

Appendix F

- Projection Analysis Worksheets

Water Resources Planning Department

**Projection Analysis Work Sheets
for
Visalia District**

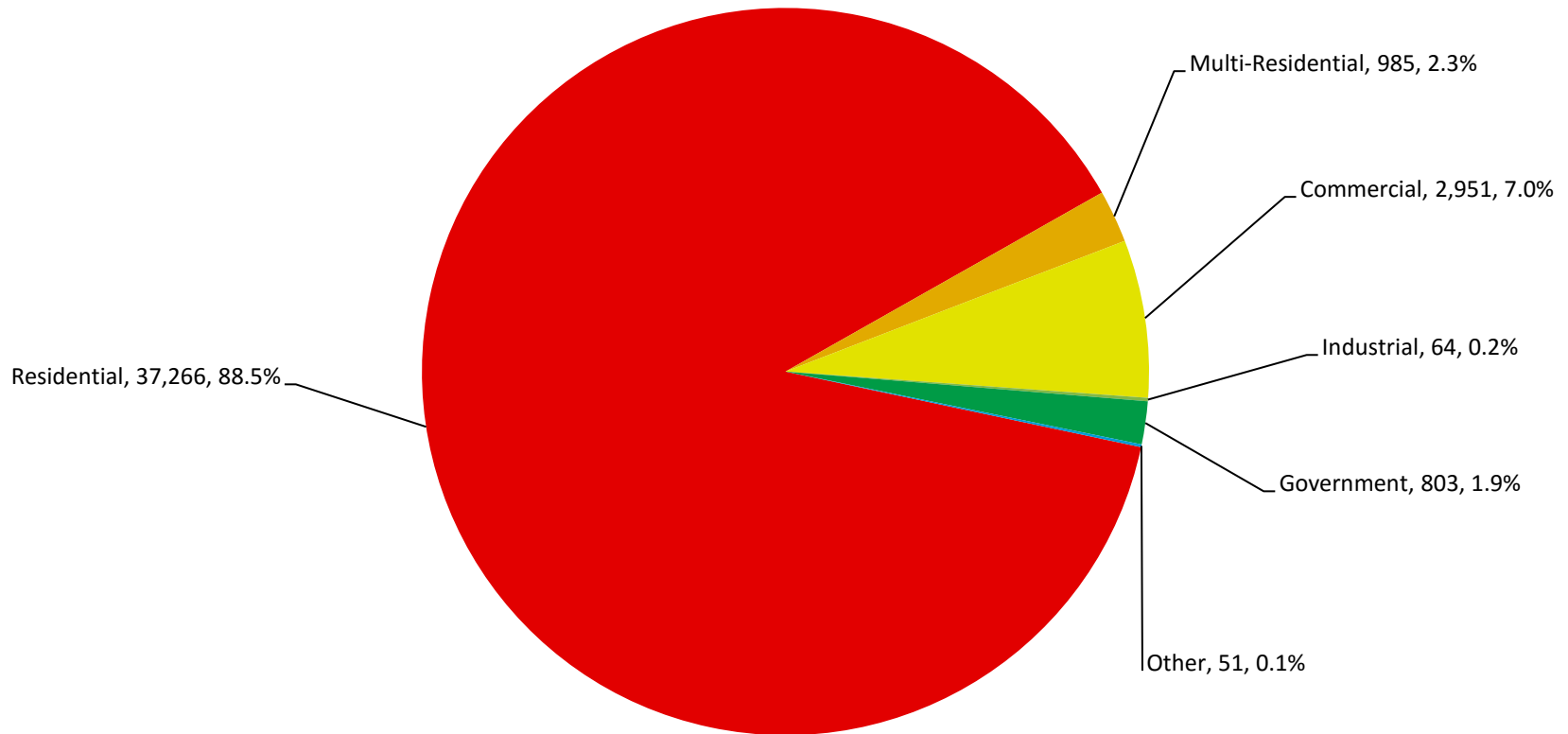
2015



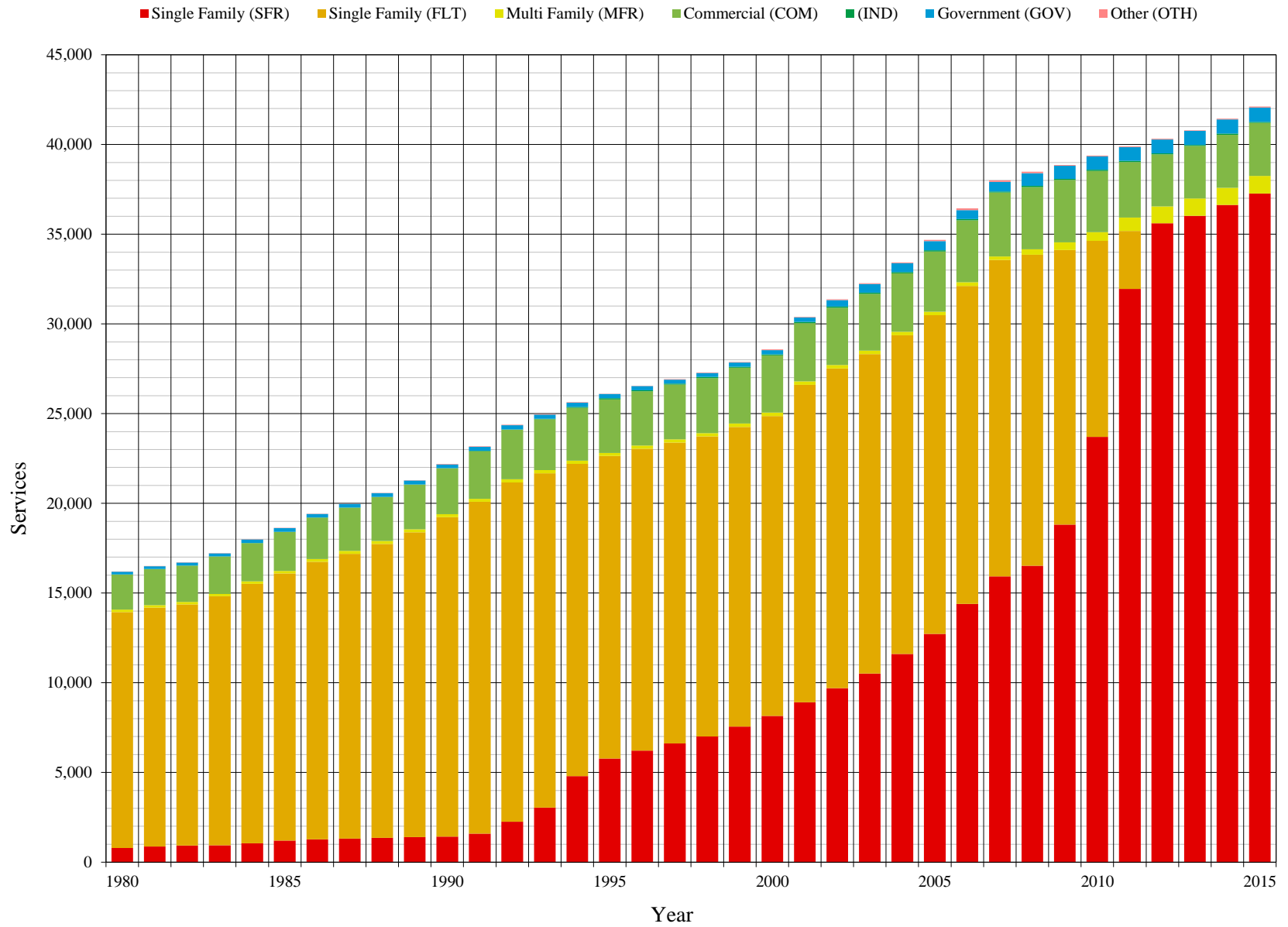
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Distribution of Services (2015)



Historical Services



California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Average Annual Services

Worksheet 1

Year	Single Family (SFR)	Single Family (FLT)	Single Family (Total)	Multi Family (MFR)	Commercial (COM)	Industrial (IND)	Government (GOV)	Other (OTH)	Total	Annual Change
1980	787	13,154	13,942	137	1,952	13	147	7	16,196	
1981	870	13,323	14,193	132	2,004	13	157	4	16,504	308
1982	926	13,444	14,370	133	2,028	13	165	5	16,713	209
1983	945	13,877	14,822	133	2,080	13	172	8	17,227	514
1984	1,049	14,462	15,511	138	2,138	13	181	9	17,990	763
1985	1,206	14,889	16,095	141	2,172	14	201	12	18,635	645
1986	1,280	15,459	16,738	154	2,310	14	197	17	19,430	795
1987	1,321	15,871	17,192	163	2,405	14	196	14	19,984	555
1988	1,362	16,378	17,740	163	2,451	14	201	12	20,581	597
1989	1,401	16,983	18,384	163	2,500	14	208	19	21,287	706
1990	1,431	17,797	19,228	164	2,555	14	215	27	22,204	916
1991	1,595	18,497	20,091	168	2,652	14	225	30	23,180	977
1992	2,252	18,916	21,168	175	2,767	14	234	26	24,384	1,203
1993	3,043	18,633	21,676	175	2,837	28	232	24	24,972	589
1994	4,798	17,401	22,199	176	2,944	58	237	22	25,636	664
1995	5,772	16,865	22,638	175	2,983	58	236	24	26,114	478
1996	6,215	16,833	23,048	174	3,021	58	230	20	26,551	437
1997	6,622	16,767	23,389	175	3,050	57	228	23	26,922	371
1998	7,002	16,736	23,737	178	3,069	57	225	28	27,295	374
1999	7,554	16,710	24,264	184	3,113	57	228	34	27,879	584
2000	8,159	16,712	24,871	188	3,191	60	236	36	28,581	702
2001	8,911	17,693	26,604	197	3,250	64	243	34	30,391	1,810
2002	9,695	17,823	27,518	190	3,194	64	368	34	31,368	976
2003	10,521	17,800	28,321	190	3,167	63	483	47	32,271	904
2004	11,601	17,770	29,370	196	3,258	64	498	51	33,436	1,165
2005	12,718	17,773	30,491	196	3,354	64	507	70	34,681	1,245
2006	14,396	17,727	32,123	196	3,459	64	505	93	36,439	1,758
2007	15,925	17,639	33,564	195	3,561	64	532	91	38,007	1,568
2008	16,518	17,333	33,852	303	3,474	64	713	74	38,479	472
2009	18,812	15,312	34,124	428	3,470	64	727	45	38,858	380
2010	23,699	10,935	34,634	474	3,420	63	747	38	39,376	517
2011	31,945	3,233	35,178	757	3,091	63	758	40	39,887	512
2012	35,607	0	35,607	938	2,904	64	770	33	40,315	428
2013	36,031	0	36,031	958	2,925	65	781	35	40,795	480
2014	36,629	0	36,629	964	2,952	64	794	38	41,441	646
2015	37,266	0	37,266	985	2,951	64	803	51	42,120	679
5 Yr Avg.	35,496	647	36,142	920	2,964	64	781	39	40,911	549
10 Yr Avg.	26,683	8,218	34,901	620	3,221	64	713	54	39,571	744
15 Yr Avg.	21,352	11,403	32,754	478	3,229	64	615	52	37,191	903
20 Yr Avg.	17,791	12,740	30,531	403	3,194	62	519	46	34,755	800

Note: Reclassification occurred between categories from 2007 to 2009

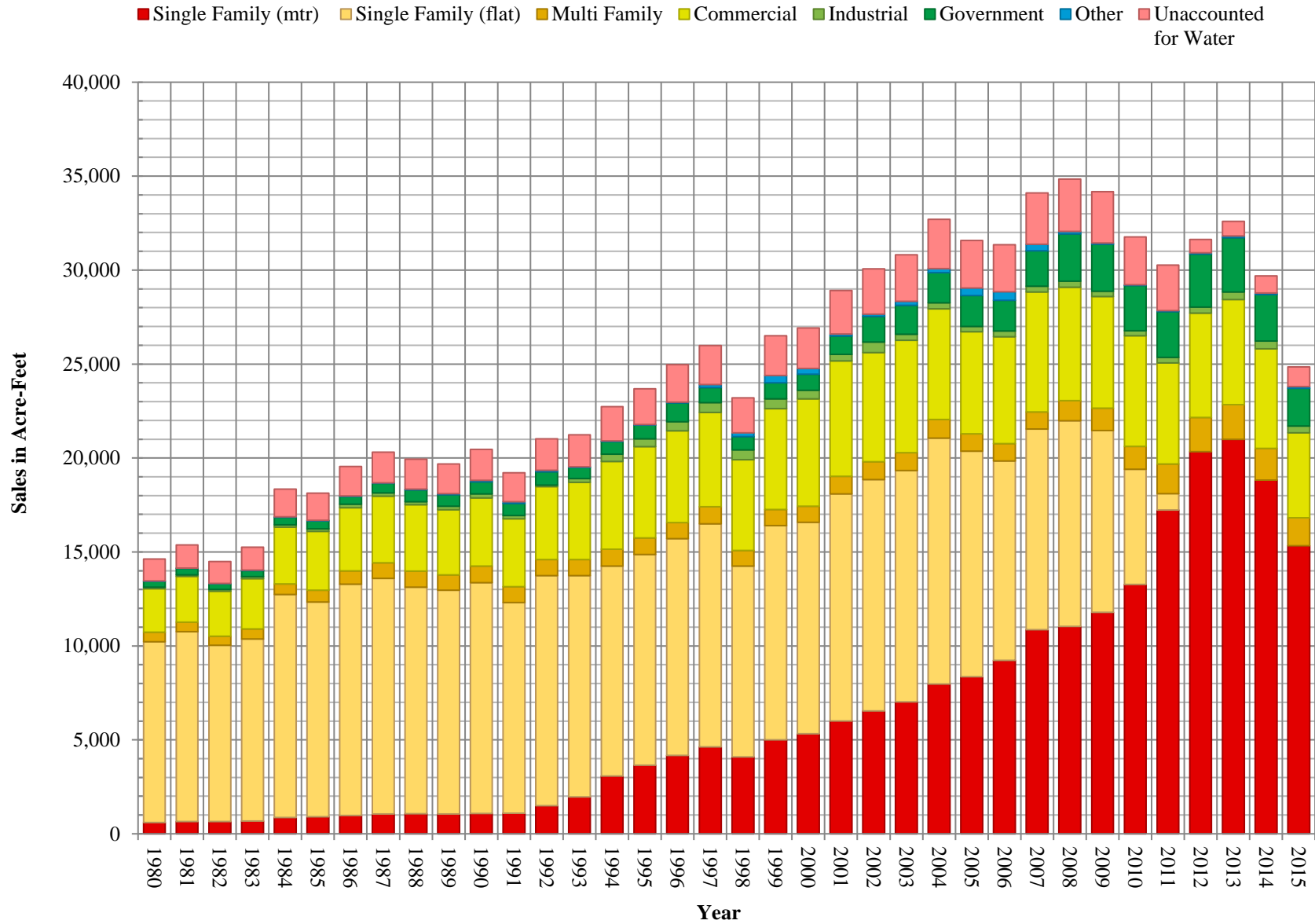
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Service Growth Percentage

Year	Single Family (SFR)	Single Family (FLT)	Single Family (Total)	Multi Family (MFR)	Commercial (COM)	Industrial (IND)	Government (GOV)	Other (OTH)	Total
1981	10.52%	1.28%	1.81%	-3.47%	2.67%	5.33%	7.10%	-34.62%	1.90%
1982	6.41%	0.91%	1.24%	0.50%	1.17%	-1.27%	5.25%	11.76%	1.27%
1983	2.04%	3.22%	3.15%	0.44%	2.56%	-3.21%	4.03%	64.91%	3.08%
1984	11.05%	4.22%	4.65%	3.19%	2.80%	6.62%	4.99%	20.21%	4.43%
1985	14.97%	2.95%	3.76%	2.42%	1.59%	4.35%	11.31%	30.97%	3.58%
1986	6.09%	3.83%	4.00%	9.11%	6.37%	1.79%	-2.20%	35.81%	4.27%
1987	3.24%	2.67%	2.71%	6.02%	4.10%	-1.17%	-0.25%	-13.93%	2.85%
1988	3.09%	3.20%	3.19%	0.00%	1.92%	-0.59%	2.63%	-15.03%	2.99%
1989	2.87%	3.69%	3.63%	0.15%	1.99%	0.00%	3.48%	51.70%	3.43%
1990	2.14%	4.79%	4.59%	0.46%	2.23%	-1.19%	3.32%	46.19%	4.30%
1991	11.44%	3.93%	4.49%	2.44%	3.78%	1.20%	4.42%	11.66%	4.40%
1992	41.21%	2.27%	5.36%	3.92%	4.34%	0.00%	4.15%	-13.74%	5.19%
1993	35.13%	-1.50%	2.40%	0.24%	2.52%	100.00%	-0.71%	-7.32%	2.41%
1994	57.67%	-6.61%	2.41%	0.29%	3.78%	108.33%	2.19%	-9.62%	2.66%
1995	20.30%	-3.08%	1.98%	-0.28%	1.34%	-1.43%	-0.42%	11.03%	1.86%
1996	7.67%	-0.19%	1.81%	-0.38%	1.24%	0.43%	-2.57%	-18.15%	1.67%
1997	6.54%	-0.39%	1.48%	0.10%	0.99%	-1.30%	-1.12%	15.06%	1.40%
1998	5.74%	-0.19%	1.49%	1.96%	0.61%	0.00%	-1.06%	24.00%	1.39%
1999	7.89%	-0.15%	2.22%	3.33%	1.42%	0.29%	1.11%	19.06%	2.14%
2000	8.01%	0.01%	2.50%	2.27%	2.51%	5.54%	3.58%	5.17%	2.52%
2001	9.21%	5.88%	6.97%	4.61%	1.86%	5.25%	2.82%	-4.22%	6.33%
2002	8.80%	0.73%	3.43%	-3.47%	-1.73%	0.79%	51.79%	-0.73%	3.21%
2003	8.52%	-0.13%	2.92%	-0.04%	-0.83%	-1.95%	31.22%	39.41%	2.88%
2004	10.26%	-0.17%	3.71%	3.07%	2.85%	1.73%	2.97%	7.95%	3.61%
2005	9.63%	0.02%	3.82%	-0.04%	2.94%	-0.39%	1.86%	37.48%	3.72%
2006	13.19%	-0.26%	5.35%	0.21%	3.14%	0.39%	-0.35%	32.50%	5.07%
2007	10.63%	-0.50%	4.49%	-0.47%	2.95%	-0.26%	5.28%	-1.80%	4.30%
2008	3.72%	-1.73%	0.86%	55.34%	-2.45%	0.13%	34.10%	-19.30%	1.24%
2009	13.89%	-11.66%	0.81%	41.29%	-0.10%	0.13%	1.87%	-38.44%	0.99%
2010	25.98%	-28.59%	1.49%	10.85%	-1.46%	-1.96%	2.80%	-15.29%	1.33%
2011	34.80%	-70.43%	1.57%	59.46%	-9.60%	0.53%	1.55%	4.35%	1.30%
2012	11.46%	-100.00%	1.22%	24.01%	-6.07%	1.06%	1.48%	-16.46%	1.07%
2013	1.19%		1.19%	2.15%	0.74%	1.83%	1.41%	3.74%	1.19%
2014	1.66%		1.66%	0.61%	0.90%	-1.16%	1.74%	8.41%	1.58%
2015	1.74%		1.74%	2.11%	-0.03%	0.00%	1.18%	36.14%	1.64%
5 Yr. Avg.	10.17%		1.48%	1.62%	0.54%	0.45%	1.47%	7.24%	1.36%
10 Yr. Avg.	11.83%		2.04%	0.92%	1.27%	0.07%	1.88%	-0.62%	1.97%
15 Yr. Avg.	10.98%		2.75%	0.87%	1.44%	0.41%	2.05%	4.92%	2.63%
20 Yr. Avg.	10.03%		2.54%	1.07%	1.41%	0.55%	1.44%	5.94%	2.43%

