



Miami-Dade Water & Sewer
Department

**Miami-Dade Consolidated PWS
Water Use Permit No. 13-00017-W**

**Water Conservation Plan
2015 Annual Report**

January 1, 2015 - December 31, 2015

**Miami-Dade Water & Sewer Department
3071 SW 38th Avenue
Miami, FL 33146**

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INTRODUCTION

On November 15, 2007, the South Florida Water Management District (SFWMD) Governing Board approved the Miami-Dade Consolidated Water Use Permit (WUP). On November 1, 2010, the SFWMD Governing Board approved the reissuance of the permit extending the WUP for an additional three years. On December 16, 2012, the permit was reissued to increase the permitted allocation and to modify the water supply for the South Miami Heights Water Treatment Plant to include allocation from the Floridan aquifer. On February 9, 2015, the SFWMD issued a modification to the WUP, extending the expiration date to February 9, 2035. The permit has been re-issued again on September 21, 2015 due to revisions of certain special permit conditions (specifically 12, 13, 16, 22, 26 through 35 and 38).

To comply with the original Permit requirements, MDWASD developed a 20-year Water Use Efficiency Plan using the Florida Department of Environmental Protection Conserve Florida Guide (Guide). The Guide is a web-based application for goal-based water conservation planning. MDWASD was the first utility in the State to use the Guide to develop, administer and report its water conservation program.

The implementation of the Conserve Florida Plan Best Management Practices (BMPs) guarantees that MDWASD will meet the projected 19.6 million gallons a day (MGD) water savings target by 2026, as required by the Permit. As of December 31, 2015, water savings from BMPs are 14.14 MGD, exceeding the calendar year 2015 water savings goal of 10.66 MGD.

MDWASD hereby submits the ninth Water Conservation Plan Annual Progress Report detailing the County's actions and efforts to comply with Limiting Condition 17 of the modified WUP.

SUMMARY

Miami-Dade County's Water Use Efficiency Plan (Plan) was implemented utilizing the Florida Department of Environmental Protection (DEP) Conserve Florida Guide. The web-based guide designed for public water suppliers was used for developing, and implementing the water conservation measures and best management practices (BMPs) included in the Plan. The use of quantifiable BMPs and measures has assisted in reviewing and evaluating planned and reported water savings on an annual basis to ensure the implementation of a cost-effective conservation program.

Other measures in addition to water conservation incentives have been enacted to ensure future water savings. For example, water use efficiency standards for new residential and commercial developments enacted by the Miami-Dade Board of County Commissioners on January 1, 2009 are being implemented and enforced through local building codes. The standards included technical amendments to the Florida Building Code to require maximum water conservation flow rates for plumbing fixtures.

Additionally, the County continues to implement the Permanent Landscape Irrigation Restriction Ordinance which limits landscape irrigation to two days per week. A written advisory notice is sent to follow up on formal complaints that are received through either the County's 3-1-1 system or via a web-based e-mail system.

The County has also enacted a tiered water rate structure which includes a surcharge for high water use to encourage water conservation.

As a result, Miami-Dade County is currently experiencing actual finished water demands 32 MGD lower than 2006 actual demands (the year prior to the implementation of the WUE Plan). The reduced demands are the result of lower than anticipated population growth, along with the implementation of the County's irrigation restrictions, Water Loss Reduction Program and Water Conservation Program.

SECTION I - PLAN IMPLEMENTATION

The Conserve Florida BMPs that MDWASD has implemented as part of the Water Use Efficiency Plan are shown in Appendix A.

Due to the implementation of the BMPs and the landscape irrigation restriction measures, Miami-Dade County has continued to see a lower than expected per capita water consumption. Figure 1 reflects the historical systemwide per capita, showing the effectiveness of MDWASD's water efficiency strategies. It should be noted that the historic per capita calculations have been revised based on the most current population data from the Miami-Dade County Planning Division of the Department of Regulatory and Economic Resources.

Table 1 shows both the estimated water savings achieved through implementation of the BMPs and the corresponding annual planned goal for water savings. Current estimated water savings from the BMPs are more than 14.1 MGD, exceeding the 2015 water savings target of 10.66 MGD.

