1993			
1994			
1995			
1996			
1997			
1998			
1999			
2000	1,969		
2001	1,975		
2002	1,905		
2003	1,914		
2004	1,922		
2005	1,941		
2006	1,947		
2007	1,936		
2008	1,930		
2009	1,946	1,946	1,946
2010	1,931	1,951	1,946
2011		1,956	1,953
2012		1,960	1,961
2013		1,965	1,968
2014		1,970	1,975
2015		1,975	1,983

Year	Actual Services	Projected Services	
		Selected Growth	Alternative Growth
2016		1980	1990
2017		1985	1998
2018		1,990	2,005
2019		1,994	2,013
2020		1,999	2,020
2021		2,004	2,028
2022		2,009	2,036
2023		2,014	2,044
2024		2,019	2,052
2025		2,024	2,059
2026		2,029	2,067
2027		2,034	2,075
2028		2,040	2,083
2029		2,045	2,092
2030		2,050	2,100
2031		2,055	2,108
2032		2,060	2,116
2033		2,065	2,125
2034		2,070	2,133
2035		2,076	2,142
2036		2,081	2,150
2037		2,086	2,159
2038		2,091	2,167
2039		2,097	2,176
2040		2,102	2,185

# Redwood Valley District Historical & Projected Demand



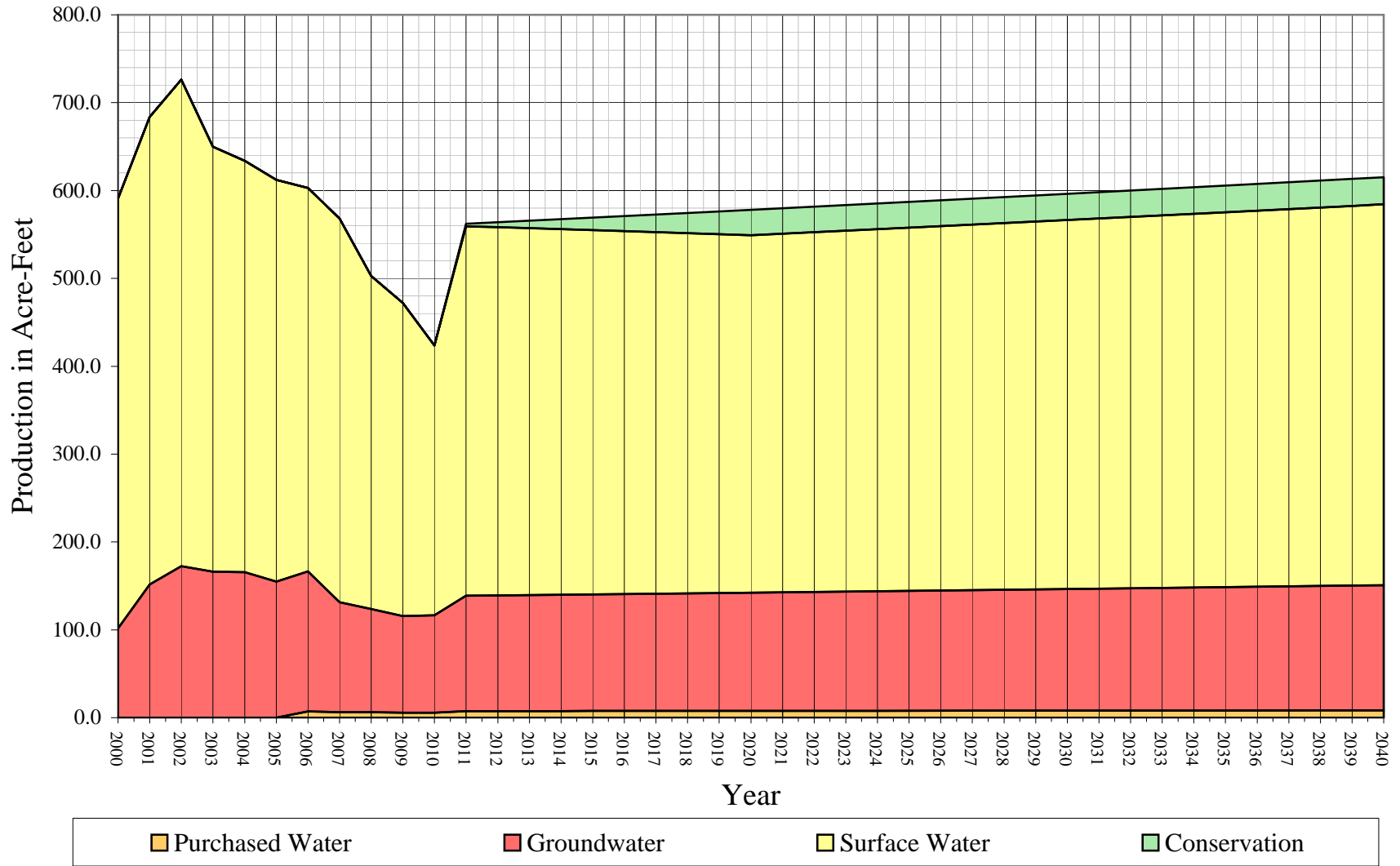
**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Projected Demand in Acre-Feet**

	Actual Demand	Projection			Unadjusted Baseline Demand	Target Demand
		Low	Average	High		
1990						
1991						
1992						
1993						
1994						
1995						
1996						
1997						
1998						
1999						
2000	591					
2001	684					
2002	726					
2003	650					
2004	634					
2005	612					
2006	603					
2007	568					
2008	503					
2009	472					
2010	424	465	569	727	560	560
2011		466	570	729	562	559
2012		467	571	731	564	558
2013		468	573	732	566	557
2014		469	574	734	567	556
2015		470	575	736	569	555

	Actual Demand	Projection			Unadjusted Baseline Demand	Target Demand
		Low	Average	High		
2016		471	576	737	571	554
2017		473	578	739	573	553
2018		474	579	740	574	551
2019		475	580	742	576	550
2020		476	582	744	578	549
2021		477	583	746	580	551
2022		478	584	747	582	553
2023		479	586	749	583	554
2024		480	587	751	585	556
2025		481	589	752	587	558
2026		482	590	754	589	559
2027		484	591	756	591	561
2028		485	593	757	593	563
2029		486	594	759	594	565
2030		487	595	761	596	566
2031		488	597	763	598	568
2032		489	598	764	600	570
2033		490	600	766	602	572
2034		492	601	768	604	574
2035		493	602	770	606	575
2036		494	604	771	607	577
2037		495	605	773	609	579
2038		496	607	775	611	581
2039		497	608	777	613	583
2040		499	609	779	615	584