Note: Values in red excluded from averages due to reclassification

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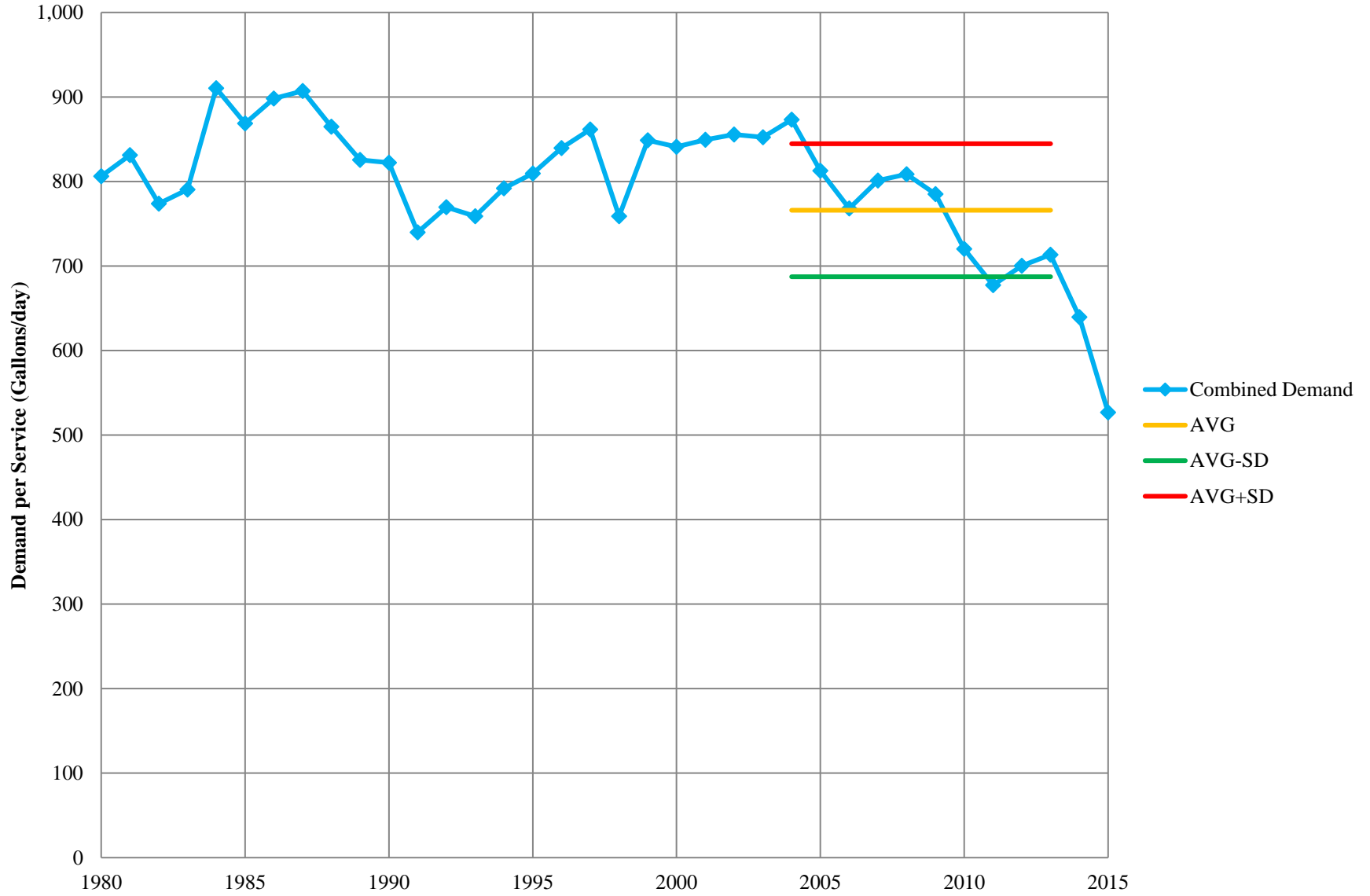
Historical Sales



California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Sales (AF)

Year	Single Family			Multi Family (MFR)	Commercial (COM)	Industrial (IND)	Government (GOV)	Other (OTH)	Unaccounted for Water (UAFW)	Total Sales (AF)	Total Demand (AF)	Total Demand (MGal)
	(SFR)	(FLT)	(Total)									
1980	598	9,628	10,226	502	2,312	84	320	14	1,170	13,457	14,627	4,766
1981	660	10,097	10,757	507	2,433	86	345	11	1,229	14,139	15,368	5,008
1982	659	9,370	10,029	483	2,404	89	308	13	1,159	13,326	14,485	4,720
1983	687	9,686	10,373	526	2,685	103	320	23	1,220	14,030	15,250	4,969
1984	875	11,862	12,736	565	3,026	122	398	28	1,467	16,876	18,343	5,977
1985	914	11,417	12,330	632	3,132	133	428	27	1,451	16,683	18,133	5,909
1986	969	12,310	13,280	719	3,356	181	414	31	1,564	17,981	19,544	6,369
1987	1,052	12,538	13,590	828	3,555	173	501	36	1,625	18,683	20,307	6,617
1988	1,076	12,056	13,132	855	3,523	160	636	37	1,595	18,342	19,937	6,497
1989	1,060	11,902	12,962	823	3,463	191	606	65	1,575	18,110	19,685	6,414
1990	1,087	12,285	13,372	875	3,627	215	646	83	1,636	18,817	20,454	6,665
1991	1,091	11,223	12,314	837	3,620	168	647	85	1,537	17,672	19,208	6,259
1992	1,503	12,242	13,745	856	3,874	86	707	72	1,682	19,341	21,023	6,850
1993	1,960	11,783	13,743	854	4,113	196	594	33	1,698	19,532	21,230	6,918
1994	3,073	11,177	14,250	899	4,661	390	671	47	1,819	20,918	22,737	7,409
1995	3,647	11,213	14,861	883	4,867	414	727	33	1,894	21,785	23,679	7,716
1996	4,171	11,539	15,710	857	4,885	480	1,004	34	1,997	22,969	24,967	8,135
1997	4,627	11,873	16,500	910	5,015	525	804	150	2,079	23,904	25,983	8,466
1998	4,095	10,158	14,253	830	4,827	526	711	196	1,856	21,343	23,199	7,559
1999	4,999	11,408	16,408	852	5,366	516	862	385	2,121	24,389	26,509	8,638
2000	5,326	11,249	16,575	857	5,719	458	848	310	2,154	24,768	26,921	8,772
2001	6,005	12,083	18,088	937	6,144	348	977	108	2,313	26,602	28,915	9,422
2002	6,548	12,307	18,856	953	5,800	559	1,369	123	2,405	27,660	30,065	9,797
2003	7,019	12,309	19,328	950	5,992	310	1,549	217	2,465	28,345	30,810	10,040
2004	7,971	13,093	21,064	989	5,888	318	1,606	219	2,616	30,084	32,700	10,655
2005	8,365	11,996	20,361	926	5,431	288	1,636	408	2,526	29,050	31,576	10,289
2006	9,232	10,605	19,837	929	5,685	305	1,636	451	2,508	28,844	31,352	10,216
2007	10,865	10,680	21,544	914	6,376	312	1,889	337	2,728	31,373	34,101	11,112
2008	11,036	10,952	21,989	1,065	6,033	322	2,512	140	2,788	32,060	34,848	11,355
2009	11,781	9,678	21,460	1,197	5,942	270	2,515	54	2,734	31,437	34,171	11,135
2010	13,276	6,131	19,407	1,205	5,898	269	2,404	39	2,541	29,221	31,762	10,350
2011	17,239	869	18,109	1,576	5,382	286	2,434	53	2,421	27,839	30,260	9,860
2012	20,337	0	20,337	1,827	5,546	324	2,817	68	709	30,918	31,627	10,306
2013	20,995	0	20,995	1,846	5,595	393	2,900	97	775	31,825	32,600	10,623
2014	18,832	0	18,832	1,685	5,296	407	2,485	77	903	28,783	29,686	9,673
2015	15,338	0	15,338	1,479	4,526	365.6	2,001	96	1,048	23,805	24,853	8,098

Combined Demand per Service



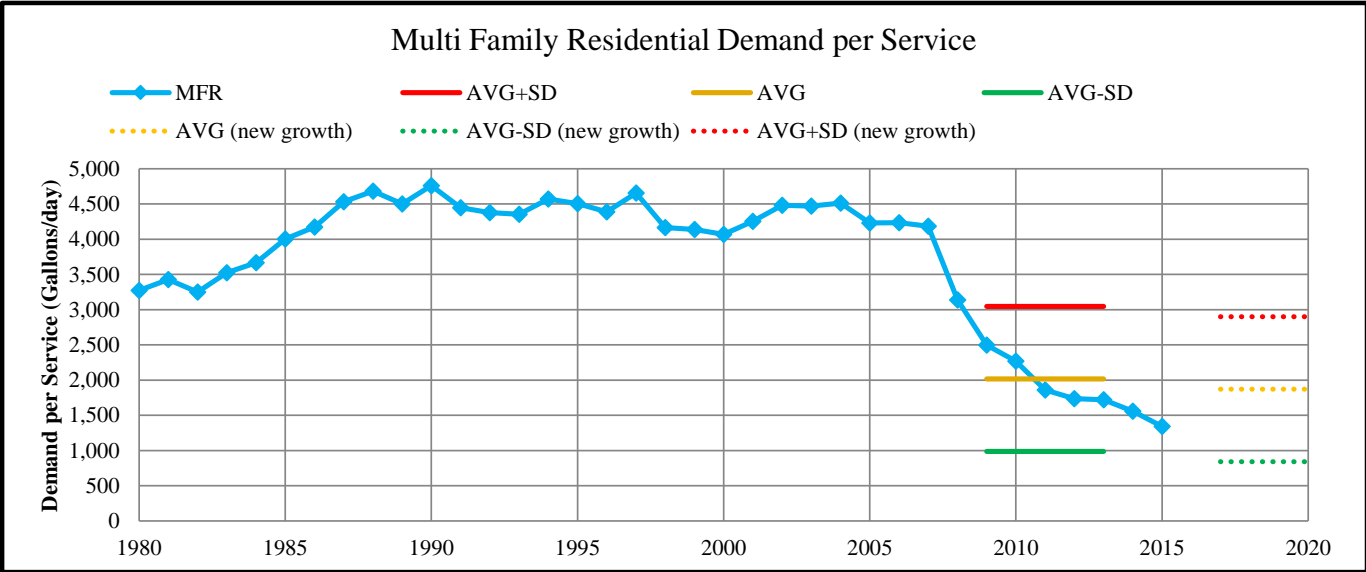
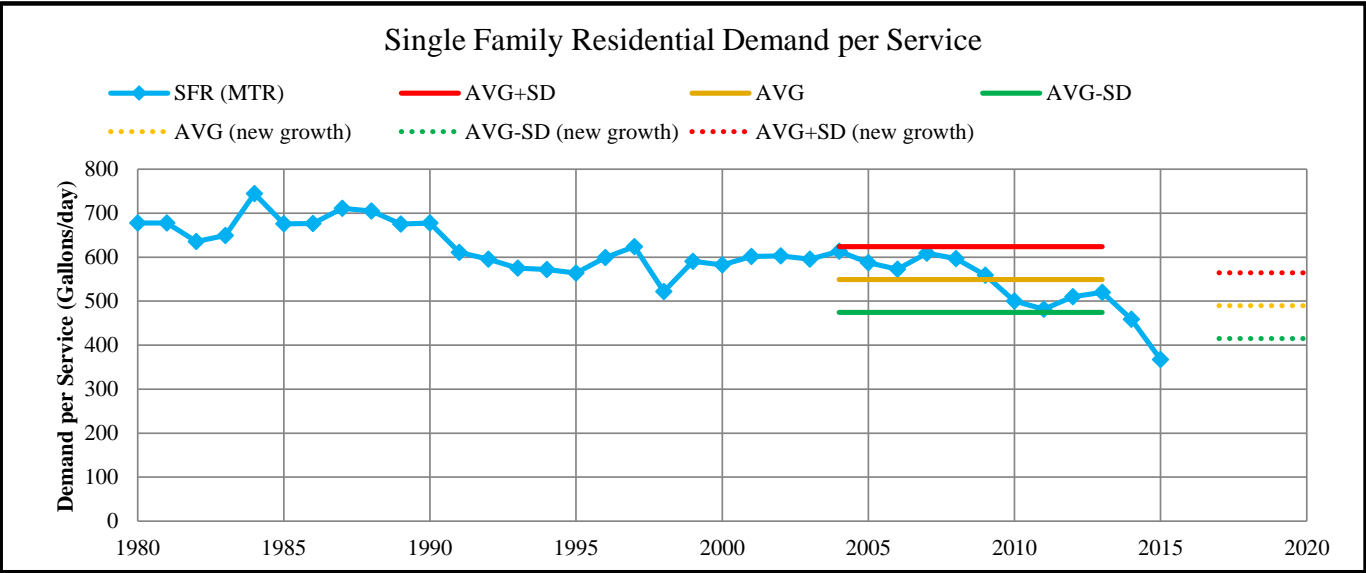
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Demand per Service (Gallons per Day)

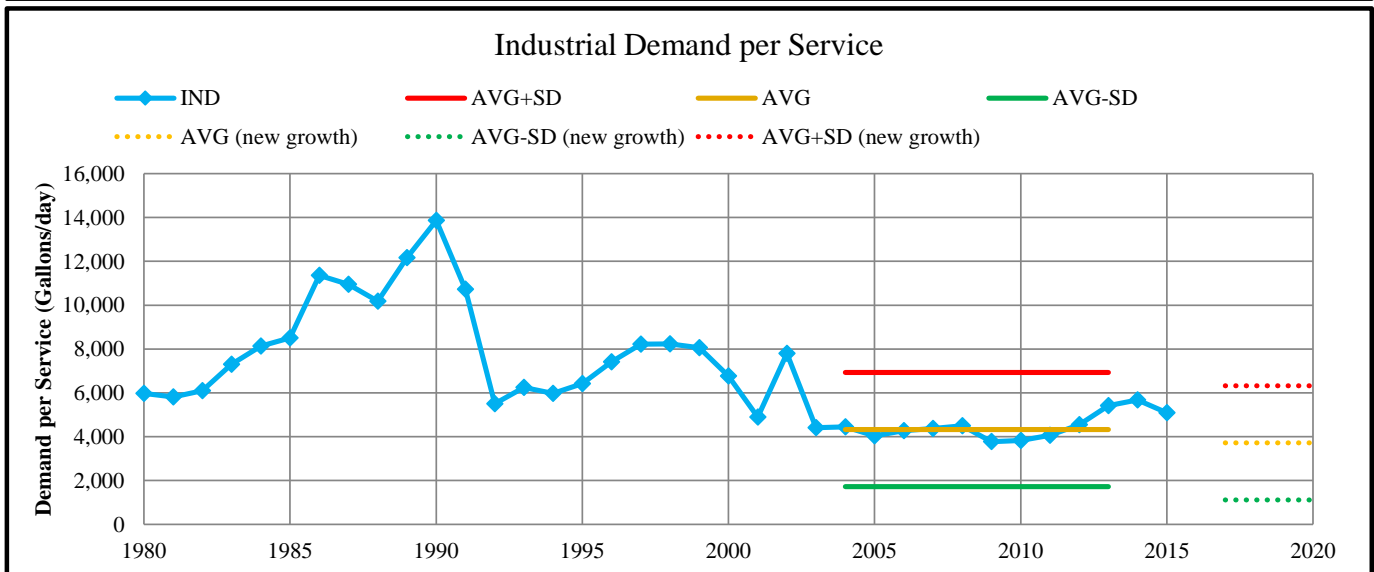
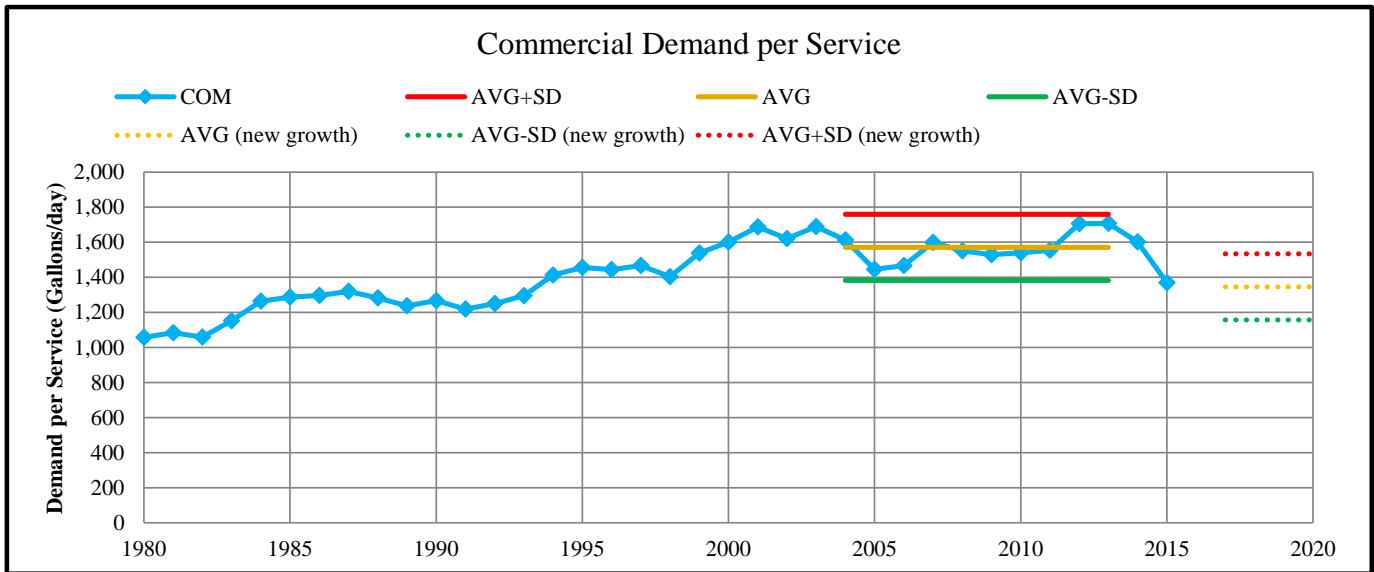
Worksheet 4

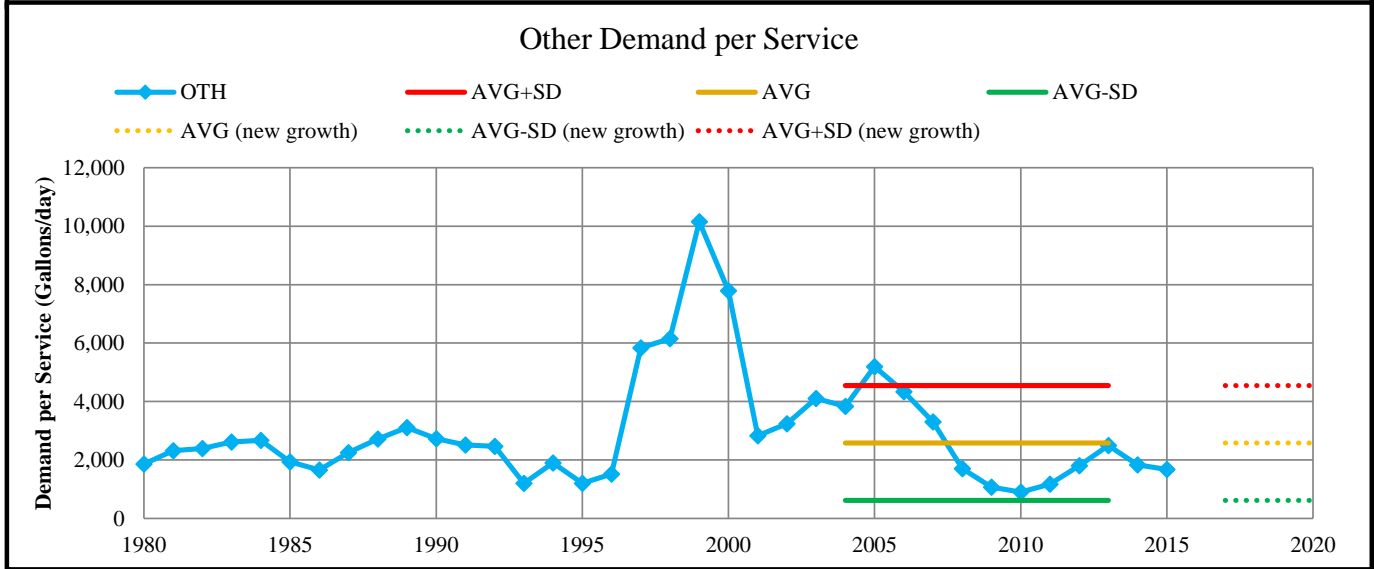
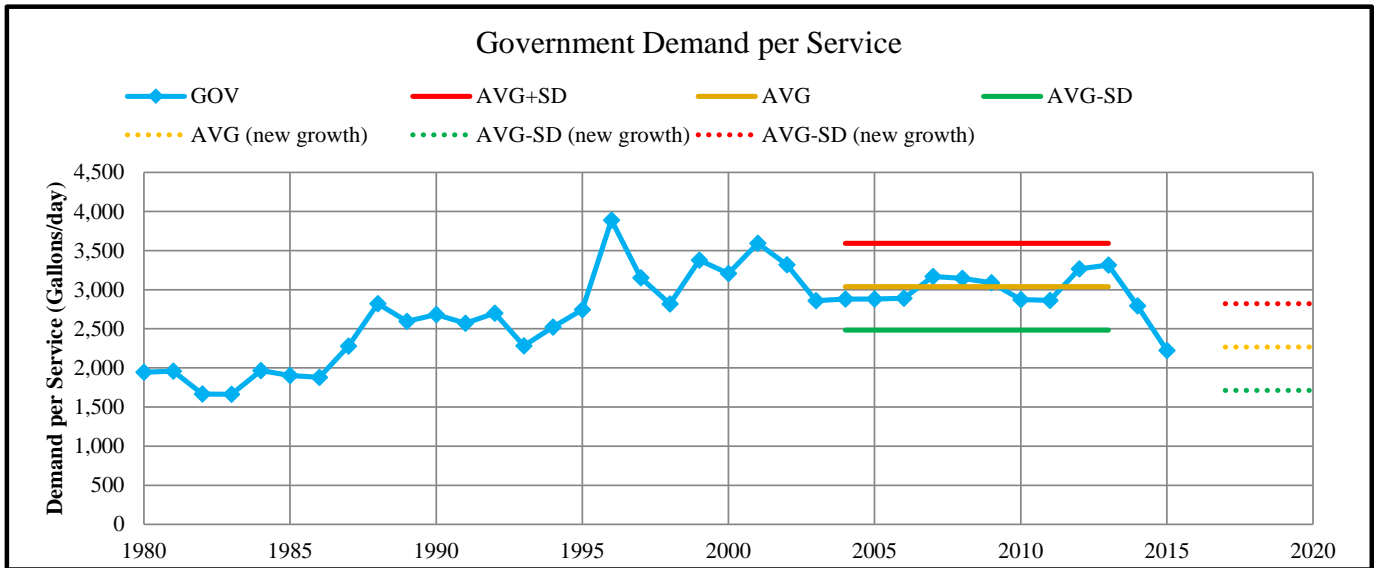
Year	SFR (MTR)	SFR (FLT)	SFR (TOT)	MFR	COM	IND	GOV	OTH	UAFW	Combined Demand/Serv
1980	678	653	655	3,273	1,058	5,974	1,946	1,868	65	806
1981	677	677	677	3,427	1,084	5,818	1,959	2,321	67	831
1982	636	622	623	3,251	1,059	6,096	1,666	2,390	62	774
1983	649	623	625	3,524	1,152	7,305	1,662	2,621	63	790
1984	744	732	733	3,668	1,263	8,129	1,967	2,672	73	910
1985	676	685	684	4,003	1,287	8,507	1,902	1,940	69	869
1986	676	711	708	4,174	1,297	11,364	1,881	1,660	72	898
1987	711	705	706	4,533	1,320	10,946	2,280	2,259	73	907
1988	705	657	661	4,681	1,283	10,186	2,823	2,722	69	865
1989	676	626	629	4,503	1,237	12,172	2,596	3,109	66	826
1990	678	616	621	4,761	1,267	13,863	2,682	2,730	66	822
1991	611	542	547	4,445	1,219	10,729	2,571	2,514	59	740
1992	596	578	580	4,378	1,250	5,501	2,699	2,470	62	770
1993	575	565	566	4,354	1,294	6,243	2,283	1,199	61	759
1994	572	573	573	4,571	1,413	5,971	2,524	1,903	63	792
1995	564	594	586	4,507	1,456	6,424	2,746	1,207	65	810
1996	599	612	609	4,388	1,444	7,414	3,890	1,516	67	839
1997	624	632	630	4,657	1,468	8,216	3,153	5,837	69	862
1998	522	542	536	4,165	1,404	8,232	2,817	6,157	61	759
1999	591	609	604	4,138	1,539	8,064	3,379	10,151	68	849
2000	583	601	595	4,070	1,600	6,774	3,208	7,789	67	841
2001	602	610	607	4,252	1,688	4,895	3,593	2,830	68	849
2002	603	616	612	4,481	1,621	7,803	3,319	3,238	68	856
2003	596	617	609	4,470	1,689	4,411	2,860	4,102	68	852
2004	613	658	640	4,513	1,613	4,451	2,882	3,833	70	873
2005	587	603	596	4,230	1,446	4,037	2,882	5,197	65	813
2006	573	534	551	4,233	1,467	4,270	2,892	4,341	61	768
2007	609	541	573	4,184	1,598	4,372	3,171	3,305	64	801
2008	596	564	580	3,137	1,551	4,502	3,145	1,701	65	809
2009	559	564	561	2,497	1,529	3,773	3,090	1,069	63	785
2010	500	501	500	2,268	1,540	3,834	2,873	902	58	720
2011	482	240	460	1,860	1,554	4,062	2,865	1,176	54	677
2012	510	0	510	1,738	1,705	4,549	3,267	1,806	16	700
2013	520	0	520	1,720	1,707	5,416	3,317	2,492	17	713
2014	459	1	459	1,560	1,602	5,680	2,794	1,831	19	640
2015	367	1	367	1,342	1,369	5,100	2,223	1,677	22	527
10-yr AVG ⁽¹⁾	555	420	549	2,017	1,571	4,327	3,038	2,582	19	766
SD	77	207	75	1,029	189	2,604	554	1,964	3	79

