

Evaluation of Conservation Measures
Water Savings - Residential Single Family Measures

Source: RetailConservation.xls
Master.xls
Entered by User
ToiletConservationData.xls

Model No. RSF-2
Measure(s): 2 Rebates for 6/3 or 4 Liter Toilets
3 U/LF Toilet Rebate
7 Residential Toilet Retrofit
8 Require 1.6 gal/flush Toilet Installed at Time of Sale

Assumptions

Current Use Assumptions - Given		Proposed Program		M2-6/3 or 4L		M3-Rebate		M7-Retrofit		M8-Resale	
Year	Units	Discount Rate	Inflation	Start	End	2005	2005	2005	2005	2005	2005
2005	106,722	6.0%	3.0%	2004	2005	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
2010	106,722			2004	2007						
2015	106,722										
2020	106,722										
2025	106,722										
2030	106,722										
Starting Conditions		Program Length		Program Length		Program Length		Program Length		Program Length	
Market Penetration Pre 1995 Housing (2005)		No. of Rebates		No. of Rebates		No. of Rebates		No. of Rebates		No. of Rebates	
Gallons/flush		% Population		% Population		% Population		% Population		% Population	
7 4.55%		3.5		33.38%		3.5		33.38%		3.5	
5 3.93%		1.6		43.82%		1.6		43.82%		1.6	
Retrofit (5.5)		14.32%		Total		100.00%		Total		100.00%	
Base Yr 2000		3.47 gallons/flush		Pre 1995		Pre 1995		Pre 1995		Pre 1995	

Calculations

Year	Households	Use (gal/hh/day) (not used in computation)	Estimated Toilets	Toilets at Beginning of Year (gallons/flush)							M2-6/3 or 4L Gallons per Flush							M3- Rebate							M8 - Resale							M7- Retrofit							Natural Replacement Remaining Toilets (gallons/flush)																			
				7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 2 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 3 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 8 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 7 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Natural Replacement Units 3.5-7 g/flush only	7	5	5.5	3.5	1.6	1.06	Total Toilets								
2005	106,722	39.5	213,444	9,708	8,395	30,582	71,244	93,535	-	213,444	150	9,698	8,385	30,523	71,155	93,535	150	213,444	350	9,667	8,360	30,434	70,947	93,885	150	213,444	3,821	9,358	8,093	29,460	68,676	97,707	150	213,444	-	9,358	8,093	29,460	68,676	97,707	150	213,444	4,458	8,997	7,781	28,324	66,027	102,165	150	213,444								
2006	106,722	38.3	213,444	9,756	8,438	26,908	66,027	102,165	150	213,444	150	9,743	8,426	26,871	65,938	102,165	300	213,444	350	9,713	8,400	26,787	65,730	102,515	300	213,444	3,540	9,402	8,131	25,929	63,627	106,055	300	213,444	-	9,402	8,131	25,929	63,627	106,055	300	213,444	-	9,402	8,131	25,929	63,627	106,055	300	213,444	4,119	9,040	7,818	24,932	61,180	110,174	300	213,444
2007	106,722	37.2	213,444	9,709	8,396	23,686	61,180	110,174	300	213,444	150	9,695	8,384	23,651	61,091	110,174	450	213,444	350	9,662	8,355	23,571	60,883	110,524	450	213,444	3,279	9,352	8,088	22,816	58,935	113,803	450	213,444	-	9,352	8,088	22,816	58,935	113,803	450	213,444	-	9,352	8,088	22,816	58,935	113,803	450	213,444	3,803	8,994	7,778	21,942	56,675	117,605	450	213,444
2008	106,722	36.0	213,444	9,582	8,287	20,845	56,675	117,605	450	213,444	150	9,567	8,274	20,812	56,586	117,605	600	213,444	350	9,567	8,274	20,812	56,586	117,605	600	213,444	3,048	9,261	8,009	20,146	54,775	120,653	600	213,444	-	9,261	8,009	20,146	54,775	120,653	600	213,444	-	9,261	8,009	20,146	54,775	120,653	600	213,444	3,638	8,895	7,683	19,351	52,614	124,291	600	213,444
2009	106,722	34.9	213,444	9,414	8,142	18,383	52,614	124,291	600	213,444	150	9,398	8,128	18,352	52,525	124,291	750	213,444	350	9,388	8,128	18,352	52,525	124,291	750	213,444	2,829	9,098	7,868	17,765	50,844	127,120	750	213,444	-	9,098	7,868	17,765	50,844	127,120	750	213,444	-	9,098	7,868	17,765	50,844	127,120	750	213,444	3,373	8,739	7,558	17,095	48,839	130,494	750	213,444
2010	106,722	33.7	213,444	9,196	7,953	16,211	48,839	130,494	750	213,444	150	9,180	7,939	16,182	48,750	130,494	900	213,444	350	9,180	7,939	16,182	48,750	130,494	900	213,444	2,626	8,886	7,685	15,664	47,190	133,119	900	213,444	-	8,886	7,685	15,664	47,190	133,119	900	213,444	-	8,886	7,685	15,664	47,190	133,119	900	213,444	3,127	8,536	7,382	15,047	45,332	136,247	900	213,444
2011	106,722	32.9	213,444	8,939	7,731	14,295	45,332	136,247	900	213,444	150	8,922	7,716	14,267	45,243	136,247	1,050	213,444	350	8,922	7,716	14,267	45,243	136,247	1,050	213,444	2,437	8,636	7,469	13,810	43,795	138,683	1,050	213,444	-	8,636	7,469	13,810	43,795	138,683	1,050	213,444	-	8,636	7,469	13,810	43,795	138,683	1,050	213,444	2,899	8,297	7,175	13,267	42,073	141,582	1,050	213,444
2012	106,722	32.1	213,444	8,652	7,483	12,604	42,073	141,582	1,050	213,444	150	8,634	7,467	12,577	41,984	141,582	1,200	213,444	350	8,634	7,467	12,577	41,984	141,582	1,200	213,444	2,261	8,358	7,228	12,174	40,640	143,843	1,200	213,444	-	8,358	7,228	12,174	40,640	143,843	1,200	213,444	-	8,358	7,228	12,174	40,640	143,843	1,200	213,444	2,687	8,030	6,944	11,696	39,044	146,530	1,200	213,444
2013	106,722	31.3	213,444	8,343	7,215	11,112	38,044	146,530	1,200	213,444	150	8,324	7,199	11,086	38,955	146,530	1,350	213,444	350	8,324	7,199	11,086	38,955	146,530	1,350	213,444	2,098	8,058	6,968	10,731	37,708	148,628	1,350	213,444	-	8,058	6,968	10,731	37,708	148,628	1,350	213,444	-	8,058	6,968	10,731	37,708	148,628	1,350	213,444	2,488	7,742	6,695	10,310	36,229	151,117	1,350	213,444
2014	106,722	30.5	213,444	8,018	6,934	9,795	36,229	151,117	1,350	213,444	150	7,998	6,917	9,771	36,140	151,117	1,500	213,444	350	7,998	6,917	9,771	36,140	151,117	1,500	213,444	1,946	7,743	6,696	9,458	34,984	153,064	1,500	213,444	-	7,743	6,696	9,458	34,984	153,064	1,500	213,444	-	7,743	6,696	9,458	34,984	153,064	1,500	213,444	2,906	7,439	6,434	9,088	33,614	155,369	1,500	213,444
2015	106,722	29.7	213,444	7,683	6,644	8,633	33,614	155,369	1,500	213,444	150	7,683	6,644	8,633	33,614	155,369	1,500	213,444	350	7,683	6,644	8,633	33,614	155,369	1,500	213,444	1,810	7,437	6,432	8,357	32,538	157,180	1,500	213,444	-	7,437	6,432	8,357	32,538	157,180	1,500	213,444	-	7,437	6,432	8,357	32,538	157,180	1,500	213,444	2,191	7,140	6,174	8,023	31,237	159,370	1,500	213,444
2016	106,722	28.1	213,444	7,355	6,361	7,622	31,237	159,370	1,500	213,444	150	7,355	6,361	7,622	31,237	159,370	1,500	213,444	350	7,355	6,361	7,622	31,237	159,370	1,500	213,444	1,682	7,119	6,157	7,378	30,237	161,053	1,500	213,444	-	7,119	6,157	7,378	30,237	161,053	1,500	213,444	-	7,119	6,157	7,378	30,237	161,053	1,500	213,444	2,036	6,835	5,911	7,083	29,028	163,088	1,500	213,444
2017	106,722	28.6	213,444	7,025	6,075	6,729	29,028	163,088	1,500	213,444	150	7,025	6,075	6,729	29,028	163,088	1,500	213,444	350	7,025	6,075	6,729	29,028	163,088	1,500	213,444	1,563	6,900	5,881	6,513	28,099	164,652	1,500	213,444	-	6,900	5,881	6,513	28,099	164,652	1,500	213,444	-	6,900	5,881	6,513	28,099	164,652	1,500	213,444	1,892	6,528	5,645	6,253	26,975	166,543	1,500	213,444
2018	106,722	28.0	213,444	6,695	5,790	5,940	26,975	166,543	1,500	213,444	150	6,695	5,790	5,940	26,975	166,543	1,500	213,444	350	6,695	5,790	5,940	26,975	166,543	1,500	213,444	1,453	6,481	5,605	5,750	26,112	167,996	1,500	213,444	-	6,481	5,605	5,750	26,112	167,996	1,500	213,444	-	6,481	5,605	5,750	26,112	167,996	1,500	213,444	1,758	6,222	5,381	5,520	25,067	169,754	1,500	213,444
2019	106,722	27.5	213,444	6,370	5,509	5,244	25,067	169,754	1,500	213,444	150	6,370	5,509	5,244	25,067	169,754	1,500	213,444	350	6,370	5,509	5,244	25,067	169,754	1,500	213,444	1,350	6,166	5,333	5,076	24,265	171,104	1,500	213,444	-	6,166	5,333	5,076	24,265	171,104	1,500	213,444	-	6,166	5,333	5,076	24,265	171,104	1,500	213,444	1,634	5,919	5,119	4,873				

Decay Rate on Retrofit										No Action										Results			Economics										Average Toilet Flush Volume		Market Penetration of Less than or equal to 1.6 gallons/flush		Reduction in Water Use as Compared to Base Year 2000	Year							
Retrofit Decay	7	5	5.5	3.5	1.6	1.06	Total Toilets	Natural Replacement	7	5	5.5	3.5	1.6	1.06	Total Toilets	Retrofit Decay	7	5	5.5	3.5	1.6	1.06	Total Toilets	No Action AF	With Program AF	Savings AF	Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Average Toilet Flush Volume Retail Forecast with Program (gal/flush)	Average Toilet Flush Volume Retail Forecast without Program (gal/flush)	With Program %	No Action %	Reduction in Water Use as Compared to Base Year 2000	Year
1,416	9,756	8,438	26,908	66,027	102,165	150	213,444	4,796	9,319	8,060	29,339	68,394	98,332	-	213,444	1,467	10,106	8,740	27,872	68,394	98,332	-	213,444	4,805	4,724	81	4,321	71	71	-	-	14	14	85	85	272	272	357	357	3.1	3.1	47.9%	46.1%	12%	0
1,247	9,709	8,396	23,886	61,180	110,174	300	213,444	4,604	9,702	8,390	26,757	65,658	102,936	-	213,444	1,338	10,419	9,011	25,419	65,658	102,936	-	213,444	4,716	4,562	154	4,040	70	66	-	-	14	13	84	79	261	261	345	341	3.0	3.1	51.8%	48.2%	15%	1
1,097	9,582	8,287	20,845	56,875	117,605	450	213,444	4,420	10,003	8,650	24,403	63,032	107,357	-	213,444	1,220	10,657	9,216	23,183	63,032	107,357	-	213,444	4,630	4,411	220	3,779	69	62	-	-	14	12	83	74	251	251	334	325	2.9	3.0	55.3%	50.3%	18%	2
968	9,414	8,142	18,383	52,614	124,291	600	213,444	4,243	10,231	8,848	22,255	60,511	111,690	-	213,444	1,113	10,827	9,364	21,742	60,511	111,690	-	213,444	4,548	4,274	274	3,198	50	42	-	-	9	8	59	49	233	233	292	282	2.8	2.9	58.5%	52.3%	20%	3
853	9,196	7,953	16,211	48,839	130,494	750	213,444	4,074	10,394	8,999	20,297	58,090	115,674	-	213,444	1,015	10,938	9,460	19,292	58,090	115,674	-	213,444	4,468	4,146	321	2,979	49	39	-	-	9	7	58	46	224	224	282	270	2.7	2.9	61.9%	54.2%	23%	4
752	8,939	7,731	14,295	45,332	136,247	900	213,444	3,911	10,501	9,081	18,511	55,767	119,585	-	213,444	926	10,997	9,511	17,585	55,767	119,585	-	213,444	4,391	4,027	363	2,776	48	36	-	-	9	7	57	42	215	215	272	258	2.6	2.8	64.3%	56.0%	25%	5
663	8,652	7,483	12,604	42,073	141,582	1,050	213,444	3,754	10,557	9,130	16,882	53,536	123,339	-	213,444	844	11,010	9,522	16,038	53,536	123,339	-	213,444	4,319	3,917	400	2,587	47	33	-	-	9	6	56	39	207	207	263	246	2.5	2.8	66.8%	57.8%	27%	6
585	8,343	7,215	11,112	39,044	146,530	1,200	213,444	3,604	10,570	9,141	15,396	51,394	126,943	-	213,444	770	10,962	9,498	14,626	51,394	126,943	-	213,444	4,247	3,815	432	2,411	46	31	-	-	9	6	55	37	199	199	254	236	2.5	2.8	69.2%	59.5%	29%	7
516	8,018	6,934	9,795	36,229	151,117	1,350	213,444	3,460	10,543	9,118	14,041	49,339	130,403	-	213,444	702	10,920	9,443	13,339	49,339	130,403	-	213,444	4,179	3,719	460	2,248	46	29	-	-	9	5	54	34	192	192	246	228	2.4	2.7	71.4%	61.1%	31%	8
454	7,683	6,644	8,633	33,614	155,369	1,500	213,444	3,322	10,483	9,066	12,806	47,365	133,725	-	213,444	640	10,826	9,363	12,165	47,365	133,725	-	213,444	4,114	3,630	484	2,096	45	27	-	-	9	5	54	32	185	185	238	216	2.4	2.7	73.5%	62.7%	32%	9
401	7,355	6,361	7,622	31,237	159,370	1,500	213,444	3,189	10,393	8,988	11,679	45,471	136,914	-	213,444	584	10,706	9,259	11,095	45,471	136,914	-	213,444	4,051	3,550	501	1,810	24	14	-	-	4	2	28	16	158	158	196	174	2.3	2.6	75.4%	64.1%	34%	10
354	7,025	6,075	6,729	29,028	163,988	1,500	213,444	3,061	10,278	8,898	10,651	43,652	139,975	-	213,444	533	10,563	9,135	10,118	43,652	139,975	-	213,444	3,980	3,474	506	1,682	23	12	-	-	3	2	27	14	151	151	178	165	2.3	2.6	77.1%	65.6%	35%	11
313	6,695	5,790	5,940	28,976	168,543	1,500	213,444	2,938	10,141	8,770	9,714	41,906	142,914	-	213,444	486	10,401	8,966	9,226	41,906	142,914	-	213,444	3,931	3,404	527	1,563	22	11	-	-	3	2	26	13	145	145	171	158	2.2	2.5	78.7%	67.0%	36%	12
276	6,370	5,509	5,444	25,067	169,754	1,500	213,444	2,821	9,985	8,635	8,859	40,229	145,735	-	213,444	443	10,223	8,841	8,416	40,229	145,735	-	213,444	3,875	3,339	536	1,453	21	10	-	-	3	2	25	12	139	139	163	150	2.2	2.5	80.2%	68.3%	38%	13
244	6,050	5,232	4,630	23,294	172,738	1,500	213,444	2,708	9,814	8,487	8,079	38,620	148,443	-	213,444	404	10,031	8,675	7,675	38,620	148,443	-	213,444	3,820	3,278	542	1,350	20	9	-	-	3	1	23	10	133	133	156	143	2.1	2.5	81.6%	69.5%	39%	14
215	5,738	4,962	4,087	21,847	175,519	1,500	213,444	2,600	9,629	8,328	7,368	37,075	151,043	-	213,444	368	9,827	8,498	7,500	37,075	151,043	-	213,444	3,769	3,221	548	1,255	20	9	-	-	3	1	22	9	127	127	150	136	2.1	2.4	82.9%	70.8%	40%	15
192	5,434	4,699	3,938	20,116	178,987	1,500	213,444	2,496	9,434	8,159	6,720	35,592	153,539	-	213,444	336	9,614	8,314	6,394	35,592	153,539	-	213,444	3,717	3,168	549	1,168	19	7	-	-	3	1	22	13	122	122	143	130	2.1	2.4	84.1%	71.9%	41%	16
168	5,139	4,445	3,185	18,694	180,481	1,500	213,444	2,396	9,229	7,982	6,129	34,169	155,935	-	213,444	306	9,394	8,124	5,822	34,169	155,935	-	213,444	3,669	3,119	549	1,083	18	7	-	-	3	1	21	8	116	116	137	124	2.0	2.4	85.3%	73.1%	42%	17
148	4,855	4,199	2,812	17,372	182,706	1,500	213,444	2,300	9,018	7,799	5,589	32,802	158,236	-	213,444	279	9,168	7,929	5,310	32,802	158,236	-	213,444	3,622	3,074	548	1,007	17	6	-	-	3	1	20	7	111	111	131	118	2.0	2.3	86.3%	74.1%	43%	18
131	4,582	3,963	2,482	16,143	184,774	1,500	213,444	2,208	8,801	7,611	5,097	31,490	160,444	-	213,444	255	8,938	7,730	4,943	31,490	160,444	-	213,444	3,577	3,031	546	936	16	5	-	-	2	1	19	6	107	107	128	113	2.0	2.3	87.3%	75.2%	43%	19
115	4,320	3,736	2,192	15,001	186,696	1,500	213,444	2,120	8,590	7,420	4,649	30,230	162,564	-	213,444	232	8,705	7,528	4,616	30,230	162,564	-	213,444	3,534	2,991	542	869	16	5	-	-	2	1	18	5	102	102	120	108	1.9	2.3	88.2%	75.2%	44%	20
102	4,069	3,519	1,935	13,940	188,481	1,500	213,444	2,035	8,357	7,227	4,240	29,021	164,599	-	213,444	212	8,470	7,325	4,028	29,021	164,599	-	213,444	3,492	2,954	537	808	15	4	-	-	2	1	17	5	98	98	115	103	1.9	2.3	89.0%	77.1%	45%	21
90	3,829	3,312	1,708	12,955	190,140	1,500	213,444	1,954	8,132	7,032	3,867	27,860	166,553	-	213,444	193	8,235	7,122	3,673	27,860	166,553	-	213,444	3,452	2,920	532	751	14	4	-	-	2	1	17	5	94	94	110	98	1.9	2.2	89.8%	78.0%	45%	22
79	3,601	3,114	1,508	12,038	191,882	1,500	213,444	1,876	7,906	6,837	3,526	26,746	168,429	-	213,444	176	8,000	6,919	3,350	26,746	168,429	-	213,444	3,413	2,888	525	698	14	4	-	-	2	1	16	4	90	90	105	94	1.9	2.2	90.5%	78.9%	46%	23
70	3,384	2,926	1,331	11,187	193,115	1,500	213,444	1,801	7,680	6,642	3,216	25,676	170,229	-	213,444	161	7,767	6,717	3,055	25,676	170,229	-	213,444	3,376	2,858	518	648	13	3	-	-	2	0	15	4	86	86	101	89	1.9	2.2	91.2%	79.8%	47%	24
62	3,178	2,748	1,175	10,396	194,447	1,500	213,444	1,729	7,456	6,448	2,9																																		

Evaluation of Conservation Measures
 Water Savings - Residential Single Family Measures
 Model No. RSF-3
 Measure(s): 4 Public Information Program

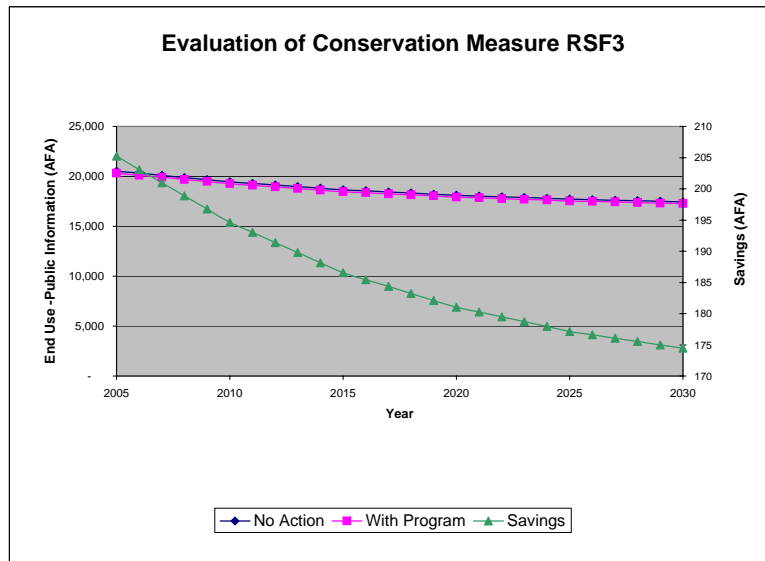
Source: RetailConservation.xls
 Master.xls
 Entered by User

Assumptions

Current Use Assumptions - Given			Proposed Program		
SF Household Population			Discount Rate	6.0%	
Year	Units	mgd	Inflation	3.0%	
2005	109,985	18.3	Market Penetration	100% of accounts per year	
2010	111,410	17.4	Implementation	1% of use/account	
2015	111,725	16.7	Reduction Target	2005	
2020	111,745	16.2	Start	3003	
2025	111,765	15.8	Program Length	999 years	
2030	111,785	15.6	Measure Life	2 years	
			Utility Cost	\$2 \$/account/yr	
			Customer Cost	\$0 \$/account	
			Admin Cost	0% % utility material cost	
			Consultant Cost	\$0 \$/account	

Calculations

Year	Public Information Program				Results			Economics												Reduction in Water Use	Estimate of Outside Use Savings AF	Estimate of Inside Use Savings AF	
	RSF Use mgd	RSF Use AF	Savings AF	Savings mgd	With Program in AF	No Action in AF	Savings in AFA	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost				
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)
2005	18.3	20,521.5	205.22	0.18	20,316	20,522	205	54,993	110	110	0	-	0	-	110	110	-	-	110	110	1.0%	16.2	189
2006	18.1	20,309.8	203.10	0.18	20,107	20,310	203	55,167	114	107	0	-	0	-	114	107	-	-	114	107	1.0%	16.3	187
2007	17.9	20,098.2	200.98	0.18	19,897	20,098	201	55,341	117	105	0	-	0	-	117	105	-	-	117	105	1.0%	16.3	185
2008	17.8	19,886.5	198.86	0.18	19,688	19,886	199	55,515	121	102	0	-	0	-	121	102	-	-	121	102	1.0%	16.4	183
2009	17.6	19,674.8	196.75	0.18	19,478	19,675	197	55,689	125	99	0	-	0	-	125	99	-	-	125	99	1.0%	16.4	180
2010	17.4	19,463.1	194.63	0.17	19,268	19,463	195	55,863	130	97	0	-	0	-	130	97	-	-	130	97	1.0%	16.4	178
2011	17.2	19,301.6	193.02	0.17	19,109	19,302	193	55,863	133	94	0	-	0	-	133	94	-	-	133	94	1.0%	16.5	177
2012	17.1	19,140.0	191.40	0.17	18,949	19,140	191	55,863	137	91	0	-	0	-	137	91	-	-	137	91	1.0%	16.5	175
2013	16.9	18,978.5	189.79	0.17	18,789	18,979	190	55,863	142	89	0	-	0	-	142	89	-	-	142	89	1.0%	16.5	173
2014	16.8	18,817.0	188.17	0.17	18,629	18,817	188	55,863	146	86	0	-	0	-	146	86	-	-	146	86	1.0%	16.5	172
2015	16.7	18,655.4	186.55	0.17	18,469	18,655	187	55,863	150	84	0	-	0	-	150	84	-	-	150	84	1.0%	16.5	170
2016	16.6	18,544.7	185.45	0.17	18,359	18,545	185	55,865	155	81	0	-	0	-	155	81	-	-	155	81	1.0%	16.5	169
2017	16.5	18,433.9	184.34	0.16	18,250	18,434	184	55,867	159	79	0	-	0	-	159	79	-	-	159	79	1.0%	16.5	168
2018	16.4	18,323.2	183.23	0.16	18,140	18,323	183	55,869	164	77	0	-	0	-	164	77	-	-	164	77	1.0%	16.5	167
2019	16.3	18,212.4	182.12	0.16	18,030	18,212	182	55,871	169	75	0	-	0	-	169	75	-	-	169	75	1.0%	16.5	166
2020	16.2	18,101.6	181.02	0.16	17,921	18,102	181	55,873	174	73	0	-	0	-	174	73	-	-	174	73	1.0%	16.5	165
2021	16.1	18,024.4	180.24	0.16	17,844	18,024	180	55,875	179	71	0	-	0	-	179	71	-	-	179	71	1.0%	16.5	164
2022	16.0	17,947.1	179.47	0.16	17,768	17,947	179	55,877	185	69	0	-	0	-	185	69	-	-	185	69	1.0%	16.5	163
2023	16.0	17,869.9	178.70	0.16	17,691	17,870	179	55,879	190	67	0	-	0	-	190	67	-	-	190	67	1.0%	16.5	162
2024	15.9	17,792.6	177.93	0.16	17,615	17,793	178	55,881	196	65	0	-	0	-	196	65	-	-	196	65	1.0%	16.5	161
2025	15.8	17,715.4	177.15	0.16	17,538	17,715	177	55,883	202	63	0	-	0	-	202	63	-	-	202	63	1.0%	16.5	161
2026	15.8	17,661.1	176.61	0.16	17,485	17,661	177	55,885	208	61	0	-	0	-	208	61	-	-	208	61	1.0%	16.5	160
2027	15.7	17,606.9	176.07	0.16	17,431	17,607	176	55,887	214	59	0	-	0	-	214	59	-	-	214	59	1.0%	16.5	160
2028	15.7	17,552.7	175.53	0.16	17,377	17,553	176	55,889	221	58	0	-	0	-	221	58	-	-	221	58	1.0%	16.5	159
2029	15.6	17,498.5	174.98	0.16	17,324	17,498	175	55,891	227	56	0	-	0	-	227	56	-	-	227	56	1.0%	16.5	158
2030	15.6	17,444.3	174.44	0.16	17,270	17,444	174	55,893	234	55	0	-	0	-	234	55	-	-	234	55	1.0%	16.5	158



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$2,072	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$428	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$2,072	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$428	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$0	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	\$2,072	
Cumulative Water Savings	4,836	AF
Present Value of Savings (Cost)	\$428	\$/AF

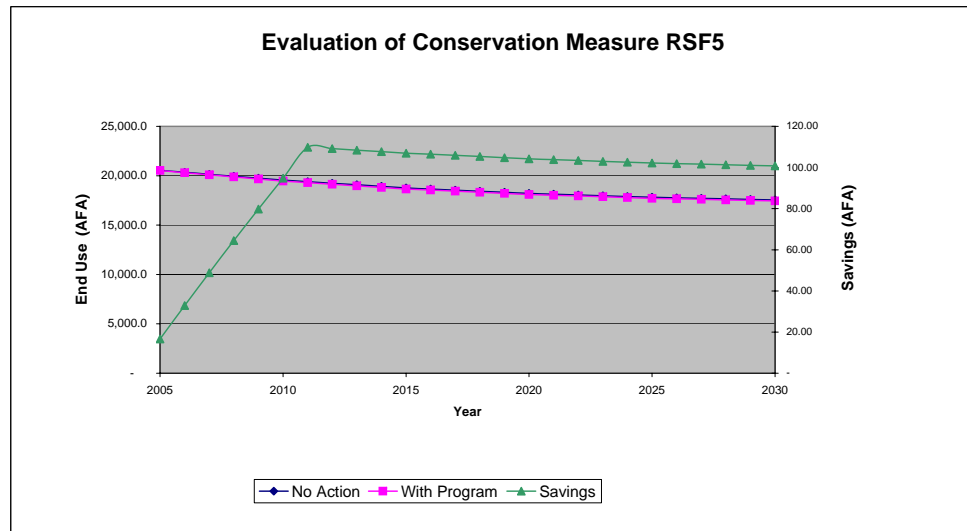
Evaluation of Conservation Measures
 Water Savings - Residential Single Family Measures
 Model No. RSF-5
 Measure(s): 6 Residential Water Surveys