# Redwood Valley District

## Historical and Projected Distribution of Demand by Source



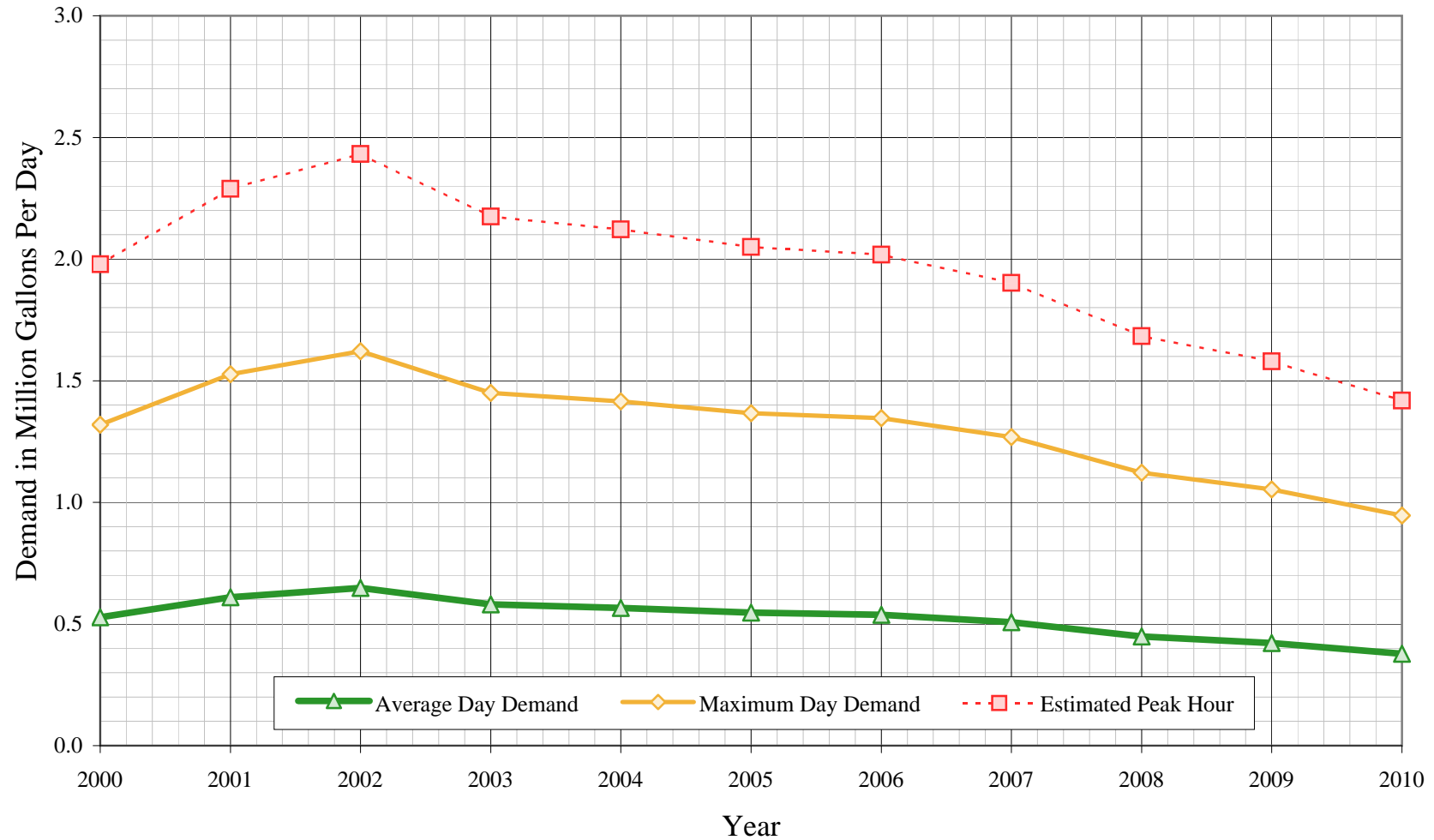
**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Historical and Projected Distribution of Demand by Source**

Worksheet 17

Year	Purchased Water			Groundwater			Surface Water			Conservation			Total Supply		
	kGal/yr	MGD	AFY	kGal/yr	MGD	AFY	kGal/yr	MGD	AFY	kGal/yr	MGD	AFY	kGal/yr	MGD	AFY
1990															
1991															
1992															
1993															
1994															
1995															
1996															
1997															
1998															
1999															
2000	0.0	0.000	0.0	33,095	0.091	102	159,457	0.437	489				192,552	0.528	591
2001	0.0	0.000	0.0	49,446	0.135	152	173,366	0.475	532				222,812	0.610	684
2002	0.0	0.000	0.0	56,211	0.154	173	180,433	0.494	554				236,644	0.648	726
2003	0.0	0.000	0.0	54,192	0.148	166	157,532	0.432	483				211,724	0.580	650
2004	0.0	0.000	0.0	53,971	0.148	166	152,561	0.418	468				206,532	0.566	634
2005	0.0	0.000	0.0	50,500	0.138	155	148,947	0.408	457				199,448	0.546	612
2006	2,326	0.006	7.1	51,946	0.142	159	142,179	0.390	436				196,451	0.538	603
2007	2,026	0.006	6.2	40,795	0.112	125	142,319	0.390	437				185,141	0.507	568
2008	2,031	0.006	6.2	38,220	0.105	117	123,531	0.338	379				163,782	0.449	503
2009	1,822	0.005	5.6	35,875	0.098	110	116,095	0.318	356				153,792	0.421	472
2010	1,859	0.005	5.7	36,121	0.099	111	100,040	0.274	307	0.0	0.000	0.0	138,019	0.378	424
2011	2,441	0.007	7.5	42,763	0.117	131	137,057	0.375	421	916	0.003	2.8	183,178	0.502	562
2012	2,450	0.007	7.5	42,879	0.117	132	136,580	0.374	419	1,837	0.005	5.6	183,746	0.503	564
2013	2,459	0.007	7.5	42,996	0.118	132	136,098	0.373	418	2,765	0.008	8.5	184,317	0.505	566
2014	2,467	0.007	7.6	43,113	0.118	132	135,611	0.372	416	3,698	0.010	11.3	184,889	0.507	567
2015	2,476	0.007	7.6	43,231	0.118	133	135,120	0.370	415	4,637	0.013	14.2	185,463	0.508	569
2020	2,521	0.007	7.7	43,831	0.120	135	132,591	0.363	407	9,418	0.026	28.9	188,361	0.516	578
2025	2,566	0.007	7.9	44,450	0.122	136	134,724	0.369	413	9,565	0.026	29.4	191,306	0.524	587
2030	2,612	0.007	8.0	45,089	0.124	138	136,883	0.375	420	9,715	0.027	29.8	194,298	0.532	596
2035	2,659	0.007	8.2	45,747	0.125	140	139,066	0.381	427	9,867	0.027	30.3	197,339	0.541	606
2040	2,706	0.007	8.3	46,427	0.127	142	141,274	0.387	434	10,021	0.027	30.8	200,429	0.549	615

# Redwood Valley District

## Average Day, Maximum Day, & Peak Hour Demand

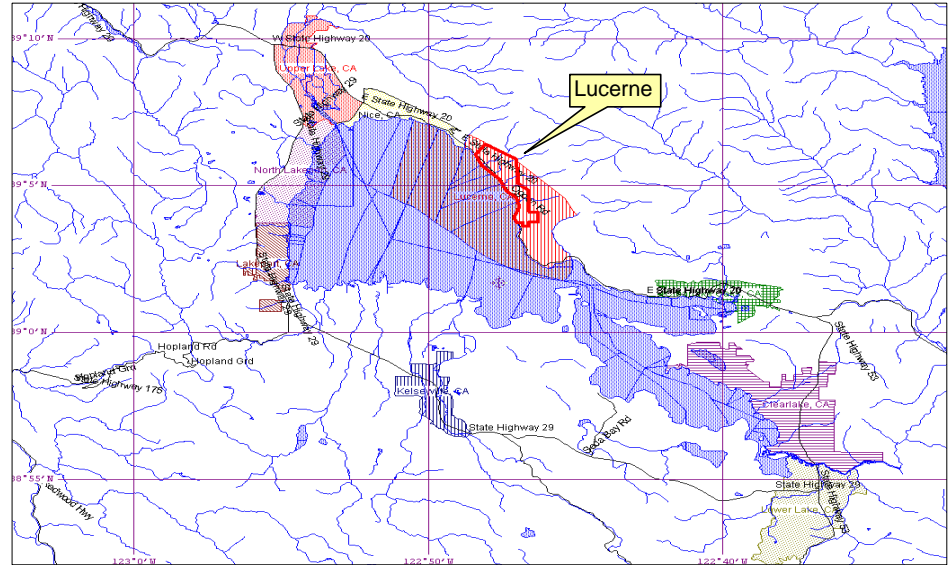
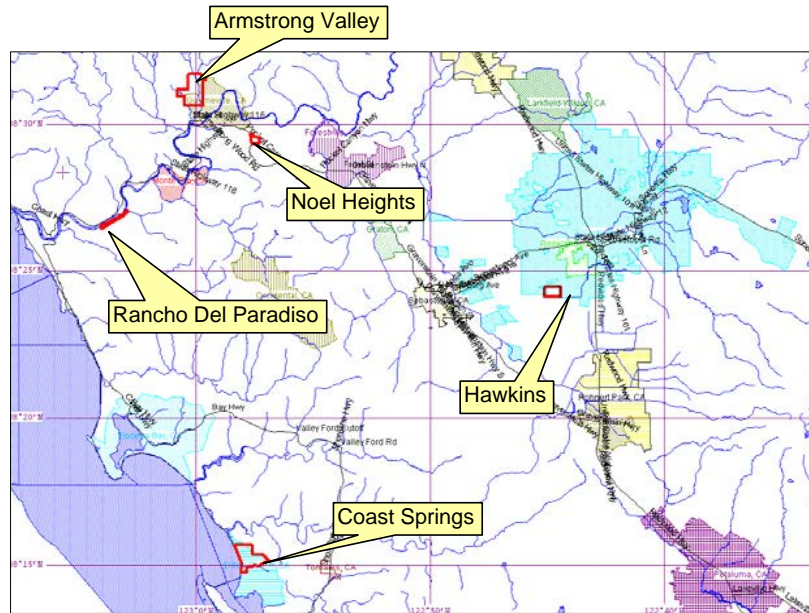