1) MFR average calculated based on 5-years (2009-2013) due to sharp, sustained downward trend.

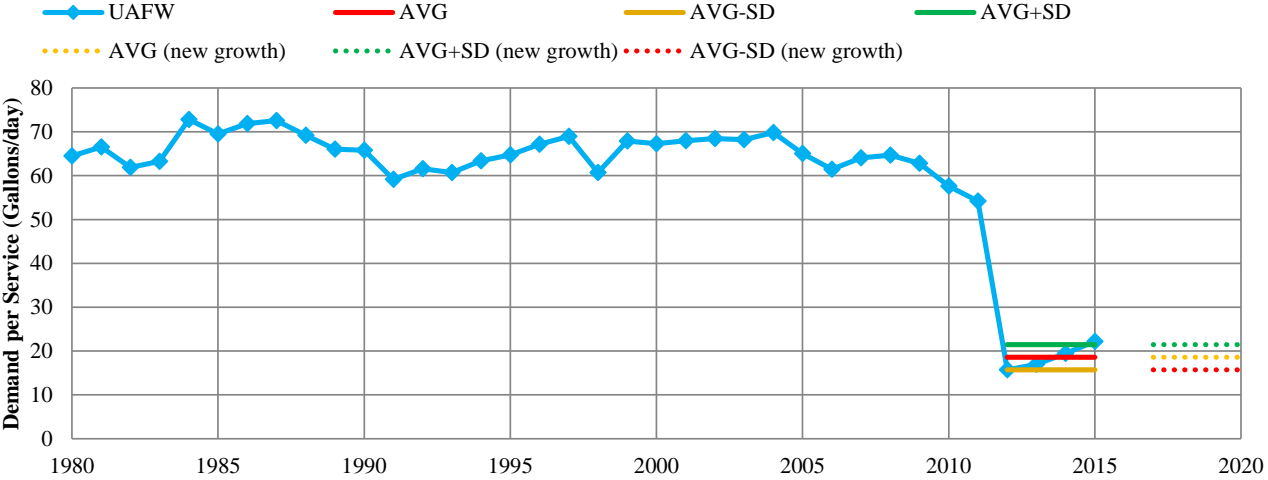
2) UAWF AVG and SD calculated based on last 4 years (2012-2015) due to final conversion of flat rate to metered accounts.







Un-accounted for Water Demand per Service



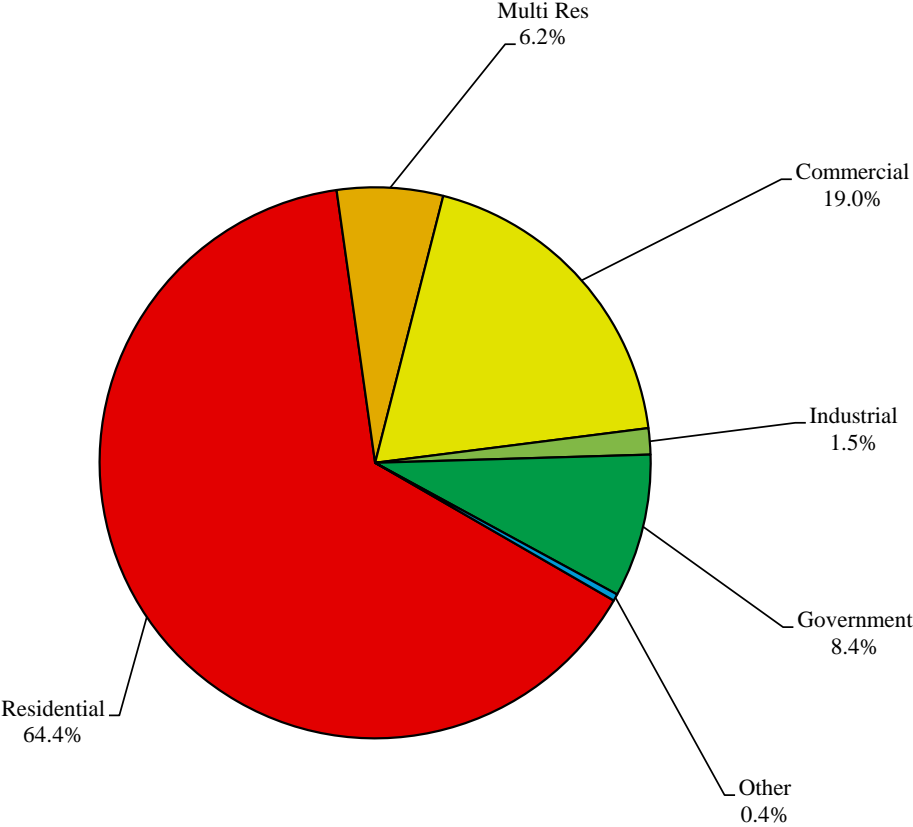
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Percentage Change in Annual Demand

Worksheet 5

Year	Residential	Multi Res	Commercial	Industrial	Government	Other	Unaccounted	Total
1981	10.44%	1.06%	5.21%	2.58%	7.81%	-18.72%	5.07%	5.07%
1982	-0.18%	-4.66%	-1.17%	3.46%	-10.49%	15.08%	-5.74%	-5.74%
1983	4.22%	8.88%	11.67%	15.99%	3.82%	80.81%	5.28%	5.28%
1984	27.34%	7.39%	12.70%	18.66%	24.23%	22.54%	20.28%	20.28%
1985	4.43%	11.80%	3.51%	9.20%	7.65%	-4.90%	-1.14%	-1.14%
1986	6.12%	13.76%	7.15%	35.97%	-3.31%	16.22%	7.78%	7.78%
1987	8.55%	15.13%	5.93%	-4.81%	20.94%	17.11%	3.90%	3.90%
1988	2.24%	3.27%	-0.90%	-7.49%	27.05%	2.39%	-1.82%	-1.82%
1989	-1.45%	-3.66%	-1.70%	19.49%	-4.81%	73.32%	-1.27%	-1.27%
1990	2.50%	6.22%	4.74%	12.54%	6.72%	28.36%	3.91%	3.91%
1991	0.40%	-4.36%	-0.18%	-21.67%	0.09%	2.79%	-6.09%	-6.09%
1992	37.70%	2.34%	7.01%	-48.73%	9.33%	-15.24%	9.45%	9.45%
1993	30.43%	-0.30%	6.16%	126.98%	-16.00%	-55.01%	0.99%	0.99%
1994	56.84%	5.27%	13.33%	99.26%	12.99%	43.46%	7.10%	7.10%
1995	18.67%	-1.69%	4.42%	6.05%	8.34%	-29.58%	4.15%	4.15%
1996	14.36%	-3.00%	0.37%	15.90%	38.02%	2.78%	5.44%	5.44%
1997	10.94%	6.22%	2.66%	9.38%	-19.85%	343.13%	4.07%	4.07%
1998	-11.51%	-8.82%	-3.75%	0.20%	-11.61%	30.80%	-10.71%	-10.71%
1999	22.09%	2.66%	11.16%	-1.76%	21.26%	96.30%	14.27%	14.27%
2000	6.53%	0.60%	6.59%	-11.34%	-1.64%	-19.31%	1.55%	1.55%
2001	12.76%	9.28%	7.43%	-23.95%	15.15%	-65.20%	7.41%	7.41%
2002	9.04%	1.71%	-5.60%	60.65%	40.23%	13.60%	3.98%	3.98%
2003	7.18%	-0.28%	3.31%	-44.57%	13.08%	76.58%	2.48%	2.48%
2004	13.57%	4.06%	-1.74%	2.64%	3.73%	0.87%	6.13%	6.13%
2005	4.94%	-6.31%	-7.76%	-9.66%	1.87%	86.43%	-3.44%	-3.44%
2006	10.36%	0.30%	4.68%	6.18%	0.00%	10.67%	-0.71%	-0.71%
2007	17.69%	-1.62%	12.15%	2.13%	15.44%	-25.22%	8.77%	8.77%
2008	1.58%	16.48%	-5.38%	3.11%	33.00%	-58.48%	2.19%	2.19%
2009	6.75%	12.44%	-1.51%	-16.10%	0.09%	-61.29%	-1.94%	-1.94%
2010	12.68%	0.71%	-0.75%	-0.38%	-4.42%	-28.53%	-7.05%	-7.05%
2011	29.86%	30.75%	-8.75%	6.53%	1.24%	36.03%	-4.73%	-4.73%
2012	17.97%	15.89%	3.06%	13.16%	15.75%	28.27%	-70.70%	11.06%
2013	3.24%	1.06%	0.87%	21.24%	2.93%	43.17%	9.28%	2.93%
2014	-10.30%	-8.74%	-5.33%	3.66%	-14.29%	-20.33%	16.54%	-9.56%
2015	-18.56%	-12.18%	-14.55%	-10.21%	-19.50%	24.66%	15.99%	-17.29%

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Percent of Total Sales by Type of Use (2015)

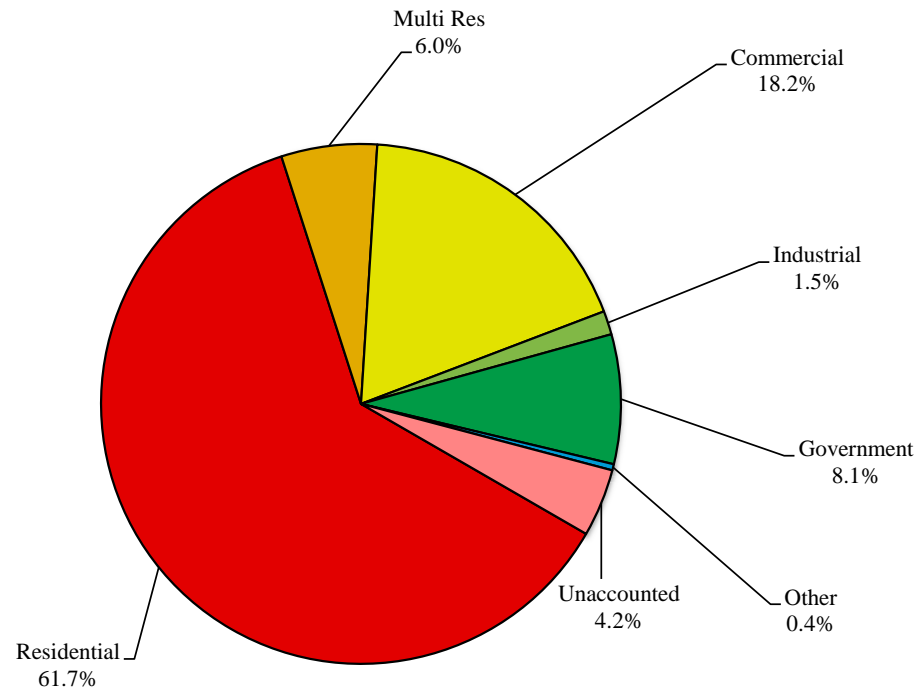


California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Percentage of Total Sales

Worksheet 6

Year	Residential	Multi Res	Commercial	Industrial	Government	Other	Percent Total
1980	75.99%	3.73%	17.18%	0.62%	2.38%	0.10%	100.00%
1981	76.09%	3.59%	17.21%	0.61%	2.44%	0.08%	100.00%
1982	75.26%	3.63%	18.04%	0.67%	2.31%	0.10%	100.00%
1983	73.93%	3.75%	19.14%	0.73%	2.28%	0.16%	100.00%
1984	75.47%	3.35%	17.93%	0.72%	2.36%	0.17%	100.00%
1985	73.91%	3.79%	18.77%	0.80%	2.57%	0.16%	100.00%
1986	73.85%	4.00%	18.66%	1.01%	2.30%	0.17%	100.00%
1987	72.74%	4.43%	19.03%	0.92%	2.68%	0.20%	100.00%
1988	71.59%	4.66%	19.21%	0.87%	3.47%	0.20%	100.00%
1989	71.58%	4.55%	19.12%	1.05%	3.34%	0.36%	100.00%
1990	71.06%	4.65%	19.27%	1.14%	3.43%	0.44%	100.00%
1991	69.68%	4.73%	20.49%	0.95%	3.66%	0.48%	100.00%
1992	71.07%	4.43%	20.03%	0.45%	3.66%	0.37%	100.00%
1993	70.36%	4.37%	21.06%	1.00%	3.04%	0.17%	100.00%
1994	68.12%	4.30%	22.28%	1.87%	3.21%	0.22%	100.00%
1995	68.21%	4.06%	22.34%	1.90%	3.34%	0.15%	100.00%
1996	68.40%	3.73%	21.27%	2.09%	4.37%	0.15%	100.00%
1997	69.03%	3.81%	20.98%	2.19%	3.37%	0.63%	100.00%
1998	66.78%	3.89%	22.62%	2.46%	3.33%	0.92%	100.00%
1999	67.27%	3.49%	22.00%	2.12%	3.54%	1.58%	100.00%
2000	66.92%	3.46%	23.09%	1.85%	3.42%	1.25%	100.00%
2001	68.00%	3.52%	23.10%	1.31%	3.67%	0.41%	100.00%
2002	68.17%	3.44%	20.97%	2.02%	4.95%	0.44%	100.00%
2003	68.19%	3.35%	21.14%	1.09%	5.46%	0.76%	100.00%
2004	70.02%	3.29%	19.57%	1.06%	5.34%	0.73%	100.00%
2005	70.09%	3.19%	18.70%	0.99%	5.63%	1.40%	100.00%
2006	68.77%	3.22%	19.71%	1.06%	5.67%	1.56%	100.00%
2007	68.67%	2.91%	20.32%	0.99%	6.02%	1.07%	100.00%
2008	68.59%	3.32%	18.82%	1.00%	7.84%	0.44%	100.00%
2009	68.26%	3.81%	18.90%	0.86%	8.00%	0.17%	100.00%
2010	66.41%	4.13%	20.18%	0.92%	8.23%	0.13%	100.00%
2011	65.05%	5.66%	19.33%	1.03%	8.74%	0.19%	100.00%
2012	65.78%	5.91%	17.94%	1.05%	9.11%	0.22%	100.00%
2013	65.97%	5.80%	17.58%	1.23%	9.11%	0.30%	100.00%
2014	65.43%	5.85%	18.40%	1.41%	8.63%	0.27%	100.00%
2015	64.43%	6.21%	19.01%	1.54%	8.40%	0.40%	100.00%

Percent of Total Demand by Type of Use (2015)

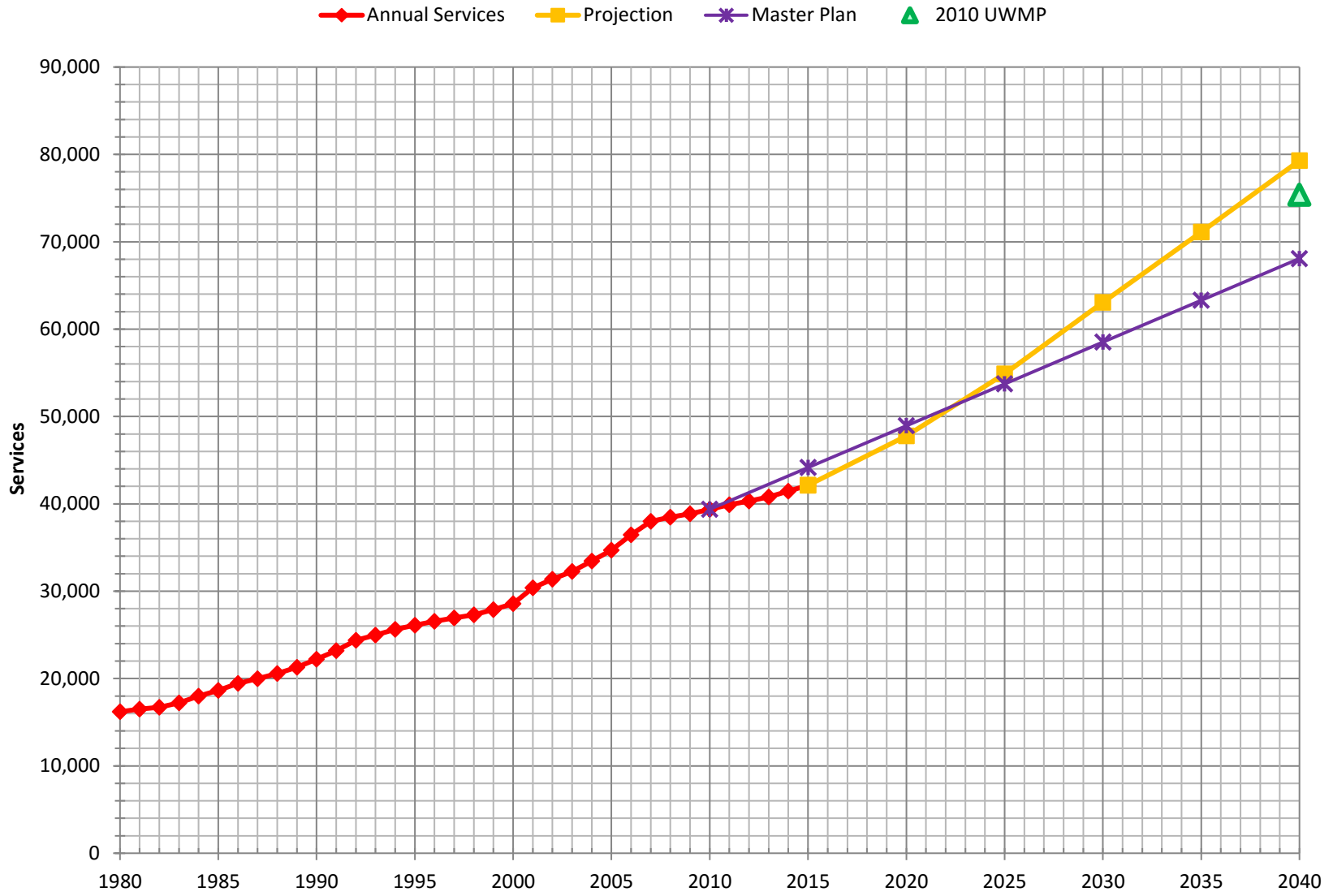


California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Percentage of Total Demand