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions - Given			Proposed Program	
SF Household Population			Discount Rate	6.0%
Year	Units	Inside Use mgd	Inflation	3.0%
2005	109,985	16.9	Market Penetration	1.5% year
2010	111,410	16.0	Inside Reduction Target	5% of use
2015	111,725	15.3	Outside Reduction Target	10% of use
2020	111,745	14.8	Start	2005
2025	111,765	14.4	End	3003
2030	111,785	14.2	Program Length	999 years
			Measure Life	7 years
			Utility Cost	\$50 \$/account/yr
			Customer Cost	\$15 \$/account
			Admin Cost	25% % utility material cost
			Consulting Cost	\$0 \$/account

Calculations

Year	Residential Water Surveys					Results						Economics										Market Penetration in %	Inside Use with Program in mgd	Outside Use with Program in mgd	People per Dwelling Unit	For Computation of program life (units)		
	Total Inside Use mgd	Total Outside Use mgd	Total Number of Housing Units	Number of Units in Participating in Program	Cumulative Market Penetration (units)	Inside Savings AF	Outside Savings AF	Total Use Without Program AF	Total Use With Program AF	Total Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public							Total Cost	
											Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)						Cost (\$1,000)	PV (\$1,000)
2005	16.89	1.45	109,985	1650	1,650	14.19	2.43	20,538.1	20,521.5	16.62	1,650	82	82	-	-	21	21	103	103	25	25	128	128	0.1%	16.87	1.45	2,7200	-
2006	16.71	1.45	110,270	1654	3,304	28.04	4.88	20,342.1	20,309.2	32.91	1,654	85	80	-	-	21	20	106	100	26	24	132	125	0.2%	16.68	1.45	2,7195	-
2007	16.53	1.46	110,555	1658	4,962	41.55	7.32	20,146.1	20,097.2	48.87	1,658	88	78	-	-	22	20	110	98	26	23	136	121	0.2%	16.49	1.45	2,7189	-
2008	16.35	1.46	110,840	1663	6,625	54.73	9.78	19,950.0	19,885.5	64.51	1,663	91	76	-	-	23	19	114	95	27	23	141	118	0.3%	16.30	1.45	2,7184	-
2009	16.17	1.46	111,125	1667	8,292	67.58	12.24	19,754.0	19,674.1	79.82	1,667	94	74	-	-	23	19	117	93	28	22	145	115	0.4%	16.11	1.45	2,7178	-
2010	15.99	1.47	111,410	1671	9,963	80.10	14.70	19,557.9	19,463.1	94.80	1,671	97	72	-	-	24	18	121	90	29	22	150	112	0.5%	15.92	1.45	2,7173	-
2011	15.85	1.47	111,473	1672	11,635	92.65	17.17	19,398.8	19,289.0	109.82	1,672	100	70	-	-	25	18	125	88	30	21	155	109	0.6%	15.77	1.45	2,7176	-
2012	15.71	1.47	111,536	1673	11,658	91.95	17.21	19,239.7	19,130.5	109.15	1,673	103	68	-	-	26	17	129	86	31	21	159	106	0.6%	15.62	1.45	2,7178	1,650
2013	15.56	1.47	111,599	1674	11,678	91.22	17.23	19,080.6	18,972.1	108.45	1,674	106	67	-	-	27	17	133	83	32	20	164	103	0.6%	15.48	1.45	2,7181	1,654
2014	15.42	1.47	111,662	1675	11,695	90.46	17.26	18,921.5	18,813.8	107.71	1,675	109	65	-	-	27	16	137	81	33	19	169	100	0.6%	15.34	1.46	2,7184	1,658
2015	15.28	1.47	111,725	1676	11,708	89.67	17.28	18,762.4	18,655.4	106.95	1,676	113	63	-	-	28	16	141	79	34	19	175	97	0.6%	15.20	1.46	2,7186	1,663
2016	15.18	1.47	111,729	1676	11,717	89.15	17.29	18,651.1	18,544.6	106.44	1,676	116	61	-	-	29	15	145	76	35	18	180	95	0.6%	15.10	1.46	2,7187	1,667
2017	15.08	1.47	111,733	1676	11,722	88.60	17.30	18,539.8	18,433.9	105.90	1,676	119	59	-	-	30	15	149	74	36	18	185	92	0.6%	15.00	1.46	2,7187	1,671
2018	14.98	1.47	111,737	1676	11,726	88.04	17.31	18,428.5	18,323.1	105.35	1,676	123	58	-	-	31	14	154	72	37	17	191	89	0.6%	14.90	1.46	2,7188	1,672
2019	14.88	1.47	111,741	1676	11,729	87.48	17.31	18,317.2	18,212.4	104.79	1,676	127	56	-	-	32	14	158	70	38	17	196	87	0.6%	14.80	1.46	2,7189	1,673
2020	14.78	1.47	111,745	1676	11,731	86.91	17.31	18,205.9	18,101.6	104.22	1,676	131	54	-	-	33	14	163	68	39	16	202	84	0.6%	14.70	1.46	2,7189	1,674
2021	14.71	1.47	111,749	1676	11,732	86.51	17.32	18,128.2	18,024.4	103.82	1,676	134	53	-	-	34	13	168	66	40	16	208	82	0.6%	14.63	1.46	2,7190	1,675
2022	14.64	1.47	111,753	1676	11,733	86.10	17.32	18,050.5	17,947.1	103.41	1,676	139	51	-	-	35	13	173	64	42	15	215	80	0.6%	14.57	1.46	2,7190	1,676
2023	14.57	1.47	111,757	1676	11,733	85.69	17.32	17,972.9	17,869.9	103.01	1,676	143	50	-	-	36	12	178	62	43	15	221	77	0.6%	14.50	1.46	2,7191	1,676
2024	14.50	1.47	111,761	1676	11,734	85.28	17.32	17,895.2	17,792.6	102.60	1,676	147	49	-	-	37	12	184	61	44	15	228	75	0.6%	14.43	1.46	2,7191	1,676
2025	14.43	1.47	111,765	1676	11,734	84.87	17.32	17,817.6	17,715.4	102.19	1,676	151	47	-	-	38	12	189	59	45	14	235	73	0.6%	14.36	1.46	2,7192	1,676
2026	14.39	1.47	111,769	1677	11,734	84.59	17.32	17,763.0	17,661.1	101.91	1,677	156	46	-	-	39	11	195	57	47	14	242	71	0.6%	14.31	1.46	2,7192	1,676
2027	14.34	1.47	111,773	1677	11,735	84.30	17.32	17,708.5	17,606.9	101.62	1,677	161	45	-	-	40	11	201	56	48	13	249	69	0.6%	14.26	1.46	2,7192	1,676
2028	14.29	1.47	111,777	1677	11,735	84.01	17.32	17,654.0	17,552.7	101.33	1,677	165	43	-	-	41	11	207	54	50	13	256	67	0.6%	14.21	1.46	2,7192	1,676
2029	14.24	1.47	111,781	1677	11,736	83.73	17.32	17,599.5	17,498.5	101.05	1,677	170	42	-	-	43	11	213	53	51	13	264	65	0.6%	14.16	1.46	2,7192	1,676
2030	14.19	1.47	111,785	1677	11,736	83.44	17.32	17,545.0	17,444.3	100.76	1,677	176	41	-	-	44	10	219	51	53	12	272	63	0.6%	14.12	1.46	2,7192	1,676



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$1,553	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$639	\$/AF

Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$0	\$/AF

Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$388	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$160	\$/AF

Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$1,941	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$799	\$/AF

Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$466	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$192	\$/AF

Total Costs		
Present Value of Cum. Cost (\$1,000)	\$2,407	
Cumulative Water Savings	2,428	AF
Present Value of Savings (Cost)	\$991	\$/AF

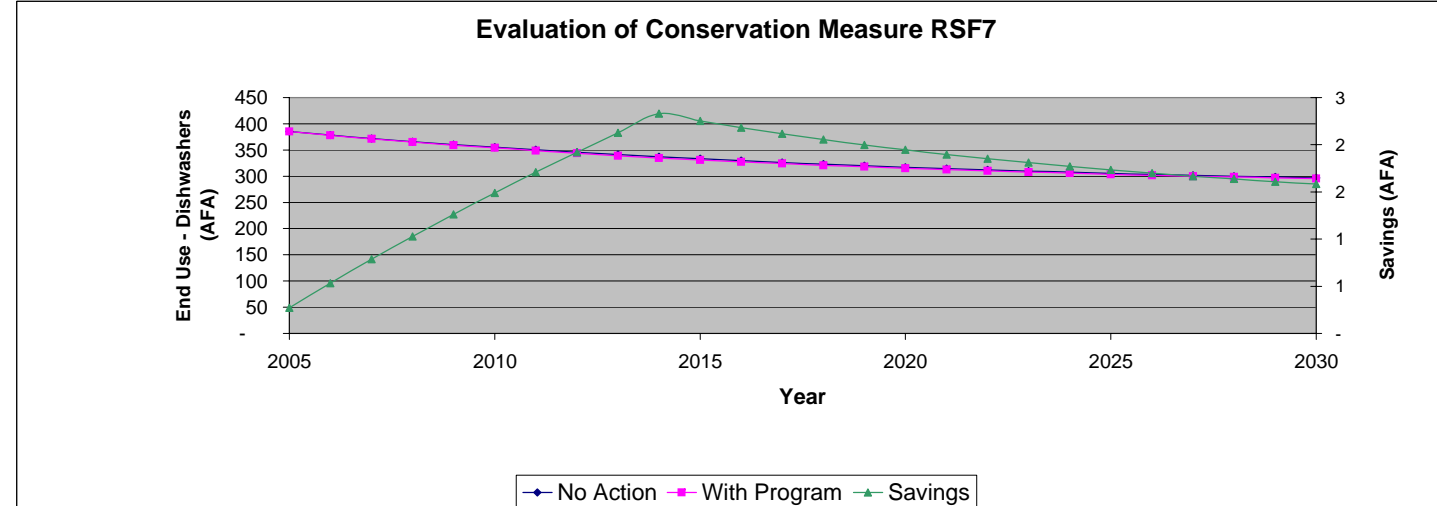
Evaluation of Conservation Measures
 Water Savings - Residential Single Family Measures
 Model No. RSF-7
 Measure(s): 45 Dishwasher Rebate

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions		Proposed Program		Customer Unit Cost	\$100 /unit
SF Household Population		Discount Rate	6.0%	Consultant Unit Cost	\$0 /unit
Year	Units People per Unit	Inflation	3.0%		
2005	109,985 2.7200	Start	2005 Year		
2010	111,410 2.7173	End	2014 Year		
2015	111,725 2.7186	Program Length	10 Years		
2020	111,745 2.7189	Measure Life	999		
2025	111,765 2.7192	Utility Cost	\$35 /unit		
2030	111,785 2.7192	No. of Rebates	100 rebates/year		
Base Year 2000		Admin Cost	30% utility material cost		
Use	0.09 Loads/person/day	Use	0.09 Loads/person/day		
Rate	12.50 gpl	Rate of use for rebate machines	4.5 gpl		
		Rate of use for new "efficient" machines	7.0 gpl		
		Rate of use for new "other" machines	9.5 gpl		
		Percent population purchasing efficient machines	10.0% (existing and new units)		
Assume Four Dishwasher Types		Natural Replacement	7.692%		
g/ Market Pop		Life Expectancy (for Natural Replacement Computation)	13 years		
14	71.0%				
9.5	21.2%				
7	7.8%				
4.5	0.0%				
Total	100.0%				

Dishwasher Rebate

Year	With Measure										No Action										Results			Economics												
	Estimated Dishwasher Population at Beginning of Year					Dish-washers in Existing Homes	Natural Replacement	New Homes with 7 gpl Washers	Rebates for 4.5 gpl Washers	Estimated Dishwasher Population at End of Year					People per Dwelling	Est. Dishwasher Population at Beginning of Year			Dish-washers in Existing Homes	Natural Replacement	New Homes with 7 gpl Washers	Estimated Dishwasher Population at End of Year			No Action AF	With Program AF	Savings AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative				
	4.5 gpl	7 gpl	9.5 gpl	14 gpl	Total Population					4.5 gpl	7 gpl	9.5 gpl	14 gpl	Total Population		7 gpl	9.5 gpl	14 gpl				Total Population	7 gpl	9.5 gpl				14 gpl	Total Population	Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	-	8,579	23,317	78,089	109,985	109,985	7,800	-	100	100	9,359	28,544	71,982	109,985	2,7200	8,579	23,317	78,089	109,985	109,985	7,800	-	9,359	28,544	72,082	109,985	385	385	0	100	4	4	-	-	1	1
2006	100	9,359	28,544	71,982	109,985	110,270	7,733	29	100	200	10,161	33,564	66,345	110,270	2,7195	9,359	28,544	72,082	109,985	110,270	7,740	29	10,161	33,571	66,538	110,270	378	378	1	100	4	3	-	-	1	1
2007	200	10,161	33,564	66,345	110,270	110,555	7,685	29	100	300	10,958	38,155	61,142	110,555	2,7189	10,161	33,571	66,538	110,270	110,555	7,701	29	10,960	38,176	61,419	110,555	372	371	1	100	4	3	-	-	1	1
2008	300	10,958	38,155	61,142	110,555	110,840	7,638	29	100	400	11,750	42,351	56,339	110,840	2,7184	10,960	38,176	61,419	110,555	110,840	7,661	29	11,755	42,391	56,695	110,840	366	365	1	100	4	3	-	-	1	1
2009	400	11,750	42,351	56,339	110,840	111,125	7,592	29	100	500	12,538	46,182	51,905	111,125	2,7178	11,755	42,391	56,695	110,840	111,125	7,622	29	12,545	46,246	52,334	111,125	361	359	1	100	4	3	-	-	1	1
2010	500	12,538	46,182	51,905	111,125	111,410	7,545	29	100	600	13,321	49,677	47,812	111,410	2,7173	12,545	46,246	52,334	111,125	111,410	7,583	29	13,332	49,770	48,308	111,410	355	354	1	100	4	3	-	-	1	1
2011	600	13,321	49,677	47,812	111,410	111,473	7,499	6	100	700	14,077	52,662	44,034	111,473	2,7176	13,332	49,770	48,308	111,410	111,473	7,544	6	14,093	52,788	44,592	111,473	350	349	2	100	4	3	-	-	1	1
2012	700	14,077	52,662	44,034	111,473	111,536	7,438	6	100	800	14,827	55,362	40,547	111,536	2,7178	14,093	52,788	44,592	111,473	111,536	7,491	6	14,848	55,526	41,162	111,536	346	344	2	100	4	3	-	-	1	1
2013	800	14,827	55,362	40,547	111,536	111,599	7,378	6	100	900	15,571	57,800	37,328	111,599	2,7181	14,848	55,526	41,162	111,536	111,599	7,438	6	15,598	58,005	37,996	111,599	341	339	2	100	4	3	-	-	1	1
2014	900	15,571	57,800	37,328	111,599	111,662	7,318	6	100	1,000	16,309	59,996	34,357	111,662	2,7184	15,598	58,005	37,996	111,599	111,662	7,385	6	16,343	60,246	35,073	111,662	337	335	2	100	5	3	-	-	1	1
2015	1,000	16,309	59,996	34,357	111,662	111,725	7,258	6	-	1,000	17,041	61,970	31,714	111,725	2,7186	16,343	60,246	35,073	111,662	111,725	7,332	6	17,083	62,268	32,375	111,725	333	331	2	-	-	-	-	-	-	-
2016	1,000	17,041	61,970	31,714	111,725	111,729	7,206	0	-	1,000	17,762	63,692	29,274	111,729	2,7187	17,083	62,268	32,375	111,725	111,729	7,280	0	17,811	64,033	29,885	111,729	330	327	2	-	-	-	-	-	-	-
2017	1,000	17,762	63,692	29,274	111,729	111,733	7,151	0	-	1,000	18,478	65,233	27,022	111,733	2,7187	17,811	64,033	29,885	111,729	111,733	7,224	0	18,534	65,613	27,586	111,733	326	324	2	-	-	-	-	-	-	-
2018	1,000	18,478	65,233	27,022	111,733	111,737	7,097	0	-	1,000	19,188	66,805	24,944	111,737	2,7188	18,534	65,613	27,586	111,733	111,737	7,169	0	19,251	67,022	25,464	111,737	323	321	2	-	-	-	-	-	-	-
2019	1,000	19,188	66,805	24,944	111,737	111,741	7,042	0	-	1,000	19,892	67,823	23,025	111,741	2,7189	19,251	67,022	25,464	111,737	111,741	7,114	0	19,963	68,273	23,505	111,741	320	318	2	-	-	-	-	-	-	-
2020	1,000	19,892	67,823	23,025	111,741	111,745	6,988	0	-	1,000	20,592	68,899	21,254	111,745	2,7189	19,963	68,273	23,505	111,741	111,745	7,060	0	20,669	69,379	21,697	111,745	317	315	2	-	-	-	-	-	-	-
2021	1,000	20,592	68,899	21,254	111,745	111,749	6,935	0	-	1,000	21,286	69,844	19,619	111,749	2,7190	20,669	69,379	21,697	111,745	111,749	7,006	0	21,370	70,351	20,028	111,749	314	313	2	-	-	-	-	-	-	-
2022	1,000	21,286	69,844	19,619	111,749	111,753	6,882	0	-	1,000	21,974	70,669	18,110	111,753	2,7190	21,370	70,351	20,028	111,749	111,753	6,952	0	22,066	71,200	18,487	111,753	312	310	2	-	-	-	-	-	-	-
2023	1,000	21,974	70,669	18,110	111,753	111,757	6,829	0	-	1,000	22,657	71,383	16,717	111,757	2,7191	22,066	71,200	18,487	111,753	111,757	6,899	0	22,756	71,936	17,065	111,757	310	308	2	-	-	-	-	-	-	-
2024	1,000	22,657	71,383	16,717	111,757	111,761	6,777	0	-	1,000	23,336	71,995	15,431	111,761	2,7191	22,756	71,936	17,065	111,757	111,761	6,846	0	23,441	72,567	15,753	111,761	307	306	2	-	-	-	-	-	-	-
2025	1,000	23,336	71,995	15,431	111,761	111,765	6,725	0	-	1,000	24,008	72,513	14,244	111,765	2,7192	23,441	72,567	15,753	111,761	111,765	6,794	0	24,121	73,103	14,541	111,765	305	304	2	-	-	-	-	-	-	-
2026	1,000	24,008	72,513	14,244	111,765	111,769	6,674	0	-	1,000	24,676	72,945	13,148	111,769	2,7192	24,121	73,103	14,541	111,765	111,769	6,742	0	24,796	73,551	13,422	111,769	304	302	2	-	-	-	-	-	-	-
2027	1,000	24,676	72,945	13,148	111,769	111,773	6,623	0	-	1,000	25,339	73,297	12,137	111,773	2,7192	24,796	73,551	13,422	111,769	111,773	6,690	0	25,465	73,918	12,390	111,773	302	300	2	-	-	-	-	-	-	-
2028	1,000	25,339	73,297	12,137	111,773	111,777	6,572	0	-	1,000	25,996	73,577	11,203	111,777	2,7192	25,465	73,918	12,390	111,773	111,777	6,639	0	26,129	74,211	11,437	111,777	300	298	2	-	-	-	-	-	-	-
2029	1,000	25,996	73,577	11,203	111,777	111,781	6,522	0	-	1,000	26,649	73,791	10,341	111,781	2,7192	26,129	74,211	11,437	111,777	111,781	6,588	0	26,789	74,435	10,557	111,781	298	297	2	-	-	-	-	-	-	-
2030	1,000	26,649	73,791	10,341	111,781	111,785	6,472	0	-	1,000	27,297	73,942	9,546	111,785	2,7192	26,789	74,435	10,557	111,781	111,785	6,538	0	27,443	74,597	9,745	111,785	297	295	2	-	-	-	-	-	-	-



Evaluation Through 2030

Cost To PUC - Materials	Present Value of Cum. Cost (\$1,000)	\$31
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$713 \$/AF
Cost To PUC - Consultants	Present Value of Cum. Cost (\$1,000)	\$0
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$0 \$/AF
Cost To PUC - Administrative	Present Value of Cum. Cost (\$1,000)	\$9
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$214 \$/AF
Cost To PUC - Total	Present Value of Cum. Cost (\$1,000)	\$40
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$927 \$/AF
Cost To Customer	Present Value of Cum. Cost (\$1,000)	\$88
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$2,038 \$/AF
Total Costs	Present Value of Cum. Cost (\$1,000)	\$128
	Cumulative Water Savings	43.3 AF
	Present Value of Savings (Cost)	\$2,965 \$/AF

Cost to PUC - Total		Cost to Public - Total		Total Cost		Average Water Use per Load Retail Forecast (gal/cycle) with Program	Average Water Use per Load Retail Forecast (gal/cycle) without Program	Market Penetration of <=7gpl		
Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)			With Program in %	No Action in %	Reduction in Water Use as Compared to Base Year 2000
5	5	10	10	15	15	12.2	12.2	8.6%	8.5%	2%
5	4	10	10	15	14	12.0	12.0	9.4%	9.2%	4%
5	4	11	9	15	14	11.7	11.8	10.2%	9.9%	6%
5	4	11	9	16	13	11.5	11.5	11.0%	10.6%	8%
5	4	11	9	16	13	11.3	11.3	11.7%	11.3%	10%
5	4	12	9	17	13	11.1	11.2	12.5%	12.0%	11%
5	4	12	8	17	12	11.0	10.9	13.3%	12.6%	13%
6	4	12	8	18	12	10.8	10.8	14.0%	13.3%	14%
6	4	13	8	18	12	10.6	10.7	14.8%	14.0%	15%
6	4	13	8	19	11	10.5	10.5	15.5%	14.6%	16%
-	-	-	-	-	-	10.4	10.4	16.1%	15.3%	17%
-	-	-	-	-	-	10.2	10.3	16.8%	15.9%	18%
-	-	-	-	-	-	10.1	10.2	17.4%	16.6%	19%
-	-	-	-	-	-	10.0	10.1	18.1%	17.2%	20%
-	-	-	-	-	-	9.9	10.0	18.7%	17.9%	21%
-	-	-	-	-	-	9.9	9.9	19.3%	18.5%	21%
-	-	-	-	-	-	9.8	9.8	19.9%	19.1%	22%
-	-	-	-	-	-	9.7	9.8	20.6%	19.7%	22%
-	-	-	-	-	-	9.6	9.7	21.2%	20.4%	23%
-	-	-	-	-	-	9.6	9.6	21.8%	21.0%	24%
-	-	-	-	-	-	9.5	9.5	22.4%	21.6%	24%
-	-	-	-	-	-	9.4	9.5	23.0%	22.2%	25%
-	-	-	-	-	-	9.4	9.4	23.6%	22.8%	25%
-	-	-	-	-	-	9.3	9.4	24.2%	23.4%	25%
-	-	-	-	-	-	9.3	9.3	24.7%	24.0%	26%
-	-	-	-	-	-	9.2	9.3	25.3%	24.5%	26%

Evaluation of Conservation Measures

Water Savings - Residential Multi Family Measures

Model No. RMF-2

- Measure(s): 2 Rebates for 6/3 or 4 Liter Toilets
- 3 ULF Toilet Rebate
- 7 Residential Toilet Retrofit
- 8 Require 1.6 gal/flush Toilet Installed at Time of Sale

Source: RetailConservation.xls
Master.xls
Entered by User
ToiletConservationData.xls

Assumptions

Current Use Assumptions - Given

MF Household Population - Pre 1995 Housing	Units	gallons/day
2005	202,898	35.1
2010	202,898	31.0
2015	202,898	27.9
2020	202,898	24.5
2025	202,898	23.5
2030	202,898	22.0

Market Penetration Pre 1995 Housing (2005)	Gallons/flush	% Population
7	2.47%	3.5
5	2.47%	1.6
Retrofit (5.5)	28.98%	41.43%
	Total	100.00%

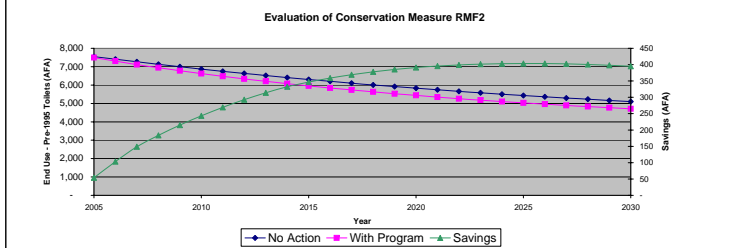
Base Yr 2000	4.04	gallons/flush	Pre 1995
--------------	------	---------------	----------

Proposed Program		M2-6/3 or 4L	M3-Rebate	M7-Retrofit	M8-Resale
Discount Rate	6.0%	6.0%	6.0%	6.0%	6.0%
Inflation	3.0%	3.0%	3.0%	3.0%	3.0%
Start	2005	2005	2005	2005	2005
End	2014	2007	2014	3003	3003
Program Length	10	3	10	999	999
No. of Rebates	100	350	0	1.10%	rebates/year
Measure Life	999	999	999	999	999
Utility Cost	\$100	\$50	\$10	\$10	\$/unit
Customer Cost	\$100	\$25	\$0	\$65	\$/unit
Admin Cost	25%	25%	10%	15%	% utility material cost
Consultant Cost	\$0	\$0	\$0	\$0	\$/unit

Other		w/Rebates	No Action
Nat. Replace w/ Low Water Use Device			4.00%
Life Expectancy (for Natural Replacement Computation)		25	years
Toilets per household		1	
Maximum program reduction to Nat. Repl. w/ rebate programs		33%	
Decay Rate on Rebates		5%	
Rate of low flush toilets		1.10%	gpf
Rate of 6/3 or 4 liter flush toilets		1.06	gpf

Calculations

Year	Households	Use (gallons/day) (not used in computation)	Estimated Toilets	Toilets at Beginning of Year (gallons/flush)							M2-6/3 or 4L Gallons per Flush							M3-Rebate							M8-Resale							M7-Retrofit							Natural Replacement Remaining Toilets (gallons/flush)											
				7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 2 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 3 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 8 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Measure 7 Total Units	7	5	5.5	3.5	1.6	1.06	Total Toilets	Natural Replacement Units 3.5-7	7	5	5.5	3.5	1.6	1.06	Total Toilets
2005	202,898	35.1	202,898	5,004	5,004	58,798	50,040	84,052	100	202,898	100	5,000	5,000	58,748	49,998	84,052	100	202,898	350	4,985	4,985	58,575	49,851	84,402	100	202,898	1,302	4,930	4,930	57,931	49,303	85,704	100	202,898	-	4,930	4,930	57,931	49,303	85,704	100	202,898	4,535	4,739	4,739	55,687	47,393	90,239	100	202,898



Evaluation Through 2030	
Cost To PUC - Materials	
Present Value of Cum. Cost (\$1,000)	\$286
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$34
AF	S/AF
Cost To PUC - Consultants	
Present Value of Cum. Cost (\$1,000)	\$0
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$0
AF	S/AF
Cost To PUC - Administrative	
Present Value of Cum. Cost (\$1,000)	\$57
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$7
AF	S/AF
Cost To PUC - Total	
Present Value of Cum. Cost (\$1,000)	\$342
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$41
AF	S/AF
Cost To Customer	
Present Value of Cum. Cost (\$1,000)	\$1,817
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$217
AF	S/AF
Total Costs	
Present Value of Cum. Cost (\$1,000)	\$2,160
Cumulative Water Savings	8,389
Present Value of Savings (Cost)	\$257
AF	S/AF