**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**  
**Historical and Projected Average Day, Maximum Day, and Peak Demand**

Year	Historical Annual Demand		Average Day Demand		Maximum Day Demand		MDD ADD Ratio	Estimated Peak Hour Demand		PHD MDD Ratio	PHD ADD Ratio	Measured Peak Hour Demand		PHD MDD Ratio
	(AFY)	(MGY)	(MGD)	Per Service (GPD)	(MGD)	Per Service (GPD)		(MGD)	(GPM)			(MGD)	(GPM)	
1990														
1991														
1992														
1993														
1994														
1995														
1996														
1997														
1998														
1999														
2000	591	193	0.528	268	1.319	670	2.50	1.978	1,374	1.50	3.75			
2001	684	223	0.610	309	1.526	773	2.50	2.289	1,590	1.50	3.75			
2002	726	237	0.648	340	1.621	851	2.50	2.431	1,688	1.50	3.75			
2003	650	212	0.580	303	1.450	758	2.50	2.175	1,511	1.50	3.75			
2004	634	207	0.566	294	1.415	736	2.50	2.122	1,474	1.50	3.75			
2005	612	199	0.546	282	1.366	704	2.50	2.049	1,423	1.50	3.75			
2006	603	196	0.538	276	1.346	691	2.50	2.018	1,402	1.50	3.75			
2007	568	185	0.507	262	1.268	655	2.50	1.902	1,321	1.50	3.75			
2008	503	164	0.449	232	1.122	581	2.50	1.683	1,169	1.50	3.75			
2009	472	154	0.421	217	1.053	541	2.50	1.580	1,097	1.50	3.75			
2010	424	138	0.378	196	0.945	490	2.50	1.418	985	1.50	3.75			
5 year Average (2006-2010)			0.459	237	1.147	592	2.50	1.720	1,195	1.50	3.75			
10 year Average (2001-2010)			0.524	271	1.311	678	2.50	1.967	1,366	1.50	3.75			

# California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

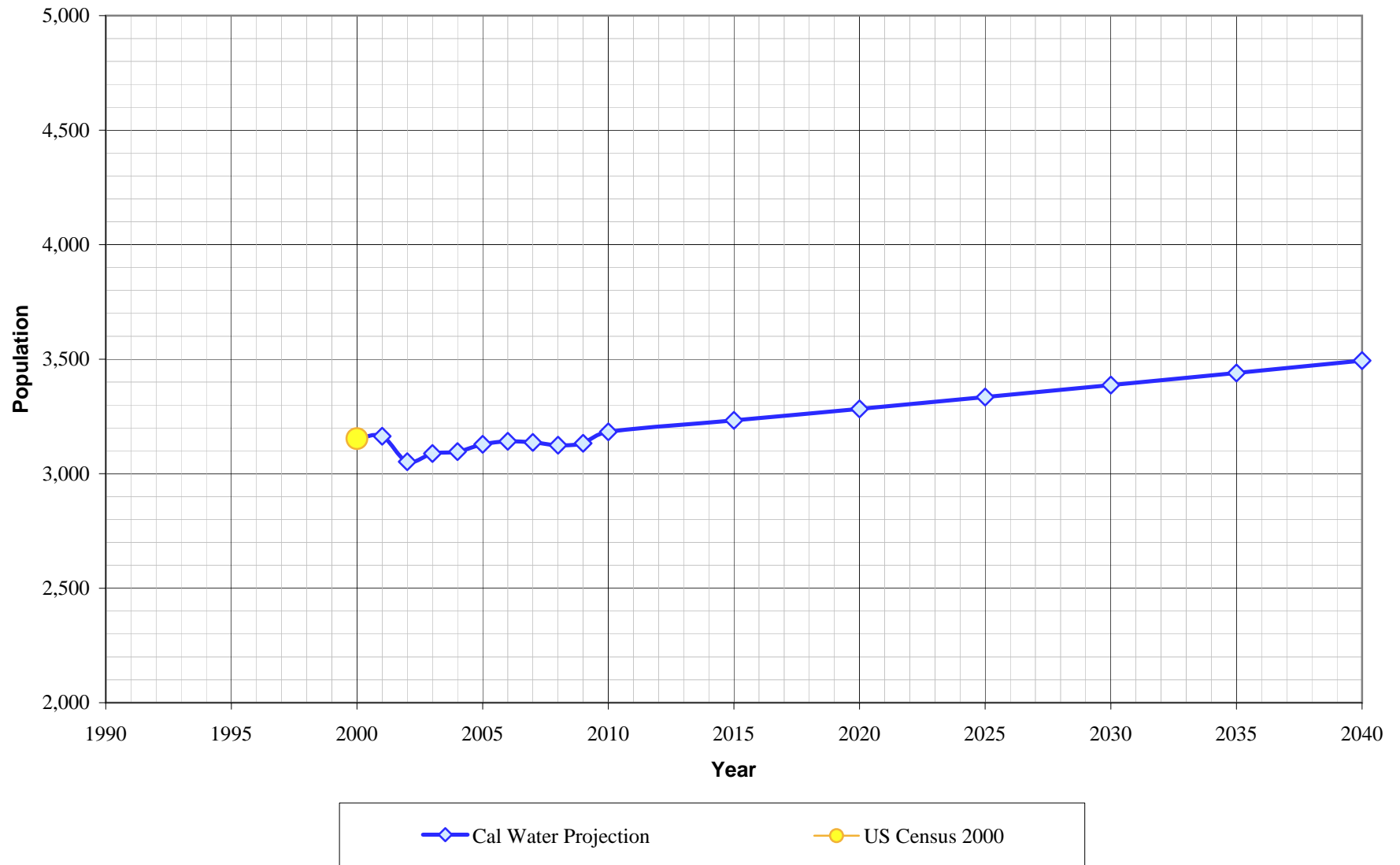
## US Census 2000 Tract Map Summary



US Census 2000 Summary								
System	Census Tract Blocks	Population	Housing Units	Density	SAM Area (sq. mi)	Population Percentages Distribution	Housing Percentages Distribution	SAM Percentages Distribution
Armstrong Valley	12	374	190	1.97	0.88	11.86%	9.24%	22.51%
Rancho Del Paradiso	1	79	63	1.25	0.10	2.51%	3.06%	2.53%
Noel Heights	1	47	35	1.34	0.09	1.49%	1.70%	2.42%
Coast Springs	8	238	336	0.71	0.71	7.55%	16.34%	18.23%
Hawkins	2	126	47	2.68	0.14	4.00%	2.29%	3.54%
Lucerne	70	2,289	1,385	1.65	1.98	72.60%	67.36%	50.77%
	94	3,153	2,056	1.53	3.89	100.00%	100.00%	100.00%



# Redwood Valley District Population Projections



**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

Population as of the 2000 Average Annual Services  
 Estimated District Population based on 2000 U.S. Census Data & Annual Service Count

