

## **Appendix C. Conservation Worksheets**

## Passive Water Conservation

Device	Sector	Device Count Factoring in Natural Replacement									
		2000	2001	2002	2003	2004	2005	2010	2015	2020	2050
Toilets (Not ULFT)	Single Family (1)	21,592	20,728	19,899	19,103	18,339	17,605	14,355	11,705	9,544	0
	Multiple Family (2)	8,499	8,159	7,833	7,519	7,219	6,930	5,650	4,607	3,757	0
	Commercial (3)	10,163	9,756	9,366	8,991	8,632	8,286	6,756	5,509	4,492	0
Clothes washers (Not HE)	Single Family (4)	16,344	16,093	15,845	15,602	15,362	15,125	10,137	6,793	4,553	0
	Multiple Family (5)	1,602	1,570	1,539	1,508	1,478	1,448	931	550	325	0

### Water Savings per Device Replaced

Device	Sector	GPD	AF/Year
Toilets (Not ULFT)	Single Family (6)	21.65	0.024
	Multiple Family (7)	36.50	0.041
	Commercial (8)	25.00	0.028
Clothes washers (Not HE)	Single Family (9)	15.34	0.017
	Multiple Family (10)	82.13	0.092

Device	Sector	Water Savings from Device Natural Replacement Post Year 2000 (AF/Year)								
		2000	2001	2002	2003	2004	2005	2010	2015	2020
Toilets (Not ULFT)	Single Family	21	41	60	79	97	176	240	292	524
	Multiple Family	14	27	40	52	64	116	159	194	347
	Commercial	11	22	33	43	53	95	130	159	285
Clothes washers (Not HE)	Single Family	4	9	13	17	21	107	164	203	281
	Multiple Family	3	6	9	11	14	62	97	118	147
<b>Total</b>		<b>53</b>	<b>105</b>	<b>155</b>	<b>202</b>	<b>248</b>	<b>556</b>	<b>790</b>	<b>965</b>	<b>1,584</b>

- (1) Assumes 2.0 toilets per home (EBMUD, 2002) and a 4% annual natural replacement rate.
- (2) Assumes 1.2 toilets per dwelling unit (EBMUD, 2002) and a 4% annual natural replacement rate.
- (3) Toilet count based on CUWCC zip code database. Assumes 4% annual natural replacement rate.
- (4) Assumes 1.0 washers per home, 11% HE washer penetration rate in 2000 (EBMUD, 2002), and a 7.7% annual natural replacement rate (13 year useful life from Vickers [2001], page 125).
- (5) Assumes 0.15 washers per dwelling unit (EBMUD, 2002), 5% HE washer penetration rate in 2000 (EBMUD, 2002), and a 10% annual natural replacement rate.
- (6) Based on Exhibit 6 of MOU assuming 2.0 toilets per home and 2.7 persons per home.
- (7) Based on Exhibit 6 of MOU assuming 1.2 toilets per home and 2.2 persons per home.
- (8) Based on weighted average of water savings from The CI/ULFT Savings Study (CUWCC, 2001).
- (9) Based on 5.6 gpd per person (Aquacraft, 2000) \* 2.74 persons per home.
- (10) Based on 5.6 gpd per person [Aquacraft, 2000] \* 2.2 persons per unit \* 6.7 dwelling per washer.

## Active Conservation Potential

		Conservation Activity in Units									
BMP	Description	Unit	2003	2004	2005	2006	2007	2008	2009	2010	
	Passive Conservation										
1	SF Residential Water Surveys	Home	450	463	300	306	350	366	0	0	
1	MF Residential Water Surveys	Dwelling	300	308	200	171	200	238	0	0	
2	SF Plumbing Retrofit	Home	0	0	0	0	0	0	0	0	
2	MF Plumbing Retrofit	Dwelling	0	0	0	0	0	0	0	0	
3	Water System Audits	System	1	1	1	1	1	1	1	1	
4	Water Metering	System	1	1	1	1	1	1	1	1	
5	Landscape Water Budget	Site	350	350	350	350	350	350	350	350	
5	Landscape Field Inspection	Site	100	100	100	0	0	0	0	0	
5	Landscape Field Followup	Site	0	0	0	100	100	100	100	100	
6	SF Clothes Washer Rebates	Washer	500	500	500	500	0	0	0	0	
6	MF Clothes Washer Rebates	Washer	250	200	100	100	0	0	0	0	
7	Public Information Programs	System	1	1	1	1	1	1	1	1	
8	School Education Programs	System	1	1	1	1	1	1	1	1	
9	CII ULFT Toilets	Toilet	124	64	60	0	0	0	0	0	
9	CII Water Use Surveys	Site	30	33	20	13	20	19	0	0	
10	Wholesale Agency Assitance	System	0	0	0	0	0	0	0	0	
11	Conservation Pricing	System	1	1	1	1	1	1	1	1	
12	Conservation Coordinator	System	1	1	1	1	1	1	1	1	
13	Water Waste Prohibition	System	1	1	1	1	1	1	1	1	
14	SF ULFT Replacement	Toilet	2,000	3,000	2,000	0	0	0	0	0	
14	MF ULFT Replacement	Toilet	2,000	2,000	1,000	0	0	0	0	0	



## Active Conservation Potential

BMF Description	Unit Water Savings GPD	Net Water Savings (AF/Year)									
		2003	2004	2005	2006	2007	2008	2009	2010		
0 Passive Conservation		155	202	248	293	362	426	487	556		
1 SF Residential Water Surveys	15.7	8	16	21	19	17	18	13	6		
1 MF Residential Water Surveys	6.4	2	4	6	7	6	6	4	3		
2 SF Plumbing Retrofit	5.7	0	0	0	0	0	0	0	0		
2 MF Plumbing Retrofit	6.4	0	0	0	0	0	0	0	0		
3 Water System Audits	NA	NA	NA	NA	NA	NA	NA	NA	NA		
4 Water Metering	NA	NA	NA	NA	NA	NA	NA	NA	NA		
5 Landscape Water Budget	443	174	174	174	174	174	174	174	174		
5 Landscape Field Inspection	664	74	149	149	149	74	0	0	0		
5 Landscape Field Followup	664	0	0	74	149	149	223	223	223		
6 SF Clothes Washer Rebates	15	9	17	34	34	34	34	34	34		
6 MF Clothes Washer Rebates	82	23	41	51	60	60	60	60	60		
7 Public Information Programs	NA	NA	NA	NA	NA	NA	NA	NA	NA		
8 School Education Programs	NA	NA	NA	NA	NA	NA	NA	NA	NA		
9 CII ULFT Toilets	25	3	5	7	7	7	7	7	7		
9 CII Water Use Surveys	105	4	7	10	11	14	12	8	6		
10 Wholesale Agency Assistance	NA	NA	NA	NA	NA	NA	NA	NA	NA		
11 Conservation Pricing	NA	NA	NA	NA	NA	NA	NA	NA	NA		
12 Conservation Coordinator	NA	NA	NA	NA	NA	NA	NA	NA	NA		
13 Water Waste Prohibition	NA	NA	NA	NA	NA	NA	NA	NA	NA		
14 SF ULFT Replacement	21.7	35	94	128	123	118	114	109	105		
14 MF ULFT Replacement	36.5	73	145	176	169	162	155	149	143		
<b>Total</b>		<b>558</b>	<b>855</b>	<b>1,070</b>	<b>1,120</b>	<b>1,177</b>	<b>1,230</b>	<b>1,269</b>	<b>1,317</b>		