Decay Rate on Retrofit															No Action															Results			Economics										Average Toilet Flush Volume Retail Forecast (gal/flush)		Average Toilet Flush Volume Retail Forecast (gal/flush) without Program		Market Penetration of Less than or equal to 1.6 gallons/flush			Year
Retrofit Decay	7	5	5.5	3.5	1.6	1.06	Total Toilets	Natural Replacement	7	5	5.5	3.5	1.6	1.06	Total Toilets	Retrofit Decay	7	5	5.5	3.5	1.6	1.06	Total Toilets	No Action AF	With Program AF	Savings AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost		Average Toilet Flush Volume Retail Forecast (gal/flush) with Program	Average Toilet Flush Volume Retail Forecast (gal/flush) without Program	With Program in %	No Action in %	Reduction in Water Use as Compared to Base Year 2000	Year						
																											Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)							PV (\$1,000)					
2,784	6,131	6,131	52,902	47,393	90,239	100	202,898	4,754	4,804	4,804	56,446	48,039	88,806	-	202,898	2,822	6,215	6,215	53,623	48,039	88,806	-	202,898	7,550	7,497	54	1,752	41	41	-	-	9	9	49	49	103	103	153	153	3.3	3.4	44.5%	43.8%	18%	2005					
2,505	7,059	7,059	47,592	44,879	95,109	200	202,898	4,564	5,966	5,966	51,478	46,117	93,369	-	202,898	2,574	7,253	7,253	48,905	46,117	93,369	-	202,898	7,405	7,302	103	1,683	41	39	-	-	9	8	50	47	102	102	152	149	3.2	3.3	47.5%	46.0%	29%	2006					
2,253	7,810	7,810	42,808	42,453	101,677	300	202,898	4,381	6,963	6,963	46,946	44,273	97,751	-	202,898	2,347	8,137	8,137	44,601	44,273	97,751	-	202,898	7,265	7,116	149	1,618	42	37	-	-	9	8	51	46	100	100	151	146	3.2	3.2	50.3%	48.2%	22%	2007					
2,031	8,428	8,428	38,587	40,318	108,742	400	202,898	4,206	7,811	7,811	42,817	42,502	101,956	-	202,898	2,141	8,882	8,882	40,676	42,502	101,956	-	202,898	7,129	6,946	183	1,209	23	19	-	-	5	4	28	23	90	90	117	113	3.1	3.2	52.8%	50.3%	24%	2008					
1,831	8,909	8,909	34,780	38,254	111,545	500	202,898	4,038	8,527	8,527	39,049	40,802	105,994	-	202,898	1,952	9,503	9,503	37,097	40,802	105,994	-	202,898	6,998	6,783	215	1,152	23	18	-	-	5	4	28	22	88	88	116	110	3.0	3.1	55.2%	52.2%	25%	2009					
1,650	9,278	9,278	31,348	36,294	116,100	600	202,898	3,876	9,123	9,123	35,613	39,170	109,870	-	202,898	1,781	10,013	10,013	33,832	39,170	109,870	-	202,898	6,870	6,627	244	1,069	23	17	-	-	5	3	28	21	87	87	115	108	2.9	3.1	57.5%	54.2%	27%	2010					
1,487	9,546	9,546	28,254	34,433	120,421	700	202,898	3,721	9,613	9,613	32,478	37,603	113,591	-	202,898	1,624	10,426	10,426	30,855	37,603	113,591	-	202,898	6,749	6,480	269	1,047	23	16	-	-	5	3	28	20	85	85	113	106	2.9	3.0	59.7%	56.0%	29%	2011					
1,340	9,728	9,728	25,463	32,666	124,517	800	202,898	3,572	10,008	10,008	29,621	36,099	117,164	-	202,898	1,481	10,748	10,748	28,140	36,099	117,164	-	202,898	6,632	6,339	293	998	23	16	-	-	5	3	28	19	84	84	112	103	2.8	2.9	61.8%	57.7%	30%	2012					
1,208	9,830	9,830	22,948	30,988	128,402	900	202,898	3,429	10,318	10,318	27,014	34,655	120,593	-	202,898	1,351	10,993	10,993	25,663	34,655	120,593	-	202,898	6,519	6,205	314	952	23	15	-	-	5	3	28	18	83	83	111	101	2.8	2.9	63.7%	59.4%	32%	2013					
1,088	9,869	9,869	20,690	29,395	132,085	1,000	202,898	3,292	10,554	10,554	24,637	33,269	123,885	-	202,898	1,232	11,170	11,170	23,405	33,269	123,885	-	202,898	6,410	6,077	333	908	24	14	-	-	5	3	28	17	82	82	110	99	2.7	2.8	65.6%	61.1%	33%	2014					
982	9,851	9,851	18,653	27,909	135,614	1,000	202,898	3,161	10,723	10,723	22,469	31,938	127,046	-	202,898	1,123	11,285	11,285	21,345	31,938	127,046	-	202,898	6,305	5,958	347	798	10	6	-	-	2	1	12	7	67	67	79	74	2.6	2.8	67.3%	62.6%	35%	2015					
885	9,805	9,805	16,824	26,498	138,966	1,000	202,898	3,034	10,833	10,833	20,491	30,660	130,080	-	202,898	1,025	11,345	11,345	19,467	30,660	130,080	-	202,898	6,202	5,844	359	729	10	5	-	-	2	1	12	6	66	66	77	72	2.6	2.8	69.0%	64.1%	36%	2016					
799	9,709	9,709	15,175	25,158	142,147	1,000	202,898	2,913	10,892	10,892	18,688	29,434	132,993	-	202,898	934	11,359	11,359	17,754	29,434	132,993	-	202,898	6,104	5,735	369	692	10	5	-	-	1	1	11	6	64	64	76	70	2.5	2.7	70.6%	65.5%	37%	2017					
720	9,578	9,578	13,687	23,886	145,168	1,000	202,898	2,796	10,905	10,905	17,044	28,257	135,789	-	202,898	852	11,351	11,351	16,191	28,257	135,789	-	202,898	6,009	5,631	378	657	10	5	-	-	1	1	11	5	63	63	74	68	2.5	2.7	72.0%	66.9%	38%	2018					
650	9,419	9,419	12,345	22,678	148,037	1,000	202,898	2,684	10,877	10,877	15,544	27,126	138,473	-	202,898	777	11,266	11,266	14,707	27,126	138,473	-	202,898	5,917	5,532	385	624	9	4	-	-	1	1	11	5	61	61	72	66	2.5	2.6	73.5%	68.2%	39%	2019					
586	9,236	9,236	11,135	21,532	150,760	1,000	202,898	2,577	10,815	10,815	14,176	26,041	141,050	-	202,898	709	11,170	11,170	13,467	26,041	141,050	-	202,898	5,829	5,437	391	592	9	4	-	-	1	1	11	4	60	60	71	64	2.4	2.6	74.8%	69.5%	40%	2020					
529	9,033	9,033	10,044	20,443	153,345	1,000	202,898	2,474	10,723	10,723	12,928	25,000	143,524	-	202,898	646	11,046	11,046	12,282	25,000	143,524	-	202,898	5,743	5,348	396	563	9	4	-	-	1	1	11	4	59	59	69	63	2.4	2.5	76.1%	70.7%	41%	2021					
477	8,815	8,815	9,059	19,410	155,800	1,000	202,898	2,375	10,604	10,604	11,791	24,000	145,899	-	202,898	590	10,899	10,899	11,201	24,000	145,899	-	202,898	5,661	5,262	399	534	9	3	-	-	1	0	10	4	57	57	68	61	2.3	2.5	77.3%	71.9%	42%	2022					
430	8,584	8,584	8,171	18,428	158,131	1,000	202,898	2,280	10,463	10,463	10,753	23,040	148,179	-	202,898	538	10,732	10,732	10,216	23,040	148,179	-	202,898	5,562	5,160	402	507	9	3	-	-	1	0	10	3	56	56	65	60	2.3	2.5	78.4%	73.0%	43%	2023					
388	8,344	8,344	7,370	17,496	160,344	1,000	202,898	2,189	10,303	10,303	9,807	22,118	150,368	-	202,898	490	10,548	10,548	9,317	22,118	150,368	-	202,898	5,506	5,103	403	481	8	3	-	-	1	0	10	3	55	55	65	58	2.3	2.4	79.5%	74.1%	44%	2024					
350	8,097	8,097	6,647	16,612	162,445	1,000	202,898	2,101	10,126	10,126	8,944	21,233	152,469	-	202,898	447	10,350	10,350	8,497	21,233	152,469	-	202,898	5,432	5,029	404	457	8	3	-	-	1	0	9	3	54	54	63	57	2.2	2.4	80.6%	75.1%	45%	2025					
316	7,845	7,845	5,996	15,772	164,440	1,000	202,898	2,017	9,936	9,936	8,157	20,384	154,486	-	202,898	408	10,139	10,139	7,749	20,384	154,486	-	202,898	5,361	4,958	403	434	8	2	-	-	1	0	9	3	52	52	62	55	2.2	2.4	81.5%	76.1%	46%	2026					
285	7,591	7,591	5,408	14,975	168,333	1,000	202,898	1,936	9,734	9,734	7,439	19,569	156,423	-	202,898	372	9,920	9,920	7,067	19,569	156,423	-	202,898	5,293	4,891	402	412	8	2	-	-	1	0	9	3	51	51	61	54	2.2	2.3	82.5%	77.1%	46%	2027					
257	7,336	7,336	4,878	14,217	168,132	1,000	202,898	1,859	9,523	9,523	6,784	18,786	158,282	-	202,898	339	9,693	9,693	6,445	18,786	158,282	-	202,898	5,228	4,827	401	391	8	2	-	-	1	0	9	2	50	50	59	53	2.1	2.3	83.4%	78.0%	47%	2028					
232	7,080	7,080	4,400	13,499	169,839	1,000	202,898	1,785	9,305	9,305	6,187	18,034	160,066	-	202,898	309	9,460	9,460	5,878	18,034	160,066	-	202,898	5,164	4,766	398	371	8	2	-	-	1	0	9	2	49	49	58	51	2.1	2.3	84.2%	78.9%	48%	2029					
209	6,827	6,827	3,968	12,816	171,460	1,000	202,898	1,713	9,081	9,081	5,643	17,313	161,780	-	202,898	282	9,222	9,222	5,361	17,313	161,780	-	202,898	5,104	4,708	395	353	7	2	-	-	1	0	8	2	48	48	56	50	2.1	2.3	85.0%	79.7%	48%	2030					

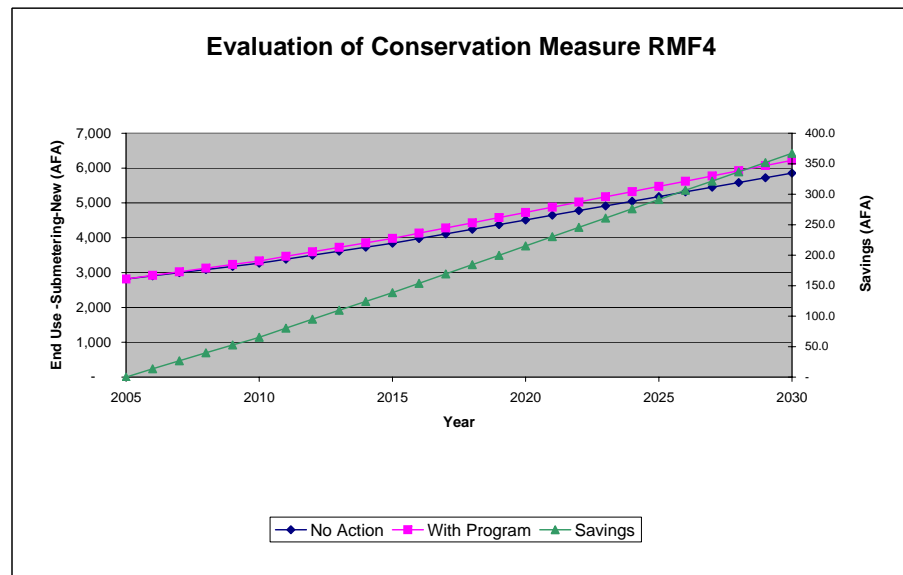
Evaluation of Conservation Measures
 Water Savings - Residential Multi Family Measures
 Model No. RMF-4
 Measure(s): 11 Submetering of New Units

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions - Given			Proposed Program	
MF Household Population			Discount Rate	6.0%
Year	Units	mgd	Inflation	3.0%
2005	24,122	2.5	Market Penetration	100% of accounts over period
2010	29,998	3.0	Reduction Target	10% of use/account
2015	36,985	3.6	Start	2005
2020	44,266	4.2	End	3003
2025	51,548	4.9	Program Length	999 years
2030	58,830	5.6	Units/Accounts	6.4
			Measure Life	999 years
			Utility Cost	\$10 \$/unit
			Customer Cost (one-time)	\$50 \$/unit
			Customer Cost (Annual)	\$60 \$/unit/year
			Admin Cost	10% % utility material cost
			Consultant Cost	\$0 \$/unit

Calculations

Year	Submetering of New Units				Results			Economics										Market Penetration in %	Revised Use mgd			
	mgd	Housing Units	in Participating in	Market	Total Use Without	Total Use With Program	Savings AF	Cost to PUC - Materials		Cost to PUC -		Cost to PUC -		Cost to PUC - Total		Cost to Public				Total Cost		
								Number	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)	(\$1,000)			(\$1,000)	(\$1,000)	
2005	2.5	24,122	-	-	2,816	2,816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	2.5
2006	2.6	25,297	1,175	1,175	2,920	2,907	13.6	1,175	12	11	-	-	1	1	13	13	133	126	146	138	4.6%	2.6
2007	2.7	26,472	1,175	2,351	3,025	2,998	26.9	1,175	12	11	-	-	1	1	14	12	212	189	226	201	8.9%	2.7
2008	2.8	27,648	1,175	3,526	3,129	3,089	39.9	1,175	13	11	-	-	1	1	14	12	295	248	310	260	12.8%	2.8
2009	2.9	28,823	1,175	4,701	3,233	3,180	52.7	1,175	13	10	-	-	1	1	15	12	384	304	398	315	16.3%	2.8
2010	3.0	29,998	1,175	5,877	3,337	3,272	65.4	1,175	14	10	-	-	1	1	15	11	477	356	492	368	19.6%	2.9
2011	3.1	31,396	1,397	7,274	3,466	3,386	80.3	1,397	17	12	-	-	2	1	18	13	605	426	623	439	23.2%	3.0
2012	3.2	32,793	1,397	8,671	3,595	3,500	95.1	1,397	17	11	-	-	2	1	19	13	726	483	745	495	26.4%	3.1
2013	3.3	34,190	1,397	10,069	3,724	3,615	109.7	1,397	18	11	-	-	2	1	19	12	854	536	873	548	29.4%	3.2
2014	3.4	35,587	1,397	11,466	3,854	3,729	124.2	1,397	18	11	-	-	2	1	20	12	989	585	1,009	597	32.2%	3.3
2015	3.6	36,985	1,397	12,863	3,983	3,844	138.5	1,397	19	10	-	-	2	1	21	12	1,131	632	1,152	643	34.8%	3.4
2016	3.7	38,441	1,456	14,320	4,132	3,978	153.9	1,456	20	11	-	-	2	1	22	12	1,290	680	1,312	691	37.3%	3.6
2017	3.8	39,897	1,456	15,776	4,281	4,111	169.3	1,456	21	10	-	-	2	1	23	11	1,453	722	1,476	734	39.5%	3.7
2018	4.0	41,354	1,456	17,232	4,429	4,245	184.6	1,456	21	10	-	-	2	1	24	11	1,625	762	1,649	773	41.7%	3.8
2019	4.1	42,810	1,456	18,688	4,578	4,379	199.9	1,456	22	10	-	-	2	1	24	11	1,806	799	1,830	810	43.7%	3.9
2020	4.2	44,266	1,456	20,145	4,727	4,512	215.1	1,456	23	9	-	-	2	1	25	10	1,997	833	2,021	844	45.5%	4.0
2021	4.4	45,723	1,456	21,601	4,877	4,646	230.4	1,456	23	9	-	-	2	1	26	10	2,197	865	2,222	875	47.2%	4.1
2022	4.5	47,179	1,456	23,057	5,026	4,780	245.6	1,456	24	9	-	-	2	1	26	10	2,407	894	2,433	904	48.9%	4.3
2023	4.6	48,635	1,456	24,514	5,175	4,914	260.9	1,456	25	9	-	-	2	1	27	10	2,628	921	2,655	930	50.4%	4.4
2024	4.8	50,092	1,456	25,970	5,325	5,049	276.1	1,456	26	8	-	-	3	1	28	9	2,860	945	2,888	955	51.8%	4.5
2025	4.9	51,548	1,456	27,426	5,474	5,183	291.2	1,456	26	8	-	-	3	1	29	9	3,104	968	3,133	977	53.2%	4.6
2026	5.0	53,004	1,456	28,883	5,624	5,317	306.4	1,456	27	8	-	-	3	1	30	9	3,359	988	3,389	997	54.5%	4.7
2027	5.2	54,461	1,456	30,339	5,774	5,452	321.6	1,456	28	8	-	-	3	1	31	9	3,627	1,007	3,658	1,015	55.7%	4.9
2028	5.3	55,917	1,456	31,795	5,923	5,587	336.8	1,456	29	8	-	-	3	1	32	8	3,909	1,023	3,940	1,032	56.9%	5.0
2029	5.4	57,373	1,456	33,252	6,073	5,721	352.0	1,456	30	7	-	-	3	1	33	8	4,204	1,038	4,236	1,046	58.0%	5.1
2030	5.6	58,830	1,456	34,708	6,223	5,856	367.1	1,456	30	7	-	-	3	1	34	8	4,513	1,051	4,546	1,059	59.0%	5.2



Evaluation Through 2030

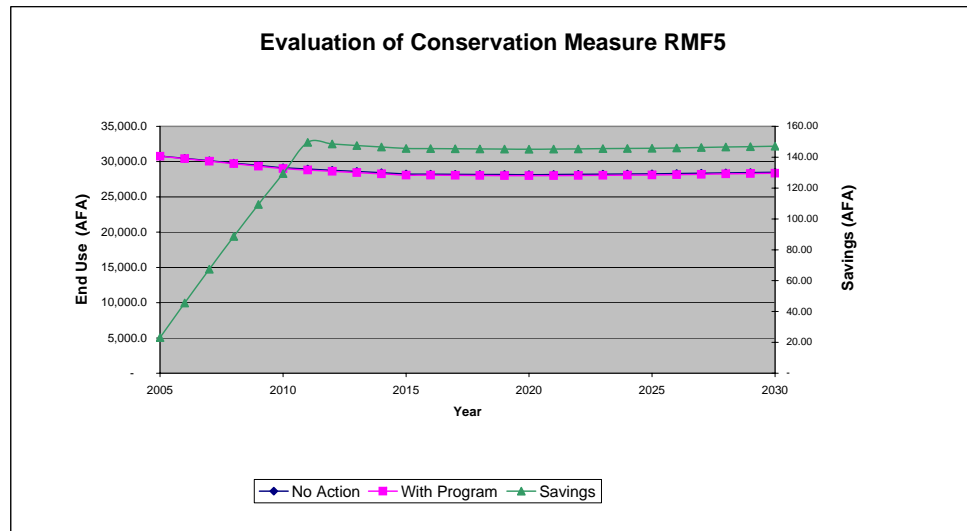
Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$241	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$52	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$24	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$5	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$265	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$57	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$17,380	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$3,732	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	\$17,645	
Cumulative Water Savings	4,657	AF
Present Value of Savings (Cost)	\$3,789	\$/AF

Evaluation of Conservation Measures
 Water Savings - Residential Multi Family Measures
 Model No. RMF-5
 Measure(s): 6 Residential Water Surveys

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions - Given			Proposed Program	
MF Household Population			Discount Rate	6.0%
Year	Units	Inside Use mgd	Inflation	3.0%
2005	227,020	27.5		
2010	232,896	26.0		
2015	239,883	25.2		
2020	247,164	25.1		
2025	254,446	25.2		
2030	261,728	25.4		
		Outside Use mgd	Units/Accounts	6.4
			Market Penetration	1.5% year
			Inside Reduction Target	5% of use
			Outside Reduction Target	0% of use
			Start	2005
			End	3003
			Program Length	999 years
			Measure Life	7 years
			Utility Cost	\$130 \$/account/yr
			Customer Cost	\$50 \$/account
			Admin Cost	25% % utility material cost
			Consulting Cost	\$0 \$/account

Year	Residential Water Surveys					Results					Economics										Market Penetration in %	Inside Use with Program in mgd	Outside Use with Program in mgd	People per Dwelling Unit	For Computation of program life (units)			
	Total Inside Use mgd	Total Outside Use mgd	Total Number of Housing Units	Number of Units in Participating in Program	Cumulative Market Penetration (units)	Inside Savings AF	Outside Savings AF	Total Use Without Program AF	Total Use With Program AF	Total Savings AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public							Total Cost		
											Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)						PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	27.48	-	227,020	3405	3,405	23.09	0.00	30,786.6	30,763.5	23.09	534	69	69	-	-	17	17	87	87	27	27	113	113	0.1%	27.46	-	2,0890	-
2006	27.19	-	228,195	3423	6,828	45.57	0.00	30,455.5	30,409.9	45.57	537	72	68	-	-	18	17	90	85	28	26	117	111	0.1%	27.15	-	2,0886	-
2007	26.89	-	229,370	3441	10,269	67.43	0.00	30,124.4	30,057.0	67.43	539	74	66	-	-	19	17	93	83	29	25	122	108	0.2%	26.83	-	2,0882	-
2008	26.60	-	230,546	3458	13,727	88.70	0.00	29,793.3	29,704.7	88.70	542	77	65	-	-	19	16	96	81	30	25	126	106	0.3%	26.52	-	2,0877	-
2009	26.30	-	231,721	3476	17,203	109.36	0.00	29,462.3	29,352.9	109.36	545	80	63	-	-	20	16	100	79	31	24	130	103	0.4%	26.20	-	2,0873	-
2010	26.01	-	232,896	3493	20,696	129.44	0.00	29,131.2	29,001.8	129.44	548	83	62	-	-	21	15	103	77	32	24	135	101	0.4%	25.89	-	2,0869	-
2011	25.85	-	234,294	3514	24,211	149.59	0.00	28,951.9	28,802.3	149.59	551	86	60	-	-	21	15	107	75	33	23	140	99	0.5%	25.71	-	2,0871	-
2012	25.69	-	235,691	3535	28,411	169.57	0.00	28,772.7	28,624.1	169.57	554	89	59	-	-	22	15	111	74	34	23	145	96	0.5%	25.55	-	2,0873	3,405
2013	25.53	-	237,088	3556	32,474	189.58	0.00	28,593.4	28,445.8	189.58	557	92	58	-	-	23	14	115	72	35	22	150	94	0.5%	25.39	-	2,0875	3,423
2014	25.37	-	238,485	3577	36,411	209.57	0.00	28,414.1	28,267.5	209.57	561	95	56	-	-	24	14	119	70	37	22	155	92	0.5%	25.24	-	2,0877	3,441
2015	25.21	-	239,883	3598	40,358	229.56	0.00	28,234.9	28,089.2	229.56	564	99	55	-	-	25	14	123	69	38	21	161	90	0.5%	25.08	-	2,0880	3,458
2016	25.19	-	241,339	3620	44,305	249.54	0.00	28,217.7	28,072.2	249.54	567	102	54	-	-	26	13	128	67	39	21	167	88	0.5%	25.06	-	2,0880	3,476
2017	25.18	-	242,795	3642	48,252	269.54	0.00	28,200.5	28,055.1	269.54	571	106	53	-	-	26	13	132	66	41	20	173	86	0.5%	25.05	-	2,0880	3,493
2018	25.16	-	244,252	3664	52,199	289.53	0.00	28,183.4	28,038.0	289.53	574	110	51	-	-	27	13	137	64	42	20	179	84	0.5%	25.03	-	2,0881	3,514
2019	25.15	-	245,708	3686	56,146	309.52	0.00	28,166.2	28,021.0	309.52	578	114	50	-	-	28	13	142	63	44	19	186	82	0.5%	25.02	-	2,0881	3,535
2020	25.13	-	247,164	3707	60,093	329.51	0.00	28,149.1	28,003.9	329.51	581	118	49	-	-	29	12	147	61	45	19	192	80	0.5%	25.00	-	2,0882	3,556
2021	25.15	-	248,621	3729	64,039	349.50	0.00	28,169.8	28,024.5	349.50	585	122	48	-	-	30	12	152	60	47	18	199	78	0.5%	25.02	-	2,0882	3,577
2022	25.17	-	250,077	3751	67,985	369.49	0.00	28,190.6	28,045.2	369.49	588	126	47	-	-	32	12	158	59	49	18	207	77	0.5%	25.04	-	2,0882	3,598
2023	25.19	-	251,533	3773	71,931	389.48	0.00	28,211.4	28,065.8	389.48	591	131	46	-	-	33	11	164	57	50	18	214	75	0.5%	25.06	-	2,0883	3,620
2024	25.20	-	252,990	3795	75,877	409.47	0.00	28,232.1	28,086.5	409.47	595	136	45	-	-	34	11	170	56	52	17	222	73	0.5%	25.07	-	2,0883	3,642
2025	25.22	-	254,446	3817	79,823	429.46	0.00	28,252.9	28,107.1	429.46	598	140	44	-	-	35	11	176	55	54	17	230	72	0.5%	25.09	-	2,0884	3,664
2026	25.27	-	255,902	3839	83,769	449.45	0.00	28,301.7	28,155.6	449.45	602	146	43	-	-	36	11	182	54	56	16	238	70	0.5%	25.14	-	2,0884	3,686
2027	25.31	-	257,359	3860	87,715	469.44	0.00	28,350.5	28,204.2	469.44	605	151	42	-	-	38	10	188	52	58	16	246	68	0.5%	25.18	-	2,0884	3,707
2028	25.35	-	258,815	3882	91,661	489.43	0.00	28,399.3	28,252.7	489.43	609	156	41	-	-	39	10	195	51	60	16	255	67	0.5%	25.22	-	2,0884	3,729
2029	25.40	-	260,271	3904	95,607	509.42	0.00	28,448.1	28,301.2	509.42	612	162	40	-	-	40	10	202	50	62	15	264	65	0.5%	25.27	-	2,0884	3,751
2030	25.44	-	261,728	3926	99,553	529.41	0.00	28,496.9	28,349.7	529.41	615	168	39	-	-	42	10	209	49	64	15	274	64	0.5%	25.31	-	2,0884	3,773



Evaluation Through 2030			
Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$1,372		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$405	\$/AF	
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$0	\$/AF	
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$343		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$101	\$/AF	
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$1,715		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$506	\$/AF	
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$528		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$156	\$/AF	
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$2,243		
Cumulative Water Savings	3,389	AF	
Present Value of Savings (Cost)	\$662	\$/AF	

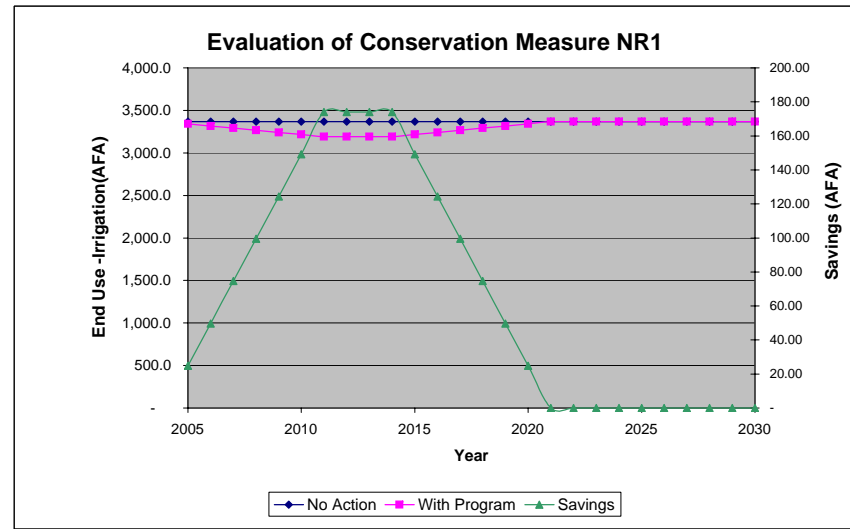
Evaluation of Conservation Measures

Water Savings - Nonresidential Measures
 Model No. NR-1
 Measure(s): 14 Landscape Audits

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Irrigated Area and Customers				Discount Rate	6.0%		
Year	Customers	Area (acres)	Water Use (mgd)	Inflation	3.0%		
2005	79	1870	3.00	Start	2005 Year		
2010	79	1870	3.00	End	2014 Year		
2015	79	1870	3.00	Participation	5% sites/year		
2020	79	1870	3.00	Reduction in Use	15% Total Use		
2025	79	1870	3.00	Program Length	10 Years		
2030	79	1870	3.00	Measure Life	7 Years		
Year 2000	Current	Proposed		Utility Cost	\$800 /acre		
Customers	79	79		Admin Cost	30% utility material cost		
Area	1870 acres	1870		Customer Unit Cost	\$200 /acre		
Water Use	3.00 mgd	2.56		Consultant Unit Cost	\$0 /acre		
Multiplier on Average Water Use	1						
Water Use	Est Current Application	Est Proposed application					
Water Use	4.5 in/month	3.9 in/month					
Months	4.0 mo/year	4.0 mo/year					
Efficiency	80%	82%					