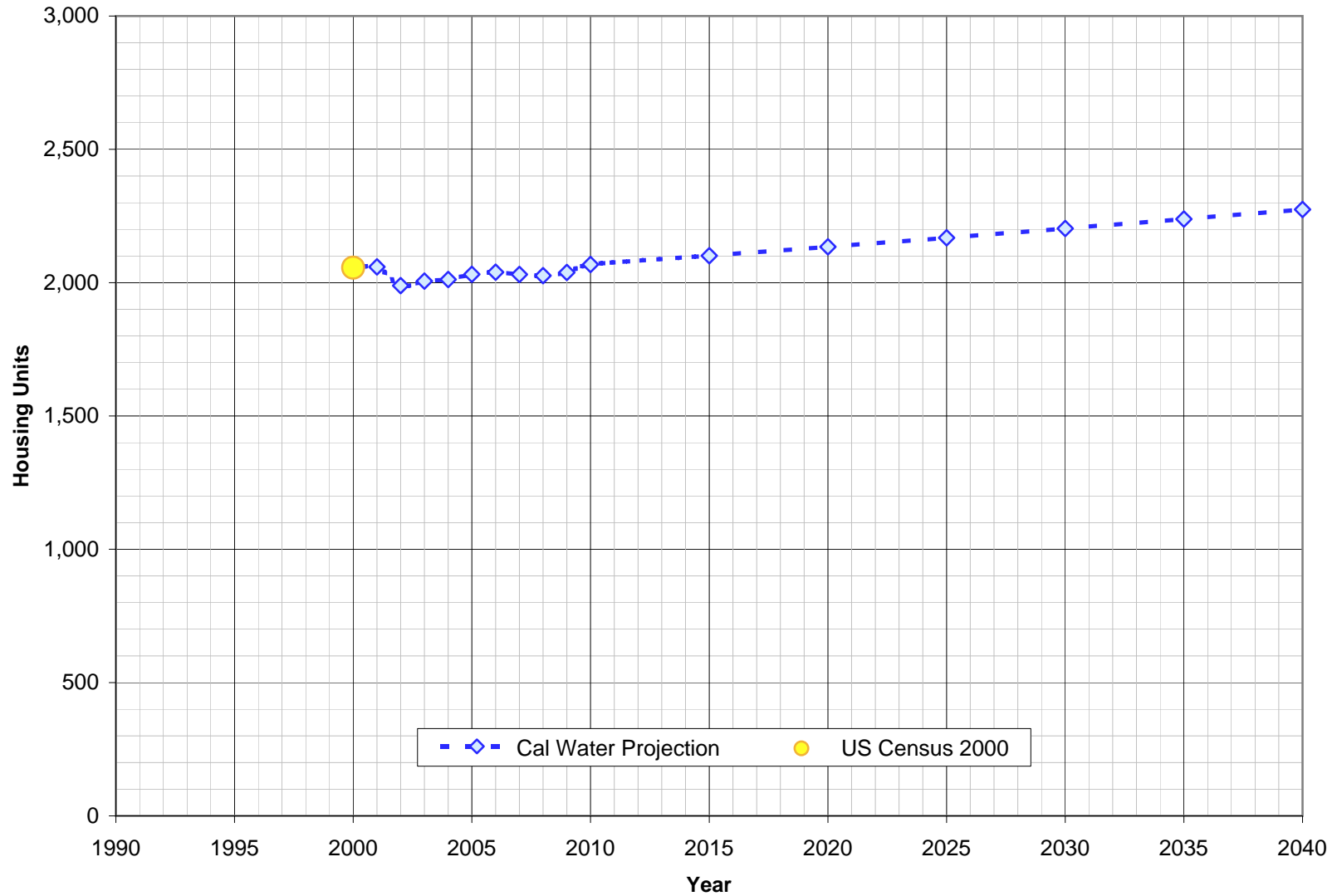
District Communities Served:  
 Redwood Valley, Fremont Valley - Mojave, Noel Heights, Rancho del Paradiso, Noel Heights

Year	Metered Single Family Residential Services (DU)	Multi Family Residential			Flat Rate Residential Services (DU)	Total Residential Services (DU)	Estimated District Population
		Services	Residential Units (DU)	Unit Density			
1995							
1996							
1997							
1998							
1999							
2000	1,870	18	183	27.4	0	2,053	3,153
2001	1,876	18	183	27.4	0	2,059	3,164
2002	1,806	18	183	27.4	0	1,989	3,052
2003	1,823	18	183	27.4	0	2,006	3,088
2004	1,829	18	183	27.4	0	2,012	3,096
2005	1,848	18	183	27.4	0	2,031	3,128
2006	1,856	17	183	28.0	0	2,039	3,142
2007	1,848	17	183	28.0	0	2,031	3,136
2008	1,843	17	183	28.0	0	2,026	3,125
2009	1,855	17	183	28.0	0	2,038	3,133
2010	1,859	17	185	28.1	0	2,068	3,183
2015	1,882	17	195	28.6	0	2,101	3,233
2020	1,904	18	206	29.0	0	2,134	3,283
2025	1,927	18	216	29.4	0	2,169	3,334
2030	1,951	18	227	29.9	0	2,203	3,387
2035	1,974	18	238	30.3	0	2,238	3,440
2040	1,998	19	250	30.7	0	2,274	3,494

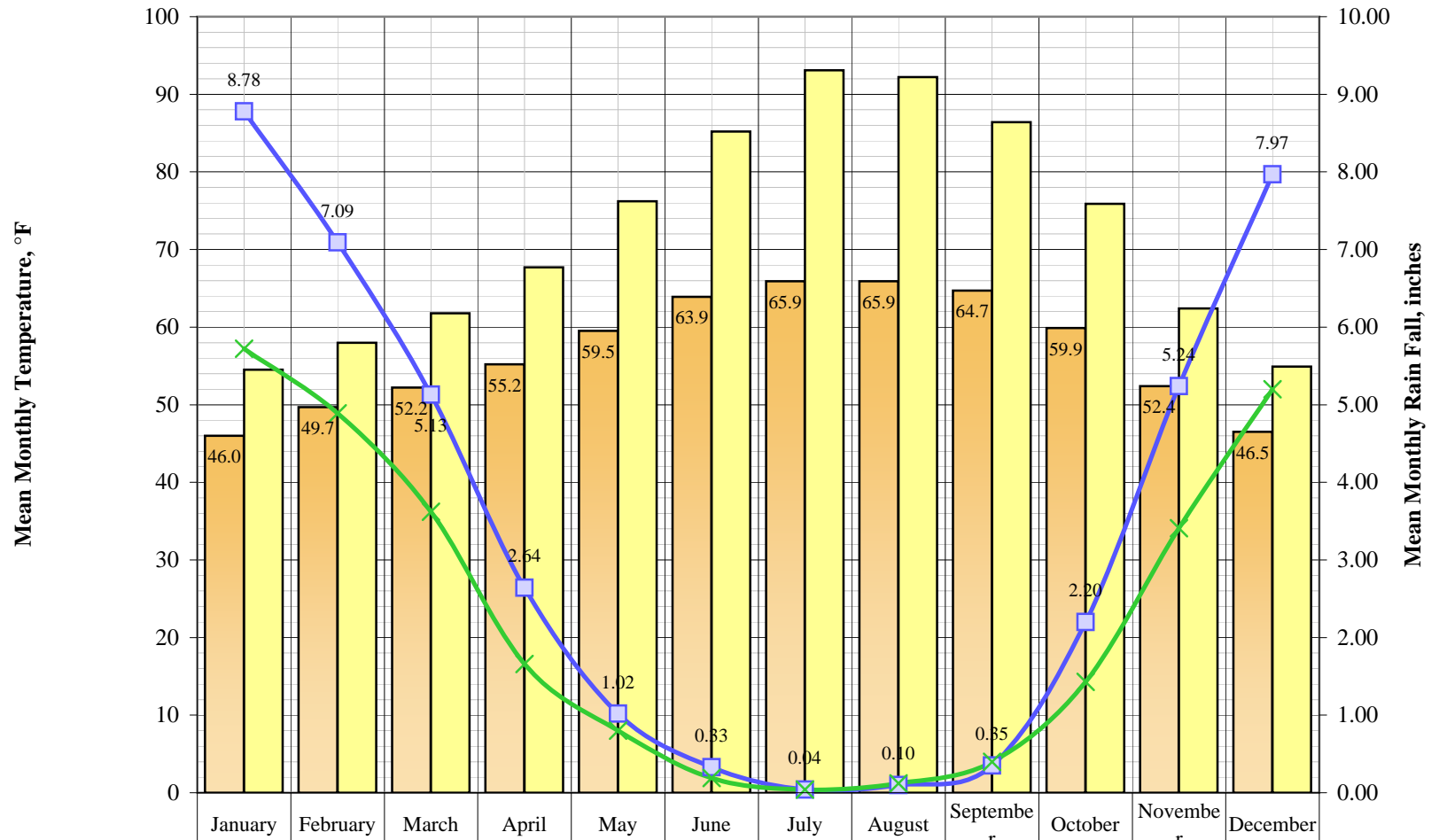
US Census 2000		Calculated Persons per CWS DU	Calculated Persons per US Census Housing Unit
Population	Housing Units		
3,153	2,056	1,536	1,534