Worksheet 7

Year	Residential	Multi Res	Commercial	Industrial	Government	Other	Unaccounted	Percent Total
1980	69.91%	3.43%	15.81%	0.57%	2.19%	0.09%	8.00%	100.00%
1981	70.00%	3.30%	15.83%	0.56%	2.24%	0.07%	8.00%	100.00%
1982	69.24%	3.34%	16.60%	0.61%	2.13%	0.09%	8.00%	100.00%
1983	68.02%	3.45%	17.60%	0.68%	2.10%	0.15%	8.00%	100.00%
1984	69.43%	3.08%	16.49%	0.67%	2.17%	0.15%	8.00%	100.00%
1985	68.00%	3.48%	17.27%	0.74%	2.36%	0.15%	8.00%	100.00%
1986	67.95%	3.68%	17.17%	0.93%	2.12%	0.16%	8.00%	100.00%
1987	66.92%	4.08%	17.50%	0.85%	2.47%	0.18%	8.00%	100.00%
1988	65.86%	4.29%	17.67%	0.80%	3.19%	0.19%	8.00%	100.00%
1989	65.85%	4.18%	17.59%	0.97%	3.08%	0.33%	8.00%	100.00%
1990	65.38%	4.28%	17.73%	1.05%	3.16%	0.41%	8.00%	100.00%
1991	64.11%	4.36%	18.85%	0.88%	3.37%	0.44%	8.00%	100.00%
1992	65.38%	4.07%	18.43%	0.41%	3.36%	0.34%	8.00%	100.00%
1993	64.73%	4.02%	19.37%	0.92%	2.80%	0.15%	8.00%	100.00%
1994	62.67%	3.95%	20.50%	1.72%	2.95%	0.21%	8.00%	100.00%
1995	62.76%	3.73%	20.55%	1.75%	3.07%	0.14%	8.00%	100.00%
1996	62.92%	3.43%	19.57%	1.92%	4.02%	0.14%	8.00%	100.00%
1997	63.50%	3.50%	19.30%	2.02%	3.10%	0.58%	8.00%	100.00%
1998	61.44%	3.58%	20.81%	2.27%	3.07%	0.84%	8.00%	100.00%
1999	61.89%	3.21%	20.24%	1.95%	3.25%	1.45%	8.00%	100.00%
2000	61.57%	3.18%	21.24%	1.70%	3.15%	1.15%	8.00%	100.00%
2001	62.56%	3.24%	21.25%	1.20%	3.38%	0.37%	8.00%	100.00%
2002	62.72%	3.17%	19.29%	1.86%	4.56%	0.41%	8.00%	100.00%
2003	62.73%	3.08%	19.45%	1.01%	5.03%	0.70%	8.00%	100.00%
2004	64.42%	3.02%	18.01%	0.97%	4.91%	0.67%	8.00%	100.00%
2005	64.48%	2.93%	17.20%	0.91%	5.18%	1.29%	8.00%	100.00%
2006	63.27%	2.96%	18.13%	0.97%	5.22%	1.44%	8.00%	100.00%
2007	63.18%	2.68%	18.70%	0.91%	5.54%	0.99%	8.00%	100.00%
2008	63.10%	3.05%	17.31%	0.92%	7.21%	0.40%	8.00%	100.00%
2009	62.80%	3.50%	17.39%	0.79%	7.36%	0.16%	8.00%	100.00%
2010	61.10%	3.80%	18.57%	0.85%	7.57%	0.12%	8.00%	100.00%
2011	59.84%	5.21%	17.79%	0.95%	8.04%	0.17%	8.00%	100.00%
2012	64.30%	5.78%	17.54%	1.02%	8.91%	0.21%	2.24%	100.00%
2013	64.40%	5.66%	17.16%	1.20%	8.89%	0.30%	2.38%	100.00%
2014	63.44%	5.67%	17.84%	1.37%	8.37%	0.26%	3.04%	100.00%
2015	61.71%	5.95%	18.21%	1.47%	8.05%	0.39%	4.22%	100.00%

Historical & Projected Services



California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections

Customer Category	Selected Trend		Growth Rate	Actual Services				Projected Services					
				2000	2005	2010	Base Year 2015	2015	2020	2025	2030	2035	2040
SFR	SFR_E	City		24,871	30,491	34,634	37,266	37,266	42,468	49,059	56,683	64,131	71,678
MFR	MFR_E	City		188	196	474	985	985	1,122	1,297	1,498	1,695	1,894
COM	COM_D	15 Yr. Avg.	1.44%	3,191	3,354	3,420	2,951	2,951	3,170	3,405	3,658	3,929	4,221
IND	IND_D	15 Yr. Avg.	0.41%	60	64	63	64	64	65	67	68	69	71
GOV	GOV_D	15 Yr. Avg.	2.05%	236	507	747	803	803	889	984	1,089	1,206	1,335
OTH	OTH_E	City	2.5% to 2.0%	36	70	38	51	51	58	65	72	80	88
TOTAL	Average growth rate 2016-2040		2.56%	28,581	34,681	39,376	42,120	42,120	47,773	54,876	63,068	71,110	79,287

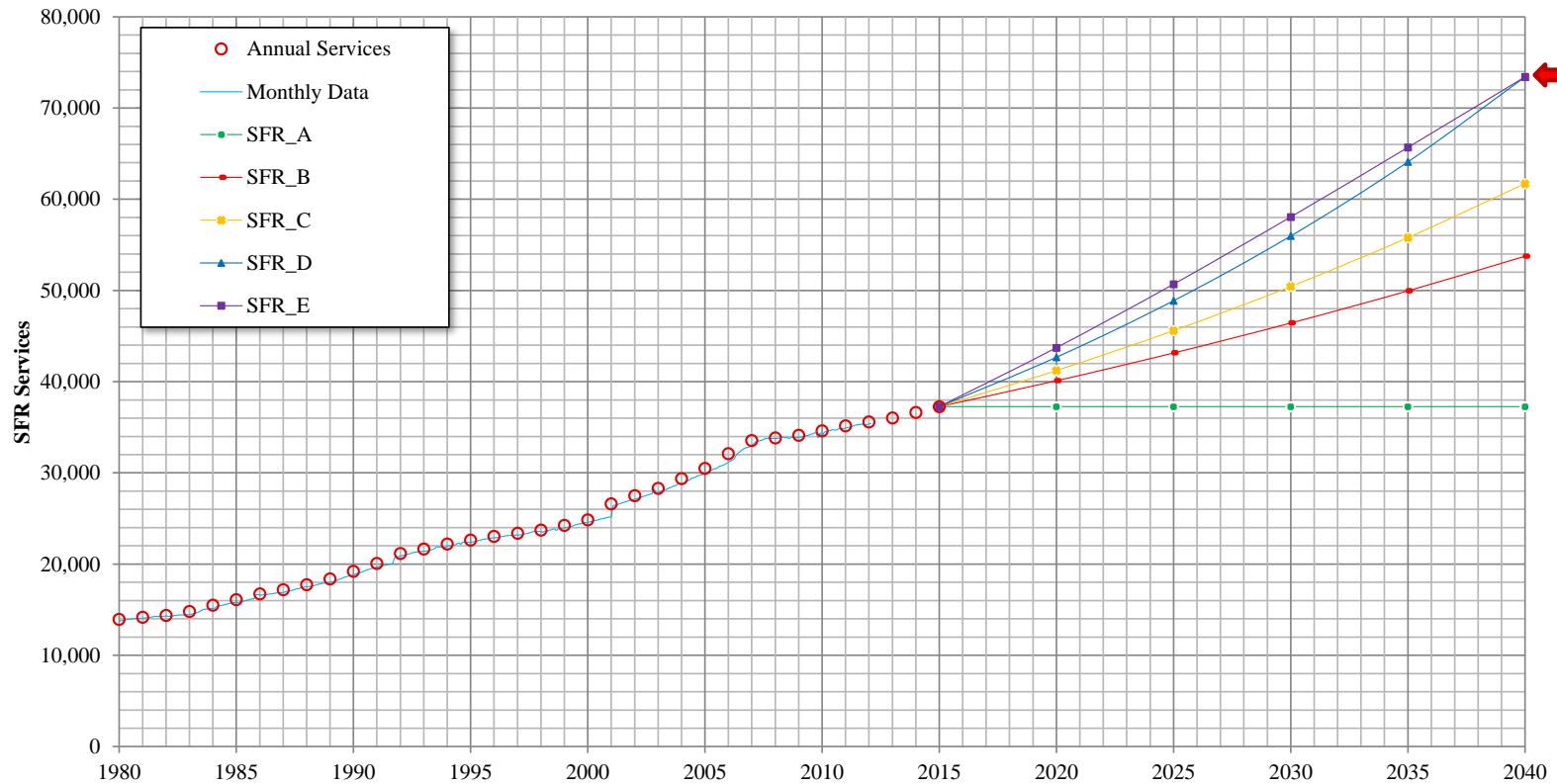
Notes:

Original city projected growth rate used: 2.50% (2010-2020), 2.25% (2021-2030), 2.00% (2031-2040) did not estimate population to match VIS Gen Plan.

Percent adjusted to match current General Plan and to account for Goshen, Mullen, and Tulco.

The same percent growth rate used for both SFR and MFR

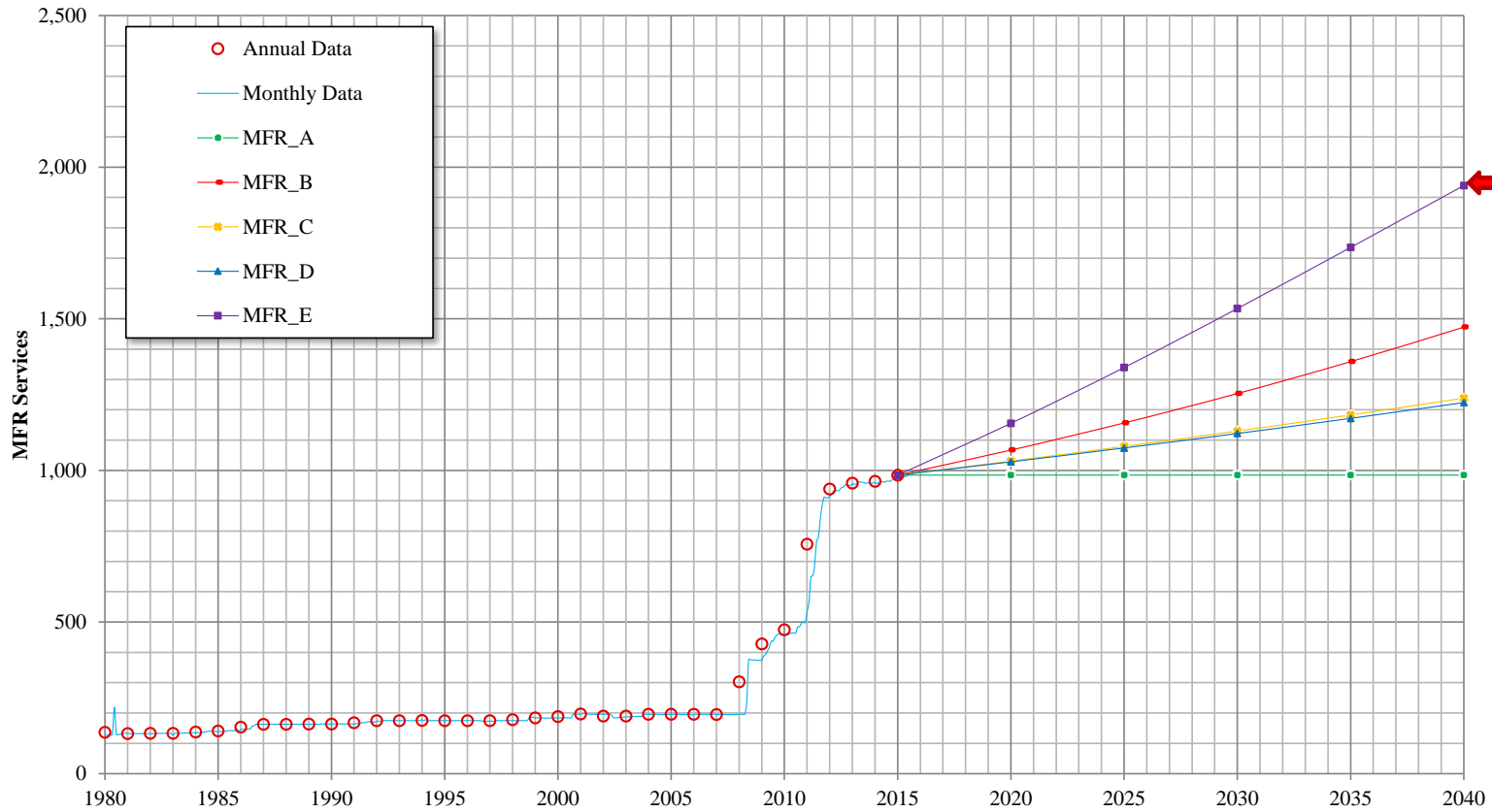
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
 SFR Historical & Projected Services



Customer Category	Trend	Growth Rate	Actual				Projected								
			2000	2005	2010	Base Year	Services	Services	Services	Services	Services	Services			
						2015	2015	2020	2025	2030	2035	2040			
SFR			24,871	30,491	34,634	37,266									
	SFR_A	Zero Growth Rate	0.00%				37,266	37,266	37,266	37,266	37,266	37,266	37,266	37,266	37,266
	SFR_B	5 Yr. Avg.	1.48%				37,266	37,266	40,099	43,146	46,426	49,955	53,752	57,599	
	SFR_C	10 Yr. Avg.	2.04%				37,266	37,266	41,221	45,596	50,436	55,789	61,711	68,403	
	SFR_D	15 Yr. Avg.	2.75%				37,266	37,266	42,677	48,874	55,970	64,097	73,403	84,111	
	> SFR_E	City	2.75%				37,266	37,266	43,728	50,693	58,057	65,687	73,416	84,111	

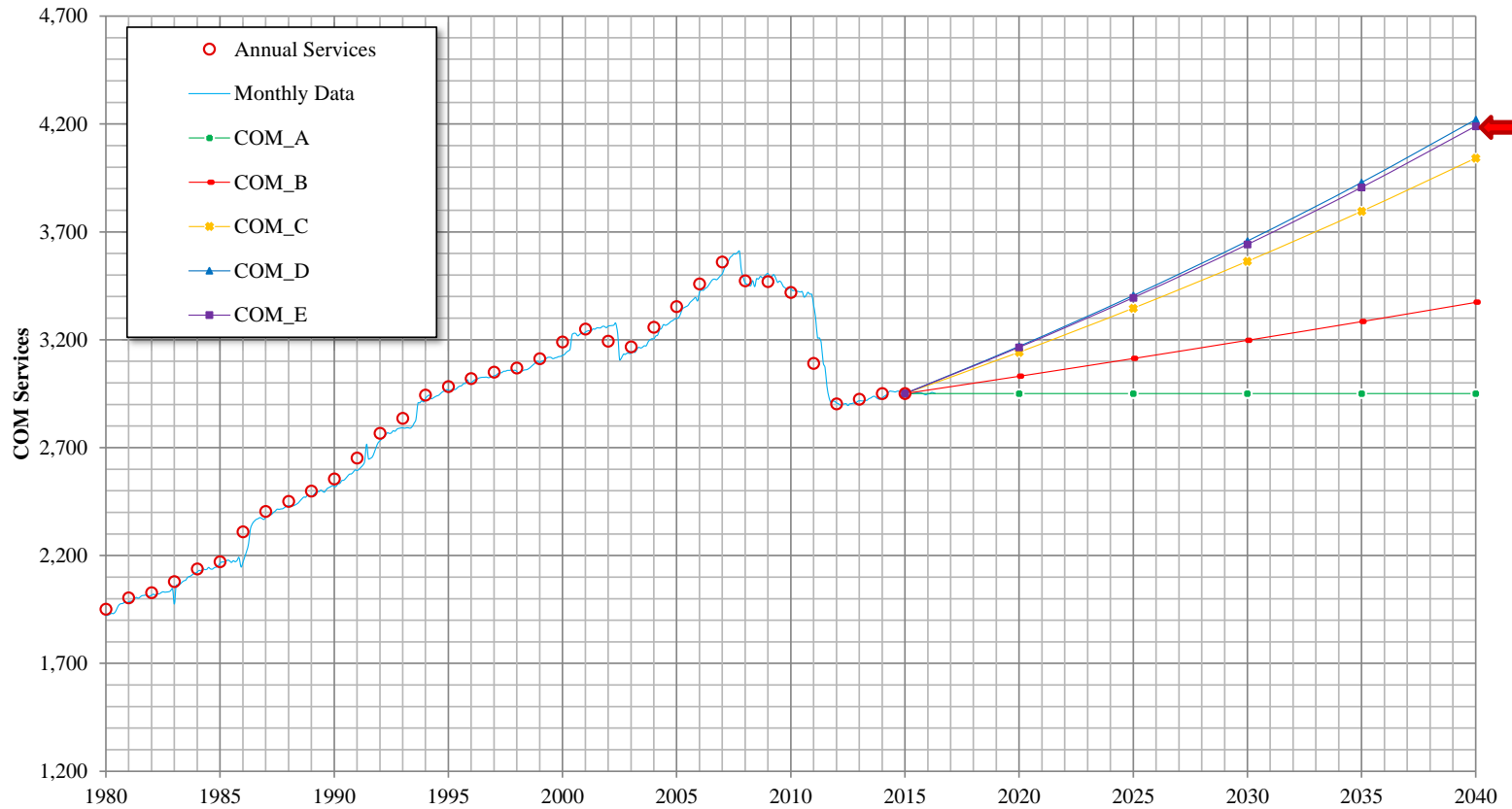
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections

MFR Historical & Projected Services



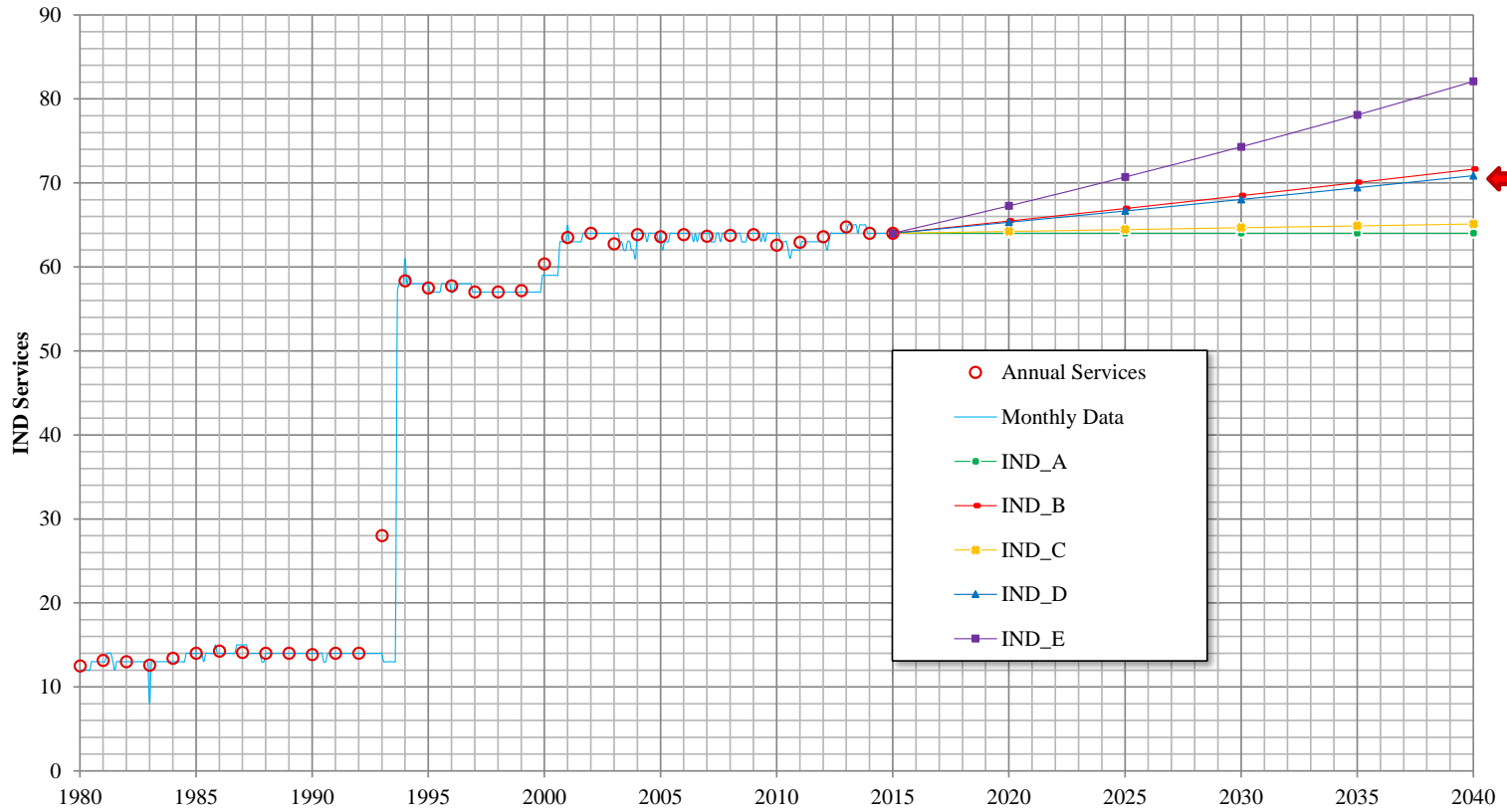
Customer Category	Trend	Growth Rate	Actual				Projected							
			2000	2005	2010	Base Year 2015	Services 2015	Services 2020	Services 2025	Services 2030	Services 2035	Services 2040		
MFR			188	196	474	985								
	MFR_A	Zero Growth Rate				985	985	985	985	985	985	985	985	985
	MFR_B	5 Yr. Avg.				985	985	1,067	1,157	1,253	1,359	1,472		
	MFR_C	10 Yr. Avg.				985	985	1,031	1,079	1,130	1,183	1,238		
	MFR_D	15 Yr. Avg.				985	985	1,028	1,074	1,122	1,172	1,224		
	> MFR_E	City				985	985	1,155	1,339	1,534	1,735	1,940		