Year	Landscape Audits				Results			Economics										Market Penetration %	For Computation of program life (accounts)	Outside Savings mgd				
	Landscape Use mgd	Accounts	Acreage per Account	Number of Accounts Participating in Program	Cummulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total					Cost to Public		Total Cost	
									Number of Acres	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)				Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	3.0	79	23.67	4	4	3,366.0	3,341.1	24.87	94	75	75	-	-	22	22	97	97	19	19	116	116	5.0%	-	0.02
2006	3.0	79	23.67	4	8	3,366.0	3,316.3	49.74	94	77	73	-	-	23	22	100	94	19	18	119	113	10.0%	-	0.04
2007	3.0	79	23.67	4	12	3,366.0	3,291.4	74.61	94	79	71	-	-	24	21	103	92	20	18	123	109	15.0%	-	0.07
2008	3.0	79	23.67	4	16	3,366.0	3,266.5	99.48	94	82	69	-	-	25	21	106	89	20	17	127	106	20.0%	-	0.09
2009	3.0	79	23.67	4	20	3,366.0	3,241.6	124.36	94	84	67	-	-	25	20	109	87	21	17	130	103	25.0%	-	0.11
2010	3.0	79	23.67	4	24	3,366.0	3,216.8	149.23	94	87	65	-	-	26	19	113	84	22	16	134	100	30.0%	-	0.13
2011	3.0	79	23.67	4	28	3,366.0	3,191.9	174.10	94	89	63	-	-	27	19	116	82	22	16	138	98	35.0%	-	0.16
2012	3.0	79	23.67	4	28	3,366.0	3,191.9	174.10	94	92	61	-	-	28	18	120	80	23	15	143	95	35.0%	4	0.16
2013	3.0	79	23.67	4	28	3,366.0	3,191.9	174.10	94	95	59	-	-	28	18	123	77	24	15	147	92	35.0%	4	0.16
2014	3.0	79	23.67	4	28	3,366.0	3,191.9	174.10	94	98	58	-	-	29	17	127	75	24	14	151	90	35.0%	4	0.16
2015	3.0	79	23.67	0	24	3,366.0	3,216.8	149.23	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0%	4	0.13
2016	3.0	79	23.67	0	20	3,366.0	3,241.6	124.36	-	-	-	-	-	-	-	-	-	-	-	-	-	25.0%	4	0.11
2017	3.0	79	23.67	0	16	3,366.0	3,266.5	99.48	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0%	4	0.09
2018	3.0	79	23.67	0	12	3,366.0	3,291.4	74.61	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0%	4	0.07
2019	3.0	79	23.67	0	8	3,366.0	3,316.3	49.74	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0%	4	0.04
2020	3.0	79	23.67	0	4	3,366.0	3,341.1	24.87	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0%	4	0.02
2021	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	4	-
2022	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2023	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2024	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2025	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2026	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2027	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2028	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2029	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2030	3.0	79	23.67	0	-	3,366.0	3,366.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-



Evaluation Through 2030

Cost To PUC - Materials	Present Value of Cum. Cost (\$1,000)	\$660	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$379	\$/AF
Cost To PUC - Consultants	Present Value of Cum. Cost (\$1,000)	\$0	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative	Present Value of Cum. Cost (\$1,000)	\$198	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$114	\$/AF
Cost To PUC - Total	Present Value of Cum. Cost (\$1,000)	\$857	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$493	\$/AF
Cost To Customer	Present Value of Cum. Cost (\$1,000)	\$165	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$95	\$/AF
Total Costs	Present Value of Cum. Cost (\$1,000)	\$1,022	
	Cumulative Water Savings	1,741	AF
	Present Value of Savings (Cost)	\$587	\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures
 Model No. NR-3
 Measure(s): 16 Water Savings Awards

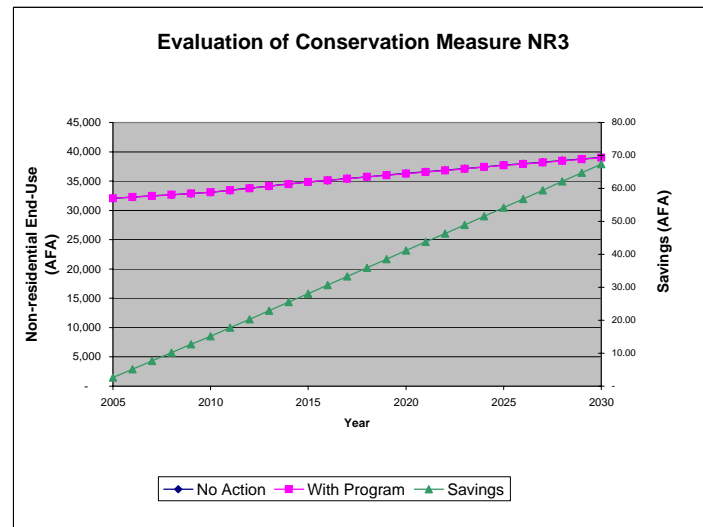
Source: RetailConservation.xls
 Master.xls
 Entered by User

Assumptions

Current Use Assumptions			Proposed Program		
Irrigated Area and Customers			Discount Rate	6.0%	
			Inflation	3.0%	
Year	Employees	Water Use (mgd)	Start	2005 Year	
2005	656,480	28.62	End	3003 Year	
2010	690,420	29.55	Participation	1.50 sites/year	
2015	719,810	31.11	Reduction in Use	25% Total Use	
2020	745,600	32.43	Program Length	999 Years	
2025	770,500	33.66	Measure Life	999 Years	
2030	795,400	34.87	Utility Cost	\$1,000 /account	
Base Year 2000			Admin Cost	15% utility material cost	
Accounts	13,529		Customer Unit Cost	\$5,000 /account	
Water Use	28.62	MGD	Consultant Unit Cost	\$0 /account	
Employees	634,430				
Multiplier on Average Water Use	46.89	/account			
		3			

Calculations

Year	Water Savings Awards				Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd			
	Total Non-residential Use mgd	Accounts	Number of Accounts Participating in Program	Cummulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost		
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	28.6	13,999	1.5	2	32,057	32,054	2.58	2	2	2	-	-	0.2	0	2	2	8	8	9	9	0.0%	-	0.00
2006	28.8	14,144	1.5	3	32,265	32,260	5.13	2	2	1	-	-	0.2	0	2	2	8	7	10	9	0.0%	-	0.00
2007	29.0	14,289	1.5	5	32,474	32,466	7.67	2	2	1	-	-	0.2	0	2	2	8	7	10	9	0.0%	-	0.01
2008	29.2	14,433	1.5	6	32,682	32,672	10.19	2	2	1	-	-	0.2	0	2	2	8	7	10	8	0.0%	-	0.01
2009	29.4	14,578	1.5	8	32,891	32,878	12.69	2	2	1	-	-	0.3	0	2	2	8	7	10	8	0.1%	-	0.01
2010	29.5	14,723	1.5	9	33,099	33,084	15.17	2	2	1	-	-	0.3	0	2	1	9	6	11	8	0.1%	-	0.01
2011	29.9	14,848	1.5	11	33,448	33,430	17.74	2	2	1	-	-	0.3	0	2	1	9	6	11	8	0.1%	-	0.02
2012	30.2	14,974	1.5	12	33,797	33,777	20.31	2	2	1	-	-	0.3	0	2	1	9	6	11	8	0.1%	-	0.02
2013	30.5	15,099	1.5	14	34,146	34,123	22.90	2	2	1	-	-	0.3	0	2	1	10	6	12	7	0.1%	-	0.02
2014	30.8	15,224	1.5	15	34,495	34,470	25.49	2	2	1	-	-	0.3	0	2	1	10	6	12	7	0.1%	-	0.02
2015	31.1	15,350	1.5	17	34,844	34,816	28.09	2	2	1	-	-	0.3	0	2	1	10	6	12	7	0.1%	-	0.03
2016	31.4	15,460	1.5	18	35,141	35,110	30.69	2	2	1	-	-	0.3	0	2	1	10	5	13	7	0.1%	-	0.03
2017	31.6	15,570	1.5	20	35,438	35,405	33.29	2	2	1	-	-	0.3	0	2	1	11	5	13	7	0.1%	-	0.03
2018	31.9	15,680	1.5	21	35,735	35,699	35.90	2	2	1	-	-	0.3	0	3	1	11	5	14	6	0.1%	-	0.03
2019	32.2	15,790	1.5	23	36,032	35,993	38.51	2	2	1	-	-	0.3	0	3	1	11	5	14	6	0.1%	-	0.03
2020	32.4	15,900	1.5	24	36,329	36,288	41.13	2	2	1	-	-	0.4	0	3	1	12	5	14	6	0.2%	-	0.04
2021	32.7	16,006	1.5	26	36,605	36,561	43.74	2	2	1	-	-	0.4	0	3	1	12	5	15	6	0.2%	-	0.04
2022	32.9	16,112	1.5	27	36,881	36,835	46.35	2	2	1	-	-	0.4	0	3	1	12	5	15	6	0.2%	-	0.04
2023	33.2	16,218	1.5	29	37,157	37,108	48.97	2	3	1	-	-	0.4	0	3	1	13	4	16	6	0.2%	-	0.04
2024	33.4	16,324	1.5	30	37,434	37,382	51.59	2	3	1	-	-	0.4	0	3	1	13	4	16	5	0.2%	-	0.05
2025	33.7	16,431	1.5	32	37,710	37,656	54.22	2	3	1	-	-	0.4	0	3	1	14	4	17	5	0.2%	-	0.05
2026	33.9	16,537	1.5	33	37,979	37,922	56.84	2	3	1	-	-	0.4	0	3	1	14	4	17	5	0.2%	-	0.05
2027	34.1	16,643	1.5	35	38,248	38,188	59.46	2	3	1	-	-	0.4	0	3	1	14	4	18	5	0.2%	-	0.05
2028	34.4	16,749	1.5	36	38,517	38,455	62.09	2	3	1	-	-	0.4	0	3	1	15	4	18	5	0.2%	-	0.06
2029	34.6	16,855	1.5	38	38,786	38,721	64.72	2	3	1	-	-	0.5	0	4	1	15	4	19	5	0.2%	-	0.06
2030	34.9	16,962	1.5	39	39,055	38,988	67.35	2	3	1	-	-	0.5	0	4	1	16	4	19	5	0.2%	-	0.06



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$26	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$36	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$4	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$5	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$29	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$42	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$128	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$181	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	\$158	
Cumulative Water Savings	709	AF
Present Value of Savings (Cost)	\$222	\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-4

Measure(s): 17 Water Audits

Source: RetailConservation.xls

Master.xls

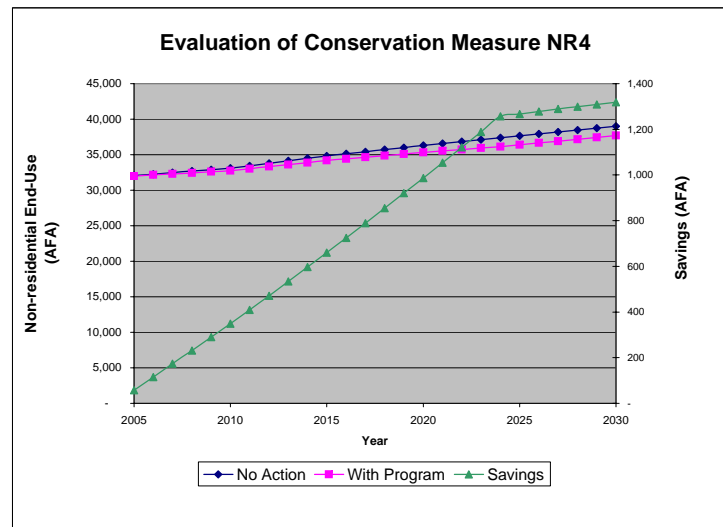
Entered by User

Assumptions

Current Use Assumptions		Proposed Program	
Irrigated Area and Customers		Discount Rate	6.0%
Year	Employees	Inflation	3.0%
2005	656,480	Start	2005 Year
2010	690,420	End	3003 Year
2015	719,810	Participation	1% sites/year
2020	745,600	Reduction in Use	12% Total Use
2025	770,500	Program Length	999 Years
2030	795,400	Measure Life	20 Years
Base Year 2000		Utility Cost	\$4,000 /account
Accounts	13,529	Admin Cost	25% utility material cost
Water Use	28.62 MGD	Customer Unit Cost	\$2,000 /account
Employees	634,430	Consultant Unit Cost	\$0 /account
Employees	46.89 /account		
Multiplier on Average Water Use	1.5		
Accounts with use exceeding 5000gpd	710		

Calculations

Year	Water Audits				Results			Economics												Market Penetration in %	For Computation of program life	Savings mgd	
	Total Non-residential Use mgd	Accounts	Number of Accounts Participating	Cumulative Market Penetration	Total Use Without Program	Total Use With Program	Savings AF	Cost to PUC - Materials			Cost to PUC -			Cost to PUC - Total		Cost to Public		Total Cost					
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)					
2005	28.6	13,999	140	140	32,057	31,999	58	140	560	560	-	-	140.0	140	700	700	280	280	980	980	1.0%	-	0.05
2006	28.8	14,144	141	281	32,265	32,149	116	141	583	550	-	-	145.7	137	728	687	291	275	1,020	962	2.0%	-	0.10
2007	29.0	14,289	143	424	32,473	32,299	174	143	606	540	-	-	151.6	135	788	675	303	270	1,061	944	3.0%	-	0.15
2008	29.2	14,433	144	569	32,681	32,449	232	144	631	530	-	-	157.7	132	789	662	315	265	1,104	927	3.9%	-	0.21
2009	29.4	14,578	146	714	32,888	32,598	290	146	656	520	-	-	164.1	130	820	650	328	260	1,149	910	4.9%	-	0.26
2010	29.5	14,723	147	862	33,096	32,748	349	147	683	510	-	-	170.7	128	853	638	341	255	1,195	893	5.9%	-	0.31
2011	29.9	14,848	148	1,010	33,443	33,033	410	148	709	500	-	-	177.3	125	886	625	355	250	1,241	875	6.8%	-	0.37
2012	30.2	14,974	150	1,160	33,789	33,318	471	150	737	490	-	-	184.2	122	921	612	368	245	1,289	857	7.7%	-	0.42
2013	30.5	15,099	151	1,311	34,136	33,603	533	151	765	480	-	-	191.3	120	956	600	383	240	1,339	840	8.7%	-	0.48
2014	30.8	15,224	152	1,463	34,483	33,886	597	152	795	470	-	-	198.6	118	993	588	397	235	1,391	823	9.6%	-	0.53
2015	31.1	15,350	153	1,617	34,829	34,169	660	153	825	461	-	-	206.3	115	1,031	576	413	230	1,444	806	10.5%	-	0.59
2016	31.4	15,460	155	1,771	35,123	34,399	724	155	856	451	-	-	214.0	113	1,070	564	428	225	1,498	789	11.5%	-	0.65
2017	31.6	15,570	156	1,927	35,418	34,629	789	156	888	441	-	-	222.0	110	1,110	552	444	221	1,554	772	12.4%	-	0.70
2018	31.9	15,680	157	2,084	35,712	34,858	854	157	921	432	-	-	230.3	108	1,151	540	461	216	1,612	756	13.3%	-	0.76
2019	32.1	15,790	158	2,242	36,006	35,086	920	158	955	423	-	-	238.8	106	1,194	528	478	211	1,672	739	14.2%	-	0.82
2020	32.4	15,900	159	2,401	36,301	35,314	987	159	991	413	-	-	247.7	103	1,239	517	495	207	1,734	724	15.1%	-	0.88
2021	32.7	16,006	160	2,561	36,574	35,521	1,053	160	1,027	404	-	-	256.8	101	1,284	506	514	202	1,798	708	16.0%	-	0.94
2022	32.9	16,112	161	2,722	36,848	35,728	1,120	161	1,065	396	-	-	266.3	99	1,332	494	533	198	1,864	692	16.9%	-	1.00
2023	33.1	16,218	162	2,884	37,122	35,933	1,188	162	1,104	387	-	-	276.1	97	1,381	484	552	193	1,933	677	17.8%	-	1.06
2024	33.4	16,324	163	3,047	37,395	36,139	1,256	163	1,145	378	-	-	286.3	95	1,431	473	573	189	2,004	662	18.7%	-	1.12
2025	33.6	16,431	164	3,212	37,669	36,401	1,268	164	1,187	370	-	-	296.8	93	1,484	463	594	185	2,077	648	18.7%	140	1.13
2026	33.9	16,537	165	3,395	37,935	36,657	1,278	165	1,231	362	-	-	307.6	90	1,538	452	615	181	2,153	633	18.7%	141	1.14
2027	34.1	16,643	166	3,119	38,201	36,913	1,289	166	1,276	354	-	-	318.9	88	1,594	442	638	177	2,232	619	18.7%	143	1.15
2028	34.3	16,749	167	3,142	38,468	37,169	1,299	167	1,322	346	-	-	330.6	87	1,653	433	661	173	2,314	606	18.8%	144	1.16
2029	34.6	16,855	169	3,165	38,734	37,425	1,309	169	1,371	338	-	-	342.6	85	1,713	423	685	169	2,398	592	18.8%	146	1.17
2030	34.8	16,962	170	3,187	39,001	37,682	1,319	170	1,421	331	-	-	355.1	83	1,776	414	710	165	2,486	579	18.8%	147	1.18



Evaluation Through 2030

Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$10,421		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$627		\$/AF
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$2,605		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$157		\$/AF
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$13,027		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$784		\$/AF
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$5,211		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$314		\$/AF
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$18,238		
Cumulative Water Savings	16,615	AF	
Present Value of Savings (Cost)	\$1,098		\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-5

Measure(s): 19 Urinals-ULF Rebate
37 Urinals-Require 0.5 gpf

Source: RetailConservation.xls

Master.xls

Entered by User

Assumptions

End-use Flushing @ 2000			Proposed Program	
Year	Urinals	Flush Volume mgd	Discount Rate	Inflation
2000	12,176	0.87		
2005	12,176	0.88		
2010		0.95		
2015		0.99		
2020		1.02		
2025		1.06		
2030		1.09		

M19-Rebate	M37-New Construction
6.0%	6.0%
3.0%	3.0%

Other	Value
Nat. Replace w/ Low Water Use Device	5.00%
Life Expectancy (for Natural Replacement Computation)	20 years
Toilets per non-residential account	6
Decay Rate on Retrofit	5%
Rate of low flush urinals for Rebate	0.5 gpf
Rate of low flush urinals for Natural Replacement	1.0 gpf
% of flushes are Urinals	30%
Number of non-residential accounts	13,529
Estimated # of Urinals as a Percentage of Toilets	15%

Start	2005	2005
End	2014	3003
Program Length	10	999 yrs
No. of Rebates	250	100% rebates/year
Measure Life	999	999 years
Utility Cost	\$200	\$25 /unit
Customer Cost	\$200	\$0 /unit
Admin Cost	25%	10% % utility material cost
Consultant Cost	\$0	\$0 /unit

2005 Market Penetration	Gallons/flush	% Population	Gallons/flush	% Population
5	20.00%	1	15.00%	
3	30.00%	0.5	0.00%	
2	35.00%	Total	100.00%	

Year 2005	2.75	gallons/flush	Pre 1995 stock
Base Yr 2000	2.80	gallons/flush	Pre 1995 stock

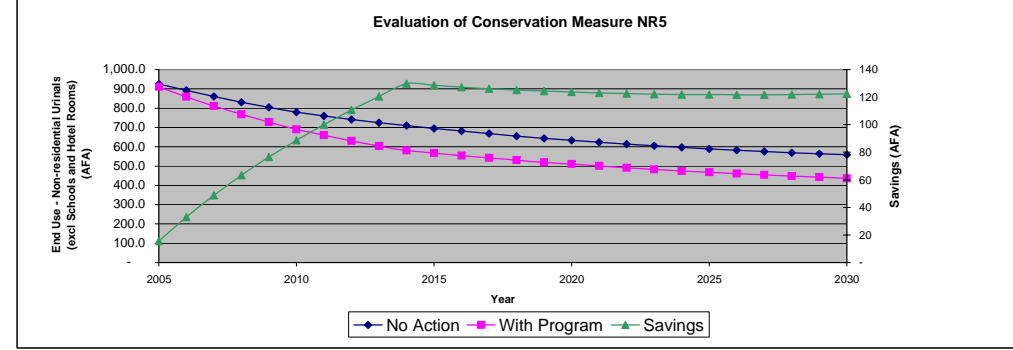
Computation of flushes per day

Year	Employment	Service Industry	Construction	Difference	Avg # Flush/day/emp	Estimated Accounts	Total Urinals	Remaining employees/urinal
2000	634,430	281,510	22,420	330,500	1.691	13,529	12,176	25.13
2005	656,480	291,150	23,290	342,040	1.691	13,529	12,176	26.00
2010	690,420	309,870	24,080	356,470	1.694	14,228	13,451	
2015	719,810	322,550	25,140	372,120	1.694	14,834	14,571	
2020	745,600	333,270	26,150	386,180	1.693	15,366	15,565	
2025	770,500	345,100	26,900	398,500	1.694	15,879	16,532	
2030	795,400	356,930	27,650	410,820	1.694	16,392	17,490	

Flushes per day for non service industry: 1.43 flushes per day
 Flushes per day for service industry: 2.00 flushes per day

Calculations

Year	Employees Using Urinals	Unadjusted Water Use Based on 2000 Market Penetration mgd	Estimated Urinals	Toilets at Beginning of Year (gallons/flush)						Measure 19 Total Units	M19 - Rebate						Natural Replacement Remaining Toilets (gallons/flush)						No Action							
				5	3	2	1	0.5	Total Urinals		5	3	2	1	0.5	Total Urinals	Natural Replacement Units 2-5 g/flush only	5	3	2	1	0.5	Total Urinals	Natural Replacement						
																								Natural Replacement	5	3	2	1	0.5	Total Urinals
2005	183,603	0.88	12,176	2,435	3,653	4,262	1,826	-	12,176	250	2,385	3,578	4,174	1,789	250	12,176	507	2,266	3,399	3,965	2,296	250	12,176	517	2,313	3,470	4,049	2,344	-	12,176
2006	184,874	0.90	12,431	2,266	3,399	3,965	2,296	505	12,431	250	2,218	3,328	3,882	2,248	755	12,431	471	2,108	3,161	3,688	755	12,431	492	2,198	3,297	3,846	3,090	-	12,431	
2007	186,145	0.91	12,686	2,108	3,161	3,688	2,719	1,010	12,686	250	2,062	3,094	3,609	2,661	1,260	12,686	438	1,959	2,939	3,429	3,099	1,260	12,686	467	2,088	3,132	3,654	3,813	-	12,686
2008	187,415	0.92	12,941	1,959	2,939	3,429	3,099	1,515	12,941	250	1,916	2,875	3,354	3,031	1,765	12,941	407	1,821	2,731	3,186	3,439	1,765	12,941	444	1,984	2,975	3,471	4,511	-	12,941
2009	188,686	0.94	13,196	1,821	2,731	3,186	3,439	2,020	13,196	250	1,780	2,670	3,115	3,362	2,270	13,196	378	1,691	2,536	2,959	3,740	2,270	13,196	421	1,884	2,826	3,298	5,188	-	13,196
2010	189,957	0.95	13,451	1,691	2,536	2,959	3,740	2,525	13,451	250	1,652	2,478	2,891	3,654	2,775	13,451	351	1,570	2,354	2,747	4,005	2,775	13,451	400	1,790	2,685	3,133	5,843	-	13,451
2011	191,946	0.96	13,675	1,570	2,354	2,747	4,005	2,999	13,675	250	1,533	2,299	2,682	3,912	3,249	13,675	326	1,456	2,184	2,548	4,237	3,249	13,675	380	1,701	2,551	2,976	6,447	-	13,675
2012	193,935	0.96	13,899	1,456	2,184	2,548	4,237	3,473	13,899	250	1,421	2,132	2,487	4,136	3,723	13,899	302	1,350	2,025	2,363	4,438	3,723	13,899	361	1,616	2,423	2,827	7,033	-	13,899
2013	195,924	0.97	14,123	1,350	2,025	2,363	4,438	3,947	14,123	250	1,317	1,976	2,305	4,329	4,197	14,123	280	1,251	1,877	2,190	4,609	4,197	14,123	343	1,535	2,302	2,686	7,600	-	14,123
2014	197,913	0.98	14,347	1,251	1,877	2,190	4,609	4,421	14,347	250	1,220	1,830	2,134	4,492	4,671	14,347	259	1,159	1,738	2,028	4,752	4,671	14,347	326	1,458	2,187	2,552	8,150	-	14,347
2015	199,902	0.99	14,571	1,159	1,738	2,028	4,752	4,895	14,571	-	1,159	1,738	2,028	4,752	4,895	14,571	246	1,101	1,651	1,926	4,998	4,895	14,571	310	1,385	2,078	2,424	8,684	-	14,571
2016	201,891	1.00	14,795	1,101	1,651	1,926	4,998	5,094	14,795	-	1,101	1,651	1,926	4,998	5,094	14,795	234	1,046	1,569	1,830	5,232	5,094	14,795	294	1,316	1,974	2,303	9,177	-	14,795
2017	203,880	1.00	14,968	1,046	1,569	1,830	5,232	5,292	14,968	-	1,046	1,569	1,830	5,232	5,292	14,968	222	993	1,490	1,739	5,454	5,292	14,968	280	1,250	1,875	2,188	9,656	-	14,968
2018	205,869	1.01	15,167	993	1,490	1,739	5,454	5,491	15,167	-	993	1,490	1,739	5,454	5,491	15,167	211	944	1,416	1,652	5,665	5,491	15,167	266	1,188	1,781	2,078	10,120	-	15,167
2019	207,858	1.02	15,366	944	1,416	1,652	5,665	5,690	15,366	-	944	1,416	1,652	5,665	5,690	15,366	201	897	1,345	1,569	5,866	5,690	15,366	252	1,128	1,692	1,974	10,571	-	15,366
2020	209,847	1.02	15,565	897	1,345	1,569	5,866	5,889	15,565	-	897	1,345	1,569	5,866	5,889	15,565	191	852	1,278	1,491	6,056	5,889	15,565	240	1,072	1,608	1,876	11,010	-	15,565
2021	209,888	1.03	15,758	852	1,278	1,491	6,056	6,082	15,758	-	852	1,278	1,491	6,056	6,082	15,758	181	809	1,214	1,416	6,237	6,082	15,758	228	1,018	1,527	1,782	11,431	-	15,758
2022	211,375	1.04	15,952	809	1,214	1,416	6,237	6,276	15,952	-	809	1,214	1,416	6,237	6,276	15,952	172	769	1,153	1,345	6,409	6,276	15,952	216	967	1,451	1,693	11,841	-	15,952
2023	212,861	1.04	16,145	769	1,153	1,345	6,409	6,469	16,145	-	769	1,153	1,345	6,409	6,469	16,145	163	730	1,095	1,278	6,572	6,469	16,145	206	919	1,378	1,608	12,240	-	16,145
2024	214,348	1.05	16,339	730	1,095	1,278	6,572	6,663	16,339	-	730	1,095	1,278	6,572	6,663	16,339	155	694	1,041	1,214	6,728	6,663	16,339	195	873	1,309	1,528	12,629	-	16,339
2025	215,835	1.06	16,532	694	1,041	1,214	6,728	6,856	16,532	-	694	1,041	1,214	6,728	6,856	16,532	147	659	989	1,153	6,875	6,856	16,532	186	829	1,244	1,451	13,008	-	16,532
2026	217,284	1.06	16,724	659	989	1,153	6,875	7,048	16,724	-	659	989	1,153	6,875	7,048	16,724	140	626	939	1,096	7,015	7,048	16,724	176	788	1,182	1,379	13,375	-	16,724
2027	218,733	1.07	16,915	626	939	1,096	7,015	7,239	16,915	-	626	939	1,096	7,015	7,239	16,915	133	595	892	1,041	7,148	7,239	16,915	167	748	1,123	1,310	13,734	-	16,915
2028	220,182	1.08	17,107	595	892	1,041	7,148	7,431	17,107	-	595	892	1,041	7,148	7,431	17,107	126	565	848	989	7,275	7,431	17,107	159	711	1,067	1,244	14,085	-	17,107
2029	221,631	1.09	17,299	565	848	989	7,275	7,622	17,299	-	565	848	989	7,275	7,622	17,299	120	537	805	939	7,395	7,622	17,299	151	676	1,013	1,182	14,428	-	17,299
2030	223,080	1.09	17,490	537	805	939	7,395	7,814	17,490	-	537	805	939	7,395	7,814	17,490	114	510	765	892	7,509	7,814	17,490	144	642	963	1,123	14,763	-	17,490