3,153	2,056	1,536	1,534
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# Redwood Valley District Housing Units



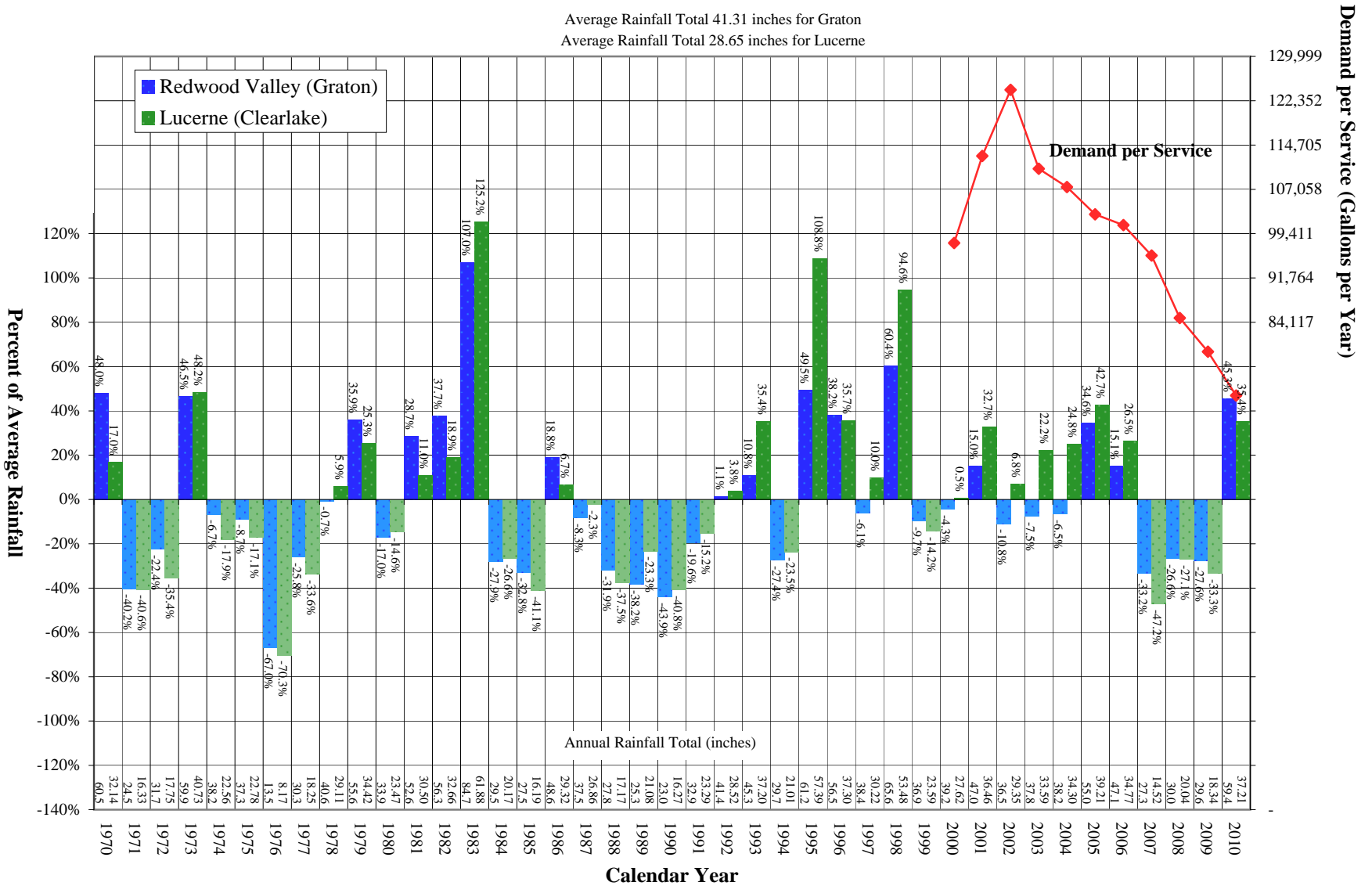
## Redwood Valley District Average Monthly Temperature and Rainfall



Temperature - Graton	46	49.7	52.2	55.2	59.5	63.9	65.9	65.9	64.7	59.9	52.4	46.5
Temperature - Clearlake	54.5	58	61.8	67.7	76.2	85.2	93.1	92.2	86.4	75.9	62.4	54.9
Rainfall - Graton	8.78	7.09	5.13	2.64	1.02	0.33	0.04	0.1	0.35	2.2	5.24	7.97
Rainfall - Clearlake	5.72	4.89	3.62	1.66	0.8	0.19	0.04	0.12	0.4	1.43	3.41	5.2

# Redwood Valley District Comparison of Annual Rainfall to Historic Average

Average Rainfall Total 41.31 inches for Graton  
Average Rainfall Total 28.65 inches for Lucerne



## California Water Service Company - Redwood Valley District

### Water Supply and Demand Analysis and Projections

Worksheet 20

## Temperature &amp; Rainfall History (Graton)

Year	Annual Average Temp.	Annual Average Rainfall	Rainfall Percent Variation	Demand per Service (Gal / Yr)	Percent of Average Demand	Year	Annual Average Temp.	Annual Average Rainfall	Rainfall Percent Variation	Demand per Service (Gal / Yr)	Percent of Average Demand
1970	56.7	60.51	48.0%			1995	58.4	61.15	49.5%		
1971	55.6	24.47	-40.2%			1996	58.1	56.49	38.2%		
1972	55.7	31.73	-22.4%			1997	58.4	38.38	-6.1%		
1973	56.6	59.91	46.5%			1998	56.2	65.57	60.4%		
1974	56.0	38.17	-6.7%			1999	55.9	36.91	-9.7%		
1975	54.9	37.32	-8.7%			2000	56.8	39.15	-4.3%	97,795	96.2%
1976	56.5	13.51	-67.0%			2001	57.4	47.02	15.0%	112,814	111.0%
1977	57.0	30.32	-25.8%			2002	57.4	36.46	-10.8%	124,236	122.3%
1978	57.7	40.62	-0.7%			2003	57.9	37.83	-7.5%	110,619	108.9%
1979	57.1	55.56	35.9%			2004	58.5	38.22	-6.5%	107,457	105.8%
1980	56.7	33.94	-17.0%			2005	57.6	55.03	34.6%	102,755	101.1%
1981	57.9	52.61	28.7%			2006	56.8	47.08	15.1%	100,878	99.3%
1982	55.7	56.29	37.7%			2007	57.5	27.30	-33.2%	95,635	94.1%
1983	58.1	84.65	107.0%			2008	57.3	30.01	-26.6%	84,861	83.5%
1984	57.7	29.47	-27.9%			2009	57.1	29.62	-27.6%	79,030	77.8%
1985	55.9	27.48	-32.8%			2010	56.9	59.43	45.3%	71,476	70.3%
1986	57.3	48.59	18.8%			2011					
1987	57.1	37.51	-8.3%			2012					
1988	57.5	27.84	-31.9%			2013					
1989	56.2	25.26	-38.2%			2014					
1990	56.9	22.95	-43.9%			2015					
1991	56.8	32.87	-19.6%			2016					
1992	58.0	41.36	1.1%			2017					
1993	57.1	45.29	10.8%			2018					
1994	56.1	29.68	-27.4%			2019					

Source: Western Regional Climate Center:

<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3578>

Calendar Year	Average Water Year	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years			
				1	2	3	4
	-	2000	2007	2006	2007	2008	2009
Demand per Service (gal/yr)	101,608	97,795	95,635	100,878	95,635	84,861	79,030
Difference from Average	100.0%	100%	98%	103%	98%	87%	81%