Figure 1. Historical Systemwide Per Capita

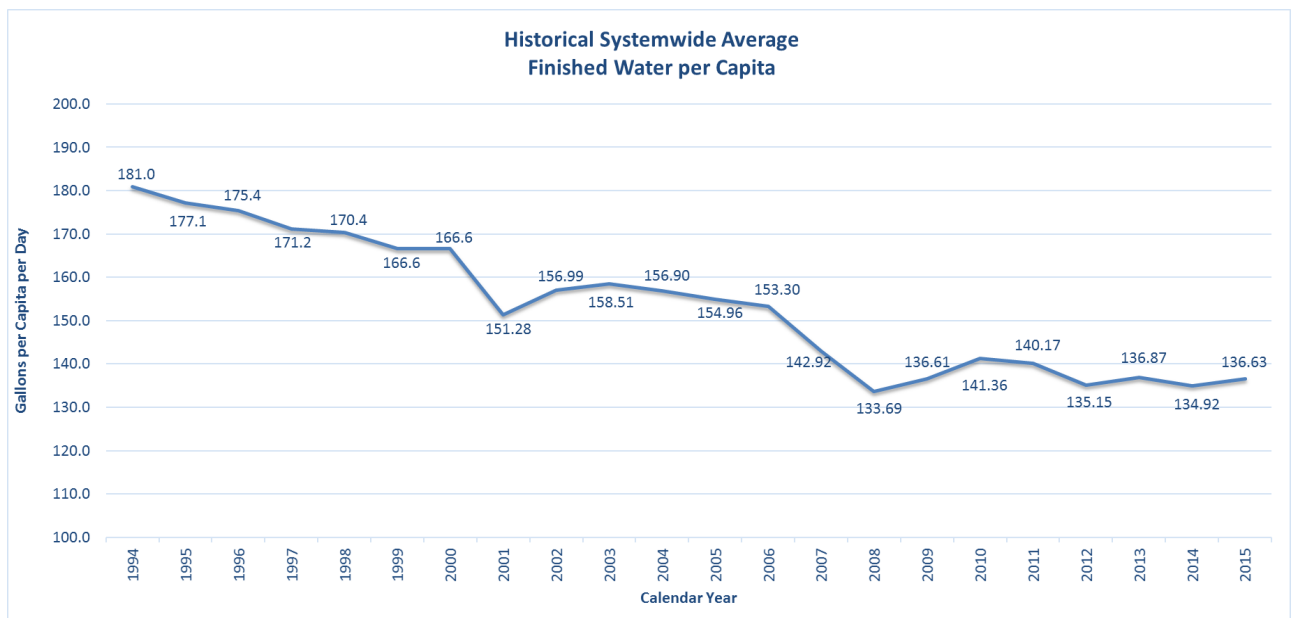


Table 1. Water Savings Report Summary

Year	Water Savings (MGD)	
	Planned	Reported
2007	1.09	1.21
2008	2.24	3.48
2009	3.53	4.90
2010	4.82	6.54
2011	6.10	8.47
2012	7.22*	10.07
2013	8.42*	11.23
2014	9.54*	12.34
2015	10.66*	14.14
2016	11.70	--
2021	15.67	--
2026	19.62	--

*Estimated goal based on 5 year target

**APPENDIX A - BMP IMPLEMENTATION
THROUGH DECEMBER 31, 2015**

BMP Implementation for: High Efficiency Toilet & Retrofit Kit
Category: Retrofit
Sector: Single Family –Senior and Low Income Retrofit Project*
No Expenditures in 2015 (Note: Program ended October 2012)

Year		Units	Savings/Account (Address) Gallons/account/day	Total Savings (gal/day)
2007	Planned	750	64	48,000
	Reported	890	64	56,960
	Difference	140		8,960
2008	Planned	1000	64	64,000
	Reported	1124	64	71,936
	Difference	124		7,936
2009	Planned	1000	64	64,000
	Reported	1000	64	64,000
	Difference	0		
2010	Planned	1000	64	64,000
	Reported	845*	64	54,080
	Difference	-155		-9,920
2011	Planned	750	64	48,000
	Reported	706	64	45,184
	Difference	44		-2,816
2012	Planned	750	64	48,000
	Reported	463	64	29,632
	Difference	-287		-18,368

*Note: Reported Value is for each address where a retrofit occurred. A retrofit consists of up to 2 HETs, 2 showerheads, 2 bathroom faucet aerators and a kitchen aerator.

BMP Implementation for: High Efficiency Clothes Washer Rebates**Category: Indoor****Sector: Single Family Home Washers – Rebate****No Expenditures in 2015 (Note: Program ended October 2009)**

Year		Units	Savings/Measure gallon/measure/day	Total Savings (gal/day)
2007	Planned	0	16.3	0
	Reported	0	16.3	0
	Difference	0		
2008	Planned	150	16.3	2,445
	Reported	849	16.3	13,838.7
	Difference	699		11,393.7
2009	Planned	250	16.3	4,075
	Reported	937	16.3	15,273.1
	Difference	687		11,198.1

BMP Implementation for: Ultra Low Flush (ULF) Toilet Rebates
Category: Rebate
Sector: Residential High Efficiency Toilet (HET) Rebate Project
Cost per Rebate: \$50