Evaluation Through 2030

Cost To PUC - Materials	
Present Value of Cum. Cost (\$1,000)	536
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)	194 \$/AF

Cost To PUC - Consultants	
Present Value of Cum. Cost (\$1,000)	-
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)	- \$/AF

Cost To PUC - Administrative	
Present Value of Cum. Cost (\$1,000)	120
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)	43 \$/AF

Cost To PUC - Total	
Present Value of Cum. Cost (\$1,000)	656
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)	237 \$/AF

Cost To Customer	
Present Value of Cum. Cost (\$1,000)	441
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)	160 \$/AF

Total Costs	
Present Value of Cum. Cost (\$1,000)	1,097
Cumulative Water Savings	2,763 AF
Present Value of Savings (Cost)</	

Results			Economics														Market Penetration of Less than or Equal to 0.5 gallons/flush		Reduction in Water Use as Compared to Base Year 2000		Average Flushes rate in gallons with Program	Average Flushes per person	Year
No Action AF	With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost		With Program in %	No Action in %	%	mgd				
			Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)								
926.2	911	15	250	50	50	-	-	12.5	13	63	63	50.0	50	113	113	2.1%	0.0%	8.0%	0.07	2.62	1.69	2005	
892.1	859	33	505	58	55	-	-	13.5	13	72	68	51.5	49	123	116	6.1%	0.0%	14.4%	0.13	2.45	1.69	2006	
860.5	812	49	505	60	53	-	-	13.9	12	74	66	53.0	47	127	113	9.9%	0.0%	20.3%	0.18	2.30	1.69	2007	
831.3	768	63	505	62	52	-	-	14.4	12	76	64	54.6	46	131	110	13.6%	0.0%	25.7%	0.24	2.16	1.69	2008	
804.1	728	77	505	63	50	-	-	14.8	12	78	62	56.3	45	135	107	17.2%	0.0%	30.6%	0.29	2.04	1.69	2009	
779.0	690	89	505	65	49	-	-	15.2	11	81	60	58.0	43	139	104	20.6%	0.0%	35.0%	0.33	1.92	1.69	2010	
759.6	660	100	474	66	47	-	-	15.6	11	82	58	59.7	42	142	100	23.8%	0.0%	38.4%	0.37	1.81	1.69	2011	
741.6	631	111	474	68	45	-	-	16.1	11	84	56	61.5	41	146	97	28.8%	0.0%	41.6%	0.40	1.72	1.69	2012	
724.9	604	121	474	70	44	-	-	16.5	10	87	55	63.3	40	150	94	29.7%	0.0%	44.5%	0.43	1.63	1.69	2013	
709.4	580	130	474	73	43	-	-	17.0	10	90	53	65.2	39	155	92	32.6%	0.0%	47.2%	0.46	1.54	1.69	2014	
695.0	566	129	224	8	4	-	-	0.8	0	8	5	-	-	8	5	33.6%	0.0%	48.8%	0.48	1.49	1.69	2015	
680.9	554	127	199	7	4	-	-	0.7	0	8	4	-	-	8	4	34.5%	0.0%	50.3%	0.50	1.45	1.69	2016	
667.7	542	126	199	7	4	-	-	0.7	0	8	4	-	-	8	4	35.4%	0.0%	51.8%	0.52	1.40	1.69	2017	
655.5	530	125	199	7	3	-	-	0.7	0	8	4	-	-	8	4	36.2%	0.0%	53.1%	0.54	1.36	1.69	2018	
644.2	520	124	199	8	3	-	-	0.8	0	8	4	-	-	8	4	37.0%	0.0%	54.3%	0.55	1.33	1.69	2019	
633.7	510	124	199	8	3	-	-	0.8	0	9	4	-	-	9	4	37.8%	0.0%	55.5%	0.57	1.29	1.69	2020	
623.4	500	123	194	8	3	-	-	0.8	0	9	3	-	-	9	3	38.6%	0.0%	56.6%	0.58	1.26	1.69	2021	
613.8	491	123	194	8	3	-	-	0.8	0	9	3	-	-	9	3	39.3%	0.0%	57.7%	0.60	1.22	1.69	2022	
604.9	483	122	194	8	3	-	-	0.8	0	9	3	-	-	9	3	40.1%	0.0%	58.7%	0.61	1.20	1.69	2023	
596.7	475	122	194	8	3	-	-	0.8	0	9	3	-	-	9	3	40.8%	0.0%	59.7%	0.63	1.17	1.69	2024	
589.1	467	122	194	9	3	-	-	0.9	0	10	3	-	-	10	3	41.5%	0.0%	60.6%	0.64	1.14	1.69	2025	
582.0	460	122	192	9	3	-	-	0.9	0	10	3	-	-	10	3	42.1%	0.0%	61.4%	0.65	1.12	1.69	2026	
575.6	454	122	192	9	3	-	-	0.9	0	10	3	-	-	10	3	42.8%	0.0%	62.2%	0.67	1.09	1.69	2027	
569.6	448	122	192	9	2	-	-	0.9	0	10	3	-	-	10	3	43.4%	0.0%	63.0%	0.68	1.07	1.69	2028	
564.1	442	122	192	10	2	-	-	1.0	0	11	3	-	-	11	3	44.1%	0.0%	63.7%	0.69	1.05	1.69	2029	
559.1	437	122	192	10	2	-	-	1.0	0	11	3	-	-	11	3	44.7%	0.0%	64.3%	0.70	1.03	1.69	2030	

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-6

Measure(s): 19 Toilets -ULF Rebate

Source: RetailConservation.xls

Master.xls

Entered by User

Assumptions

Existing Non-residential Pre 1995 Toilets

Year	Toilets	Hotel Toilets	School Toilets	Remaining Toilets	End-use Flushing @ 2000 Flush Volume mgd
2000	81,174	32,250	4,815	44,109	2.91
2005	81,174	32,250	4,815	44,109	3.01
2010					3.17
2015					3.30
2020					3.42
2025					3.54
2030					3.65

2005 Market Penetration

Gallons/flush	% Population	Gallons/flush	% Population
7	5.05%	3.5	43.20%
5	5.05%	1.6	23.11%
Retrofit (5.5)		Total 100.00%	
Year 2005	3.79 gallons/flush	Pre 1995 stock	
Base Yr 2000	4.01 gallons/flush	Pre 1995 stock	

Proposed Program

Discount Rate	M19-Rebate
Inflation	6.0%
	3.0%
Start	2005
End	2007
Program Length	3 yrs
No. of Rebates	500 rebates/year
Measure Life	999 years
Utility Cost	\$60 /unit
Customer Cost	\$190 /unit
Admin Cost	25% % utility material cost
Consultant Cost	\$0 /unit

Other

Nat. Replace w/ Low Water Use Device	4.00%
Life Expectancy (for Natural Replacement Computation)	25 years
Toilets per non-residential account	6
Decay Rate on Retrofit	5%
Rate of low flush toilets	1.6 gpf
% of flushes are toilets	70%
Number of non-residential accounts	13,529

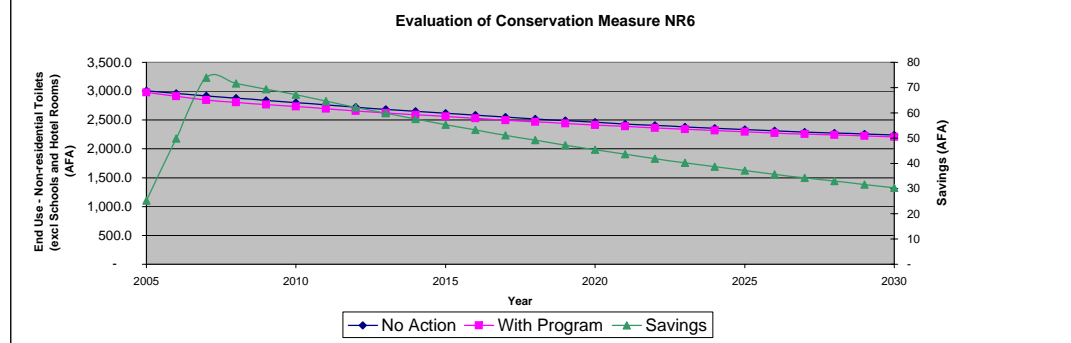
Computation of flushes per day

Year	Employment	Service Industry	Construction	Difference	Avg # Flush/day/emp	Estimated Accounts	Total Toilets	Remaining employees/toilet
2000	634,430	281,510	22,420	330,500	1.691	13,529	44,109	13.88
2005	656,480	291,150	23,290	342,040	1.691	13,999	44,109	14.36
2010	690,420	309,870	24,080	356,470	1.694	14,723	46,418	
2015	719,810	322,550	25,140	372,120	1.694	15,350	48,447	
2020	745,600	333,270	26,150	386,180	1.693	15,900	50,247	
2025	770,500	345,100	26,900	398,500	1.694	16,431	52,000	
2030	795,400	356,930	27,650	410,820	1.694	16,962	53,734	

Flushes per day for non service industry: 1.43 flushes per day
 Flushes per day for service industry: 2.00 flushes per day

Calculations

Year	Employees Using Toilets	Unadjusted Water Use Based on 2000 Market Penetration mgd	Estimated Toilets	Toilets at Beginning of Year (gallons/flush)					Measure 19 Total Units	M19 - Rebate					Natural Replacement Remaining Toilets (gallons/flush)	Decay Rate on Retrofit														
				7	5	5.5	3.5	1.6		Total Toilets	7	5	5.5	3.5		1.6	Total Toilets	7	5	5.5	3.5	1.6	Total Toilets							
2005	428,407	3.01	44,109	2,227	2,227	10,405	19,055	10,194	44,109	500	2,195	2,195	10,252	18,774	10,694	44,109	1,337	2,107	2,107	9,842	18,023	12,030	44,109	492	2,353	2,353	9,350	18,023	12,030	44,109
2006	431,372	3.04	44,109	2,353	2,353	9,350	18,023	12,030	44,109	500	2,316	2,316	9,204	17,742	12,530	44,109	1,263	2,224	2,224	8,836	17,032	13,793	44,109	442	2,444	2,444	8,394	17,032	13,793	44,109
2007	434,337	3.07	44,109	2,444	2,444	8,394	17,032	13,793	44,109	500	2,404	2,404	8,256	16,752	14,293	44,109	1,193	2,308	2,308	7,925	16,082	15,486	44,109	396	2,506	2,506	7,529	16,082	15,486	44,109
2008	437,303	3.10	44,109	2,506	2,506	7,529	16,082	15,486	44,109	-	2,506	2,506	7,529	16,082	15,486	44,109	1,145	2,406	2,406	7,228	15,438	16,631	44,109	361	2,587	2,587	6,867	15,438	16,631	44,109
2009	440,268	3.14	44,109	2,587	2,587	6,867	15,438	16,631	44,109	-	2,587	2,587	6,867	15,438	16,631	44,109	1,099	2,483	2,483	6,592	14,821	17,730	44,109	330	2,648	2,648	6,262	14,821	17,730	44,109
2010	443,233	3.17	44,109	2,648	2,648	6,262	14,821	17,730	44,109	-	2,648	2,648	6,262	14,821	17,730	44,109	1,055	2,542	2,542	6,012	14,228	18,785	44,109	301	2,692	2,692	5,711	14,228	18,785	44,109
2011	447,874	3.20	44,571	2,692	2,692	5,711	14,228	19,247	44,571	-	2,692	2,692	5,711	14,228	19,247	44,571	1,013	2,585	2,585	5,483	13,659	20,260	44,571	274	2,722	2,722	5,209	13,659	20,260	44,571
2012	452,515	3.22	45,033	2,722	2,722	5,209	13,659	20,722	45,033	-	2,722	2,722	5,209	13,659	20,722	45,033	972	2,613	2,613	5,000	13,112	21,694	45,033	250	2,738	2,738	4,750	13,112	21,694	45,033
2013	457,156	3.25	45,495	2,738	2,738	4,750	13,112	22,156	45,495	-	2,738	2,738	4,750	13,112	22,156	45,495	934	2,628	2,628	4,560	12,588	23,090	45,495	228	2,742	2,742	4,332	12,588	23,090	45,495
2014	461,797	3.28	45,956	2,742	2,742	4,332	12,588	23,552	45,956	-	2,742	2,742	4,332	12,588	23,552	45,956	896	2,633	2,633	4,159	12,084	24,448	45,956	208	2,737	2,737	3,951	12,084	24,448	45,956
2015	466,438	3.30	46,418	2,737	2,737	3,951	12,084	24,910	46,418	-	2,737	2,737	3,951	12,084	24,910	46,418	860	2,627	2,627	3,793	11,601	25,770	46,418	190	2,722	2,722	3,603	11,601	25,770	46,418
2016	470,404	3.33	46,824	2,722	2,722	3,603	11,601	26,176	46,824	-	2,722	2,722	3,603	11,601	26,176	46,824	826	2,613	2,613	3,459	11,137	27,002	46,824	173	2,700	2,700	3,286	11,137	27,002	46,824
2017	474,370	3.35	47,230	2,700	2,700	3,286	11,137	27,407	47,230	-	2,700	2,700	3,286	11,137	27,407	47,230	793	2,592	2,592	3,155	10,692	28,200	47,230	158	2,670	2,670	2,997	10,692	28,200	47,230
2018	478,337	3.37	47,635	2,670	2,670	2,997	10,692	28,606	47,635	-	2,670	2,670	2,997	10,692	28,606	47,635	761	2,564	2,564	2,877	10,264	29,367	47,635	144	2,636	2,636	2,733	10,264	29,367	47,635
2019	482,303	3.40	48,041	2,636	2,636	2,733	10,264	29,773	48,041	-	2,636	2,636	2,733	10,264	29,773	48,041	731	2,530	2,530	2,624	9,853	30,504	48,041	131	2,596	2,596	2,493	9,853	30,504	48,041
2020	486,269	3.42	48,447	2,596	2,596	2,493	9,853	30,909	48,447	-	2,596	2,596	2,493	9,853	30,909	48,447	701	2,492	2,492	2,393	9,459	31,611	48,447	120	2,552	2,552	2,273	9,459	31,611	48,447
2021	489,738	3.44	48,807	2,552	2,552	2,273	9,459	31,971	48,807	-	2,552	2,552	2,273	9,459	31,971	48,807	673	2,450	2,450	2,182	9,081	32,644	48,807	109	2,504	2,504	2,073	9,081	32,644	48,807
2022	493,207	3.47	49,167	2,504	2,504	2,073	9,081	33,004	49,167	-	2,504	2,504	2,073	9,081	33,004	49,167	647	2,404	2,404	1,990	8,718	33,651	49,167	100	2,454	2,454	1,891	8,718	33,651	49,167
2023	496,677	3.49	49,527	2,454	2,454	1,891	8,718	34,011	49,527	-	2,454	2,454	1,891	8,718	34,011	49,527	621	2,356	2,356	1,815	8,369	34,631	49,527	91	2,401	2,401	1,724	8,369	34,631	49,527
2024	500,146	3.51	49,887	2,401	2,401	1,724	8,369	34,991	49,887	-	2,401	2,401	1,724	8,369	34,991	49,887	596	2,305	2,305	1,656	8,034	35,587	49,887	83	2,346	2,346	1,573	8,034	35,587	49,887
2025	503,615	3.54	50,247	2,346	2,346	1,573	8,034	35,947	50,247	-	2,346	2,346	1,573	8,034	35,947	50,247	572	2,253	2,253	1,510	7,713	36,519	50,247	75	2,290	2,290	1,434	7,713	36,519	50,247
2026	506,996	3.56	50,597	2,290	2,290	1,434	7,713	36,870	50,597	-	2,290	2,290	1,434	7,713	36,870	50,597	549	2,199	2,199	1,377	7,404	37,419	50,597	69	2,233	2,233	1,308	7,404	37,419	50,597
2027	510,377	3.58	50,948	2,233	2,233	1,308	7,404	37,769	50,948	-	2,233	2,233	1,308	7,404	37,769	50,948	527	2,144	2,144	1,256	7,108	38,297	50,948	63	2,175	2,175	1,193	7,108	38,297	50,948
2028	513,758	3.60	51,298	2,175	2,175	1,193	7,108	38,647	51,298	-	2,175	2,175	1,193	7,108	38,647	51,298	506	2,088	2,088	1,145	6,824	39,153	51,298	57	2,117	2,117	1,088	6,824	39,153	51,298
2029	517,139	3.63	51,649	2,117	2,117	1,088	6,824	39,504	51,649	-	2,117	2,117	1,088	6,824	39,504	51,649	486	2,032	2,032	1,044	6,551	39,990	51,649	52	2,058	2,058	992	6,551	39,990	51,649
2030	520,520	3.65	52,000	2,058	2,058	992	6,551	40,340	52,000	-	2,058	2,058	992	6,551	40,340	52,000	466	1,976	1,976	953	6,289	40,806	52,000	48	2,000	2,000	905	6,289	40,806	52,000



Evaluation Through 2030

Cost To PUC - Materials	
Present Value of Cum. Cost (\$1,000)	87
Cumulative Water Savings	1,269 AF
Present Value of Savings (Cost)	69 \$/AF
Cost To PUC - Consultants	
Present Value of Cum. Cost (\$1,000)	-
Cumulative Water Savings	1,269 AF
Present Value of Savings (Cost)	- \$/AF
Cost To PUC - Administrative	
Present Value of Cum. Cost (\$1,000)	22
Cumulative Water Savings	1,269 AF
Present Value of Savings (Cost)	17 \$/AF
Cost To PUC - Total	
Present Value of Cum. Cost (\$1,000)	109
Cumulative Water Savings	1,269 AF
Present Value of Savings (Cost)	86 \$/AF
Cost To Customer	
Present Value of Cum. Cost (\$1,000)	277
Cumulative Water Savings	1,269 AF
Present Value of Savings (Cost)	218 \$/AF

No Action														Results			Economics										Market Penetration of Less than or Equal to 1.6 gallons/flush		Reduction in Water Use as Compared to Base Year 2000		Average Flushes rate in gallons with Program	Average Flushes per person	Year			
Natural Replacement							Decay of Retrofit Toilets							No Action AF	With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost		With Program in %				No Action in %	%	mgd
Natural Replacement	7	5	5.5	3.5	1.6	Total Toilets	Retrofit Decay	7	5	5.5	3.5	1.6	Total Toilets				Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)		Cost (\$1,000)	PV (\$1,000)				
1,357	2,138	2,138	9,989	18,293	11,550	44,109	499	2,388	2,388	9,490	18,293	11,550	44,109	3,006.0	2,981	25	-	-	-	-	8	8	38	38	95	95	133	133	27.3%	26.2%	11.5%	0.34	3.67	1.69	2005	
1,302	2,293	2,293	9,110	17,561	12,853	44,109	456	2,520	2,520	8,655	17,561	12,853	44,109	2,962.2	2,912	50	-	-	-	-	8	7	39	36	98	92	136	129	31.3%	29.1%	14.4%	0.44	3.56	1.69	2006	
1,250	2,420	2,420	8,308	16,859	14,103	44,109	415	2,627	2,627	7,893	16,859	14,103	44,109	2,919.8	2,846	74	-	-	-	-	8	7	40	35	101	90	141	125	35.1%	32.0%	17.3%	0.53	3.46	1.69	2007	
1,200	2,522	2,522	7,577	16,184	15,303	44,109	379	2,712	2,712	7,198	16,184	15,303	44,109	2,878.7	2,807	72	-	-	-	-	-	-	-	-	-	-	-	-	-	37.7%	34.7%	19.3%	0.60	3.39	1.69	2008
1,152	2,603	2,603	6,910	15,537	16,455	44,109	346	2,776	2,776	6,565	15,537	16,455	44,109	2,838.9	2,770	69	-	-	-	-	-	-	-	-	-	-	-	-	-	40.2%	37.3%	21.2%	0.66	3.32	1.69	2009
1,106	2,665	2,665	6,302	14,915	17,562	44,109	315	2,822	2,822	5,987	14,915	17,562	44,109	2,800.4	2,733	67	-	-	-	-	-	-	-	-	-	-	-	-	-	42.6%	39.8%	23.0%	0.73	3.25	1.69	2010
1,062	2,710	2,710	5,748	14,319	19,085	44,571	287	2,853	2,853	5,460	14,319	19,085	44,571	2,759.9	2,695	65	-	-	-	-	-	-	-	-	-	-	-	-	-	45.5%	42.8%	24.7%	0.79	3.18	1.69	2011
1,019	2,739	2,739	5,242	13,746	20,567	45,033	262	2,870	2,870	4,980	13,746	20,567	45,033	2,721.4	2,659	62	-	-	-	-	-	-	-	-	-	-	-	-	-	48.2%	45.7%	26.3%	0.85	3.10	1.69	2012
979	2,755	2,755	4,781	13,196	22,007	45,495	239	2,875	2,875	4,542	13,196	22,007	45,495	2,684.7	2,625	60	-	-	-	-	-	-	-	-	-	-	-	-	-	50.8%	48.4%	27.9%	0.91	3.03	1.69	2013
939	2,760	2,760	4,360	12,668	23,408	45,956	218	2,869	2,869	4,142	12,668	23,408	45,956	2,649.9	2,592	58	-	-	-	-	-	-	-	-	-	-	-	-	-	53.2%	50.9%	29.4%	0.96	2.96	1.69	2014
902	2,754	2,754	3,976	12,162	24,772	46,418	199	2,853	2,853	3,777	12,162	24,772	46,418	2,616.9	2,562	55	-	-	-	-	-	-	-	-	-	-	-	-	-	55.5%	53.4%	30.8%	1.02	2.89	1.69	2015
866	2,739	2,739	3,626	11,675	26,044	46,824	181	2,830	2,830	3,445	11,675	26,044	46,824	2,582.3	2,529	53	-	-	-	-	-	-	-	-	-	-	-	-	-	57.7%	55.6%	32.1%	1.07	2.83	1.69	2016
831	2,717	2,717	3,307	11,208	27,281	47,230	165	2,799	2,799	3,142	11,208	27,281	47,230	2,549.3	2,498	51	-	-	-	-	-	-	-	-	-	-	-	-	-	59.7%	57.8%	33.4%	1.12	2.78	1.69	2017
798	2,688	2,688	3,016	10,760	28,484	47,635	151	2,763	2,763	2,865	10,760	28,484	47,635	2,518.1	2,469	49	-	-	-	-	-	-	-	-	-	-	-	-	-	61.6%	59.8%	34.7%	1.17	2.72	1.69	2018
766	2,652	2,652	2,751	10,329	29,656	48,041	138	2,721	2,721	2,613	10,329	29,656	48,041	2,488.5	2,441	47	-	-	-	-	-	-	-	-	-	-	-	-	-	63.5%	61.7%	35.8%	1.22	2.67	1.69	2019
735	2,612	2,612	2,509	9,916	30,797	48,447	125	2,675	2,675	2,383	9,916	30,797	48,447	2,460.4	2,415	45	-	-	-	-	-	-	-	-	-	-	-	-	-	65.2%	63.6%	37.0%	1.26	2.62	1.69	2020
706	2,568	2,568	2,288	9,520	31,863	48,807	114	2,625	2,625	2,174	9,520	31,863	48,807	2,432.2	2,389	44	-	-	-	-	-	-	-	-	-	-	-	-	-	66.9%	65.3%	38.1%	1.31	2.57	1.69	2021
678	2,520	2,520	2,087	9,139	32,901	49,167	104	2,572	2,572	1,982	9,139	32,901	49,167	2,405.5	2,364	42	-	-	-	-	-	-	-	-	-	-	-	-	-	68.4%	66.9%	39.1%	1.36	2.53	1.69	2022
651	2,469	2,469	1,903	8,773	33,912	49,527	95	2,517	2,517	1,808	8,773	33,912	49,527	2,380.1	2,340	40	-	-	-	-	-	-	-	-	-	-	-	-	-	69.9%	68.5%	40.1%	1.40	2.48	1.69	2023
625	2,416	2,416	1,736	8,422	34,896	49,887	87	2,460	2,460	1,649	8,422	34,896	49,887	2,356.2	2,318	39	-	-	-	-	-	-	-	-	-	-	-	-	-	71.3%	70.0%	41.1%	1.44	2.44	1.69	2024
600	2,361	2,361	1,583	8,085	35,856	50,247	79	2,401	2,401	1,504	8,085	35,856	50,247	2,333.5	2,296	37	-	-	-	-	-	-	-	-	-	-	-	-	-	72.7%	71.4%	42.0%	1.49	2.40	1.69	2025
576	2,305	2,305	1,443	7,762	36,782	50,597	72	2,341	2,341	1,371	7,762	36,782	50,597	2,312.2	2,277	36	-	-	-	-	-	-	-	-	-	-	-	-	-	74.0%	72.7%	42.9%	1.53	2.37	1.69	2026
553	2,247	2,247	1,316	7,452	37,685	50,948	66	2,280	2,280	1,251	7,452	37,685	50,948	2,292.1	2,258	34	-	-	-	-	-	-	-	-	-	-	-	-	-	75.2%	74.0%	43.7%	1.57	2.33	1.69	2027
531	2,189	2,189	1,201	7,153	38,566	51,298	60	2,219	2,219	1,141	7,153	38,566	51,298	2,273.2	2,240	33	-	-	-	-	-	-	-	-	-	-	-	-	-	76.3%	75.2%	44.5%	1.60	2.30	1.69	2028
509	2,130	2,130	1,095	6,867	39,426	51,649	55	2,158	2,158	1,040	6,867	39,426	51,649	2,255.3	2,224	32	-	-	-	-	-	-	-	-	-	-	-	-	-	77.4%	76.3%	45.3%	1.64	2.27	1.69	2029
489	2,071	2,071	999	6,593	40,266	52,000	50	2,096	2,096	949	6,593	40,266	52,000	2,238.6	2,208	30	-	-	-	-	-	-	-	-	-	-	-	-	-	78.5%	77.4%	46.0%	1.68	2.24	1.69	2030

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures
 Model No. NR-7
 Measure(s): 20 Large Innovative Retrofit Incentives

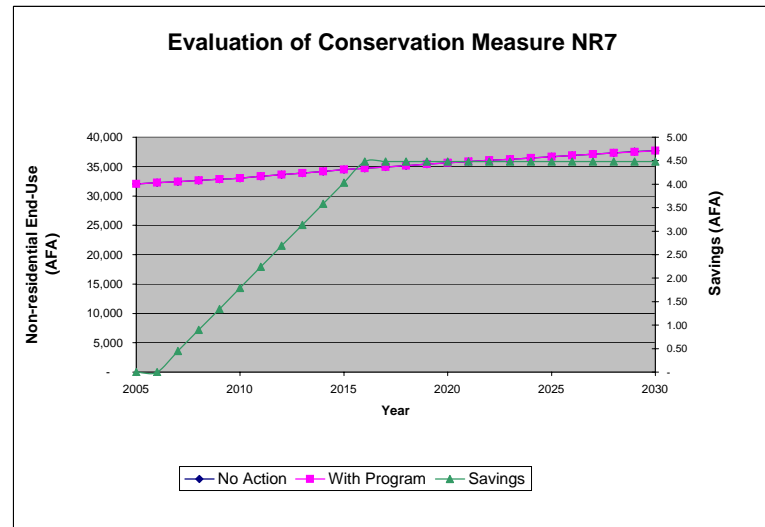
Source: RetailConservation.xls
 Master.xls
 Entered by User

Assumptions

Current Use Assumptions			Proposed Program		
Irrigated Area and Customers			Discount Rate	6.0%	
Year	Employees	Water Use (mgd)	Inflation	3.0%	
2005	656,480	28.62	Start	2007 Year	
2010	690,420	29.49	End	2016 Year	
2015	719,810	30.78	Participation	1 sites/year	
2020	745,600	31.82	Reduction in Use	400 gal/day	
2025	770,500	32.75	Program Length	10 Years	
2030	795,400	33.69	Measure Life	999 Years	
Base Year 2000			Utility Cost	\$2,700 /account	
Accounts	13,529		Admin Cost	100% utility material cost	
Water Use	28.62	MGD	Customer Unit Cost	\$50,000 /account	
Employees	634,430		Consultant Unit Cost	\$4,000 /account	
Employees	46.89	/account			
Desired Savings Requirement (gal/day)		400			
Desired Savings Requirement (afa)		0.45			
Accounts with use exceeding 5000gpd		710			