## California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

Worksheet 20

## Temperature Data

Station:(043578) GRATON															
From Year=1926 To Year=2010															
	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	56	35.9	46	84	Aug-62	18	Sep-37	51.6	2003	39	1949	0	0	12	0
February	61.2	38.1	49.7	85	14/1930	17	Jul-89	54.9	1963	44.7	1949	0	0	6.9	0
March	65.1	39.4	52.2	90	27/1988	25	Feb-53	59.1	1934	47.5	2006	0	0	3.6	0
April	69.5	40.8	55.2	98	29/1981	25	Feb-36	59.5	1934	47.4	1967	0.2	0	1.6	0
May	74.7	44.2	59.5	103	29/1950	29	18/1927	63.9	2001	55.6	1953	1.7	0	0.1	0
June	80.5	47.3	63.9	108	25/1976	33	Mar-76	70.2	1981	59.4	1965	4.9	0	0	0
July	83.3	48.5	65.9	113	14/1972	38	Jun-09	69.4	1988	62.6	1944	6.7	0	0	0
August	83.5	48.2	65.9	108	25/2010	36	22/1973	68.6	2008	62.5	1954	7.1	0	0	0
September	82.5	47	64.7	112	15/1971	33	15/1970	69.6	1984	60.2	1965	6.8	0	0	0
October	76.2	43.7	59.9	106	Feb-80	22	29/1971	63.1	2003	56	1971	2.5	0	0.6	0
November	65.5	39.3	52.4	92	Mar-29	22	17/1961	57.3	1926	46.7	1994	0	0	5.4	0
December	56.8	36.3	46.5	80	Oct-26	14	22/1990	50.8	1929	41.3	1972	0	0	11.3	0
Annual	71.2	42.4	56.8	113	19720714	14	19901222	59	1934	54.9	1975	30	0	41.4	0

Monthly Average ETo Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	0.93	1.40	2.48	3.30	4.03	4.50	4.65	4.03	3.30	2.48	1.20	0.62	33.00

1) California Irrigation Management Information System (CIMIS), <http://www.cimis.water.ca.gov/cimis/welcome.jsp>, EvapoTranspiration (Eto) Zones Map, Zone 1

## California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

## Precipitaion Data

Station:(043578) GRATON														
From Year=1926 To Year=2010														
	Precipitation										Total Snowfall			
	Mean	High	Year	Low	Year	1 Day Max.	>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year	
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	8.78	23.58	1995	0.42	1976	5.72	Apr-82	13	10	6	3	0	1	1937
February	7.09	24.84	1998	0.11	1953	6.95	Apr-37	11	8	5	2	0	0	1926
March	5.13	20.38	1983	0.01	1988	6.49	Sep-95	11	8	4	1	0	0	1926
April	2.64	8.09	2006	0	1968	4	27/1953	7	5	2	1	0	0	1928
May	1.02	6.01	1990	0	1955	2.33	16/1996	4	2	1	0	0	0	1926
June	0.33	2.28	1967	0	1926	2.12	Feb-67	1	1	0	0	0	0	1928
July	0.04	1.93	1974	0	1926	1.23	Aug-74	0	0	0	0	0	0	1935
August	0.1	2.72	1954	0	1928	1.71	28/1954	1	0	0	0	0	0	1938
September	0.35	4.21	1959	0	1927	4.18	18/1959	2	1	0	0	0	0	1927
October	2.2	11.55	1957	0	1966	5.4	24/2010	5	3	1	1	0	0	1926
November	5.24	17.04	1926	0	1929	5.54	22/1977	9	7	4	2	0	0	1927
December	7.97	25.24	1955	0	1989	6.7	19/1981	12	9	5	3	0	0	1927
Annual	40.89	84.65	1983	13.51	1976	6.95	19370204	76	52	27	13	0	0.5	1957



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## California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

Worksheet 20A

### Temperature & Rainfall History - Clearlake

Year	Annual Average Temp.	Annual Average Rainfall	Rainfall Percent Variation	Demand per Service (Gal / Yr)	Percent of Average Demand	Year	Annual Average Temp.	Annual Average Rainfall	Rainfall Percent Variation	Demand per Service (Gal / Yr)	Percent of Average Demand
1970	57.0	32.14	17.0%			1995	58.4	57.39	108.8%		
1971	55.4	16.33	-40.6%			1996	57.9	37.30	35.7%		
1972	56.5	17.75	-35.4%			1997	57.7	30.22	10.0%		
1973	57.5	40.73	48.2%			1998	55.4	53.48	94.6%		
1974	56.5	22.56	-17.9%			1999	55.9	23.59	-14.2%		
1975	55.4	22.78	-17.1%			2000	56.7	27.62	0.5%	97,795	96.2%
1976	56.7	8.17	-70.3%			2001	58.8	36.46	32.7%	112,814	111.0%
1977	56.0	18.25	-33.6%			2002	57.8	29.35	6.8%	124,236	122.3%
1978	56.9	29.11	5.9%			2003	57.3	33.59	22.2%	110,619	108.9%
1979	56.9	34.42	25.3%			2004	57.8	34.30	24.8%	107,457	105.8%
1980	56.9	23.47	-14.6%			2005	56.5	39.21	42.7%	102,755	101.1%
1981	58.6	30.50	11.0%			2006	56.4	34.77	26.5%	100,878	99.3%
1982	55.3	32.66	18.9%			2007	59.0	14.52	-47.2%	95,635	94.1%
1983	55.4	61.88	125.2%			2008	---	20.04	-27.1%	84,861	83.5%
1984	57.2	20.17	-26.6%			2009	62.6	18.34	-33.3%	79,030	77.8%
1985	59.7	16.19	-41.1%			2010	57.1	37.21	35.4%	71,476	70.3%
1986	60.9	29.32	6.7%			2011					
1987	57.4	26.86	-2.3%			2012					
1988	58.0	17.17	-37.5%			2013					
1989	56.3	21.08	-23.3%			2014					
1990	56.7	16.27	-40.8%			2015					
1991	57.1	23.29	-15.2%			2016					
1992	58.9	28.52	3.8%			2017					
1993	56.1	37.20	35.4%			2018					
1994	56.5	21.01	-23.5%			2019					

Source: Western Regional Climate Center:

<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1806>

## California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

Worksheet 20A

## Temperature Data

Station:(041806) CLEARLAKE 4 SE															
From Year=1954 To Year=2010															
	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyymmdd	F	dd/yyyy or yyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	54.5	30.6	42.6	76	29/1989	8	May-74	48.5	2003	37.6	1957	0	0	19.6	0
February	58	33	45.5	81	15/1977	16	Apr-57	50.2	1995	40.4	1966	0	0	14.3	0
March	61.8	35.5	48.6	84	31/1966	17	Mar-66	55.2	2004	42.1	2006	0	0	10.4	0
April	67.7	38.5	53.1	94	30/1981	23	24/1964	59.5	1959	43.7	1967	0.1	0	4.4	0
May	76.2	44.4	60.3	101	29/1984	28	Apr-64	66.8	2001	51.7	1998	2.8	0	0.4	0
June	85.2	51	68.1	114	30/1977	34	Mar-66	74.1	1977	61.6	2005	10.3	0	0	0
July	93.1	54.3	73.7	113	16/1972	39	27/1965	77.4	1988	68	1983	22	0	0	0
August	92.2	52.6	72.4	112	Sep-78	40	30/1955	77.7	1958	68	1976	20.8	0	0	0
September	86.4	47.8	67.1	111	Mar-55	30	19/1965	70.8	1991	61.7	1986	12.4	0	0	0
October	75.9	41.3	58.6	104	Jan-09	21	Jun-83	63.5	1991	54	1971	2.6	0	2.2	0
November	62.4	35	48.7	92	Jan-66	19	25/1956	54.5	1995	43	1994	0	0	11.8	0
December	54.9	31.3	43.1	78	28/1967	6	22/1990	48.3	1995	37	1972	0	0	18.9	0
Annual	72.4	41.3	56.8	114	19770630	6	19901222	58.6	1981	55.2	1965	71	0	82.1	0

Monthly Average ETo Report	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	1.24	1.68	3.41	4.80	6.20	6.90	7.44	6.51	5.10	3.41	1.80	0.93	49.40

1) California Irrigation Management Information System (CIMIS), <http://www.cimis.water.ca.gov/cimis/welcome.jsp>, EvapoTranspiration (Eto) Zones Map, Zone 8