Year		Units	Savings/Account gallons per account per day	Total Savings (gal/day)
2007	Planned	750	29	21,750
	Reported	971	29	28,159
	Difference	221		6,409
2008	Planned	750	29	21,750
	Reported	1253	29	36,337
	Difference	503		14,587
2009	Planned	1000	29	29,000
	Reported	3478	29	100,862
	Difference	2478		71,862
2010	Planned	2000	29	58,000
	Reported	2622	29	76,038
	Difference	622		18,038
2011	Planned	2000	29	58,000
	Reported	2566	29	74,414
	Difference	566		16,414
2012	Planned	1200	29	34,800
	Reported	1220	29	35,380
	Difference	20		580
2013	Planned	1500	29	43,500
	Reported	1547	29	44,863
	Difference	75		2,175
2014	Planned	1500	29	43,500
	Reported	1558	29	45,182
	Difference	58		1,682

2015	Planned	1450	29	42,050
	Reported	1887	29	54,723
	Difference	437		12,673

BMP Implementation for: High Efficiency Toilet (HET)**Category: Retrofit****Sector: Multi-Family HET Retrofit Project**

Year		Units	Savings/Unit Gallons per multi-family unit per day	Total Savings (gal/day)
2007	Planned	0	64	0
	Reported	0	64	0
	Difference	0		
2008	Planned	0	64	0
	Reported	0	64	0
	Difference	0		
2009	Planned	310	64	19,840
	Reported	315	64	20,160
	Difference	5		320
2010	Planned	0	64	0
	Reported	0	64	0
	Difference	0		
2011	Planned	0	64	0
	Reported	0	64	0
	Difference	0		
2012	Planned	0	64	0
	Reported	0	64	0
	Difference	0		0
2013	Planned	0	64	0
	Reported	0	64	0
	Difference	0		0
2014	Planned	0	64	0
	Reported	0	64	0
	Difference	0		0

BMP Implementation for: Ultra Low Flush (ULF) Toilet Rebates
Category: Rebate
Sector: Multi-family High Efficiency Toilet (HET) Rebate Project
Cost per Rebate: \$50*

Year		Units	Savings/Unit Gallons per multi-family unit per day	Total Savings (gal/day)
2015	Planned	80	29	2,320
	Reported	588	29	17,052
	Difference	508		14,732

*Note: incorrectly combined with Residential High Efficiency Toilet Rebates in previous years

BMP Implementation for: High Efficiency Showerheads

Category: Indoors

Sector: Single Family - Showerhead Exchange

Cost per Showerhead: \$3.00

Year		Units	Savings/Measure Gallons/measure/day	Total Savings (gal/day)
2007	Planned	1600	35	56,000
	Reported	4194	35	146,790
	Difference	2594		90,790
2008	Planned	1600	35	56,000
	Reported	2437	35	85,295
	Difference	837		29,295
2009	Planned	1480	35	51,800
	Reported	2163	35	75,705
	Difference	683		23,905
2010	Planned	1500	35	52,500
	Reported	1986	35	69,510
	Difference	486		17,010
2011	Planned	1500	35	52,500
	Reported	1936	35	67,760
	Difference	436		15,260
2012	Planned	1500	35	52,500
	Reported	3158	35	110,530
	Difference	1658		58,030
2013	Planned	1100	35	38,500
	Reported	1228	35	42,980
	Difference	128		4,480
2014	Planned	1500	35	52,500
	Reported	1991	35	69,685
	Difference	491		17,185

2015	Planned	1500	35	52,500
	Reported	2554	35	89,390
	Difference	1,054		36,890

BMP Implementation for: High Efficiency Retrofit Kit

Category: Indoors

Sector: Single Family - Retrofit Kit (High Efficiency Bathroom & Kitchen Faucet Aerators and Dye Tablets) Note savings of 12 gallons per aerator. Currently 2 aerators per kit.

Cost per Retrofit Kit: \$2.83

Year		Units	Savings/Measure Gallons/measure/day	Total Savings (gal/day)
2007	Planned	1600	12	19,200
	Reported	4194	12	50,328
	Difference	2594		31,128
2008	Planned	1600	12	19,200
	Reported	2437	12	29,244
	Difference	837		10,044
2009	Planned	1480	12	17,760
	Reported	1498	12	17,976
	Difference	18		216
2010	Planned	1000	12	12,000
	Reported	1321	12	15,852
	Difference	321		3,852
2011	Planned	1000	12	12,000
	Reported	1417	12	17,004
	Difference	417		5,004
2012	Planned	1000	12	12,000
	Reported	2576	12	30,912
	Difference	1576		18,912
2013	Planned	800	24	9,600
	Reported	890	24	10,680
	Difference	90		1,080
2014	Planned	1000	24	24,000
	Reported	1893	24	45,432
	Difference	893		21,432

2015	Planned	1000	24	24,000
	Reported	1345	24	32,280
	Difference	345		8,280

BMP Implementation for: High Efficiency Showerheads**Category: Indoors****Sector: Multi-Family – Showerhead Exchange****Cost per Showerhead: \$3.00**