Calculations

Year	Large Innovative Retrofit Incentives				Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd						
	Total Non-residential Use mgd	Accounts	Number of Accounts Participating in Program	Cumulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost					
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)			
2005	28.6	13,999	0.0	-	32,057	32,057	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2006	28.8	14,144	0.0	-	32,253	32,253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2007	29.0	14,289	1.0	1	32,450	32,449	0.45	1	3	3	4	4	2.9	3	10	9	53	47	63	56	65	54	0.0%	-	0.00	
2008	29.1	14,433	1.0	2	32,646	32,645	0.90	1	3	2	4	4	3.0	2	10	9	55	46	65	54	65	54	0.0%	-	0.00	
2009	29.3	14,578	1.0	3	32,842	32,841	1.34	1	3	2	5	4	3.0	2	11	8	56	45	67	53	67	53	0.0%	-	0.00	
2010	29.5	14,723	1.0	4	33,039	33,037	1.79	1	3	2	5	3	3.1	2	11	8	58	43	69	51	69	51	0.0%	-	0.00	
2011	29.8	14,848	1.0	5	33,327	33,325	2.24	1	3	2	5	3	3.2	2	11	8	60	42	71	50	71	50	0.0%	-	0.00	
2012	30.0	14,974	1.0	6	33,615	33,613	2.69	1	3	2	5	3	3.3	2	12	8	61	41	73	49	73	49	0.0%	-	0.00	
2013	30.3	15,099	1.0	7	33,904	33,901	3.14	1	3	2	5	3	3.4	2	12	7	63	40	75	47	75	47	0.0%	-	0.00	
2014	30.5	15,224	1.0	8	34,192	34,188	3.58	1	4	2	5	3	3.5	2	12	7	65	39	78	46	78	46	0.1%	-	0.00	
2015	30.8	15,350	1.0	9	34,480	34,476	4.03	1	4	2	5	3	3.6	2	13	7	67	38	80	45	80	45	0.1%	-	0.00	
2016	31.0	15,460	1.0	10	34,712	34,708	4.48	1	4	2	6	3	3.7	2	13	7	69	36	82	43	82	43	0.1%	-	0.00	
2017	31.2	15,570	0.0	10	34,944	34,940	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2018	31.4	15,680	0.0	10	35,177	35,172	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2019	31.6	15,790	0.0	10	35,409	35,404	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2020	31.8	15,900	0.0	10	35,641	35,636	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2021	32.0	16,006	0.0	10	35,849	35,844	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2022	32.2	16,112	0.0	10	36,057	36,053	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2023	32.4	16,218	0.0	10	36,265	36,261	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2024	32.6	16,324	0.0	10	36,474	36,469	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2025	32.7	16,431	0.0	10	36,682	36,678	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2026	32.9	16,537	0.0	10	36,892	36,888	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2027	33.1	16,643	0.0	10	37,103	37,098	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2028	33.3	16,749	0.0	10	37,313	37,308	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2029	33.5	16,855	0.0	10	37,523	37,519	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	
2030	33.7	16,962	0.0	10	37,733	37,729	4.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1%	-	0.00	



Evaluation Through 2030

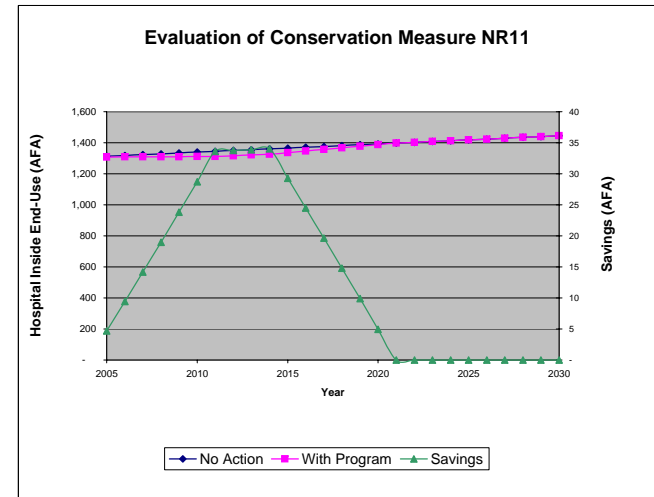
Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$22	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$304	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$33	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$450	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$22	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$304	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$78	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$1,059	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$416	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$5,631	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	\$495	
Cumulative Water Savings	74	AF
Present Value of Savings (Cost)	\$6,690	\$/AF

Evaluation of Conservation Measures
Water Savings - Nonresidential Measures
 Model No. NR-11
 Measure(s): 24 Hospital Audits

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions			Proposed Program		
Year	Population of SF	Indoor Hospital Use Est	Discount Rate	6.0%	
2005	772,470	1.17 mgd	Inflation	3.0%	
2010	787,965	1.20 mgd	Start	2005 Year	
2015	803,459	1.22 mgd	End	2014 Year	
2020	818,954	1.24 mgd	Participation	2.0 sites/year	
2025	834,448	1.27 mgd	Reduction in Use	5% gal/day	
2030	849,942	1.29 mgd	Program Length	10 Years	
Base Year 2000			Measure Life	7 Years	
Bed	5,310		Utility Cost	\$2,300 /account	
Water Use	216.30 gal/bed/day		Admin Cost	25% utility material cost	
Beds/Hospital	184 average		Customer Unit Cost	\$5,000 /account	
SF Population	756,976 people		Consultant Unit Cost	\$0 /account	
Inside Hosp Use	1.1 mgd				
Hospitals	28				

Year	Hospital Audits				Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd				
	Estimated Hospital Inside Use mgd	Hospitals	Number of Hospitals Participating in Program	Cummulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost			
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)
2005	1.2	28	2.0	2	1,313	1,308	5	2	5	5	-	-	-	1.2	1	6	6	10	10	16	16	7.1%	-	0.00
2006	1.2	28	2.0	4	1,318	1,309	9	2	5	4	-	-	-	1.2	1	6	6	10	10	16	15	14.3%	-	0.01
2007	1.2	28	2.0	6	1,323	1,309	14	2	5	4	-	-	-	1.2	1	6	5	11	9	17	15	21.4%	-	0.01
2008	1.2	28	2.0	8	1,329	1,310	19	2	5	4	-	-	-	1.3	1	6	5	11	9	17	14	28.6%	-	0.02
2009	1.2	28	2.0	10	1,334	1,310	24	2	5	4	-	-	-	1.3	1	6	5	11	9	18	14	35.7%	-	0.02
2010	1.2	28	2.0	12	1,339	1,311	29	2	5	4	-	-	-	1.3	1	7	5	12	9	18	14	42.9%	-	0.03
2011	1.2	28	2.0	14	1,344	1,311	34	2	5	4	-	-	-	1.4	1	7	5	12	8	19	13	50.0%	-	0.03
2012	1.2	28	2.0	14	1,350	1,316	34	2	6	4	-	-	-	1.4	1	7	5	12	8	19	13	50.0%	2	0.03
2013	1.2	28	2.0	14	1,355	1,321	34	2	6	4	-	-	-	1.5	1	7	5	13	8	20	13	50.0%	2	0.03
2014	1.2	28	2.0	14	1,360	1,326	34	2	6	4	-	-	-	1.5	1	8	4	13	8	21	12	50.0%	2	0.03
2015	1.2	28	0.0	12	1,366	1,336	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.9%	2	0.03
2016	1.2	28	0.0	10	1,371	1,346	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7%	2	0.02
2017	1.2	28	0.0	8	1,376	1,356	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.6%	2	0.02
2018	1.2	28	0.0	6	1,381	1,367	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4%	2	0.01
2019	1.2	28	0.0	4	1,387	1,377	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.3%	2	0.01
2020	1.2	28	0.0	2	1,392	1,387	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.1%	2	0.00
2021	1.2	28	0.0	-	1,397	1,397	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	2	-
2022	1.3	28	0.0	-	1,402	1,402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2023	1.3	28	0.0	-	1,408	1,408	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2024	1.3	28	0.0	-	1,413	1,413	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2025	1.3	28	0.0	-	1,418	1,418	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2026	1.3	28	0.0	-	1,423	1,423	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2027	1.3	28	0.0	-	1,429	1,429	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2028	1.3	28	0.0	-	1,434	1,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2029	1.3	28	0.0	-	1,439	1,439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2030	1.3	28	0.0	-	1,445	1,445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$41	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$120	\$/AF

Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$0	\$/AF

Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$10	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$30	\$/AF

Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$51	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$150	\$/AF

Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$88	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$261	\$/AF

Total Costs		
Present Value of Cum. Cost (\$1,000)	\$139	
Cumulative Water Savings	338	AF
Present Value of Savings (Cost)	\$411	\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-12

Measure(s): 25 Self-service Coin Laundries

Source: RetailConservation.xls

Master.xls

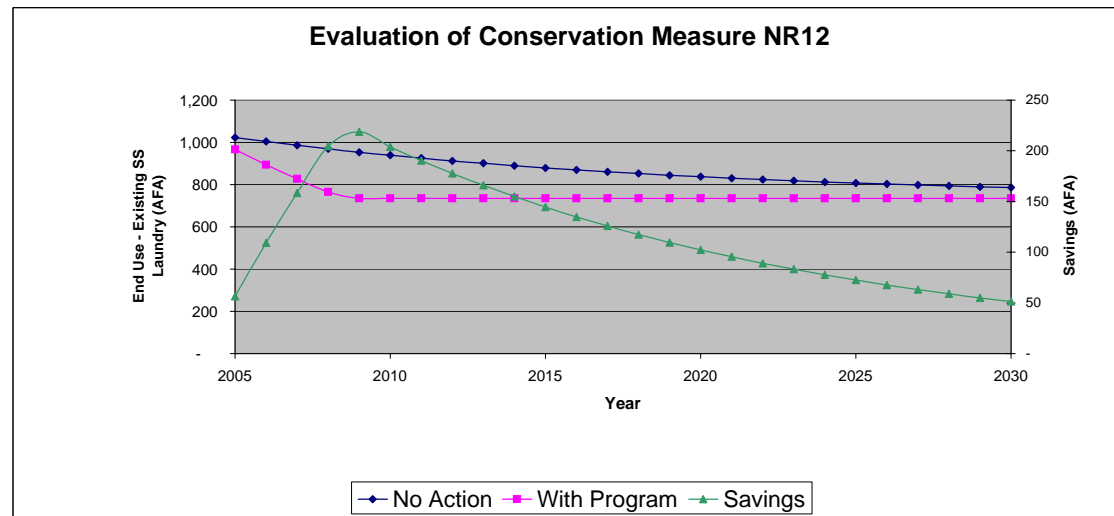
Entered by User

Assumptions

Current Use Assumptions		Proposed Program	
<i>Evaluate Existing Population Only</i>			
Base Year 2000			
Establishments	78	Start	2005 Year
Total Employees	273 Estimated	End	2010 Year
Water Use	3,413.0 gpd	Rebates	200 /year
SF Population	756,976 people	Program Length	6 Years
Water Use	0.93 mgd	Measure Life	999 Years
Average Fixtures	20 units/establishment	Utility Cost	\$200 /account
Population est	1560 units	Admin Cost	25% utility material cost
Estimate of LF	30% units in 2005	Customer Unit Cost	\$100 /account
Estimated loads	16.8 /day yr 2000	Consultant Unit Cost	\$0 /account
		Nat. Replace	6.7%
		Life Expectancy	15 Years
		Water Use of Non LF Units	40 g/load
		Water Use of LF Units	25 g/load

Self-service Coin Laundries

Year	With Measure							No Action							Results			Economics										Adjustment to Forecast mgd	Average gpl with Program						
	Estimated Washer Population at Beginning of Year			Existing Clothes Washers	Natural Replacement	Rebates	Estimated Washer Population at End of Year			Est. Washer Population at Beginning of Year			Existing Clothes Washers	Natural Replacement	Estimated Washer Population at End of Year			No Action AF	With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative				Cost to PUC - Total		Cost to Public - Total		Total Cost	
	Low Water Use	Other	Total Population				Low Water Use	Other	Total Population	Low Water Use	Existing	Total Population			Low Water Use	Existing	Total Population				Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)			Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	468	1,092	1,560	1,560	73	200	741	819	1,560	468	1,092	1,560	1,560	73	541	1,019	1,560	1,023	967	57	200	40	40	-	-	10	10	50	50	20	20	70	70	0.05	32.88
2006	741	819	1,560	1,560	55	200	995	565	1,560	541	1,019	1,560	1,560	68	609	951	1,560	1,004	895	109	200	41	39	-	-	10	10	52	49	21	19	72	68	0.11	30.43
2007	995	565	1,560	1,560	38	200	1,233	327	1,560	609	951	1,560	1,560	63	672	888	1,560	986	827	159	200	42	38	-	-	11	9	53	47	21	19	74	66	0.17	28.14
2008	1,233	327	1,560	1,560	22	200	1,455	105	1,560	672	888	1,560	1,560	59	731	829	1,560	969	765	205	200	44	37	-	-	11	9	55	46	22	18	76	64	0.23	26.01
2009	1,455	105	1,560	1,560	7	98	1,560	-	1,560	731	829	1,560	1,560	55	787	773	1,560	954	735	219	98	22	17	-	-	6	4	28	22	11	9	39	31	0.26	25.00
2010	1,560	-	1,560	1,560	-	-	1,560	-	1,560	787	773	1,560	1,560	52	838	722	1,560	939	735	204	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2011	1,560	-	1,560	1,560	-	-	1,560	-	1,560	838	722	1,560	1,560	48	886	674	1,560	925	735	190	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2012	1,560	-	1,560	1,560	-	-	1,560	-	1,560	886	674	1,560	1,560	45	931	629	1,560	913	735	178	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2013	1,560	-	1,560	1,560	-	-	1,560	-	1,560	931	629	1,560	1,560	42	973	587	1,560	901	735	166	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2014	1,560	-	1,560	1,560	-	-	1,560	-	1,560	973	587	1,560	1,560	39	1,012	548	1,560	890	735	155	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2015	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,012	548	1,560	1,560	37	1,049	511	1,560	880	735	145	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2016	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,049	511	1,560	1,560	34	1,083	477	1,560	870	735	135	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2017	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,083	477	1,560	1,560	32	1,115	445	1,560	861	735	126	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2018	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,115	445	1,560	1,560	30	1,144	416	1,560	853	735	118	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2019	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,144	416	1,560	1,560	28	1,172	388	1,560	845	735	110	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2020	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,172	388	1,560	1,560	26	1,198	362	1,560	837	735	102	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2021	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,198	362	1,560	1,560	24	1,222	338	1,560	831	735	96	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2022	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,222	338	1,560	1,560	23	1,245	315	1,560	824	735	89	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2023	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,245	315	1,560	1,560	21	1,266	294	1,560	818	735	83	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2024	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,266	294	1,560	1,560	20	1,285	275	1,560	813	735	78	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2025	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,285	275	1,560	1,560	18	1,304	256	1,560	807	735	72	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2026	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,304	256	1,560	1,560	17	1,321	239	1,560	803	735	68	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2027	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,321	239	1,560	1,560	16	1,337	223	1,560	798	735	63	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2028	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,337	223	1,560	1,560	15	1,352	208	1,560	794	735	59	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2029	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,352	208	1,560	1,560	14	1,365	195	1,560	790	735	55	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	
2030	1,560	-	1,560	1,560	-	-	1,560	-	1,560	1,365	195	1,560	1,560	13	1,378	182	1,560	786	735	51	-	-	-	-	-	-	-	-	-	-	-	-	0.26	25.00	



Evaluation Through 2030

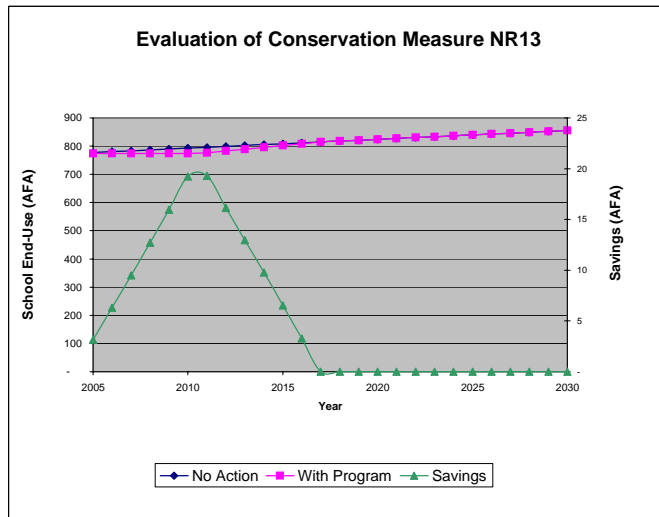
Cost To PUC - Materials	
Present Value of Cum. Cost (\$1,000)	\$171
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$55 /AF
Cost To PUC - Consultants	
Present Value of Cum. Cost (\$1,000)	\$0
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$0 /AF
Cost To PUC - Administrative	
Present Value of Cum. Cost (\$1,000)	\$43
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$14 /AF
Cost To PUC - Total	
Present Value of Cum. Cost (\$1,000)	\$214
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$69 /AF
Cost To Customer	
Present Value of Cum. Cost (\$1,000)	\$85
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$28 /AF
Total Costs	
Present Value of Cum. Cost (\$1,000)	\$299
Cumulative Water Savings	3089.6 AF
Present Value of Savings (Cost)	\$97 /AF

Evaluation of Conservation Measures
 Water Savings - Nonresidential Measures
 Model No. NR-13
 Measure(s): 26 School/University Audits

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions			Proposed Program		
Year	Population of SF	Estimated Use	Discount Rate	6.0%	
2005	772,470	0.69 mgd	Inflation	3.0%	
2010	787,965	0.71 mgd	Start	2005 Year	
2015	803,459	0.72 mgd	End	2010 Year	
2020	818,954	0.74 mgd	Participation	12 sites/year	
2025	834,448	0.75 mgd	Reduction in Use	10% Total Use	
2030	849,942	0.76 mgd	Program Length	6 Years	
Base Year 2000			Measure Life	7 Years	
Total Employees	10,926	Estimated	Utility Cost	\$1,000 /account	
Water Use	62.2	gd	Admin Cost	15% utility material cost	
SF Population	756,976	people	Customer Unit Cost	\$0 /account	
Water Use	0.68	mgd	Consultant Unit Cost	\$0 /account	
Establishments	297				

Year	School/University Audits				Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd			
	Estimated Use mgd	Establishments	Number of Facilities Participating in Program	Cumulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost		
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	0.69	297	12	12	777	774	3	12	12	12	-	-	1.8	2	14	14	-	-	14	14	4.0%	-	0.00
2006	0.70	297	12	24	780	774	6	12	12	12	-	-	1.9	2	14	13	-	-	14	13	8.1%	-	0.01
2007	0.70	297	12	36	784	774	9	12	13	11	-	-	1.9	2	15	13	-	-	15	13	12.1%	-	0.01
2008	0.70	297	12	48	787	774	13	12	13	11	-	-	2.0	2	15	13	-	-	15	13	16.2%	-	0.01
2009	0.71	297	12	60	790	774	16	12	14	11	-	-	2.0	2	16	12	-	-	16	12	20.2%	-	0.01
2010	0.71	297	12	72	793	774	19	12	14	10	-	-	2.1	2	16	12	-	-	16	12	24.2%	-	0.02
2011	0.71	297	0	72	796	777	19	-	-	-	-	-	-	-	-	-	-	-	-	-	24.2%	-	0.02
2012	0.71	297	0	60	799	783	16	-	-	-	-	-	-	-	-	-	-	-	-	-	20.2%	12	0.01
2013	0.72	297	0	48	802	789	13	-	-	-	-	-	-	-	-	-	-	-	-	-	16.2%	12	0.01
2014	0.72	297	0	36	805	796	10	-	-	-	-	-	-	-	-	-	-	-	-	-	12.1%	12	0.01
2015	0.72	297	0	24	809	802	7	-	-	-	-	-	-	-	-	-	-	-	-	-	8.1%	12	0.01
2016	0.72	297	0	12	812	808	3	-	-	-	-	-	-	-	-	-	-	-	-	-	4.0%	12	0.00
2017	0.73	297	0	-	815	815	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	12	-
2018	0.73	297	0	-	818	818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2019	0.73	297	0	-	821	821	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2020	0.74	297	0	-	824	824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2021	0.74	297	0	-	827	827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2022	0.74	297	0	-	830	830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2023	0.74	297	0	-	833	833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2024	0.75	297	0	-	837	837	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2025	0.75	297	0	-	840	840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2026	0.75	297	0	-	843	843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2027	0.76	297	0	-	846	846	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2028	0.76	297	0	-	849	849	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2029	0.76	297	0	-	852	852	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-
2030	0.76	297	0	-	855	855	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$67	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$498	\$/AF

Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$0	\$/AF

Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$10	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$75	\$/AF

Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$77	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$572	\$/AF

Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$0	\$/AF

Total Costs		
Present Value of Cum. Cost (\$1,000)	\$77	
Cumulative Water Savings	135	AF
Present Value of Savings (Cost)	\$572	\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-15

Measure(s): 28 School/University Landscaping Audits

Source: RetailConservation.xls

Master.xls

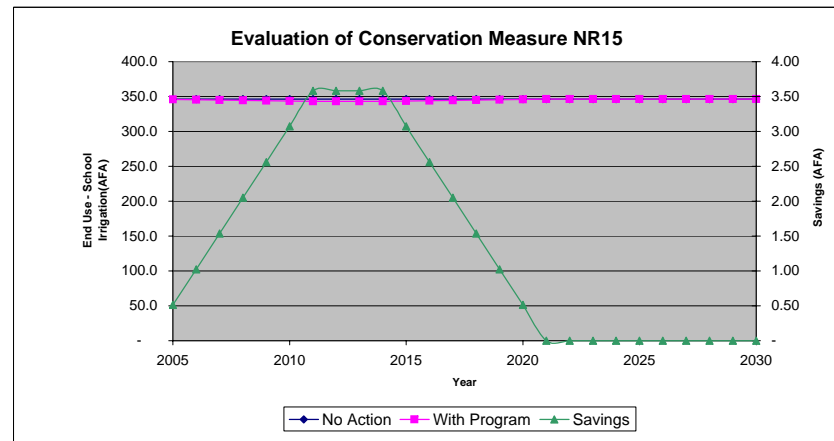
Entered by User

Assumptions			
Current Use Assumptions		Proposed Program	
Irrigated Area and Customers			
Year	Customers	Area (acres)	Water Use (mgd)
2005	51	193	0.31
2010	51	193	0.31
2015	51	193	0.31
2020	51	193	0.31
2025	51	193	0.31
2030	51	193	0.31
Year 2000	Current	Proposed	
Customers	51	51	
Area	192.5 acres	192.5	
Water Use	0.31 mgd	0.26	
Multiplier on Average Water Use 1			
Water Use	Est Current Application	Est Proposed application	
Water Use	4.5 in/month	3.9 in/month	
Months	4.0 mo/year	4.0 mo/year	
Efficiency	80%	82%	

Discount Rate	6.0%
Inflation	3.0%
Start	2005 Year
End	2014 Year
Participation	1% sites/year
Reduction in Use	15% Total Use
Program Length	10 Years
Measure Life	7 Years
Utility Cost	\$800 /acre
Admin Cost	30% utility material cost
Customer Unit Cost	\$200 /acre
Consultant Unit Cost	\$0 /acre

Calculations

Year	School/University Landscaping Audits					Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Outside Savings mgd					
	Landscape Use mgd	Accounts	Acreage per Account	Number of Accounts Participating in Program	Cumulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost				
									Number of Acres	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)		
2005	0.31	51	3.77	1	1	346.5	346.0	0.51	1.9	1.5	2	-	-	0.5	0	2	2	0	0	2	2	2	2	1.0%	-	0.00
2006	0.31	51	3.77	1	1	346.5	345.5	1.02	1.9	1.6	1	-	-	0.5	0	2	2	0	0	2	2	2	2	2.0%	-	0.00
2007	0.31	51	3.77	1	2	346.5	345.0	1.54	1.9	1.6	1	-	-	0.5	0	2	2	0	0	3	2	3	2	3.0%	-	0.00
2008	0.31	51	3.77	1	2	346.5	344.5	2.05	1.9	1.7	1	-	-	0.5	0	2	2	0	0	3	2	3	2	4.0%	-	0.00
2009	0.31	51	3.77	1	3	346.5	343.9	2.56	1.9	1.7	1	-	-	0.5	0	2	2	0	0	3	2	3	2	5.0%	-	0.00
2010	0.31	51	3.77	1	3	346.5	343.4	3.07	1.9	1.8	1	-	-	0.5	0	2	2	0	0	3	2	3	2	6.0%	-	0.00
2011	0.31	51	3.77	1	4	346.5	342.9	3.58	1.9	1.8	1	-	-	0.6	0	2	2	0	0	3	2	3	2	7.0%	-	0.00
2012	0.31	51	3.77	1	4	346.5	342.9	3.58	1.9	1.9	1	-	-	0.6	0	2	2	0	0	3	2	3	2	7.0%	1	0.00
2013	0.31	51	3.77	1	4	346.5	342.9	3.58	1.9	2.0	1	-	-	0.6	0	3	2	0	0	3	2	3	2	7.0%	1	0.00
2014	0.31	51	3.77	1	4	346.5	342.9	3.58	1.9	2.0	1	-	-	0.6	0	3	2	1	0	3	2	3	2	7.0%	1	0.00
2015	0.31	51	3.77	0	3	346.5	343.4	3.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0%	1	0.00	
2016	0.31	51	3.77	0	3	346.5	343.9	2.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0%	1	0.00	
2017	0.31	51	3.77	0	2	346.5	344.5	2.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.0%	1	0.00	
2018	0.31	51	3.77	0	2	346.5	345.0	1.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0%	1	0.00	
2019	0.31	51	3.77	0	1	346.5	345.5	1.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0%	1	0.00	
2020	0.31	51	3.77	0	1	346.5	346.0	0.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0%	1	0.00	
2021	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	1	-	
2022	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2023	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2024	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2025	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2026	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2027	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2028	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2029	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	
2030	0.31	51	3.77	0	-	346.5	346.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	-	



Evaluation Through 2030

Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$14	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$379	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$4	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$114	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$18	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$493	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	\$3	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$95	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	\$21	
Cumulative Water Savings	36	AF
Present Value of Savings (Cost)	\$587	\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-18

Measure(s): 31 Low flow Sprayers: Groceries/Flowers

Source: RetailConservation.xls

Master.xls

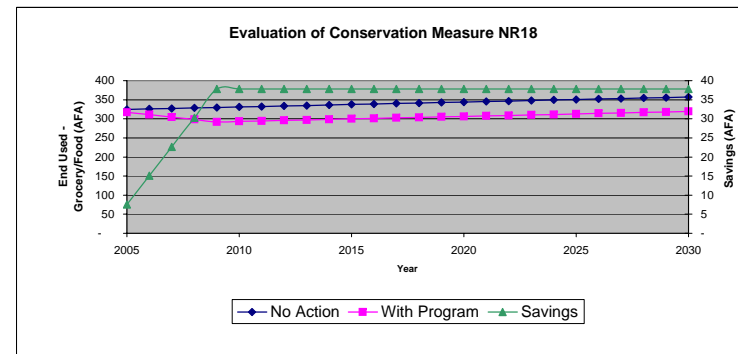
Entered by User

Assumptions

Current Use Assumptions				Proposed Program			
Year	Population of SF	Number of Establishments	Estimate of Water Use mgd	Discount Rate	6.0%		
2005	772,470	625	0.290	Inflation	3.0%		
2010	787,965	637	0.296	Start	2005 Year		
2015	803,459	650	0.301	End	2009 Year		
2020	818,954	662	0.307	Participation	90 sites/year		
2025	834,448	675	0.313	Reduction in Use	75 gal/day/site		
2030	849,942	687	0.319	Program Length	5 Years		
Base Year 2000				Measure Life	999 Years		
Establishments	612			Utility Cost	\$130 /site		
SF Population	756,976 people			Admin Cost	15% utility material cost		
Employees	6,999	Food and Grocery		Customer Unit Cost	\$75 /account		
Use	40.57 mgd			Consultant Unit Cost	\$0 /account		
Water Use	0.28 mgd						