**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

Worksheet 20A

## Precipitation Data

Station:(041806) CLEARLAKE 4 SE														
From Year=1954 To Year=2010														
Precipitation											Total Snowfall			
	Mean	High	Year	Low	Year	1 Day Max.	>=	>=	>=	>=	Mean	High	Year	
	in.	in.	-	in.	-	in.	dd/yyyy or yyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	5.72	25.96	1995	0.11	2007	6.47	Sep-95	11	8	4	2	1.1	24.5	1974
February	4.89	22.03	1998	0.02	1971	4.7	Mar-98	10	7	4	2	0.1	2	1956
March	3.62	15.71	1995	0.06	1956	5.26	Sep-95	9	6	2	1	0.2	6	1976
April	1.66	8.57	2006	0	1964	2.71	Dec-06	6	4	1	0	0	0	1955
May	0.8	5.99	1998	0	1955	2.03	28/1990	4	2	0	0	0	0	1955
June	0.19	1.39	1967	0	1955	1.15	Feb-67	1	1	0	0	0	0	1955
July	0.04	0.7	1974	0	1955	0.7	Aug-74	0	0	0	0	0	0	1955
August	0.12	1.97	1965	0	1955	1.2	18/1965	0	0	0	0	0	0	1955
September	0.4	4.11	1989	0	1958	2.81	17/1989	1	1	0	0	0	0	1955
October	1.43	7.4	1962	0	1958	3.08	23/1989	4	2	1	0	0	0	1955
November	3.41	10.44	1983	0	1959	3.07	14/1965	9	6	2	1	0	2	1955
December	5.2	17.88	2002	0	1989	6.28	Dec-95	10	8	4	2	0.1	2.5	1972
Annual	27.48	61.88	1983	8.17	1976	6.47	19950109	67	45	18	8	1.5	24.5	1974

## California Water Service Company - Redwood Valley District Water Supply and Demand Analysis and Projections

### Groundwater Production Facilities

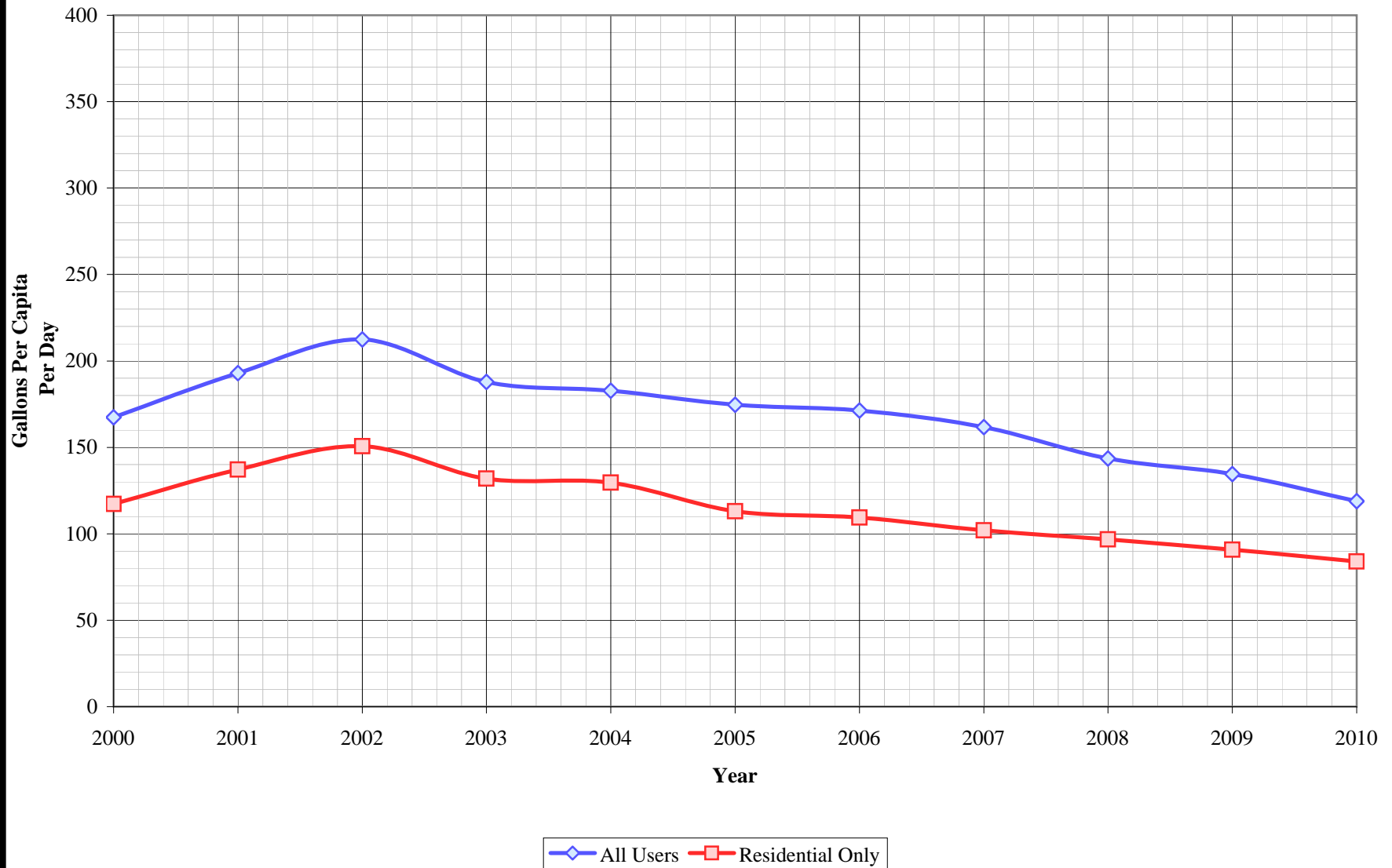
Location	Well No.	Design Capacity (gpm)	
		Active	Inactive
Armstrong Valley	1-01	113	
Armstrong Valley	1-02	84	
Coast Springs	1-01	10	
Coast Springs	2-01	10	
Coast Springs	3-01	10	
Coast Springs	4-01	22	
Coast Springs	5-01	6	
Coast Springs	6-01	6	
Coast Springs	9-01	6	
Coast Springs	10-01	6	
Hawkins	1-01		unk
Hawkins	1-02	45	
Noel Heights	201-01	20	
Total units:	13	12	1
Design Capacity (GPM)	338	338	0
Design Capacity (MGD)	0.487	0.487	0.000
Design Capacity (AFY)	545	545	0

## Notes:

- 1) Listed pump capacities on this worksheet represent design flowrates, actual flowrates are highly dependent on local system pressures, well characteristics, and other design criteria
- 2) Values in bold are estimated