California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
 COM Historical & Projected Services



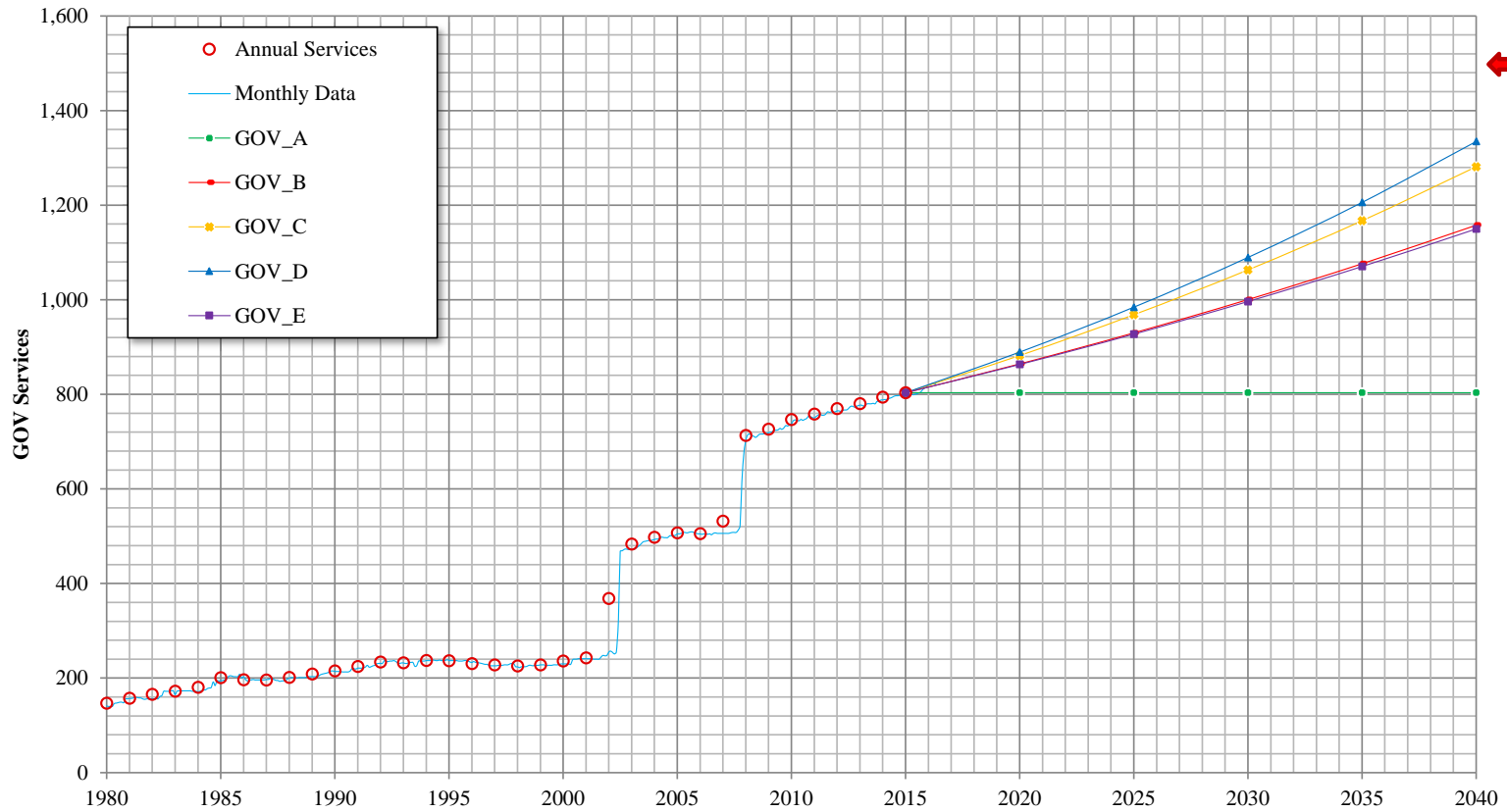
Customer Category	Trend	Growth Rate	Actual				Projected							
			2000	2005	2010	Base Year	Services	Services	Services	Services	Services	Services		
						2015	2015	2020	2025	2030	2035	2040		
COM			3,191	3,354	3,420	2,951								
	COM_A	Zero Growth Rate				2,951	2,951	2,951	2,951	2,951	2,951	2,951	2,951	
	COM_B	5 Yr. Avg.				2,951	2,951	3,031	3,113	3,197	3,284	3,373		
	COM_C	10 Yr. Avg.				2,951	2,951	3,142	3,346	3,564	3,795	4,042		
	> COM_D	15 Yr. Avg.				2,951	2,951	3,170	3,405	3,658	3,929	4,221		
	COM_E	20 Yr. Avg.				2,951	2,951	3,165	3,395	3,642	3,906	4,190		

California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
 IND Historical & Projected Services



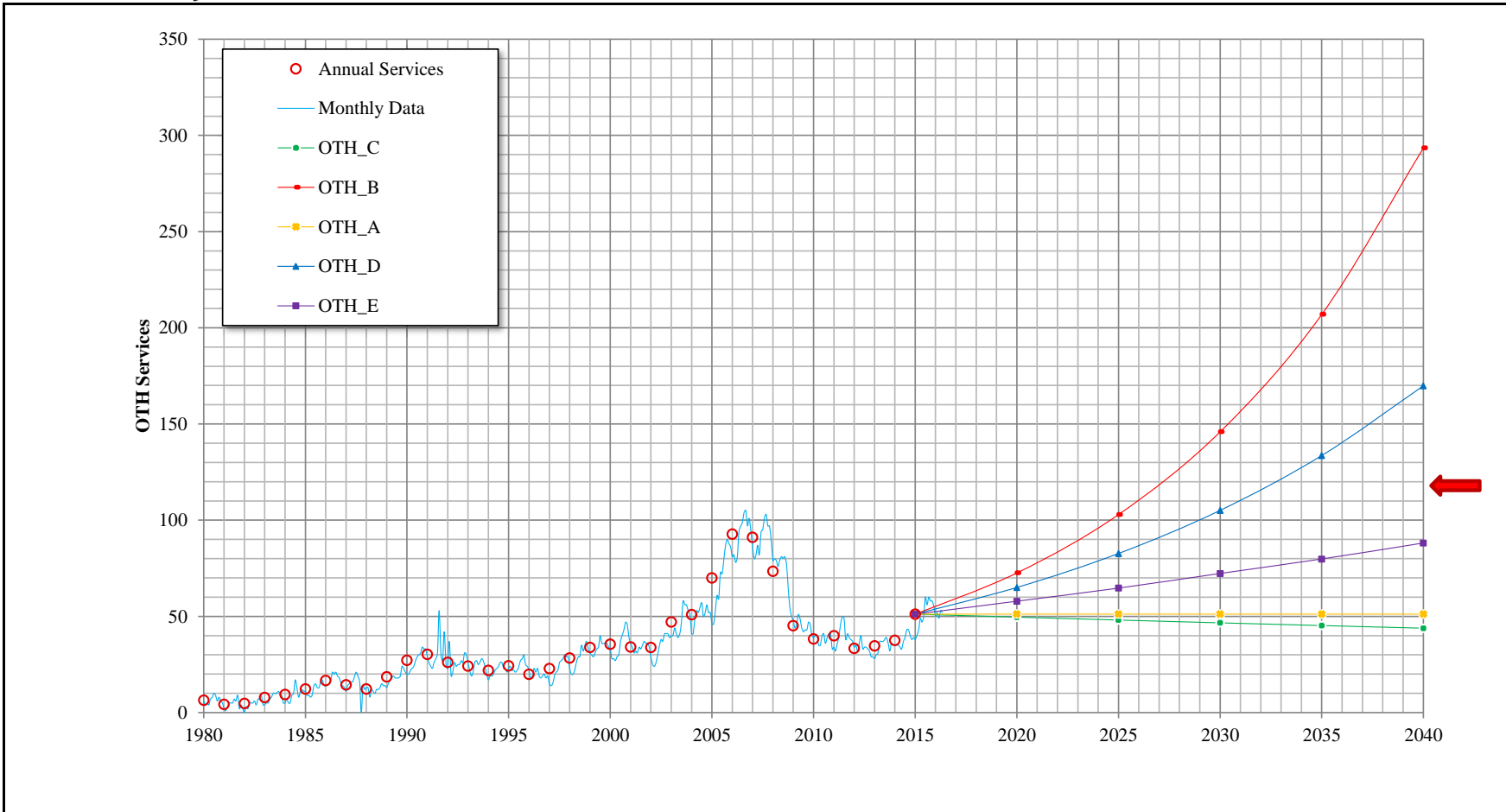
Customer Category	Trend	Growth Rate	Actual				Projected								
			2000	2005	2010	Base Year	Services	Services	Services	Services	Services	Services			
						2015	2015	2020	2025	2030	2035	2040			
IND			60	64	63	64									
	IND_A	Zero Growth Rate				64	64	64	64	64	64	64	64	64	64
	IND_B	5 Yr. Avg.				64	64	65	67	68	70	72			
	IND_C	10 Yr. Avg.				64	64	64	64	65	65	65			
	> IND_D	15 Yr. Avg.				64	64	65	67	68	69	71			
	IND_E	20 Yr. Avg.				64	64	67	71	74	78	82			

California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
 GOV Historical & Projected Services



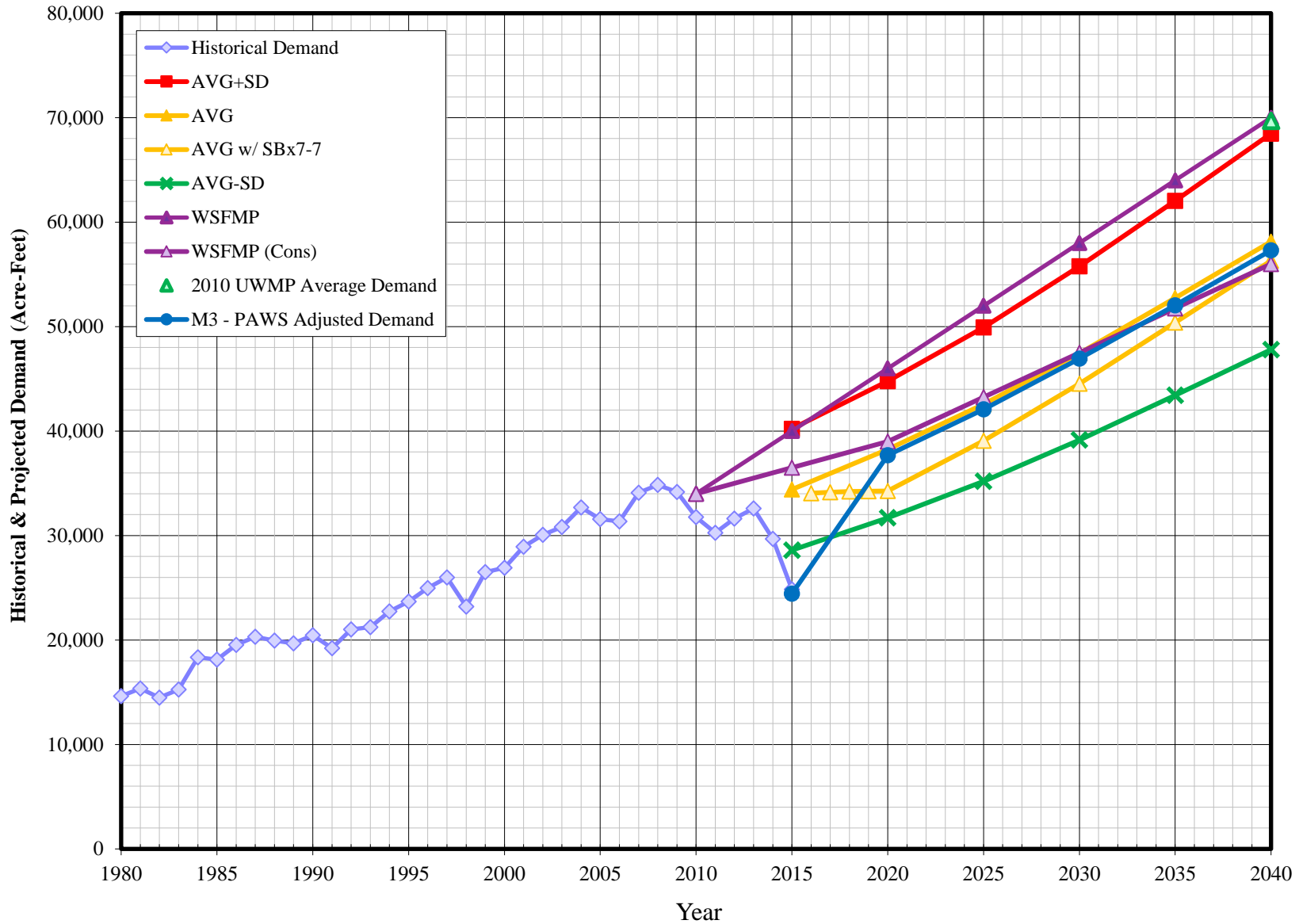
Customer Category	Trend	Growth Rate	Actual				Projected							
			2000	2005	2010	Base Year	Services	Services	Services	Services	Services	Services		
						2015	2015	2020	2025	2030	2035	2040		
GOV			236	507	747	803	803	803	803	803	803	803	803	803
	GOV_A	Zero Growth Rate				803	803	803	803	803	803	803	803	803
	GOV_B	5 Yr. Avg.				803	803	864	930	1,000	1,076	1,158	1,158	
	GOV_C	10 Yr. Avg.				803	803	882	968	1,063	1,167	1,281	1,281	
	> GOV_D	15 Yr. Avg.				803	803	889	984	1,089	1,206	1,335	1,335	
	GOV_E	20 Yr. Avg.				803	803	863	927	996	1,070	1,150	1,150	

California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
 OTH Historical & Projected Services



Customer Category	Trend	Growth Rate	Actual				Projected							
			2000	2005	2010	Base Year 2015	Services 2015	Services 2020	Services 2025	Services 2030	Services 2035	Services 2040		
OTH			36	70	38	51								
	OTH_A	Zero Growth Rate				51	51	51	51	51	51	51	51	51
	OTH_B	5 Yr. Avg.				51	51	73	103	146	207	293		
	OTH_C	10 Yr. Avg.				51	51	50	48	47	45	44		
	OTH_D	15 Yr. Avg.				51	51	65	83	105	134	170		
	> OTH_E	City				51	51	58	65	72	80	88		

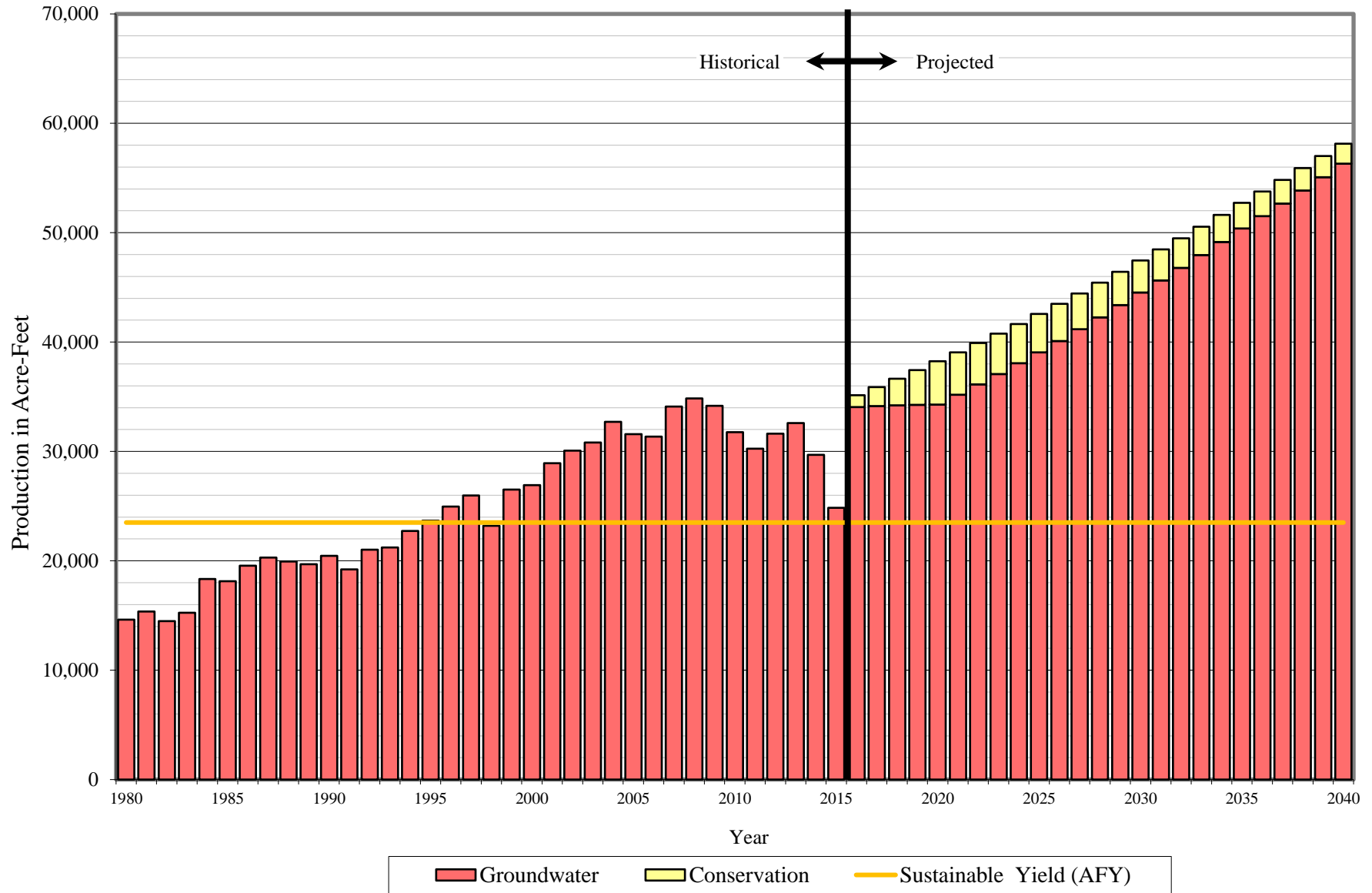
Historical & Projected Demand (VIS)



California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections

Customer Category	Actual Demand (AFY)								Projected Demand (AFY)					
	1980	1985	1990	1995	2000	2005	2010	2015	2015	2020	2025	2030	2035	2040
SFR	10,226	12,330	13,372	14,861	16,575	20,361	19,407	15,338	26,045	29,334	33,053	37,296	41,880	46,524
									22,925	25,779	29,002	32,678	36,656	40,685
									19,806	22,225	24,950	28,061	31,431	34,846
MFR	502	632	875	883	857	926	1,205	1,479	3,359	3,807	4,314	4,892	5,515	6,145
									2,224	2,513	2,839	3,211	3,613	4,020
									1,089	1,219	1,364	1,530	1,711	1,894
COM	2,312	3,132	3,627	4,867	5,719	5,431	5,898	4,526	5,816	6,192	6,596	7,030	7,497	7,998
									5,193	5,523	5,877	6,258	6,667	7,107
									4,570	4,854	5,158	5,486	5,838	6,216
IND	84	133	215	414	458	288	269	366	497	506	516	525	535	545
									310	316	321	327	333	339
									124	125	127	129	130	132
GOV	320	428	646	727	848	1,636	2,404	2,001	3,233	3,505	3,805	4,137	4,505	4,912
									2,734	2,952	3,194	3,461	3,756	4,083
									2,235	2,400	2,582	2,784	3,007	3,255
OTH	14	27	83	33	310	408	39	96	261	295	330	368	407	449
									148	167	187	209	231	255
									35	40	45	50	55	61
NRW	1,170	1,451	1,636	1,894	2,154	2,526	2,541	1,048	1,013	1,148	1,319	1,516	1,710	1,906
									877	995	1,142	1,313	1,480	1,651
									741	841	966	1,110	1,251	1,395
TOTAL (AFY)	14,627	18,133	20,454	23,679	26,921	31,576	31,762	24,853	40,223	44,787	49,933	55,766	62,048	68,480
									34,411	38,245	42,563	47,458	52,736	58,139
									28,600	31,703	35,192	39,150	43,424	47,798
TOTAL (MGD)	13.06	16.19	18.26	21.14	24.03	28.19	28.36	22.19	35.91	39.98	44.58	49.78	55.39	61.14
									30.72	34.14	38.00	42.37	47.08	51.90
									25.53	28.30	31.42	34.95	38.77	42.67