Calculations

Year	Low flow Sprayers: Groceries/Flowers				Economics														Market Penetration in %	For Computation of program life (accounts)	Savings mgd	Water Use w/o Program in AF	Water Use w/Program in AF
	Number of Establishments	Program Participants	Cumulative Market Penetration (accounts)	Water Savings in AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost							
					Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)						
2005	625	90	90	8	90	12	12	-	-	1.8	2	13	13	7	7	20	20	14.4%	-	0.01	325	317	
2006	627	90	180	15	90	12	11	-	-	1.8	2	14	13	7	7	21	20	28.7%	-	0.01	326	311	
2007	630	90	270	23	90	12	11	-	-	1.9	2	14	13	7	6	21	19	42.9%	-	0.02	327	304	
2008	632	90	360	30	90	13	11	-	-	1.9	2	15	12	7	6	22	19	57.0%	-	0.03	328	298	
2009	635	90	450	38	90	13	10	-	-	2.0	2	15	12	8	6	23	18	70.9%	-	0.03	330	292	
2010	637	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	70.6%	-	0.03	331	293	
2011	640	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	70.4%	-	0.03	332	295	
2012	642	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	70.1%	-	0.03	334	296	
2013	645	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	69.8%	-	0.03	335	297	
2014	647	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	69.5%	-	0.03	336	298	
2015	650	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	69.3%	-	0.03	338	300	
2016	652	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	69.0%	-	0.03	339	301	
2017	655	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	68.7%	-	0.03	340	302	
2018	657	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5%	-	0.03	342	304	
2019	660	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	68.2%	-	0.03	343	305	
2020	662	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	68.0%	-	0.03	344	306	
2021	665	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	67.7%	-	0.03	345	308	
2022	667	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	67.5%	-	0.03	347	309	
2023	670	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	67.2%	-	0.03	348	310	
2024	672	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	67.0%	-	0.03	349	312	
2025	675	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	66.7%	-	0.03	351	313	
2026	677	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	66.5%	-	0.03	352	314	
2027	680	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	66.2%	-	0.03	353	315	
2028	682	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	66.0%	-	0.03	355	317	
2029	685	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	65.7%	-	0.03	356	318	
2030	687	0	450	38	-	-	-	-	-	-	-	-	-	-	-	-	-	65.5%	-	0.03	357	319	



Evaluation Through 2030

Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$55		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$61	\$/AF	
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$0	\$/AF	
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$8		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$9	\$/AF	
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$64		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$70	\$/AF	
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$32		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$35	\$/AF	
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$95		
Cumulative Water Savings	907	AF	
Present Value of Savings (Cost)	\$105	\$/AF	

Evaluation of Conservation Measures

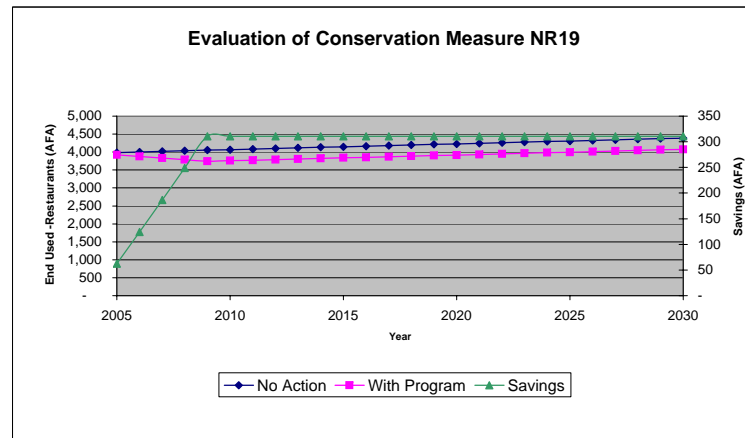
Water Savings - Nonresidential Measures
 Model No. NR-19
 Measure(s): 32 Low flow Sprayers: Restaurants

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Year	Population of SF	Number of Establishments	Estimate of Water Use mgd	Discount Rate	6.0%	Year	Reduced Energy (Therm)
2005	772,470	2,498	3.6	Inflation	3.0%	2005	\$0.93 335
2010	787,965	2,548	3.6	Start	2005 Year	2010	\$0.93 335
2015	803,459	2,598	3.7	End	2009 Year	2015	\$0.93 335
2020	818,954	2,648	3.8	Participation	370 sites/year	2020	\$0.93 335
2025	834,448	2,699	3.8	Reduction in Use	150 gal/day/site	2025	\$0.93 335
2030	849,942	2,749	3.9	Program Length	5 Years	2030	\$0.93 335
Base Year 2000				Measure Life	999 Years		
Establishments	2,448			Utility Cost	\$130 /site		
SF Population	756,976 people			Admin Cost	15% utility material cost		
Employees	42,282			Customer Unit Cost	\$75 /account		
Use	82.51 gpd			Consultant Unit Cost	\$0 /account		
Water Use	3.5 mgd						

Calculations

Year	Low flow Sprayers: Restaurants				Economics														Market Penetration in %	Computation of program life (accounts)	Savings mgd	Water Use w/o Program in AF	Water Use w/Program in AF
	Number of Establishments	Program Participants	Cumulative Market Penetration (accounts)	Water Savings in AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost								
					Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)						
2005	2,498	370	370	62	370	48	48	-	-	7.2	7	55	55	(88)	(88)	(32)	(32)	14.8%	-	0.06	3,988	3,926	
2006	2,508	370	740	124	370	50	47	-	-	7.4	7	57	54	(202)	(191)	(145)	(137)	29.5%	-	0.11	4,004	3,879	
2007	2,518	370	1,110	187	370	51	45	-	-	7.7	7	59	52	(316)	(282)	(258)	(229)	44.1%	-	0.17	4,020	3,833	
2008	2,528	370	1,480	249	370	53	44	-	-	7.9	7	60	51	(431)	(362)	(370)	(311)	58.5%	-	0.22	4,036	3,787	
2009	2,538	370	1,850	311	370	54	43	-	-	8.1	6	62	49	(545)	(432)	(483)	(382)	72.9%	-	0.28	4,052	3,741	
2010	2,548	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(431)	(576)	(431)	72.6%	-	0.28	4,068	3,757	
2011	2,558	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(406)	(576)	(406)	72.3%	-	0.28	4,084	3,773	
2012	2,568	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(383)	(576)	(383)	72.0%	-	0.28	4,100	3,789	
2013	2,578	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(362)	(576)	(362)	71.8%	-	0.28	4,116	3,805	
2014	2,588	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(341)	(576)	(341)	71.5%	-	0.28	4,132	3,821	
2015	2,598	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(322)	(576)	(322)	71.2%	-	0.28	4,148	3,837	
2016	2,608	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(304)	(576)	(304)	70.9%	-	0.28	4,164	3,853	
2017	2,618	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(286)	(576)	(286)	70.7%	-	0.28	4,180	3,869	
2018	2,628	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(270)	(576)	(270)	70.4%	-	0.28	4,196	3,885	
2019	2,638	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(255)	(576)	(255)	70.1%	-	0.28	4,212	3,901	
2020	2,648	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(240)	(576)	(240)	69.9%	-	0.28	4,228	3,917	
2021	2,658	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(227)	(576)	(227)	69.6%	-	0.28	4,244	3,933	
2022	2,668	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(214)	(576)	(214)	69.3%	-	0.28	4,260	3,949	
2023	2,678	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(202)	(576)	(202)	69.1%	-	0.28	4,276	3,965	
2024	2,689	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(190)	(576)	(190)	68.8%	-	0.28	4,292	3,981	
2025	2,699	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(180)	(576)	(180)	68.6%	-	0.28	4,308	3,997	
2026	2,709	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(170)	(576)	(170)	68.3%	-	0.28	4,324	4,013	
2027	2,719	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(160)	(576)	(160)	68.1%	-	0.28	4,340	4,029	
2028	2,729	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(151)	(576)	(151)	67.8%	-	0.28	4,356	4,045	
2029	2,739	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(142)	(576)	(142)	67.6%	-	0.28	4,372	4,061	
2030	2,749	0	1,850	311	-	-	-	-	-	-	-	-	-	(576)	(134)	(576)	(134)	67.3%	-	0.28	4,388	4,077	



Evaluation Through 2030

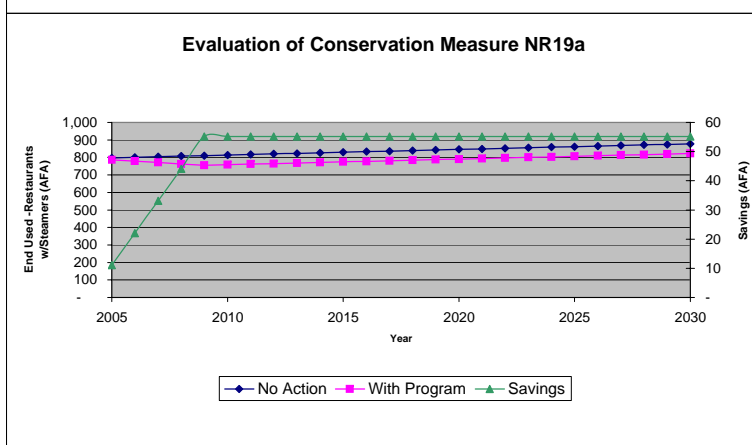
Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$227	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	\$30	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$34	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	\$5	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$261	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	\$35	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	-\$6,724	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	-\$901	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	-\$6,462	
Cumulative Water Savings	7,460	AF
Present Value of Savings (Cost)	-\$866	\$/AF

Evaluation of Conservation Measures
 Water Savings - Nonresidential Measures
 Model No. NR-19a
 Measure(s): 46 Steamers: Restaurants

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Year	Population of SF	Number of Establishments	Estimate of Water Use mgd	Discount Rate	6.0%	Year	Reduced Energy (kwh)
2005	772,470	500	0.7	Inflation	3.0%	2005	\$0.10 5534
2010	787,965	510	0.7	Start	2005 Year	2010	\$0.10 5534
2015	803,459	520	0.7	End	2009 Year	2015	\$0.10 5534
2020	818,954	530	0.8	Participation	50 sites/year	2020	\$0.10 5534
2025	834,448	540	0.8	Reduction in Use	197 gal/day/site	2025	\$0.10 5534
2030	849,942	550	0.8	Program Length	5 Years	2030	\$0.10 5534
Base Year 2000				Measure Life	999 Years		
Establishments	2,448	Total		Utility Cost	\$300 /site		
SF Population	756,976	people		Admin Cost	15% utility material cost		
Employees	42,282			Customer Unit Cost	-\$300 /account		
Use	82.51	ged		Consultant Unit Cost	\$0 /account		
Water Use	0.7	mgd					
Steamer Market	20%						
Est. Target	490						

Year	Steamers: Restaurants			Water Savings in AF	Economics												Market Penetration in %	For Computati on of program	Savings mgd	Water Use w/o Program in AF	Water Use w/Program in AF	Energy Savings in \$1000/ Year	Energy Savings in \$/ Year per Unit	
	Number of Establishments	Program Participants	Cummulative Market Penetration		Cost to PUC - Materials		Cost to PUC -		Cost to PUC -		Cost to PUC - Total		Cost to Public		Total Cost									
					Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)								PV (\$1,000)
2005	500	50	50	11	50	15	15	-	-	2.3	2	17	17	(43)	(43)	(25)	(25)	10.0%	-	0.01	798	787	28	553
2006	502	50	100	22	50	15	15	-	-	2.3	2	18	17	(71)	(67)	(53)	(50)	19.9%	-	0.02	801	779	55	553
2007	504	50	150	33	50	16	14	-	-	2.4	2	18	16	(99)	(88)	(81)	(72)	29.8%	-	0.03	804	771	83	553
2008	506	50	200	44	50	16	14	-	-	2.5	2	19	16	(127)	(107)	(108)	(91)	39.6%	-	0.04	807	763	111	553
2009	508	50	250	55	50	17	13	-	-	2.5	2	19	15	(155)	(123)	(136)	(108)	49.2%	-	0.05	810	755	138	553
2010	510	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(103)	(138)	(103)	49.1%	-	0.05	814	758	138	553
2011	512	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(98)	(138)	(98)	48.9%	-	0.05	817	762	138	553
2012	514	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(92)	(138)	(92)	48.7%	-	0.05	820	765	138	553
2013	516	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(87)	(138)	(87)	48.5%	-	0.05	823	768	138	553
2014	518	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(82)	(138)	(82)	48.3%	-	0.05	826	771	138	553
2015	520	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(77)	(138)	(77)	48.1%	-	0.05	830	774	138	553
2016	522	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(73)	(138)	(73)	47.9%	-	0.05	833	778	138	553
2017	524	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(69)	(138)	(69)	47.7%	-	0.05	836	781	138	553
2018	526	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(65)	(138)	(65)	47.6%	-	0.05	839	784	138	553
2019	528	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(61)	(138)	(61)	47.4%	-	0.05	842	787	138	553
2020	530	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(58)	(138)	(58)	47.2%	-	0.05	846	790	138	553
2021	532	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(54)	(138)	(54)	47.0%	-	0.05	849	794	138	553
2022	534	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(51)	(138)	(51)	46.8%	-	0.05	852	797	138	553
2023	536	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(48)	(138)	(48)	46.7%	-	0.05	855	800	138	553
2024	538	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(46)	(138)	(46)	46.5%	-	0.05	858	803	138	553
2025	540	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(43)	(138)	(43)	46.3%	-	0.05	862	806	138	553
2026	542	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(41)	(138)	(41)	46.1%	-	0.05	865	810	138	553
2027	544	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(38)	(138)	(38)	46.0%	-	0.05	868	813	138	553
2028	546	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(36)	(138)	(36)	45.8%	-	0.05	871	816	138	553
2029	548	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(34)	(138)	(34)	45.6%	-	0.05	874	819	138	553
2030	550	0	250	55	-	-	-	-	-	-	-	-	-	(138)	(32)	(138)	(32)	45.5%	-	0.05	878	822	138	553



Evaluation Through 2030

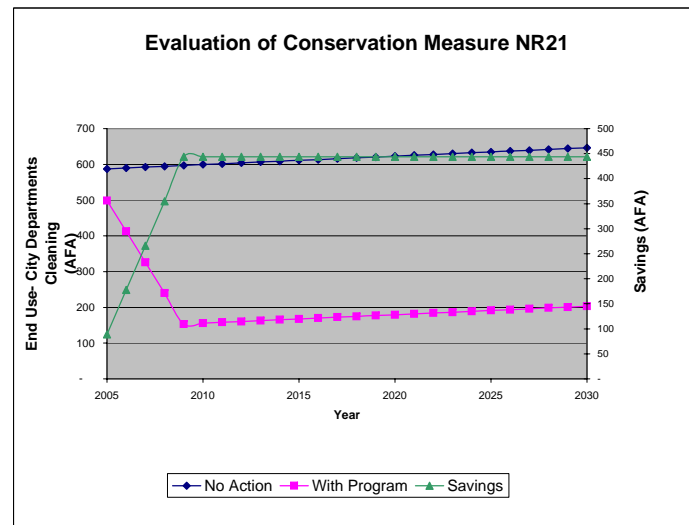
Cost To PUC - Materials		
Present Value of Cum. Cost (\$1,000)	\$71	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	\$54	\$/AF
Cost To PUC - Consultants		
Present Value of Cum. Cost (\$1,000)	\$0	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	\$0	\$/AF
Cost To PUC - Administrative		
Present Value of Cum. Cost (\$1,000)	\$11	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	\$8	\$/AF
Cost To PUC - Total		
Present Value of Cum. Cost (\$1,000)	\$82	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	\$62	\$/AF
Cost To Customer		
Present Value of Cum. Cost (\$1,000)	-\$1,716	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	-\$1,296	\$/AF
Total Costs		
Present Value of Cum. Cost (\$1,000)	-\$1,635	
Cumulative Water Savings	1,324	AF
Present Value of Savings (Cost)	-\$1,235	\$/AF

Evaluation of Conservation Measures
 Water Savings - Nonresidential Measures
 Model No. NR-21
 Measure(s): 43 PUC Water Broom

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Year	Population of SF	Number of Establishments	Water Use in mgd	Discount Rate	6.0%		
2005	772,470	260	0.52	Inflation	3.0%		
2010	787,965	265	0.54	Start	2005 Year		
2015	803,459	271	0.55	End	2009 Year		
2020	818,954	276	0.56	Participation	50 sites/year		
2025	834,448	281	0.57	Current Use with Hose	8.4 gpm		
2030	849,942	286	0.58	Proposed Use w/ Waterbroom	3.6 gpm		
Base Year 2000				Program Length	5 Years		
Accounts	300			Measure Life	999 Years		
SF Population	756,976 people			Utility Cost	\$750 /site		
% Accounts	85% to be targeted			Admin Cost	25% utility material cost		
Estab. To Target	255 Establishments			Customer Unit Cost	\$0 /account		
Current Labor	240.0 minutes/day			Consultant Unit Cost	\$0 /account		
Reduction in Labor	50% with broom						
Current water use	0.51 mgd						

Year	PUC Water Broom			Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd			
	Number of Establishments	Program Participants	Cumulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Water Savings in AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public					Total Cost		
							Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	260	50	50	588	499	89	50	38	38	-	-	9.4	9	47	47	-	-	47	47	19.2%	-	0.08
2006	261	50	100	590	413	177	50	39	36	-	-	9.7	9	48	46	-	-	48	46	38.3%	-	0.16
2007	262	50	150	592	326	266	50	40	35	-	-	9.9	9	50	44	-	-	50	44	57.2%	-	0.24
2008	263	50	200	595	240	355	50	41	34	-	-	10.2	9	51	43	-	-	51	43	75.9%	-	0.32
2009	264	50	250	597	153	444	50	42	33	-	-	10.6	8	53	42	-	-	53	42	94.6%	-	0.40
2010	265	0	250	599	156	444	-	-	-	-	-	-	-	-	-	-	-	-	-	94.2%	-	0.40
2011	266	0	250	602	158	444	-	-	-	-	-	-	-	-	-	-	-	-	-	93.8%	-	0.40
2012	268	0	250	604	161	444	-	-	-	-	-	-	-	-	-	-	-	-	-	93.4%	-	0.40
2013	269	0	250	606	163	444	-	-	-	-	-	-	-	-	-	-	-	-	-	93.1%	-	0.40
2014	270	0	250	609	165	444	-	-	-	-	-	-	-	-	-	-	-	-	-	92.7%	-	0.40
2015	271	0	250	611	168	444	-	-	-	-	-	-	-	-	-	-	-	-	-	92.4%	-	0.40
2016	272	0	250	614	170	444	-	-	-	-	-	-	-	-	-	-	-	-	-	92.0%	-	0.40
2017	273	0	250	616	172	444	-	-	-	-	-	-	-	-	-	-	-	-	-	91.7%	-	0.40
2018	274	0	250	618	175	444	-	-	-	-	-	-	-	-	-	-	-	-	-	91.3%	-	0.40
2019	275	0	250	621	177	444	-	-	-	-	-	-	-	-	-	-	-	-	-	91.0%	-	0.40
2020	276	0	250	623	179	444	-	-	-	-	-	-	-	-	-	-	-	-	-	90.6%	-	0.40
2021	277	0	250	625	182	444	-	-	-	-	-	-	-	-	-	-	-	-	-	90.3%	-	0.40
2022	278	0	250	628	184	444	-	-	-	-	-	-	-	-	-	-	-	-	-	89.9%	-	0.40
2023	279	0	250	630	186	444	-	-	-	-	-	-	-	-	-	-	-	-	-	89.6%	-	0.40
2024	280	0	250	632	189	444	-	-	-	-	-	-	-	-	-	-	-	-	-	89.3%	-	0.40
2025	281	0	250	635	191	444	-	-	-	-	-	-	-	-	-	-	-	-	-	88.9%	-	0.40
2026	282	0	250	637	194	444	-	-	-	-	-	-	-	-	-	-	-	-	-	88.6%	-	0.40
2027	283	0	250	639	196	444	-	-	-	-	-	-	-	-	-	-	-	-	-	88.3%	-	0.40
2028	284	0	250	642	198	444	-	-	-	-	-	-	-	-	-	-	-	-	-	88.0%	-	0.40
2029	285	0	250	644	201	444	-	-	-	-	-	-	-	-	-	-	-	-	-	87.6%	-	0.40
2030	286	0	250	647	203	444	-	-	-	-	-	-	-	-	-	-	-	-	-	87.3%	-	0.40



Evaluation Through 2030

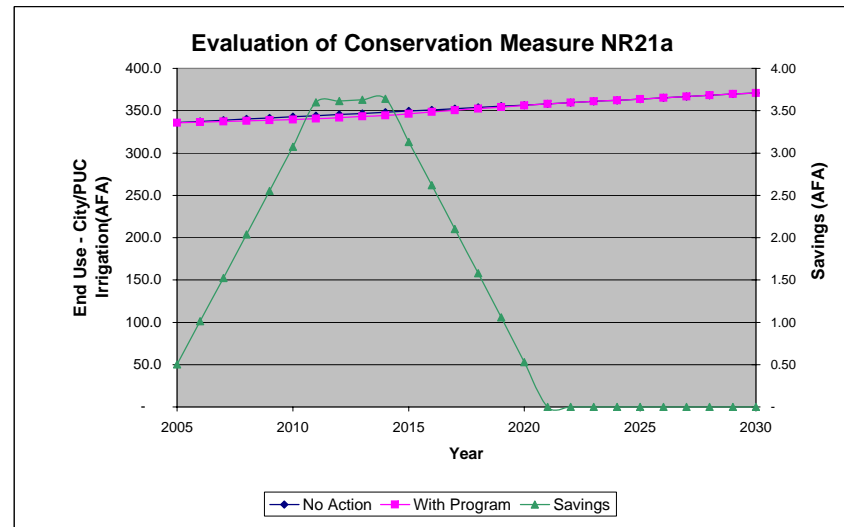
Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$177		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$17		\$/AF
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$44		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$4		\$/AF
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$221		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$21		\$/AF
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$221		
Cumulative Water Savings	10,646	AF	
Present Value of Savings (Cost)	\$21		\$/AF

Evaluation of Conservation Measures
 Water Savings - Nonresidential Measures
 Model No. NR-21a
 Measure(s): 14 City/PUC: Landscape Audits

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Irrigated Area and Customers				Discount Rate	6.0%		
Year	Customers	Area (acres)	Water Use (mgd)	Inflation	3.0%		
2005	300	60	0.30	Start	2005 Year		
2010	302	61	0.31	End	2014 Year		
2015	304	62	0.31	Participation	1% sites/year		
2020	306	63	0.32	Reduction in Use	15% Total Use		
2025	308	64	0.32	Program Length	10 Years		
2030	310	65	0.33	Measure Life	7 Years		
Base Year 2000				Utility Cost	\$800 /acre		
Accounts	300			Admin Cost	30% utility material cost		
Area	60 acres			Customer Unit Cost	\$200 /acre		
Water Use	0.3 mgd			Consultant Unit Cost	\$0 /acre		
Multiplier on Average Water Use				1			

Year	City/PUC: Landscape Audits					Results			Economics												Market Penetration %	For Computation of program life (accounts)	Outside Savings mgd	
	Landscape Use mgd	Accounts	Acreage per Account	Number of Accounts Participating	Cummulative Market Penetration	Total Use Without Program	Total Use With Program	Savings AF	Cost to PUC - Materials			Cost to PUC -		Cost to PUC - Total		Cost to Public		Total Cost						
									Number of Acres	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)					
2005	0.3	300	0.20	3	3	336.0	335.5	0.50	1	0	0	-	-	0	0	1	1	0	0	1	1	1.0%	-	0.00
2006	0.3	300	0.20	3	6	337.4	336.4	1.01	1	0	0	-	-	0	0	1	1	0	0	1	1	2.0%	-	0.00
2007	0.3	301	0.20	3	9	338.7	337.2	1.52	1	1	0	-	-	0	0	1	1	0	0	1	1	3.0%	-	0.00
2008	0.3	301	0.20	3	12	340.1	338.0	2.04	1	1	0	-	-	0	0	1	1	0	0	1	1	4.0%	-	0.00
2009	0.3	302	0.20	3	15	341.4	338.9	2.55	1	1	0	-	-	0	0	1	1	0	0	1	1	5.0%	-	0.00
2010	0.3	302	0.20	3	18	342.8	339.7	3.07	1	1	0	-	-	0	0	1	1	0	0	1	1	6.0%	-	0.00
2011	0.3	302	0.20	3	21	344.1	340.5	3.60	1	1	0	-	-	0	0	1	1	0	0	1	1	7.0%	-	0.00
2012	0.3	303	0.20	3	21	345.5	341.9	3.61	1	1	0	-	-	0	0	1	1	0	0	1	1	7.0%	3	0.00
2013	0.3	303	0.20	3	21	346.9	343.3	3.63	1	1	0	-	-	0	0	1	1	0	0	1	1	7.0%	3	0.00
2014	0.3	304	0.20	3	21	348.2	344.6	3.64	1	1	0	-	-	0	0	1	1	0	0	1	1	7.0%	3	0.00
2015	0.3	304	0.20	0	18	349.6	346.5	3.13	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0%	3	0.00
2016	0.3	304	0.20	0	15	351.0	348.4	2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0%	3	0.00
2017	0.3	305	0.20	0	12	352.4	350.3	2.10	-	-	-	-	-	-	-	-	-	-	-	-	-	4.0%	3	0.00
2018	0.3	305	0.21	0	9	353.8	352.2	1.58	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0%	3	0.00
2019	0.3	306	0.21	0	6	355.2	354.2	1.06	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0%	3	0.00
2020	0.3	306	0.21	0	3	356.6	356.1	0.53	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0%	3	0.00
2021	0.3	306	0.21	0	(0)	358.0	358.0	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	3	(0.00)
2022	0.3	307	0.21	0	(0)	359.5	359.5	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2023	0.3	307	0.21	0	(0)	360.9	360.9	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2024	0.3	308	0.21	0	(0)	362.3	362.3	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2025	0.3	308	0.21	0	(0)	363.7	363.7	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2026	0.3	308	0.21	0	(0)	365.2	365.2	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2027	0.3	309	0.21	0	(0)	366.7	366.7	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2028	0.3	309	0.21	0	(0)	368.1	368.1	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2029	0.3	310	0.21	0	(0)	369.6	369.6	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)
2030	0.3	310	0.21	0	(0)	371.0	371.0	(0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	-	(0.00)



Evaluation Through 2030

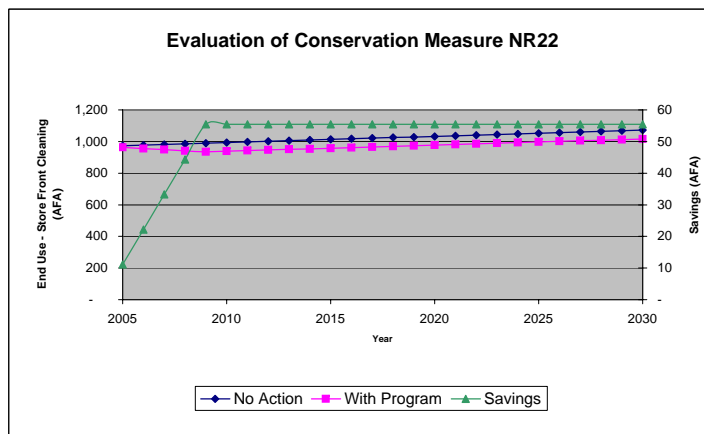
Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$4		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$119	\$/AF	
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$0	\$/AF	
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$1		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$36	\$/AF	
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$6		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$154	\$/AF	
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$1		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$30	\$/AF	
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$7		
Cumulative Water Savings	36	AF	
Present Value of Savings (Cost)	\$184	\$/AF	

Evaluation of Conservation Measures
 Water Savings - Nonresidential Measures
 Model No. NR-22
 Measure(s): 44 Water Broom

Source: RetailConservation.xls
 Master.xls
 Entered by User

Current Use Assumptions				Proposed Program			
Year	Population of SF	Number of Establishments	Water Use in mgd	Discount Rate	6.0%	Start	2005 Year
2005	772,470	6903	0.87	Inflation	3.0%	End	2009 Year
2010	787,965	7041	0.89	Participation	100 sites/year	Current Use with Hose	8.4 gpm
2015	803,459	7180	0.90	Proposed Use w/ Waterbroom	3.6 gpm	Program Length	5 Years
2020	818,954	7318	0.92	Measure Life	999 Years	Utility Cost	\$250 /site
2025	834,448	7457	0.94	Admin Cost	25% utility material cost	Customer Unit Cost	\$0 /account
2030	849,942	7595	0.96	Consultant Unit Cost	\$0 /account		
Base Year 2000							
Accounts	13,529						
SF Population	756,976	people					
% Req. Street Clean	50%						
Estab. To Target	6,765	Establishments					
Current Labor	15.0	minutes/day					
Reduction in Labor	50%	with broom					
Current water use	0.85	mgd					