Updated 1/1/2011

# Redwood Valley District Per Capita Consumption



**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

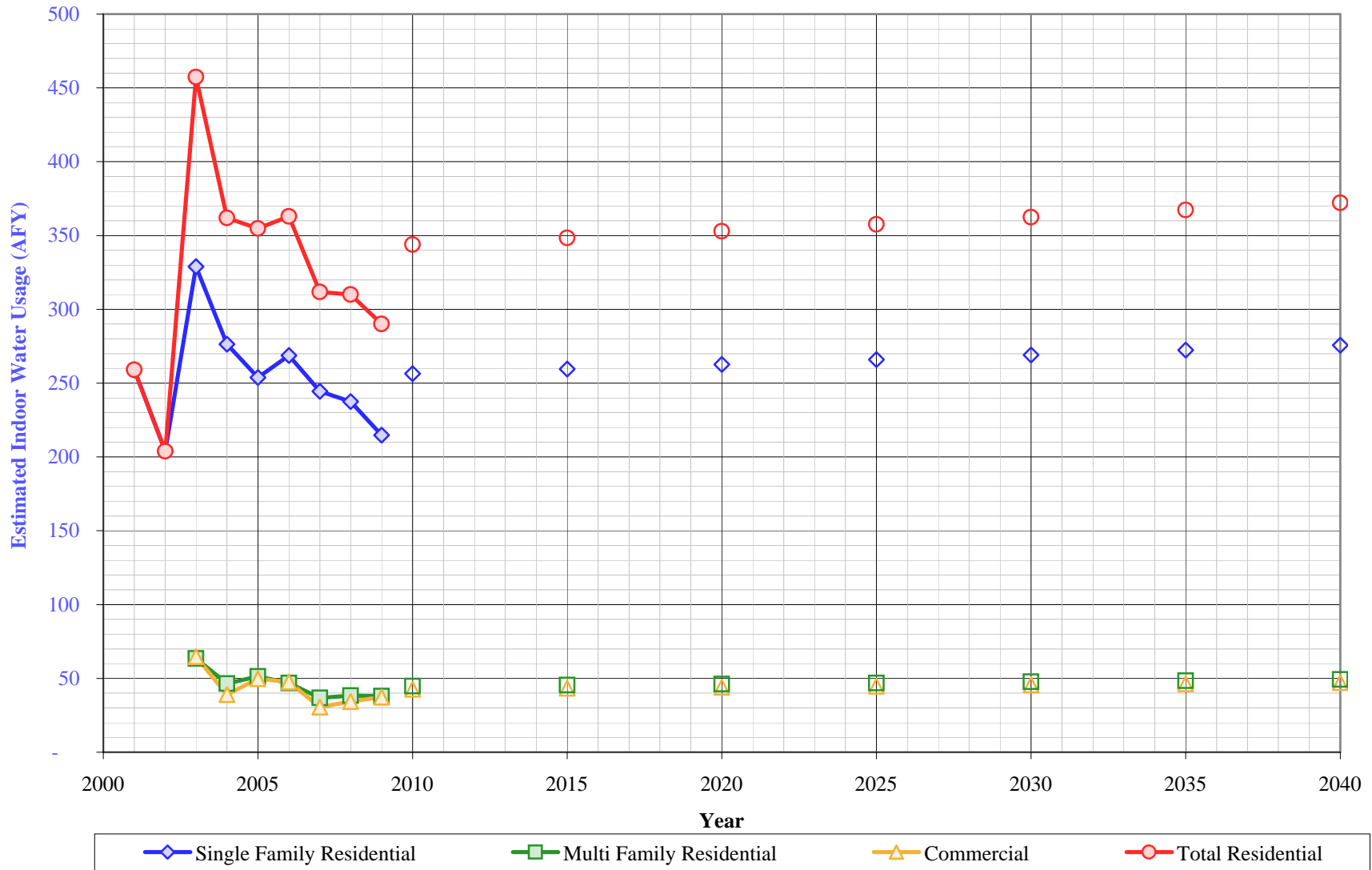
**Per Capita Water Demand**

Year	Usage - All Users			Usage - Residential Only		
	AFY	MGY	Gallons Per Capita Per Day	AFY	MGY	Gallons Per Capita Per Day
1995						
1996						
1997						
1998						
1999						
2000	591	193	167.3	414	135	117.2
2001	684	223	193.0	486	158	137.1
2002	726	237	212.4	515	168	150.7
2003	650	212	187.8	456	149	131.9
2004	634	207	182.8	449	146	129.6
2005	612	199	174.7	396	129	113.1
2006	603	196	171.3	385	125	109.4
2007	568	185	161.7	358	117	102.0
2008	503	164	143.6	339	110	96.8
2009	472	154	134.5	319	104	90.8
2010	424	138	118.8	299	98	84.0
5 Yr. Avg.	514	167	146	340	111	97
10 Yr. Avg.	587	191	168	400	130	115

Five year average is from years 2006 through 2010.

Ten year average is from years 2001 through 2010.

## Redwood Valley District Estimated Indoor Water Usage





**California Water Service Company - Redwood Valley District**  
**Water Supply and Demand Analysis and Projections**

**Estimated Indoor/Outdoor Water Usage**

Year	Single Family Residential (SFR)							Multi Family Residential (MFR)				Commercial (COM)				Est. Indoor Usage AFY
	Metered Single Family Residential Indoor Use (Annualized 90% of January Total)			Indoor Flat Rate Usage (AFY)	Total SFR Indoor Usage			Multi Family Residential January Usage (CCF)	Multi Family Residential Indoor Use (Annualized 90% of January Total)			Commercial (CCF)	Commercial Indoor Use (Annualized 90% of January Total)			
	JAN (CCF)	AFY	AFY/Service		AFY	GPD/Service	%		AFY	GPD/Service	%		AFY	GPD/Service	%	
1990																
1991																
1992																
1993																
1994																
1995																
1996																
1997																
1998																
1999																
2000																
2001	10,447	259	0.14	0	259	123	59%								259	
2002	8,219	204	0.11	0	204	101	42%								204	
2003	13,269	329	0.18	0	329	161	84%	2,560	63.47	3,148	98%	2,613	65	933	154%	457
2004	11,146	276	0.15	0	276	135	72%	1,877	46.54	2,308	73%	1,574	39	553	101%	362
2005	10,234	254	0.14	0	254	123	76%	2,069	51.30	2,544	83%	2,009	50	717	134%	355
2006	10,838	269	0.14	0	269	129	84%	1,886	46.76	2,456	71%	1,918	48	696	134%	363
2007	9,862	245	0.13	0	245	118	80%	1,483	36.77	1,931	69%	1,231	31	454	106%	312
2008	9,578	237	0.13	0	237	115	82%	1,545	38.31	2,012	76%	1,384	34	519	103%	310
2009	8,665	215	0.12	0	215	103	80%	1,531	37.96	1,993	76%	1,504	37	555	156%	290
2010	-	-	-	-	257	123	73%	-	44.73	2,342	78%	-	43	632	127%	344
2015	-	-	-	-	260	123	73%	-	45.44	2,342	78%	-	43	632	127%	348
2020	-	-	-	-	263	123	73%	-	46.16	2,342	78%	-	44	632	127%	353
2025	-	-	-	-	266	123	73%	-	46.91	2,342	78%	-	45	632	127%	358
2030	-	-	-	-	269	123	73%	-	47.68	2,342	78%	-	46	632	127%	362
2035	-	-	-	-	272	123	73%	-	48.48	2,342	78%	-	46	632	127%	367
2040	-	-	-	-	276	123	73%	-	49.30	2,342	78%	-	47	632	127%	372

Note: MFR estimates appear erroneous possibly due to bi-monthly bill schedule and seasonal vacancy of dwelling units. Projections based on 75% of average GOD/Service

# California Water Service Company - Redwood Valley District

## Water Supply and Demand Analysis and Projections

### Comparison of Projected Demand and Conservation Savings Between SBx7-7 Compliance Targets and Actual Proposed Programs

Year	SBx7-7 Compliance Target (gpcd)	Anticipated GPCD with Proposed Programs*	Estimated Population	Undadjusted Baseline Demand (AFY)	SBx7-7 Compliance Target Demand (AFY)	Anticipated Demand with Proposed Programs (AFY)	Compliance Target Savings Requirement (AFY)	Savings Due to Proposed Programs (AFY)
2005-2009 Average	157	157	3,133	552	552	552	0	0
2010	157	157	3,183	560	560	560	0	0
2011	156	155	3,193	562	559	554	3	8
2012	156	153	3,203	564	558	549	6	15
2013	155	150	3,213	566	557	540	8	26
2014	154	147	3,223	567	556	531	11	37
2015	153	145	3,233	569	555	525	14	44
2016	152	145	3,243	571	554	527	17	44
2017	152	145	3,253	573	553	528	20	44
2018	151	145	3,263	574	551	530	23	45
2019	150	145	3,273	576	550	532	26	45
2020	149	145	3,283	578	549	533	29	45
2021	149	145	3,293	580	551	535	29	45
2022	149	145	3,304	582	553	537	29	45
2023	149	145	3,314	583	554	538	29	45
2024	149	145	3,324	585	556	540	29	45
2025	149	145	3,334	587	558	542	29	45
2026	149	145	3,345	589	559	543	29	46
2027	149	145	3,355	591	561	545	30	46
2028	149	145	3,366	593	563	547	30	46
2029	149	145	3,376	594	565	548	30	46
2030	149	145	3,387	596	566	550	30	46
2031	149	145	3,397	598	568	552	30	46
2032	149	145	3,408	600	570	553	30	46
2033	149	145	3,418	602	572	555	30	47
2034	149	145	3,429	604	574	557	30	47
2035	149	145	3,440	606	575	559	30	47
2036	149	145	3,450	607	577	560	30	47
2037	149	145	3,461	609	579	562	30	47
2038	149	145	3,472	611	581	564	31	47
2039	149	145	3,483	613	583	566	31	48
2040	149	145	3,494	615	584	567	31	48

\*Note: The district is projected to achieve its district-specific 2015 and 2020 SBx7-7 compliance target in 2015 through a combination of passive and active savings. For the purpose of this analysis it is assumed that GPCD will remain flat from 2015 through 2040.