Historical and Projected Distribution of Demand by Source

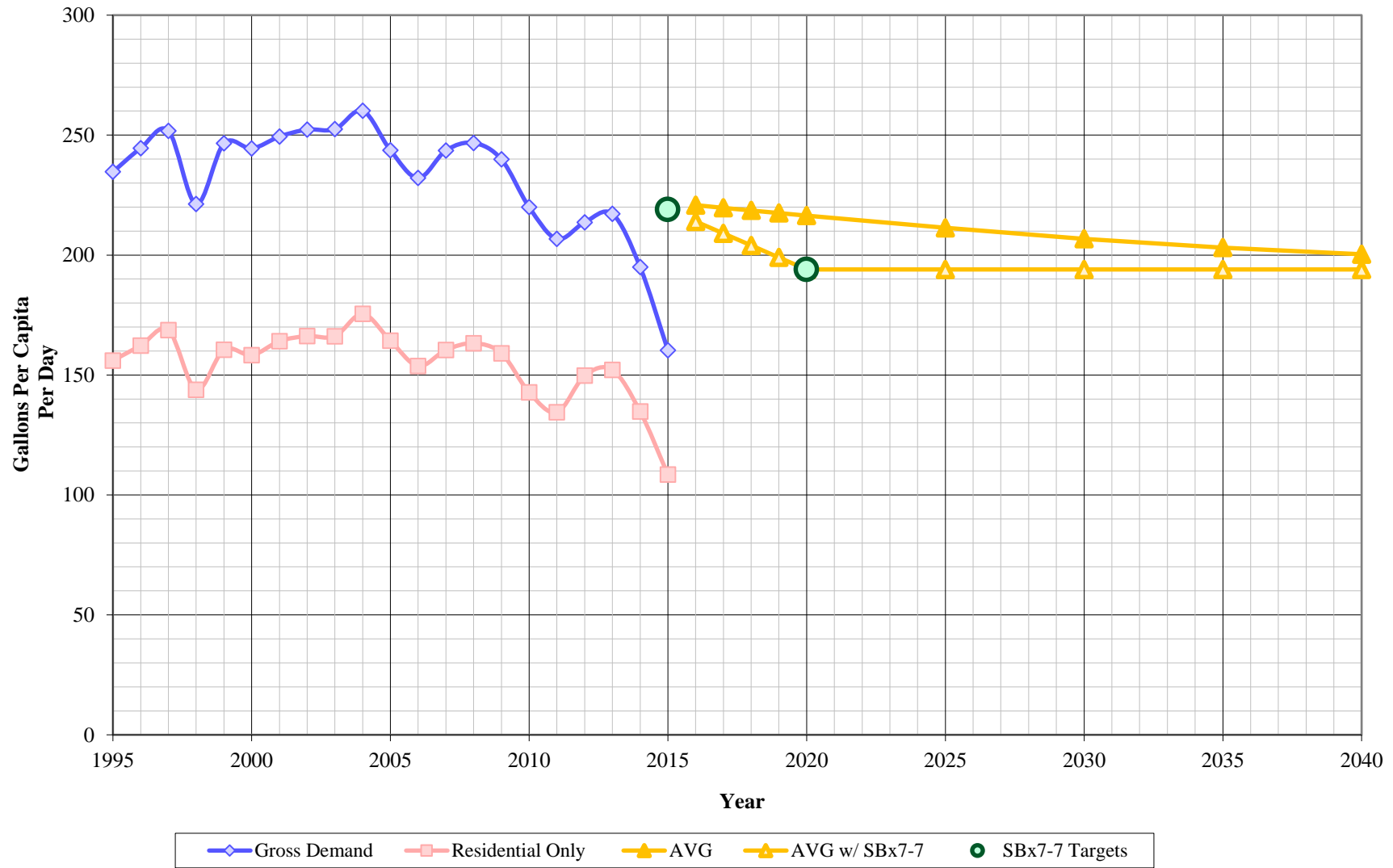


California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Historical and Projected Distribution of Demand by Source

Year	Ground Water		Conservation		Total	
	MGD	AFY	MGD	AFY	MGD	AFY
1980	13.06	14,627			13.06	14,627
1981	13.72	15,368			13.72	15,368
1982	12.93	14,485			12.93	14,485
1983	13.61	15,250			13.61	15,250
1984	16.38	18,343			16.38	18,343
1985	16.19	18,133			16.19	18,133
1986	17.45	19,544			17.45	19,544
1987	18.13	20,307			18.13	20,307
1988	17.80	19,937			17.80	19,937
1989	17.57	19,685			17.57	19,685
1990	18.26	20,454			18.26	20,454
1991	17.15	19,208			17.15	19,208
1992	18.77	21,023			18.77	21,023
1993	18.95	21,230			18.95	21,230
1994	20.30	22,737			20.30	22,737
1995	21.14	23,679			21.14	23,679
1996	22.29	24,967			22.29	24,967
1997	23.20	25,983			23.20	25,983
1998	20.71	23,199			20.71	23,199
1999	23.67	26,509			23.67	26,509
2000	24.03	26,921			24.03	26,921
2001	25.81	28,915			25.81	28,915
2002	26.84	30,065			26.84	30,065
2003	27.51	30,810			27.51	30,810
2004	29.19	32,700			29.19	32,700
2005	28.19	31,576			28.19	31,576
2006	27.99	31,352			27.99	31,352
2007	30.44	34,101			30.44	34,101
2008	31.11	34,848			31.11	34,848
2009	30.51	34,171			30.51	34,171
2010	28.36	31,762			28.36	31,762

Year	Ground Water		Conservation		Total	
	MGD	AFY	MGD	AFY	MGD	AFY
2011	27.01	30,260	0.00	0	27.01	30,260
2012	28.24	31,627	0.00	0	28.24	31,627
2013	29.10	32,600	0.00	0	29.10	32,600
2014	26.50	29,686	0.00	0	26.50	29,686
2015	22.19	24,853	0.00	0	22.19	24,853
2016	30.40	34,056	0.97	1,083	31.37	35,139
2017	30.48	34,142	1.56	1,745	32.04	35,887
2018	30.54	34,208	2.18	2,446	32.72	36,654
2019	30.58	34,254	2.84	3,186	33.42	37,440
2020	30.60	34,278	3.54	3,967	34.14	38,245
2021	31.41	35,187	3.46	3,879	34.88	39,066
2022	32.25	36,119	3.38	3,788	35.63	39,907
2023	33.10	37,076	3.30	3,694	36.40	40,770
2024	33.98	38,059	3.21	3,596	37.19	41,655
2025	34.88	39,067	3.12	3,495	38.00	42,563
2026	35.80	40,103	3.03	3,390	38.83	43,493
2027	36.75	41,165	2.93	3,282	39.68	44,447
2028	37.72	42,256	2.83	3,169	40.55	45,426
2029	38.72	43,376	2.73	3,053	41.45	46,429
2030	39.75	44,526	2.62	2,932	42.37	47,458
2031	40.74	45,639	2.52	2,826	43.27	48,464
2032	41.76	46,780	2.42	2,715	44.19	49,495
2033	42.81	47,949	2.32	2,601	45.13	50,550
2034	43.88	49,148	2.22	2,482	46.09	51,630
2035	44.97	50,377	2.11	2,360	47.08	52,736
2036	45.99	51,510	2.02	2,261	48.00	53,771
2037	47.02	52,669	1.93	2,159	48.95	54,828
2038	48.08	53,854	1.83	2,054	49.91	55,908
2039	49.16	55,066	1.74	1,946	50.90	57,012
2040	50.27	56,305	1.64	1,835	51.90	58,139

Per Capita Consumption (VIS)



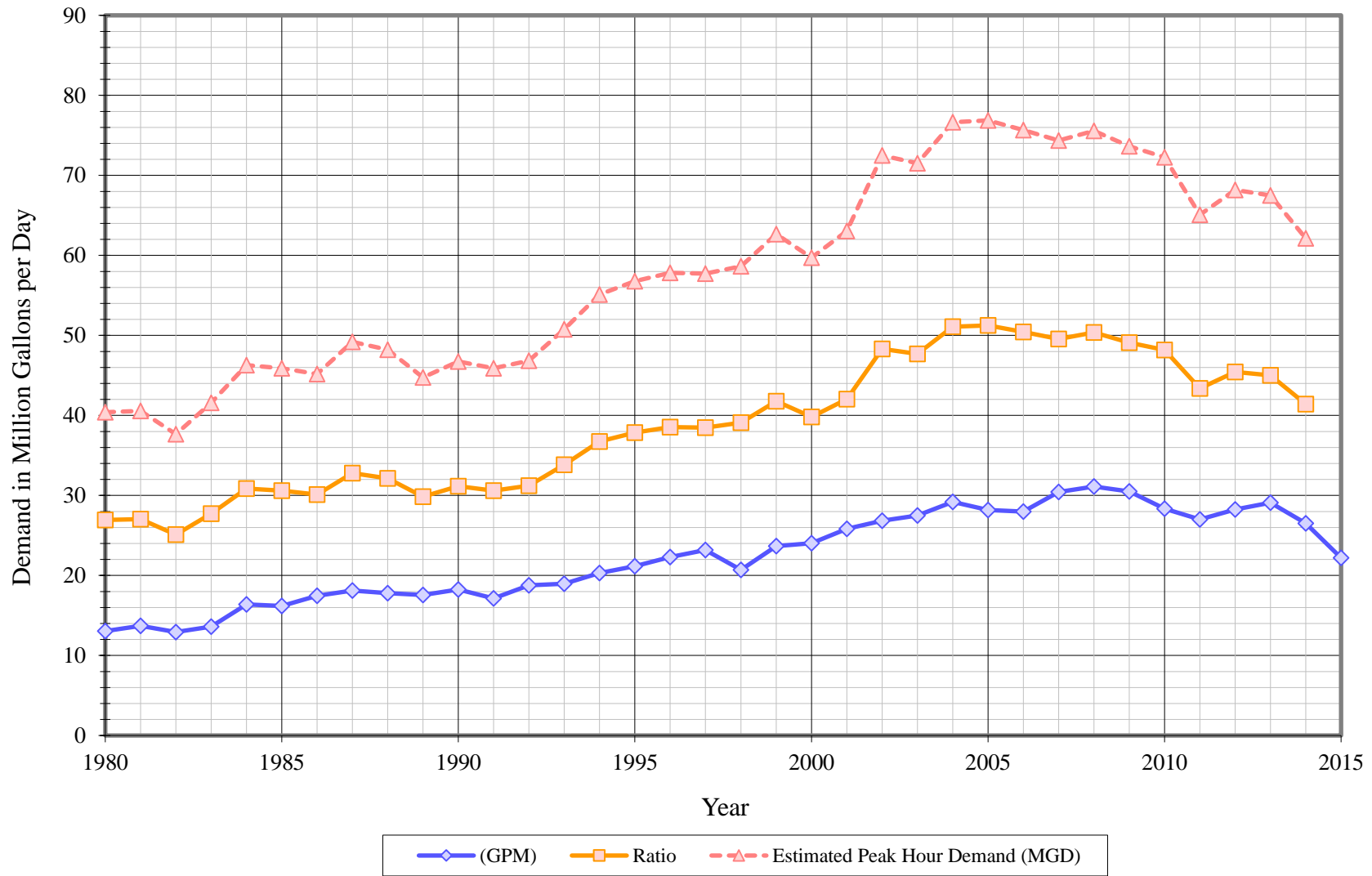
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Per Capita Water Demand Calculation

Worksheet 15

Year	POP	Historical				Projected			
		Gross Demand		Residential Only		Avg Demand		Avg Demand w/ Cons	
		Usage (AFY)	Per Capita (GPCPD)	Usage (AFY)	Per Capita (GPCPD)	Demand (AFY)	Per Capita (GPCPD)	Demand (AFY)	Per Capita (GPCPD)
1995	90,077	23,679	235	15,744	156				
1996	91,136	24,967	245	16,567	162				
1997	92,123	25,983	252	17,410	169				
1998	93,617	23,199	221	15,083	144				
1999	95,989	26,509	247	17,260	161				
2000	98,325	26,921	244	17,432	158				
2001	103,510	28,915	249	19,025	164				
2002	106,382	30,065	252	19,809	166				
2003	108,946	30,810	252	20,278	166				
2004	112,207	32,700	260	22,053	175				
2005	115,674	31,576	244	21,287	164				
2006	120,590	31,352	232	20,766	154				
2007	124,972	34,101	244	22,458	160				
2008	126,088	34,848	247	23,053	163				
2009	127,164	34,171	240	22,657	159				
2010	128,912	31,762	220	20,612	143				
2011	130,699	30,260	207	19,685	134				
2012	132,158	31,627	214	22,163	150				
2013	134,033	32,600	217	22,841	152				
2014	135,923	29,686	195	20,517	135				
2015	138,404	24,853	160	16,817	108				
2016	142,072					35,139	221	34,056	214
2017	145,837					35,887	220	34,142	209
2018	149,702					36,654	219	34,208	204
2019	153,669					37,440	218	34,254	199
2020	157,741					38,245	216	34,278	194
2025	179,779					42,563	211	39,067	194
2030	204,896					47,458	207	44,526	194
2035	231,821					52,736	203	50,377	194
2040	259,102					58,139	200	56,305	194

<i>SBx7-7 Targets</i>	
2015	219
2020	194

Average Day, Maximum Day, Peak Demand



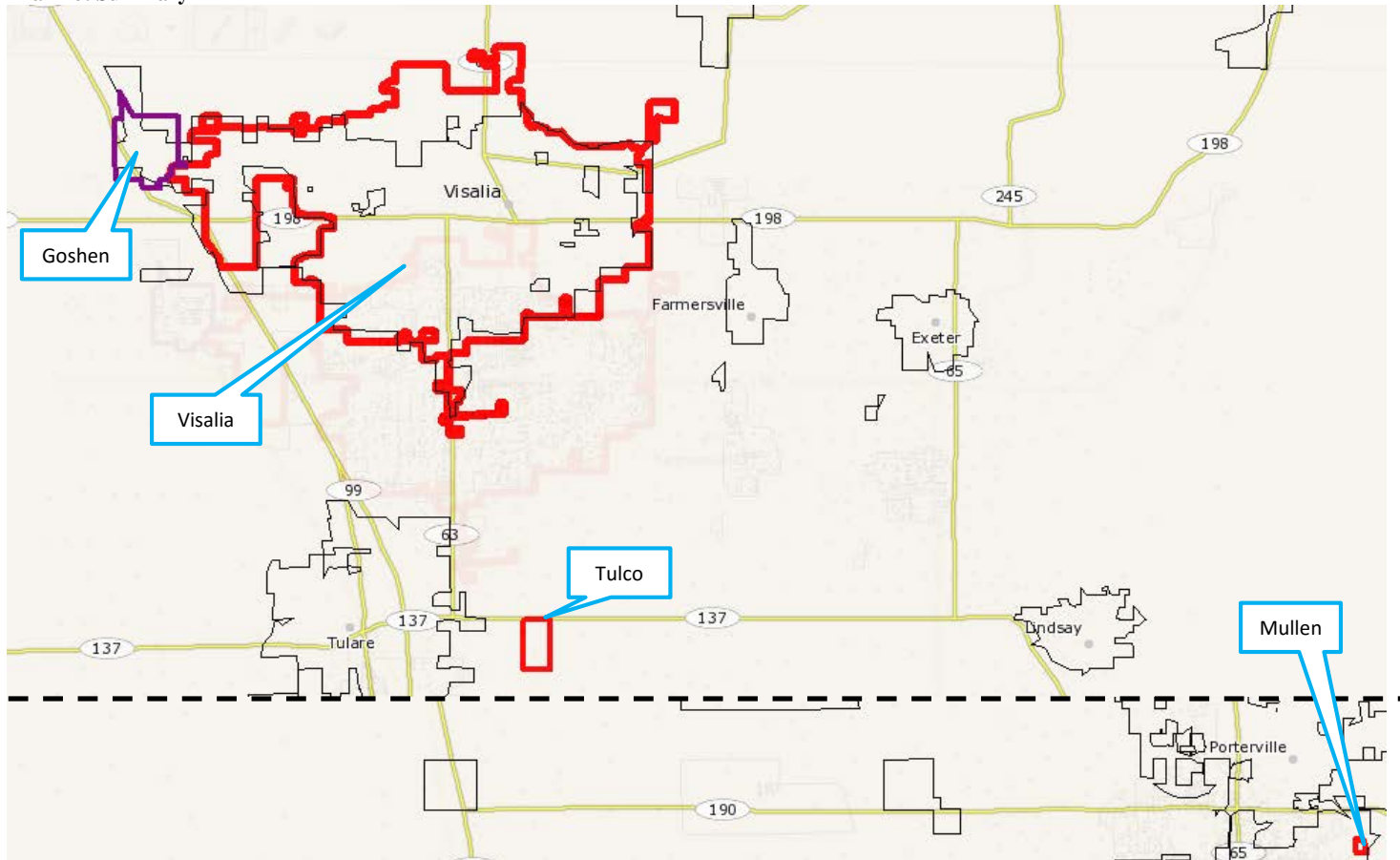
California Water Service Company - Visalia District

Water Supply and Demand Analysis and Projections

Historical and Projected Average Day, Maximum Day, and Peak Demand

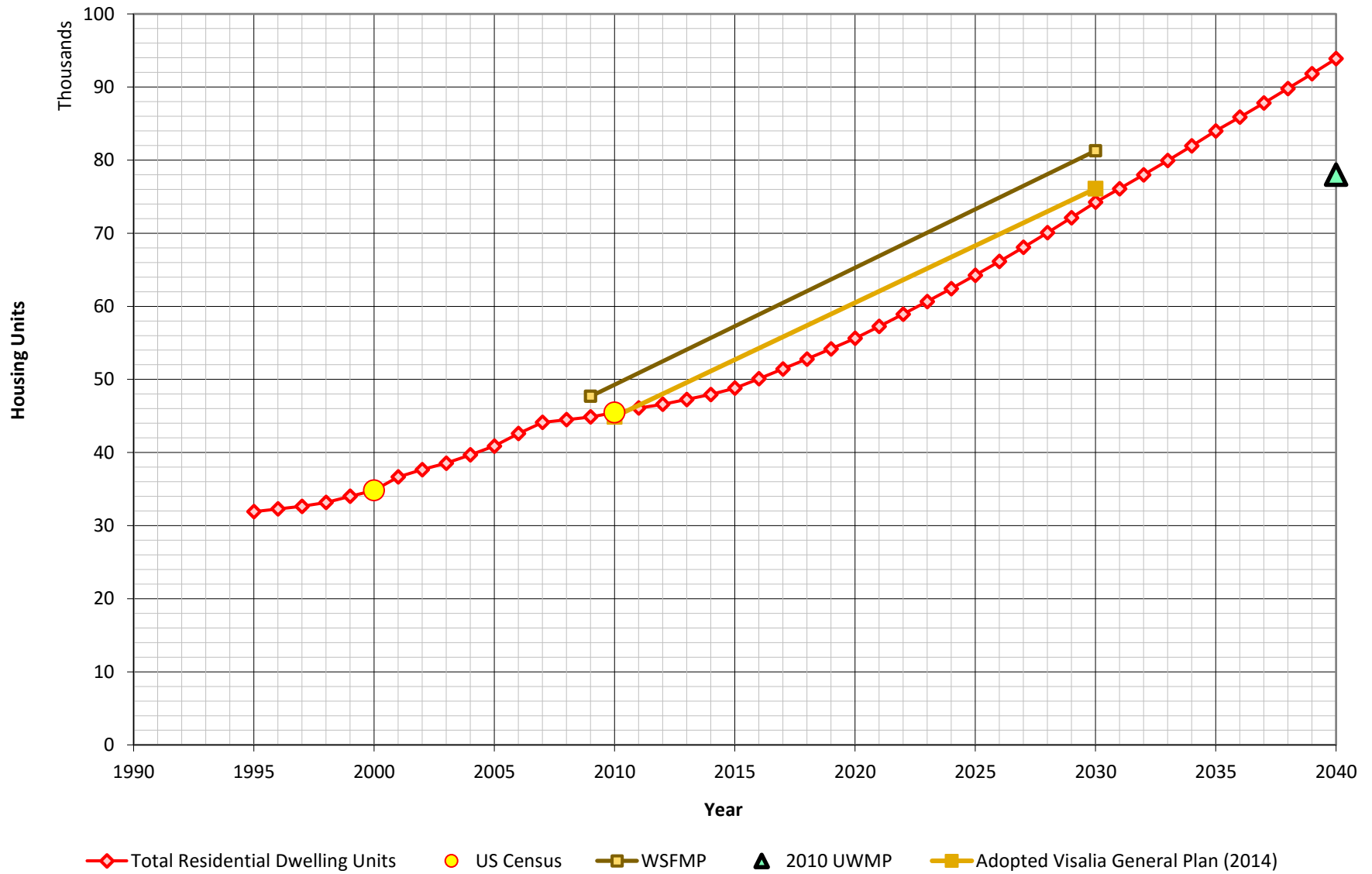
Year	Historical Annual Demand		Average Day Demand		Maximum Day Demand		MDD ADD Ratio	Estimated Peak Hour Demand		PHD MDD Ratio	PHD ADD Ratio	Measured Peak Hour Demand		PHD MDD Ratio
	(AFY)	(MGY)	(MGD)	(GPD)	(MGD)	(GPD)		(MGD)	(GPM)			(MGD)	(GPM)	
1980	14,627	4,766	13.06	806	26.93	1,663	2.06	40.39	28,048	1.50	3.09			
1981	15,368	5,008	13.72	831	27.05	1,639	1.97	40.57	28,175	1.50	2.96			
1982	14,485	4,720	12.93	774	25.10	1,502	1.94	37.65	26,149	1.50	2.91			
1983	15,250	4,969	13.61	790	27.72	1,609	2.04	41.58	28,877	1.50	3.05			
1984	18,343	5,977	16.38	910	30.86	1,715	1.88	46.29	32,144	1.50	2.83			
1985	18,133	5,909	16.19	869	30.60	1,642	1.89	45.90	31,872	1.50	2.84			
1986	19,544	6,369	17.45	898	30.12	1,550	1.73	45.19	31,379	1.50	2.59			
1987	20,307	6,617	18.13	907	32.79	1,641	1.81	49.19	34,158	1.50	2.71			
1988	19,937	6,497	17.80	865	32.13	1,561	1.81	48.20	33,471	1.50	2.71			
1989	19,685	6,414	17.57	826	29.84	1,402	1.70	44.75	31,079	1.50	2.55			
1990	20,454	6,665	18.26	822	31.15	1,403	1.71	46.73	32,450	1.50	2.56			
1991	19,208	6,259	17.15	740	30.60	1,320	1.78	45.89	31,870	1.50	2.68			
1992	21,023	6,850	18.77	770	31.22	1,281	1.66	46.84	32,525	1.50	2.50			
1993	21,230	6,918	18.95	759	33.84	1,355	1.79	50.75	35,246	1.50	2.68			
1994	22,737	7,409	20.30	792	36.74	1,433	1.81	55.11	38,269	1.50	2.71			
1995	23,679	7,716	21.14	810	37.85	1,449	1.79	56.78	39,427	1.50	2.69			
1996	24,967	8,135	22.29	839	38.54	1,452	1.73	57.81	40,145	1.50	2.59			
1997	25,983	8,466	23.20	862	38.49	1,430	1.66	57.73	40,093	1.50	2.49			
1998	23,199	7,559	20.71	759	39.09	1,432	1.89	58.64	40,719	1.50	2.83			
1999	26,509	8,638	23.67	849	41.78	1,499	1.77	62.67	43,521	1.50	2.65			
2000	26,921	8,772	24.03	841	39.82	1,393	1.66	59.73	41,478	1.50	2.49			
2001	28,915	9,422	25.81	849	42.04	1,383	1.63	63.06	43,792	1.50	2.44			
2002	30,065	9,797	26.84	856	48.32	1,540	1.80	72.48	50,333	1.50	2.70			
2003	30,810	10,039	27.51	852	47.69	1,478	1.73	71.53	49,674	1.50	2.60			
2004	32,700	10,655	29.19	873	51.09	1,528	1.75	76.64	53,223	1.50	2.63			
2005	31,576	10,289	28.19	813	51.25	1,478	1.82	76.87	53,383	1.50	2.73			
2006	31,352	10,216	27.99	768	50.45	1,384	1.80	75.67	52,548	1.50	2.70			
2007	34,101	11,112	30.44	801	49.57	1,304	1.63	74.35	51,631	1.50	2.44			
2008	34,848	11,355	31.11	809	50.38	1,309	1.62	75.56	52,475	1.50	2.43			
2009	34,171	11,135	30.51	785	49.10	1,264	1.61	73.65	51,145	1.50	2.41			
2010	31,762	10,350	28.36	720	48.19	1,224	1.70	72.28	50,195	1.50	2.55			
2011	30,260	9,860	27.01	677	43.39	1,088	1.61	65.09	45,199	1.50	2.41			
2012	31,627	10,306	28.24	700	45.45	1,127	1.61	68.17	47,343	1.50	2.41			
2013	32,600	10,623	29.10	713	45.00	1,103	1.55	67.49	46,870	1.50	2.32			
2014	29,686	9,673	26.50	640	41.43	1,000	1.56	62.14	43,154	1.50	2.34			
2015	24,853	8,098	22.19	527										
10 year Average			28.14		47.42	1,228	1.65	71.13	49,394	1.50	2.48			
5 year Average			26.61		44.69	1,108	1.60	67.03	46,552	1.50	2.41			