Year	Water Broom			Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd			
	Number of Establishments	Program Participants	Cumulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Water Savings in AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public				Total Cost		
							Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	6,903	100	100	974	963	11	100	25	25	-	-	6.3	6	31	31	-	-	31	31	1.4%	-	0.01
2006	6,931	100	200	978	956	22	100	26	24	-	-	6.4	6	32	30	-	-	32	30	2.9%	-	0.02
2007	6,958	100	300	982	949	33	100	27	24	-	-	6.6	6	33	30	-	-	33	30	4.3%	-	0.03
2008	6,986	100	400	986	942	44	100	27	23	-	-	6.8	6	34	29	-	-	34	29	5.7%	-	0.04
2009	7,014	100	500	990	934	55	100	28	22	-	-	7.0	6	35	28	-	-	35	28	7.1%	-	0.05
2010	7,041	0	500	994	938	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.1%	-	0.05
2011	7,069	0	500	998	942	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.1%	-	0.05
2012	7,097	0	500	1,002	946	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.0%	-	0.05
2013	7,124	0	500	1,006	950	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.0%	-	0.05
2014	7,152	0	500	1,009	954	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.0%	-	0.05
2015	7,180	0	500	1,013	958	55	-	-	-	-	-	-	-	-	-	-	-	-	-	7.0%	-	0.05
2016	7,208	0	500	1,017	962	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9%	-	0.05
2017	7,235	0	500	1,021	966	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9%	-	0.05
2018	7,263	0	500	1,025	970	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9%	-	0.05
2019	7,291	0	500	1,029	974	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9%	-	0.05
2020	7,318	0	500	1,033	977	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8%	-	0.05
2021	7,346	0	500	1,037	981	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8%	-	0.05
2022	7,374	0	500	1,041	985	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8%	-	0.05
2023	7,401	0	500	1,045	989	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8%	-	0.05
2024	7,429	0	500	1,049	993	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7%	-	0.05
2025	7,457	0	500	1,052	997	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7%	-	0.05
2026	7,484	0	500	1,056	1,001	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7%	-	0.05
2027	7,512	0	500	1,060	1,005	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7%	-	0.05
2028	7,540	0	500	1,064	1,009	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.6%	-	0.05
2029	7,568	0	500	1,068	1,013	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.6%	-	0.05
2030	7,595	0	500	1,072	1,017	55	-	-	-	-	-	-	-	-	-	-	-	-	-	6.6%	-	0.05



Evaluation Through 2030

Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$118		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$89		\$/AF
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$30		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$22		\$/AF
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$148		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$111		\$/AF
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$148		
Cumulative Water Savings	1,331	AF	
Present Value of Savings (Cost)	\$111		\$/AF

Evaluation of Conservation Measures
Water Savings - Nonresidential Measures
 Model No. NR-23
 Measure(s): 33 Audits-Hotels/Motels

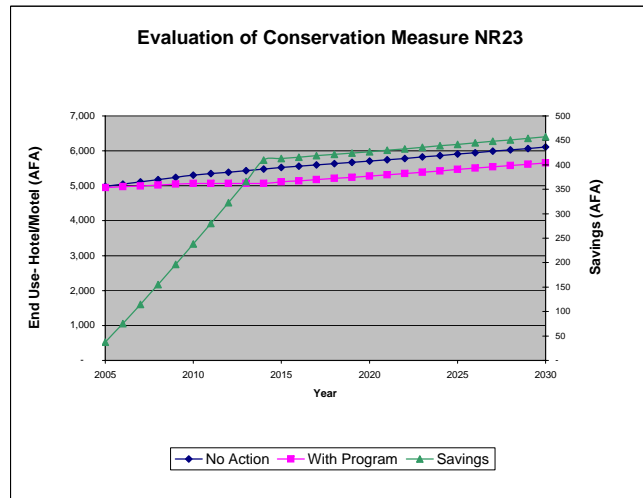
Source: RetailConservation.xls
 Master.xls
 Entered by User

Assumptions

Current Use Assumptions			Proposed Program		
	Service Industry	Estimated Use mgd	Discount Rate	6.0%	
			Inflation	3.0%	
Year			Start	2005 Year	
2005	291,150	4.45	End	2014 Year	
2010	309,870	4.74	Participation	21 sites/year	
2015	322,550	4.93	Reduction in Use	15% Total Use	
2020	333,270	5.09	Program Length	10 Years	
2025	345,100	5.27	Measure Life	999 Years	
2030	356,930	5.45	Utility Cost	\$3,000 /site	
			Admin Cost	25% utility material cost	
Base Year 2000			Customer Unit Cost	\$2,000 /site	
Employees (Hotel/Motel)	23,179	Estimated	Consultant Unit Cost	\$0 /site	
Water Use	185.6	ged			
Service Industry Employment	281,510	people			
Water Use	4.30	mgd			
Establishments	421				
Rooms	30,000				
Occupancy Rate	82%				
People per room	1.69				

Calculations

Year	Audits-Hotels/Motels				Results			Economics										Market Penetration in %	For Computation of program life (accounts)	Savings mgd			
	Estimated Use mgd	Establishments	Number of Facilities Participating in Program	Cummulative Market Penetration (accounts)	Total Use Without Program AF	Total Use With Program AF	Savings AF	Cost to PUC - Materials		Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public					Total Cost		
								Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)				PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)
2005	4.45	421	21	21	4,984	4,947	37	21	63	63	-	-	15.8	16	79	79	42	42	121	121	5.0%	-	0.03
2006	4.51	421	21	42	5,048	4,972	76	21	65	61	-	-	16.2	15	81	77	43	41	124	117	10.0%	-	0.07
2007	4.56	421	21	63	5,112	4,997	115	21	67	59	-	-	16.7	15	84	74	45	40	128	114	15.0%	-	0.10
2008	4.62	421	21	84	5,176	5,021	155	21	69	58	-	-	17.2	14	86	72	46	39	132	111	20.0%	-	0.14
2009	4.68	421	21	105	5,240	5,044	196	21	71	56	-	-	17.7	14	89	70	47	37	136	108	24.9%	-	0.18
2010	4.74	421	21	126	5,304	5,066	238	21	73	55	-	-	18.3	14	91	68	49	36	140	105	29.9%	-	0.21
2011	4.77	421	21	147	5,348	5,068	280	21	75	53	-	-	18.8	13	94	66	50	35	144	102	34.9%	-	0.25
2012	4.81	421	21	168	5,391	5,068	323	21	77	52	-	-	19.4	13	97	64	52	34	149	99	39.9%	-	0.29
2013	4.85	421	21	189	5,435	5,069	366	21	80	50	-	-	20.0	13	100	63	53	33	153	96	44.9%	-	0.33
2014	4.89	421	21	210	5,478	5,068	410	21	82	49	-	-	20.6	12	103	61	55	32	158	93	49.9%	-	0.37
2015	4.93	421	0	210	5,521	5,108	413	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.37
2016	4.96	421	0	210	5,558	5,142	416	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.37
2017	4.99	421	0	210	5,595	5,176	419	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.37
2018	5.03	421	0	210	5,632	5,210	421	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.38
2019	5.06	421	0	210	5,668	5,244	424	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.38
2020	5.09	421	0	210	5,705	5,278	427	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.38
2021	5.13	421	0	210	5,745	5,316	430	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.38
2022	5.17	421	0	210	5,786	5,353	433	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.39
2023	5.20	421	0	210	5,826	5,390	436	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.39
2024	5.24	421	0	210	5,867	5,428	439	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.39
2025	5.27	421	0	210	5,907	5,465	442	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.39
2026	5.31	421	0	210	5,948	5,503	445	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.40
2027	5.35	421	0	210	5,988	5,540	448	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.40
2028	5.38	421	0	210	6,029	5,578	451	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.40
2029	5.42	421	0	210	6,069	5,615	454	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.41
2030	5.45	421	0	210	6,110	5,653	457	-	-	-	-	-	-	-	-	-	-	-	-	-	49.9%	-	0.41



Evaluation Through 2030

Cost To PUC - Materials			
Present Value of Cum. Cost (\$1,000)	\$556		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$71		\$/AF
Cost To PUC - Consultants			
Present Value of Cum. Cost (\$1,000)	\$0		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$0		\$/AF
Cost To PUC - Administrative			
Present Value of Cum. Cost (\$1,000)	\$139		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$18		\$/AF
Cost To PUC - Total			
Present Value of Cum. Cost (\$1,000)	\$694		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$89		\$/AF
Cost To Customer			
Present Value of Cum. Cost (\$1,000)	\$370		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$48		\$/AF
Total Costs			
Present Value of Cum. Cost (\$1,000)	\$1,065		
Cumulative Water Savings	7,788	AF	
Present Value of Savings (Cost)	\$137		\$/AF

Evaluation of Conservation Measures

Water Savings - Nonresidential Measures

Model No. NR-25

Measure(s): 35 Require Fixture Replacement on Sale
36 Hotel Retrofit with Financial Assistance

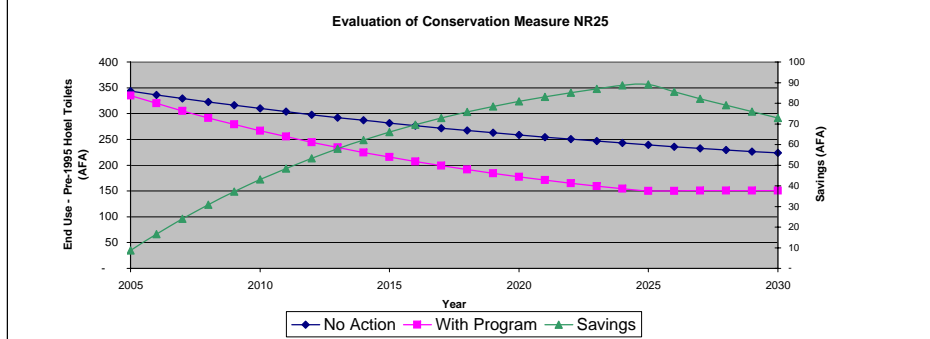
Source: RetailConservation.xls
Master.xls
Entered by User

Assumptions

Current Use Assumptions - Pre 1995 Rooms				Proposed Program				Other						
Year	Units	Use @2000 MP mgd	Occupancy Rate	Discount Rate	M35-Resale 6.0%	M36-Retrofit 6.0%	Inflation 3.0%	3.0%						
2000	32,250	0.331	80%											
2005	32,350	0.332	80%											
2010	32,450	0.333	80%											
2015	32,550	0.334	80%											
2020	32,650	0.335	80%											
2025	32,750	0.336	80%											
2030	32,850	0.337	80%											
Market Penetration Pre 1995 Housing (2005)				Start 2005				Nat. Replace w/ Low Water Use Device 4.00%						
Gallons/flush	% Population	Gallons/flush	% Population	End 3003	3003	3003		Life Expectancy (for Natural Replacement Computation) 25 years						
7	5.05%	3.5	43.20%	Program Length 999	999 yrs	999 yrs		Toilets per hotel room 1						
5	5.05%	1.6	23.11%	No. of Rebates 2%	600	resale rate or rebates/year		Number of Programs 1						
Retrofit (5.5)	23.59%	Total	100.00%	Measure Life 999	999 years	999 years		Maximum program reduction to Nat. Repl. w/ all programs 0.33						
Year 2005	3.79	gallons/flush	Pre 1995 stock	Utility Cost \$10	\$100 /unit			Decay Rate on Retrofit 5%						
Base Yr 2000	4.01	gallons/flush	Pre 1995 stock	Customer Cost \$150	\$100 /unit			Rate of low flush toilets 1.6						
				Admin Cost 15%	15% % utility material cost			People per hotel room 1.60						
				Consultant Cost \$0	\$0 /unit			Flushes per person 2.00						

Calculations

Year	Occupied Rooms	Unadjusted Based on 2000 Market Penetration mgd	Estimated Toilets	Toilets at Beginning of Year (gallons/flush)						Measure 35 Total Units	M35-Resale						Measure 36 Total Units	M36 - Retrofit w/Financial Assistance						Natural Replacement Remaining Toilets (gallons/flush)						Decay Rate on Retrofit							
				7	5	5.5	3.5	1.6	Total Toilets		7	5	5.5	3.5	1.6	Total Toilets		7	5	5.5	3.5	1.6	Total Toilets	Natural Replacement Units 3.5-7 g/flush only	7	5	5.5	3.5	1.6	Total Toilets	Retrofit Decay	7	5	5.5	3.5	1.6	Total Toilets
2005	25,880	0.332	32,350	1,634	1,634	7,631	13,975	7,476	32,350	497	1,601	1,601	7,479	13,696	7,974	32,350	600	1,562	1,562	7,295	13,359	8,574	32,350	951	1,499	1,499	7,003	12,824	9,525	32,350	350	1,674	1,674	6,653	12,824	9,525	32,350
2006	25,896	0.332	32,370	1,674	1,674	6,653	12,824	9,545	32,370	457	1,641	1,641	6,520	12,568	10,001	32,370	600	1,597	1,597	6,345	12,231	10,601	32,370	871	1,533	1,533	6,091	11,741	11,472	32,370	305	1,685	1,685	5,786	11,741	11,472	32,370
2007	25,912	0.333	32,390	1,685	1,685	5,786	11,741	11,492	32,390	418	1,651	1,651	5,671	11,507	11,910	32,390	600	1,603	1,603	5,505	11,169	12,510	32,390	795	1,539	1,539	5,284	10,723	13,305	32,390	264	1,671	1,671	5,020	10,723	13,305	32,390
2008	25,928	0.333	32,410	1,671	1,671	5,020	10,723	13,325	32,410	382	1,638	1,638	4,920	10,508	13,707	32,410	600	1,585	1,585	4,762	10,171	14,307	32,410	724	1,522	1,522	4,571	9,764	15,031	32,410	229	1,636	1,636	4,343	9,764	15,031	32,410
2009	25,944	0.333	32,430	1,636	1,636	4,343	9,764	15,051	32,430	348	1,603	1,603	4,256	9,569	15,398	32,430	600	1,547	1,547	4,106	9,232	15,998	32,430	657	1,485	1,485	3,942	8,863	16,656	32,430	197	1,583	1,583	3,745	8,863	16,656	32,430
2010	25,960	0.333	32,450	1,583	1,583	3,745	8,863	16,676	32,450	315	1,552	1,552	3,670	8,685	16,991	32,450	600	1,492	1,492	3,527	8,348	17,591	32,450	594	1,432	1,432	3,386	8,014	18,186	32,450	169	1,517	1,517	3,217	8,014	18,186	32,450
2011	25,976	0.333	32,470	1,517	1,517	3,217	8,014	18,206	32,470	285	1,486	1,486	3,153	7,854	18,491	32,470	600	1,422	1,422	3,017	7,517	19,091	32,470	535	1,366	1,366	2,897	7,216	19,626	32,470	145	1,438	1,438	2,752	7,216	19,626	32,470
2012	25,992	0.334	32,490	1,438	1,438	2,752	7,216	19,646	32,490	257	1,409	1,409	2,697	7,072	19,903	32,490	600	1,342	1,342	2,568	6,735	20,503	32,490	479	1,288	1,288	2,466	6,465	20,982	32,490	123	1,350	1,350	2,342	6,465	20,982	32,490
2013	26,008	0.334	32,510	1,350	1,350	2,342	6,465	21,002	32,510	230	1,323	1,323	2,295	6,336	21,233	32,510	600	1,253	1,253	2,173	5,999	21,833	32,510	427	1,202	1,202	2,086	5,759	22,260	32,510	104	1,255	1,255	1,982	5,759	22,260	32,510
2014	26,024	0.334	32,530	1,255	1,255	1,982	5,759	22,280	32,530	205	1,230	1,230	1,942	5,644	22,485	32,530	600	1,156	1,156	1,826	5,307	23,085	32,530	378	1,110	1,110	1,753	5,095	23,462	32,530	88	1,154	1,154	1,666	5,095	23,462	32,530
2015	26,040	0.334	32,550	1,154	1,154	1,666	5,095	23,482	32,550	181	1,131	1,131	1,632	4,993	23,664	32,550	600	1,054	1,054	1,522	4,656	24,264	32,550	331	1,012	1,012	1,461	4,469	24,595	32,550	73	1,049	1,049	1,388	4,469	24,595	32,550
2016	26,056	0.334	32,570	1,049	1,049	1,388	4,469	24,615	32,570	159	1,028	1,028	1,360	4,380	24,774	32,570	600	949	949	1,256	4,043	25,374	32,570	288	911	911	1,205	3,881	25,662	32,570	60	941	941	1,145	3,881	25,662	32,570
2017	26,072	0.335	32,590	941	941	1,145	3,881	25,682	32,590	138	922	922	1,122	3,803	25,820	32,590	600	840	840	1,023	3,466	26,420	32,590	247	807	807	982	3,328	26,667	32,590	49	831	831	933	3,328	26,667	32,590
2018	26,088	0.335	32,610	831	831	933	3,328	26,687	32,610	118	815	815	914	3,261	26,806	32,610	600	730	730	820	2,924	27,406	32,610	208	701	701	787	2,807	27,614	32,610	39	721	721	748	2,807	27,614	32,610
2019	26,104	0.335	32,630	721	721	748	2,807	27,634	32,630	100	706	706	733	2,751	27,734	32,630	600	620	620	643	2,414	28,334	32,630	172	595	595	617	2,317	28,506	32,630	31	610	610	586	2,317	28,506	32,630
2020	26,120	0.335	32,650	610	610	586	2,317	28,526	32,650	82	598	598	575	2,271	28,608	32,650	600	509	509	489	1,934	29,208	32,650	138	489	489	470	1,856	29,346	32,650	23	501	501	446	1,856	29,346	32,650
2021	26,136	0.335	32,670	501	501	446	1,856	29,366	32,670	66	491	491	437	1,819	29,432	32,670	600	400	400	356	1,482	30,032	32,670	106	384	384	342	1,423	30,137	32,670	17	392	392	325	1,423	30,137	32,670
2022	26,152	0.336	32,690	392	392	325	1,423	30,157	32,690	51	385	385	318	1,395	30,208	32,690	600	292	292	241	1,057	30,808	32,690	75	280	280	232	1,015	30,883	32,690	12	286	286	220	1,015	30,883	32,690
2023	26,168	0.336	32,710	286	286	220	1,015	30,903	32,710	36	280	280	216	995	30,939	32,710	600	185	185	143	658	31,539	32,710	47	178	178	137	631	31,586	32,710	7	181	181	130	631	31,586	32,710
2024	26,184	0.336	32,730	181	181	130	631	31,606	32,730	22	178	178	128	619	31,629	32,730	600	81	81	58	282	32,229	32,730	20	78	78	56	270	32,249	32,730	3	79	79	53	270	32,249	32,730
2025	26,200	0.336	32,750	79	79	53	270	32,269	32,750	10	77	77	52	265	32,278	32,750	472	-	-	-	-	32,750	32,750	-	-	-	-	-	32,750	32,750	-	-	-	-	-	32,750	32,750
2026	26,216	0.336	32,770	-	-	-	-	32,770	32,770	-	-	-	-	-	32,770	32,770	-	-	-	-	-	32,770	32,770	-	-	-	-	-	32,770	32,770	-	-	-	-	-	32,770	32,770
2027	26,232	0.337	32,790	-	-	-	-	32,790	32,790	-	-	-	-	-	32,790	32,790	-	-	-	-	-	32,790	32,790	-	-	-	-	-	32,790	32,790	-	-	-	-	-	32,790	32,790
2028	26,248	0.337	32,810	-	-	-	-	32,810	32,810	-	-	-	-	-	32,810	32,810	-	-	-	-	-	32,810	32,810	-	-	-	-	-	32,810	32,810	-	-	-	-	-	32,810	32,810
2029	26,264	0.337	32,830	-	-	-	-	32,830	32,830	-	-	-	-	-	32,830	32,830	-	-	-	-	-	32,830	32,830	-	-	-	-	-	32,830	32,830	-	-	-	-	-	32,830	32,830
2030	26,280	0.337	32,850	-	-	-	-	32,850	32,850	-	-	-	-	-	32,850	32,850	-	-	-	-	-	32,850	32,850	-	-	-	-	-	32,850	32,850	-	-	-	-	-	32,850	32,850



Evaluation Through 2030

Cost To PUC - Materials	
Present Value of Cum. Cost (\$1,000)	990
Cumulative Water Savings	1,655 AF
Present Value of Savings (Cost)	598 \$/AF
Cost To PUC - Consultants	
Present Value of Cum. Cost (\$1,000)	-
Cumulative Water Savings	1,655 AF
Present Value of Savings (Cost)	- \$/AF
Cost To PUC - Administrative	
Present Value of Cum. Cost (\$1,000)	14

No Action												Results			Economics										Market Penetration of Less than or Equal to 1.6 gallons/flush		Reduction in Water Use as Compared to Base Year 2000		Average Flush Rate Assumed in gallons per flush	Year					
Natural Replacement						Decay of Retrofit Toilets						No Action AF	With Program AF	Savings AF	Cost to PUC - Materials			Cost to PUC - Consultants		Cost to PUC - Administrative		Cost to PUC - Total		Cost to Public		Total Cost		With Program in %			No Action in %	%	mgd		
Natural Replacement	7	5	5.5	3.5	1.6	Total Toilets	Retrofit Decay	7	5	5.5	3.5				1.6	Total Toilets	Number	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)	Cost (\$1,000)	PV (\$1,000)		Cost (\$1,000)	PV (\$1,000)				Cost (\$1,000)	PV (\$1,000)
995	1,568	1,568	7,326	13,416	8,471	32,350	366	1,751	1,751	6,960	13,416	8,471	32,350	344	335	9	1,097	65	65	-	-	10	10	75	75	135	135	209	209	29.4%	26.2%	9.7%	0.03	3.61	2005
955	1,681	1,681	6,681	12,880	9,446	32,370	334	1,848	1,848	6,347	12,880	9,446	32,370	336	320	17	1,057	67	63	-	-	10	9	76	72	132	125	209	197	35.4%	29.2%	13.8%	0.05	3.44	2006
917	1,775	1,775	6,093	12,364	10,383	32,390	305	1,927	1,927	5,789	12,364	10,383	32,390	329	305	24	1,018	68	61	-	-	10	9	78	70	130	116	208	186	41.1%	32.1%	17.7%	0.06	3.29	2007
880	1,850	1,850	5,557	11,870	11,283	32,410	278	1,989	1,989	5,279	11,870	11,283	32,410	323	292	31	982	70	59	-	-	10	9	80	67	128	108	208	175	46.4%	34.8%	21.3%	0.07	3.14	2008
845	1,909	1,909	5,068	11,395	12,148	32,430	253	2,036	2,036	4,815	11,395	12,148	32,430	316	279	37	948	71	57	-	-	11	8	82	65	126	100	208	165	51.4%	37.5%	24.8%	0.08	3.00	2009
811	1,954	1,954	4,622	10,939	12,980	32,450	231	2,070	2,070	4,391	10,939	12,980	32,450	310	267	43	915	73	55	-	-	11	8	84	63	124	93	209	156	56.0%	40.0%	28.1%	0.09	2.87	2010
779	1,987	1,987	4,215	10,502	13,779	32,470	211	2,093	2,093	4,005	10,502	13,779	32,470	304	255	48	885	75	53	-	-	11	8	86	61	123	87	209	147	60.4%	42.4%	31.1%	0.10	2.74	2011
748	2,009	2,009	3,844	10,082	14,546	32,490	192	2,105	2,105	3,652	10,082	14,546	32,490	298	245	53	857	77	51	-	-	12	8	88	59	121	81	210	139	64.6%	44.8%	34.1%	0.11	2.62	2012
718	2,021	2,021	3,506	9,678	15,284	32,510	175	2,108	2,108	3,331	9,678	15,284	32,510	292	234	58	830	79	50	-	-	12	7	91	57	120	75	210	132	68.5%	47.0%	36.8%	0.12	2.51	2013
689	2,024	2,024	3,198	9,291	15,993	32,530	160	2,104	2,104	3,038	9,291	15,993	32,530	287	225	62	805	81	48	-	-	12	7	93	55	118	70	212	125	72.1%	49.2%	39.4%	0.13	2.41	2014
661	2,020	2,020	2,916	8,920	16,674	32,550	146	2,093	2,093	2,770	8,920	16,674	32,550	282	216	66	781	83	46	-	-	12	7	96	53	117	65	213	119	75.6%	51.2%	41.8%	0.14	2.31	2015
635	2,009	2,009	2,660	8,563	17,330	32,570	133	2,076	2,076	2,527	8,563	17,330	32,570	277	207	70	759	85	45	-	-	13	7	98	52	116	61	214	113	78.8%	53.2%	44.1%	0.15	2.22	2016
610	1,993	1,993	2,426	8,220	17,959	32,590	121	2,053	2,053	2,304	8,220	17,959	32,590	272	199	73	738	88	43	-	-	13	7	101	50	115	57	216	107	81.8%	55.1%	46.3%	0.15	2.13	2017
585	1,971	1,971	2,212	7,891	18,564	32,610	111	2,026	2,026	2,102	7,891	18,564	32,610	267	191	76	718	90	42	-	-	13	6	103	48	114	54	218	102	84.7%	56.9%	48.4%	0.16	2.05	2018
562	1,945	1,945	2,017	7,576	19,146	32,630	101	1,996	1,996	1,917	7,576	19,146	32,630	263	184	78	700	92	41	-	-	14	6	106	47	113	50	220	97	87.4%	58.7%	50.3%	0.17	1.97	2019
539	1,916	1,916	1,840	7,273	19,706	32,650	92	1,962	1,962	1,748	7,273	19,706	32,650	258	178	81	682	95	40	-	-	14	6	109	45	113	47	222	93	89.9%	60.4%	52.1%	0.17	1.90	2020
518	1,883	1,883	1,678	6,982	20,243	32,670	84	1,925	1,925	1,594	6,982	20,243	32,670	254	171	83	666	97	38	-	-	15	6	112	44	112	44	224	88	92.2%	62.0%	53.8%	0.18	1.83	2021
497	1,848	1,848	1,530	6,703	20,760	32,690	77	1,887	1,887	1,454	6,703	20,760	32,690	250	165	85	651	100	37	-	-	15	6	115	43	112	41	227	84	94.5%	63.5%	55.5%	0.18	1.76	2022
477	1,811	1,811	1,396	6,434	21,258	32,710	70	1,846	1,846	1,326	6,434	21,258	32,710	247	160	87	636	103	36	-	-	15	5	118	41	111	39	230	80	96.6%	65.0%	57.0%	0.19	1.70	2023
458	1,772	1,772	1,273	6,177	21,736	32,730	64	1,804	1,804	1,209	6,177	21,736	32,730	243	154	89	622	106	35	-	-	16	5	121	40	111	37	233	77	98.5%	66.4%	58.4%	0.19	1.64	2024
440	1,732	1,732	1,161	5,930	22,195	32,750	58	1,761	1,761	1,103	5,930	22,195	32,750	239	150	89	481	85	27	-	-	13	4	98	31	88	27	186	58	100.0%	67.8%	59.5%	0.20	1.60	2025
422	1,690	1,690	1,059	5,693	22,638	32,770	53	1,717	1,717	1,006	5,693	22,638	32,770	236	150	86	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	69.1%	59.5%	0.20	1.60	2026
405	1,648	1,648	966	5,465	23,063	32,790	48	1,672	1,672	917	5,465	23,063	32,790	233	150	82	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	70.3%	59.4%	0.20	1.60	2027
389	1,605	1,605	881	5,246	23,472	32,810	44	1,627	1,627	837	5,246	23,472	32,810	230	151	79	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	71.5%	59.4%	0.20	1.60	2028
374	1,562	1,562	803	5,037	23,866	32,830	40	1,582	1,582	763	5,037	23,866	32,830	227	151	76	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	72.7%	59.4%	0.20	1.60	2029
359	1,519	1,519	732	4,835	24,244	32,850	37	1,537	1,537	696	4,835	24,244	32,850	224	151	73	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	73.8%	59.4%	0.20	1.60	2030