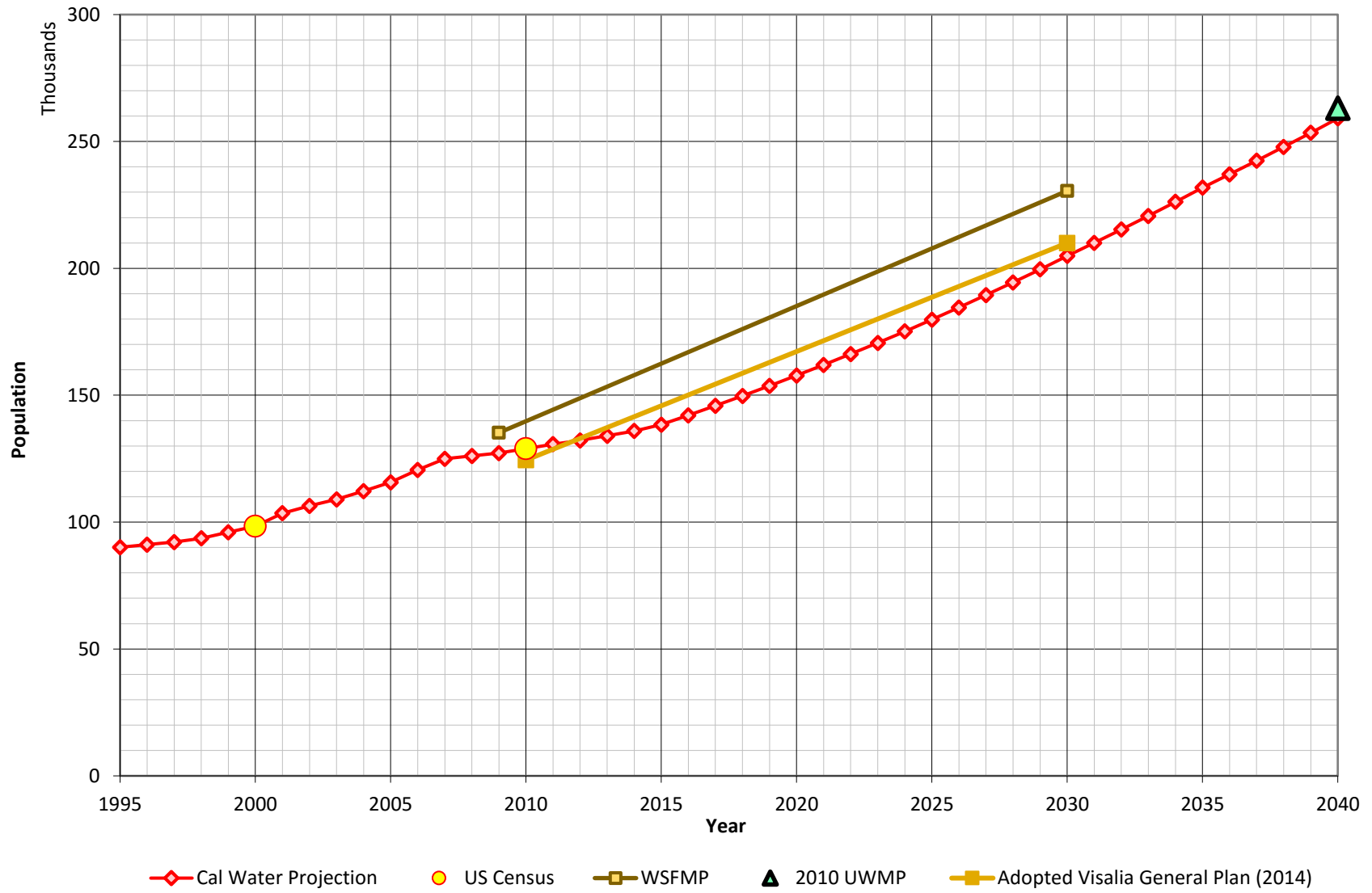
California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
MarPlot Summary



System	Census Blocks	Population	Housing Units (HU)	Density	Census Blocks	Population	Housing Units (HU)	Density	Percentage Population Change	Percentage HU Change	Density Change
Visalia	1,221	98,325	34,832	2.82	1,488	124,965	44,358	2.82	27.1%	27.3%	-0.2%
Goshen					52	3,072	841	3.65			
Mullen					2	138	47	2.94			
Tulco					7	737	210	3.51			
	1,221	98,325	34,832	2.82	1,549	128,912	45,456	2.84	31.1%	30.5%	0.5%

MARPLOT disclaimer: The population and housing number given above are only rough estimates. They are based on the US Census Blocks. Although Census Blocks are polygons, MARPLOT uses the centroid, or center point, rather than the entire polygon. If a Census Block centroid is within any of the MARPLOT selected objects, the population and housing numbers for that block are tallied, even if only part of the block is within the selected object. It is possible for a block not be counted if its centroid is not within selected objects, even though part of the block is within the selected objects.





California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections
Population Estimate

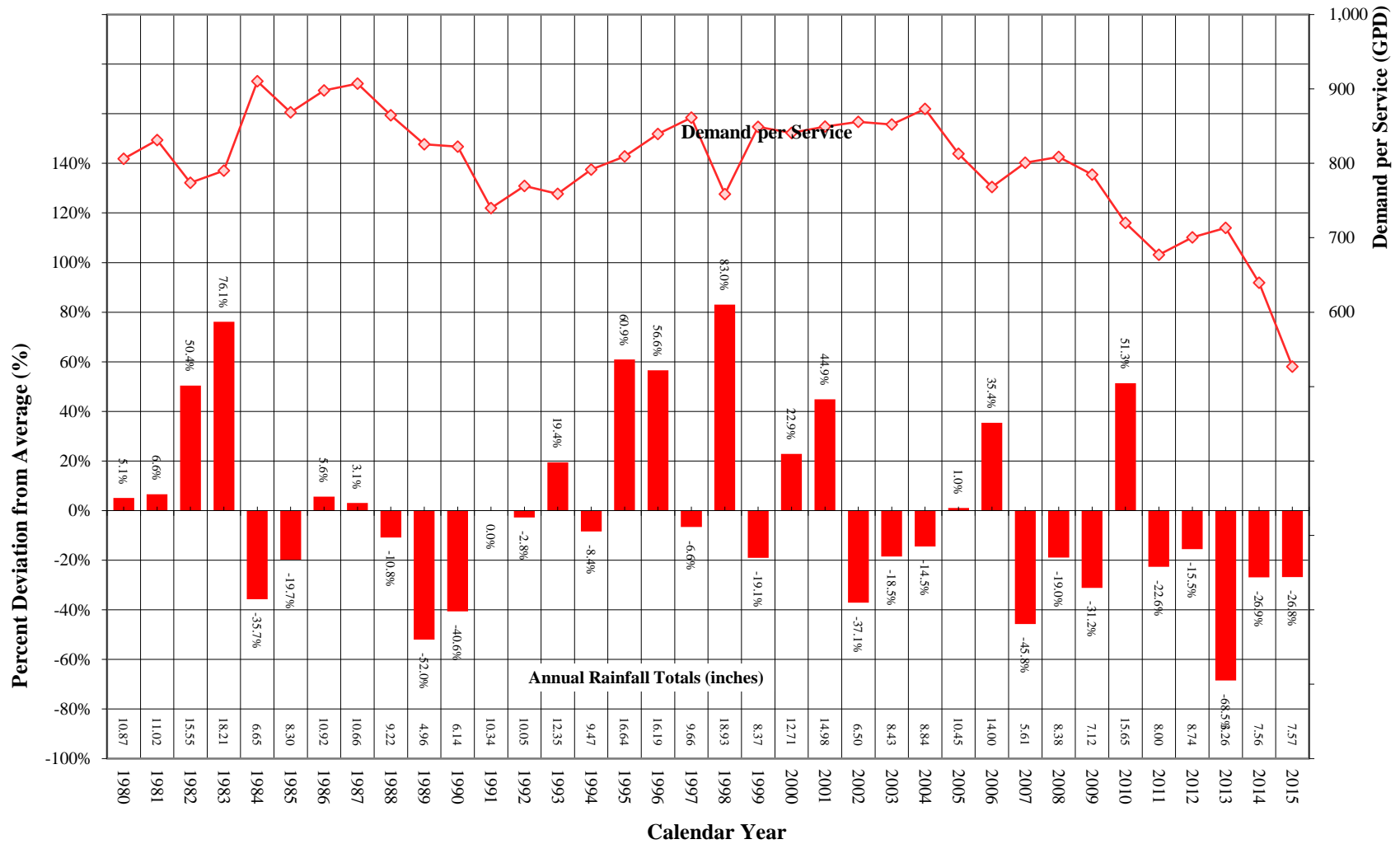
Worksheet 12

Year	US Census		Persons per Housing Unit	Single Family Residential	Multi Family Residential			Flat Rate Residential
	Population	Housing Units		Services (DU)	Services	Units (DU)	Density	Services (DU)
2000	98,325	34,832	2.823	24,871	188	9,961	53.0	0
2010	128,912	45,456	2.836	34,634	474	10,822	22.8	0
	31.1%	30.5%	0.5%	39.3%	152.3%	8.6%	-56.9%	

Year	SFR and FLT Residential Services (DU)	Multi Family Residential			Total Residential Dwelling Units	Persons per Housing Unit	Estimated District Population
		Services	Residential Units (DU)	Unit Density			
1995	22,638	175	9,273	53.0	31,910	2.823	90,077
1996	23,048	174	9,237	53.0	32,285	2.823	91,136
1997	23,389	175	9,246	53.0	32,635	2.823	92,123
1998	23,737	178	9,427	53.0	33,164	2.823	93,617
1999	24,264	184	9,741	53.0	34,005	2.823	95,989
2000	24,871	188	9,961	53.0	34,832	2.823	98,325
2001	26,604	197	10,047	51.1	36,652	2.824	103,510
2002	27,518	190	10,133	53.4	37,651	2.825	106,382
2003	28,321	190	10,220	53.9	38,541	2.827	108,946
2004	29,370	196	10,306	52.7	39,676	2.828	112,207
2005	30,491	196	10,392	53.2	40,883	2.829	115,674
2006	32,123	196	10,478	53.5	42,600	2.831	120,590
2007	33,564	195	10,564	54.2	44,128	2.832	124,972
2008	33,852	303	10,650	35.2	44,502	2.833	126,088
2009	34,124	428	10,736	25.1	44,860	2.835	127,164
2010	34,634	474	10,822	22.8	45,456	2.836	128,912
2011	35,178	757	10,908	14.4	46,086	2.836	130,699
2012	35,607	938	10,994	11.7	46,601	2.836	132,158
2013	36,031	958	11,231	11.7	47,262	2.836	134,033
2014	36,629	964	11,299	11.7	47,928	2.836	135,923
2015	37,266	985	11,537	11.7	48,803	2.836	138,404
2016	38,250	1,011	11,847	11.7	50,096	2.836	142,072
2017	39,263	1,038	12,161	11.7	51,424	2.836	145,837
2018	40,304	1,065	12,483	11.7	52,787	2.836	149,702
2019	41,372	1,093	12,814	11.7	54,186	2.836	153,669
2020	42,468	1,122	13,153	11.7	55,621	2.836	157,741
2021	43,711	1,155	13,538	11.7	57,249	2.828	161,921
2022	44,990	1,189	13,934	11.7	58,924	2.821	166,212
2023	46,307	1,224	14,342	11.7	60,649	2.813	170,617
2024	47,663	1,260	14,762	11.7	62,425	2.806	175,138
2025	49,059	1,297	15,194	11.7	64,253	2.798	179,779
2026	50,496	1,335	15,639	11.7	66,136	2.790	184,543
2027	51,976	1,374	16,098	11.7	68,074	2.783	189,434
2028	53,499	1,414	16,570	11.7	70,069	2.775	194,454
2029	55,068	1,455	17,055	11.7	72,123	2.768	199,607
2030	56,683	1,498	17,556	11.7	74,238	2.760	204,896
2031	58,100	1,536	17,995	11.7	76,094	2.760	210,019
2032	59,552	1,574	18,444	11.7	77,997	2.760	215,269
2033	61,041	1,613	18,905	11.7	79,947	2.760	220,651
2034	62,567	1,654	19,378	11.7	81,945	2.760	226,167
2035	64,131	1,695	19,863	11.7	83,994	2.760	231,821
2036	65,574	1,733	20,309	11.7	85,884	2.760	237,037
2037	67,050	1,772	20,766	11.7	87,816	2.760	242,371
2038	68,558	1,812	21,234	11.7	89,792	2.760	247,824
2039	70,101	1,853	21,711	11.7	91,812	2.760	253,400
2040	71,678	1,894	22,200	11.7	93,878	2.760	259,102

Notes: linear extrapolation used to estimated MFR-DU from 2000. Estimate extend until 2012 due to reclassification, afterwards a constant MFR Unit Density is used.

Comparison of Annual Rainfall to Historical Average



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

Temperature & Rainfall History

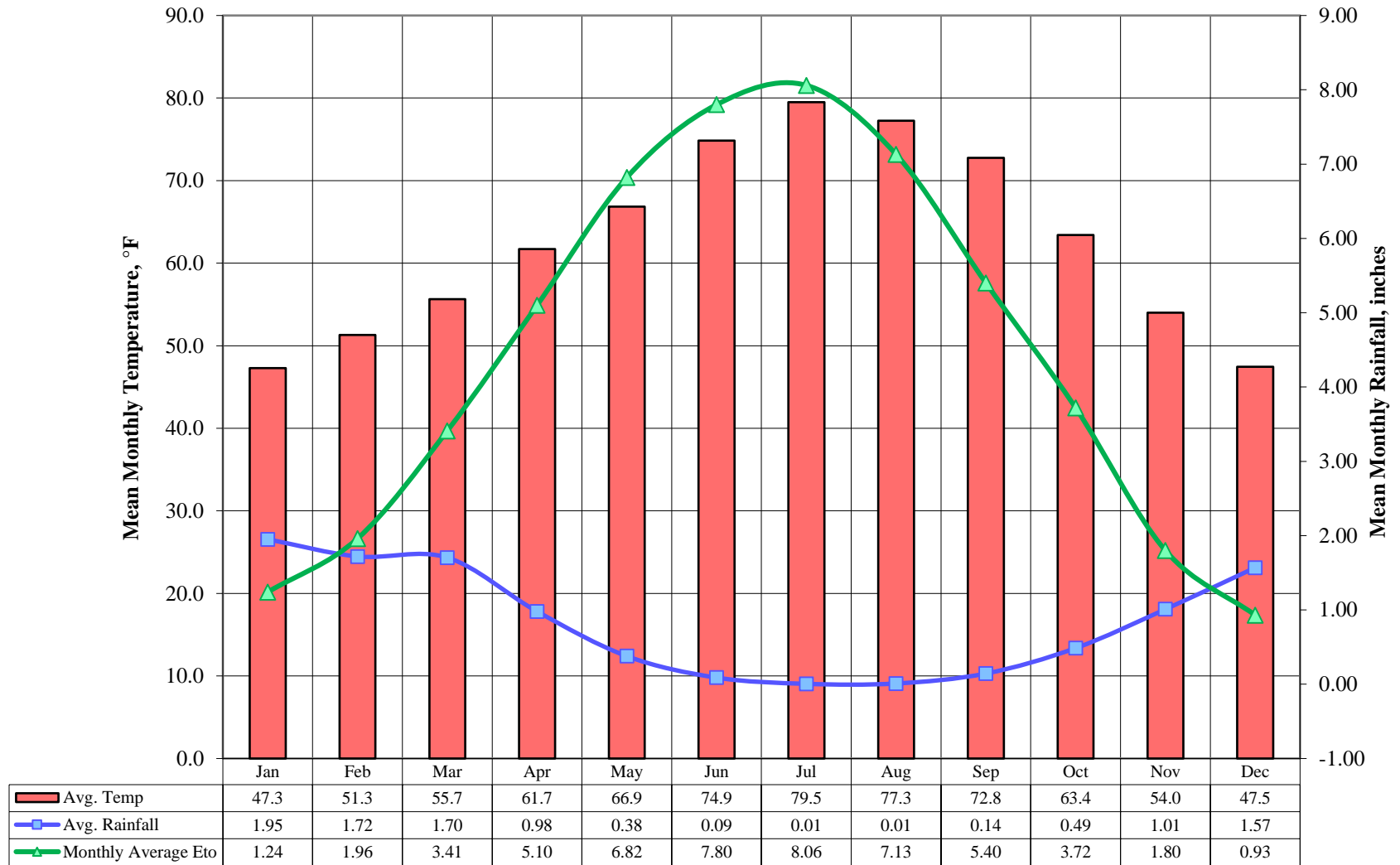
Year	Precipitation		Temperature			Demand per Service (gpd)	Percent of Average Demand
	Annual (in)	Percent Variation	Tmax (°F)	Tmin (°F)	Mean (°F)		
1980	10.87	5.1%	95.60	36.70	66.2	806	1.1%
1981	11.02	6.6%	97.80	40.00	68.9	831	4.3%
1982	15.55	50.4%	93.90	35.40	64.7	774	-2.9%
1983	18.21	76.1%	93.80	37.60	65.7	790	-0.9%
1984	6.65	-35.7%	98.20	37.80	68.0	910	14.2%
1985	8.30	-19.7%	97.50	35.40	66.5	869	9.0%
1986	10.92	5.6%	98.60	36.00	67.3	898	12.6%
1987	10.66	3.1%	91.10	34.20	62.7	907	13.8%
1988	9.22	-10.8%	97.80	36.00	66.9	865	8.5%
1989	4.96	-52.0%	93.70	32.40	63.1	826	3.5%
1990	6.14	-40.6%	94.60	30.90	62.8	822	3.2%
1991	10.34	0.0%	94.40	35.90	65.2	740	-7.2%
1992	10.05	-2.8%	94.80	35.90	65.4	770	-3.5%
1993	12.35	19.4%	90.20	37.80	64.0	759	-4.8%
1994	9.47	-8.4%	95.40	37.30	66.4	792	-0.7%
1995	16.64	60.9%	94.00	42.40	68.2	810	1.5%
1996	16.19	56.6%	96.60	40.70	68.7	839	5.3%
1997	9.66	-6.6%	93.30	36.40	64.9	862	8.1%
1998	18.93	83.0%	95.70	32.30	64.0	759	-4.8%
1999	8.37	-19.1%	93.10	33.90	63.5	849	6.5%
2000	12.71	22.9%	94.70	37.90	66.3	841	5.5%
2001	14.98	44.9%	94.10	35.90	65.0	849	6.5%
2002	6.50	-37.1%	96.40	37.80	67.1	856	7.3%
2003	8.43	-18.5%	98.50	40.60	69.6	852	6.9%
2004	8.84	-14.5%	95.40	37.00	66.2	873	9.5%
2005	10.45	1.0%	99.30	40.70	70.0	813	2.0%
2006	14.00	35.4%	99.50	34.00	66.8	768	-3.7%
2007	5.61	-45.8%	95.40	29.50	62.5	801	0.5%
2008	8.38	-19.0%	97.10	36.40	66.8	809	1.4%
2009	7.12	-31.2%	97.90	37.20	67.6	785	-1.5%
2010	15.65	51.3%	95.00	40.00	67.5	720	-9.7%
2011	8.00	-22.6%	94.40	30.10	62.3	677	-15.0%
2012	8.74	-15.5%	97.90	34.50	66.2	700	-12.2%
2013	3.26	-68.5%	98.60	31.50	65.1	713	-10.5%
2014	7.56	-26.9%	97	35.9	66.2	640	-19.8%
2015	7.57	-26.8%	94	33.8	64.1	527	-33.9%
2016							
2017							
2018							
2019							
2020							

	Precipitation (1895 - present)					Monthly Average Eto
	Mean	High	Year	Low	Year	
	in.	in.	-	in.	-	
Jan	1.95	7.21	1969	0.00	1948	1.24
Feb	1.72	5.88	1936	0.00	1896	1.96
Mar	1.70	7.43	1991	0.00	1956	3.41
Apr	0.98	4.60	2006	0.00	1909	5.10
May	0.38	2.12	1906	0.00	1897	6.82
Jun	0.09	1.19	1998	0.00	1912	7.80
Jul	0.01	0.23	1982	0.00	1959	8.06
Aug	0.01	0.16	1976	0.00	1960	7.13
Sep	0.14	1.89	1976	0.00	1899	5.40
Oct	0.49	2.02	2000	0.00	1900	3.72
Nov	1.01	5.16	1900	0.00	1897	1.80
Dec	1.57	6.67	2010	0.00	1917	0.93
Annual	10.04	18.93	1998	3.26	2013	53.30

	Temperature (1895 - present)		
	Tmax	Tmin	Mean
	°F	°F	°F
Jan	66.3	28.3	47.3
Feb	71.7	30.9	51.3
Mar	76.7	34.6	55.7
Apr	82.3	41.1	61.7
May	90.0	43.7	66.9
Jun	98.9	50.8	74.9
Jul	105.0	54.0	79.5
Aug	102.3	52.2	77.3
Sep	97.6	47.9	72.8
Oct	87.4	39.4	63.4
Nov	75.3	32.7	54.0
Dec	65.8	29.1	47.5
Annual	105.0	28.3	66.7

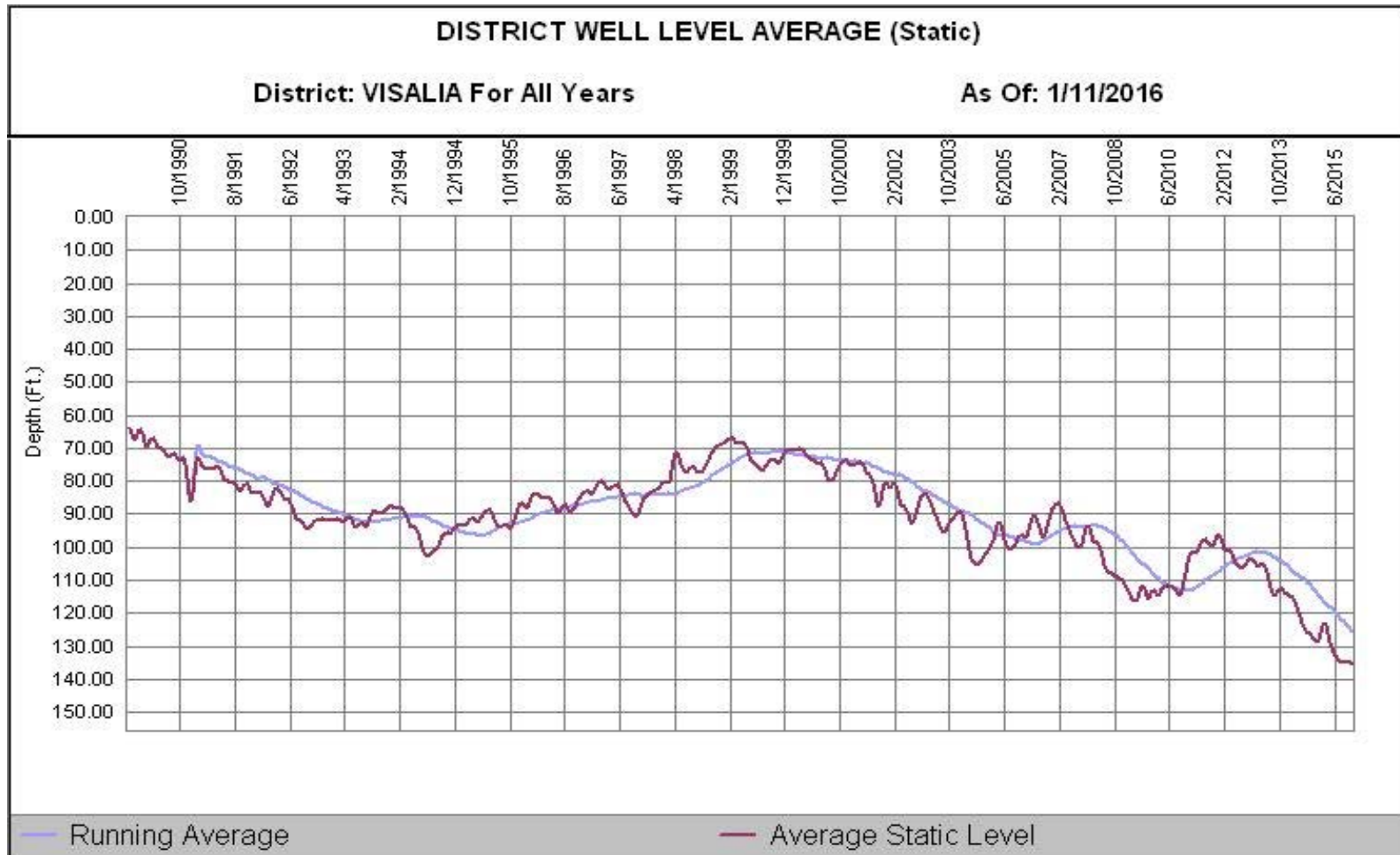
- 1) Eto values based on California Irrigation Management Information System (CIMIS), <http://www.cimis.water.ca.gov/cimis/welcome.jsp>, EvapoTranspiration (Eto) Zones Map, Zone 12
- 2) PPT, Tmax, Tmin obtained from PRISM where, PPT is total monthly rainfall, Tmax is average of maximum temperatures for given month, and Tmin is average of minimum temperatures for given month
- 3) Percent variation based on average of 1980 to present values

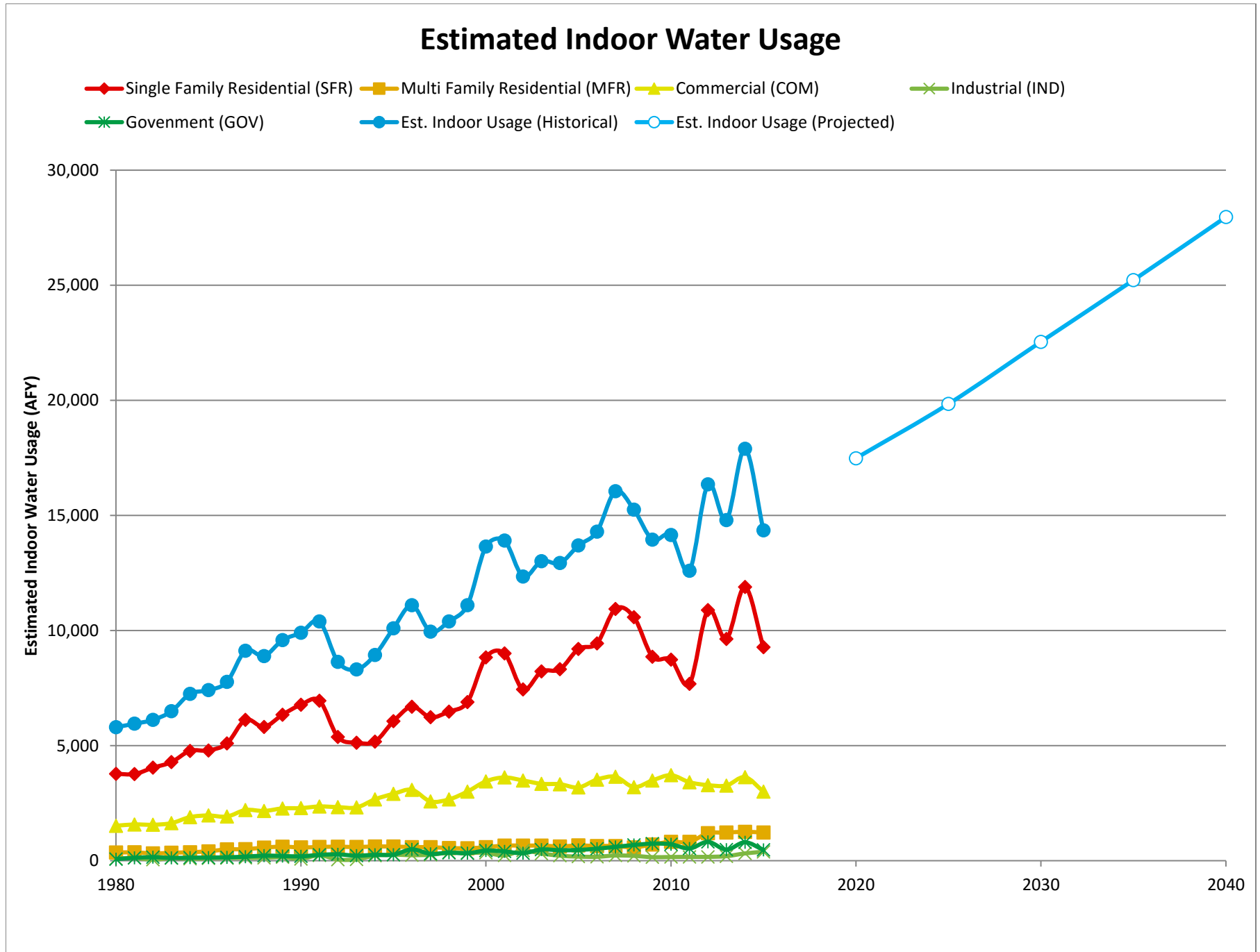
Average Monthly Temperature, Rainfall, and Monthly Eto



California Water Service Company - Visalia District Water Supply and Demand Analysis and Projections

Groundwater Production Facilities





California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections

Estimated Indoor/Outdoor Water Usage

Year	Single Family Residential (SFR)								Multi Family Residential (MFR)				Commercial (COM)			
	SFR Jan Usage	Metered SFR Indoor Use (Annualized 90% of January Total)		Indoor Flat Rate Usage (AFY)	Total SFR Indoor Usage			MFR Jan Usage	MFR Indoor Use (Annualized 90% of January Total)			COM Jan Usage	COM Indoor Use (Annualized 90% of January Total)			
		JAN (CCF)	AFY		AF/Serv	AFY	GPD/Serv		%	(CCF)	AFY		GPD/Serv	%	(CCF)	AFY
1980	8,599	213	0.271	3,562	3,775	242	37%	14,201	352	2,297	70%	61,203	1,517	694	66%	
1981	9,311	231	0.265	3,535	3,765	237	35%	14,684	364	2,461	72%	63,530	1,575	702	65%	
1982	10,500	260	0.281	3,780	4,040	251	40%	12,829	318	2,139	66%	62,985	1,562	688	65%	
1983	11,008	273	0.289	4,008	4,281	258	41%	13,934	345	2,313	66%	65,804	1,632	700	61%	
1984	13,020	323	0.308	4,449	4,772	275	37%	14,855	368	2,390	65%	76,375	1,894	791	63%	
1985	14,484	359	0.298	4,432	4,791	266	39%	16,497	409	2,591	65%	79,270	1,965	808	63%	
1986	15,709	389	0.304	4,704	5,094	272	38%	19,785	491	2,848	68%	77,343	1,918	741	57%	
1987	18,970	470	0.356	5,650	6,120	318	45%	20,200	501	2,743	61%	88,845	2,203	818	62%	
1988	17,998	446	0.328	5,366	5,812	292	44%	23,002	570	3,123	67%	87,146	2,161	787	61%	
1989	19,498	483	0.345	5,859	6,343	308	49%	24,658	611	3,343	74%	91,609	2,271	811	66%	
1990	20,339	504	0.352	6,271	6,775	315	51%	23,246	576	3,137	66%	92,204	2,286	799	63%	
1991	22,263	552	0.346	6,402	6,954	309	56%	24,031	596	3,166	71%	95,012	2,356	793	65%	
1992	23,059	572	0.254	4,802	5,374	227	39%	24,572	609	3,115	71%	93,887	2,328	751	60%	
1993	29,040	720	0.237	4,408	5,128	211	37%	23,915	593	3,025	69%	93,250	2,312	728	56%	
1994	45,123	1,119	0.233	4,057	5,176	208	36%	24,942	618	3,146	69%	107,556	2,667	809	57%	
1995	62,292	1,544	0.268	4,513	6,057	239	41%	24,731	613	3,128	69%	117,162	2,905	869	60%	
1996	72,797	1,805	0.290	4,888	6,693	259	43%	23,897	592	3,034	69%	124,194	3,079	910	63%	
1997	71,156	1,764	0.266	4,467	6,231	238	38%	23,656	587	3,001	64%	103,936	2,577	754	51%	
1998	77,102	1,912	0.273	4,569	6,481	244	45%	22,292	553	2,773	67%	107,437	2,664	775	55%	
1999	86,544	2,146	0.284	4,746	6,892	254	42%	21,834	541	2,629	64%	121,181	3,004	862	56%	
2000	116,857	2,897	0.355	5,934	8,831	317	53%	23,670	587	2,787	68%	139,105	3,449	965	60%	
2001	121,654	3,016	0.338	5,989	9,005	302	50%	26,509	657	2,983	70%	145,880	3,617	993	59%	
2002	105,763	2,622	0.270	4,821	7,443	241	39%	26,325	653	3,069	69%	140,624	3,487	975	60%	
2003	123,151	3,053	0.290	5,166	8,219	259	43%	26,494	657	3,090	69%	134,735	3,341	942	56%	
2004	132,473	3,284	0.283	5,031	8,316	253	39%	25,007	620	2,830	63%	134,074	3,324	911	56%	
2005	154,807	3,838	0.302	5,364	9,202	269	45%	26,725	663	3,026	72%	128,391	3,183	847	59%	
2006	170,685	4,232	0.294	5,211	9,443	262	48%	25,760	639	2,910	69%	142,138	3,524	910	62%	
2007	209,350	5,190	0.326	5,749	10,939	291	51%	25,816	640	2,930	70%	146,977	3,644	914	57%	
2008	208,257	5,163	0.313	5,418	10,581	279	48%	23,307	578	1,703	54%	128,970	3,198	822	53%	
2009	196,951	4,883	0.260	3,975	8,858	232	41%	28,550	708	1,476	59%	140,698	3,488	897	59%	
2010	241,139	5,979	0.252	2,759	8,737	225	45%	33,172	822	1,548	68%	149,822	3,715	970	63%	
2011	281,238	6,973	0.218	706	7,679	195	42%	32,944	817	964	52%	137,503	3,409	985	63%	
2012	439,225	10,890	0.306	0	10,890	273	54%	48,094	1,192	1,135	65%	132,432	3,283	1,010	59%	
2013	388,539	9,633	0.267	0	9,633	239	46%	49,267	1,221	1,138	66%	131,731	3,266	997	58%	
2014	479,569	11,890	0.325	0	11,890	290	63%	50,682	1,257	1,163	75%	146,410	3,630	1,098	69%	
2015	373,952	9,272	0.249	0	9,272	222	60%	49,258	1,221	1,107	83%	121,106	3,003	908	66%	
2020					11,593	244			1,385	1,101			3,549	999		
2025					13,392	244			1,600	1,101			3,812	999		
2030					15,473	244			1,848	1,101			4,095	999		
2035					17,506	244			2,091	1,101			4,399	999		
2040					19,566	244			2,337	1,101			4,725	999		

Note: GPD/Service is estimated as the average of the last 5 years for given customer class.

California Water Service Company - Visalia District
Water Supply and Demand Analysis and Projections

Worksheet 16

Estimated Indoor/Outdoor Water Usage

Year	Industrial (IND)				Government (GOV)			
	IND Jan Usage	IND Indoor Use (Annualized 90% of January Total)			GOV Jan Usage	GOV Indoor Use (Annualized 90% of January Total)		
	(CCF)	AFY	GPD/Serv	%	(CCF)	AFY	GPD/Serv	%
1980	3,564	88	6,311	106%	2,700	67	407	21%
1981	4,903	122	8,242	142%	5,017	124	707	36%
1982	1,725	43	2,937	48%	6,253	155	837	50%
1983	4,513	112	7,938	109%	4,916	122	633	38%
1984	3,298	82	5,441	67%	5,287	131	648	33%
1985	4,270	106	6,751	79%	5,555	138	612	32%
1986	4,813	119	7,476	66%	5,932	147	668	36%
1987	5,016	124	7,883	72%	7,127	177	805	35%
1988	5,211	129	8,239	81%	8,802	218	968	34%
1989	6,078	151	9,609	79%	8,309	206	883	34%
1990	3,213	80	5,141	37%	7,590	188	781	29%
1991	9,482	235	14,991	140%	10,280	255	1,013	39%
1992	2,074	51	3,279	60%	11,107	275	1,051	39%
1993	2,289	57	1,809	29%	8,752	217	834	37%
1994	8,839	219	3,354	56%	10,344	256	964	38%
1995	10,528	261	4,053	63%	10,484	260	982	36%
1996	9,697	240	3,717	50%	19,849	492	1,907	49%
1997	10,448	259	4,057	49%	12,014	298	1,168	37%
1998	14,266	354	5,540	67%	14,096	349	1,385	49%
1999	13,685	339	5,299	66%	13,044	323	1,267	38%
2000	13,817	343	5,069	75%	17,758	440	1,666	52%
2001	9,193	228	3,204	65%	16,246	403	1,482	41%
2002	17,814	442	6,161	79%	13,109	325	788	24%
2003	12,575	312	4,436	101%	19,593	486	897	31%
2004	8,745	217	3,032	68%	18,362	455	817	28%
2005	7,167	178	2,495	62%	18,913	469	826	29%
2006	6,842	170	2,372	56%	21,081	523	924	32%
2007	9,138	227	3,177	73%	24,259	601	1,010	32%
2008	8,481	210	2,945	65%	27,500	682	854	27%
2009	6,180	153	2,143	57%	29,971	743	913	30%
2010	6,503	161	2,300	60%	28,837	715	855	30%
2011	6,652	165	2,340	58%	21,438	532	626	22%
2012	6,736	167	2,345	52%	33,010	818	949	29%
2013	7,904	196	2,702	50%	19,429	482	551	17%
2014	12,782	317	4,421	78%	32,312	801	901	32%
2015	15,603	387	5,396	106%	18,988	471	523	24%
2020		252	3,441			707	710	
2025		257	3,441			783	710	
2030		262	3,441			866	710	
2035		268	3,441			959	710	
2040		273	3,441			1,061	710	

Estimated Indoor/Outdoor Usage			
Est. Indoor Usage	Est. Outdoor Usage	Est. Indoor Usage	Est. Outdoor Usage
AFY	AFY	%	%
5,800	8,827	40%	60%
5,951	9,418	39%	61%
6,118	8,368	42%	58%
6,492	8,758	43%	57%
7,247	11,096	40%	60%
7,409	10,724	41%	59%
7,768	11,776	40%	60%
9,125	11,183	45%	55%
8,890	11,047	45%	55%
9,582	10,103	49%	51%
9,905	10,549	48%	52%
10,395	8,813	54%	46%
8,638	12,385	41%	59%
8,307	12,923	39%	61%
8,937	13,800	39%	61%
10,096	13,583	43%	57%
11,097	13,869	44%	56%
9,952	16,031	38%	62%
10,400	12,798	45%	55%
11,101	15,409	42%	58%
13,650	13,271	51%	49%
13,910	15,005	48%	52%
12,349	17,717	41%	59%
13,014	17,796	42%	58%
12,932	19,768	40%	60%
13,694	17,881	43%	57%
14,298	17,054	46%	54%
16,052	18,049	47%	53%
15,249	19,599	44%	56%
13,950	20,221	41%	59%
14,151	17,612	45%	55%
12,601	17,659	42%	58%
16,351	15,276	52%	48%
14,798	17,802	45%	55%
17,895	11,791	60%	40%
14,353	10,500	58%	42%
17,485	20,760	46%	54%
19,843	22,719	47%	53%
22,545	24,913	48%	52%
25,223	27,513	48%	52%
27,963	30,176	48%	52%

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