Year		Units	Savings/Measure Gallons/Unit/Day	Total Savings Gallons Per Day (gal/day)
2007	Planned	1600	35	56,000
	Reported	4193	35	146,755
	Difference	2593		90,755
2008	Planned	1600	35	56,000
	Reported	4000	35	140,000
	Difference	2400	35	84,000
2009	Planned	2120	35	74,200
	Reported	2130	35	74,550
	Difference	10		350
2010	Planned	5000	35	175,000
	Reported	6519	35	228,165
	Difference	3485		53,165
2011	Planned	2500	35	87,500
	Reported	2857	35	99,995
	Difference	357		12,495
2012	Planned	2000	35	70,000
	Reported	2163	35	75,705
	Difference	163		5,705
2013	Planned	800	35	28,000
	Reported	814	35	28,490
	Difference	14		490
2014	Planned	1000	35	35,000
	Reported	1167	35	40,845
	Difference	67		5,845

2015	Planned	1000	35	35,000
	Reported	0	35	0
	Difference	-1000		-35,000

BMP Implementation for: High Efficiency Retrofit Kit

Category: Indoors

Sector: Multi-Family – Retrofit Kit (High Efficiency Bathroom & Kitchen Faucet Aerators and Dye Tablets) Note savings of 12 gallons per aerator. Currently 2 aerators per kit.

Cost per Retrofit Kit: \$2.83

Year		Units	Savings/Measure Gallons/measure/day	Total Savings (gal/day)
2007	Planned	1600	12	19,200
	Reported	4193	12	50,316
	Difference	2593		31,116
2008	Planned	1600	12	19,200
	Reported	4000	12	48,000
	Difference	2400		28,800
2009	Planned	2120	12	25,440
	Reported	2130	12	25,560
	Difference	10		120
2010	Planned	2600	12	31,200
	Reported	5657	12	67,884
	Difference	3057		36,684
2011	Planned	2000	12	24,000
	Reported	2618	12	31,416
	Difference	618		7,416
2012	Planned	1500	12	18,000
	Reported	1567	12	18,804
	Difference	67		804
2013	Planned	500	24	12,000
	Reported	662	24	15,888
	Difference	162		3,888
2014	Planned	750	24	18,000
	Reported	576	24	13,824
	Difference	-174		-4,176

2015	Planned	750	24	18,000
	Reported	0	24	0
	Difference	-750		-18,000

BMP Implementation for: High Efficiency Aerators

Category: Indoors

Sector: Non-Residential Industrial, Commercial and Institutional (ICI) – Faucet Aerators

Cost per Retrofit Kit: \$0.50

2014	Planned	0	12	0
	Reported	205	12	2,460
	Difference	205		2,460
2015	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0

BMP Implementation for: High Efficiency Showerheads Rebate**Category: Indoors****Sector: Single Family - Showerhead Rebate****Cost per Rebate: \$25.00***

Year		Units	Savings/Measure Gallons/Unit/Day	Total Savings Gallons Per Day (gal/day)
2007	Planned	0	35	0
	Reported	0	35	0
	Difference	0		0
2008	Planned	0	35	0
	Reported	0	35	0
	Difference	0	35	0
2009	Planned	0	35	0
	Reported	0	35	0
	Difference	0		0
2010	Planned	0	35	0
	Reported	0	35	0
	Difference	0		0
2011	Planned	0	35	0
	Reported	0	35	0
	Difference	0		0
2012	Planned	50	35	1750
	Reported	23	35	805
	Difference	-27		-945
2013	Planned	50	35	1750
	Reported	46	35	1610
	Difference	-4		-140
2014	Planned	0	35	0
	Reported	59	35	2,065
	Difference	59		2,065

2015	Planned	0	35	0
	Reported	167	35	5,845
	Difference	167		5,845

*Note: change from \$10/rebate

BMP Implementation for: High Efficiency Faucet Rebate**Category: Indoors****Sector: Single Family - Faucet Rebate****Cost per Rebate: \$25.00***

Year		Units	Savings/Measure Gallons/Unit/Day	Total Savings Gallons Per Day (gal/day)
2007	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0
2008	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0
2009	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0
2010	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0
2011	Planned	0	12	0
	Reported	0	12	0
	Difference	0		0
2012	Planned	50	12	600
	Reported	107	12	1284
	Difference	57		684
2013	Planned	50	12	600
	Reported	120	12	1440
	Difference	70		840
2014	Planned	0	12	0
	Reported	151	12	1,812
	Difference	151		1,812

2015	Planned	0	12	0
	Reported	433	12	5,196
	Difference	433		5,196

*Note: change from \$10/rebate

BMP Implementation for: Water-Efficient Landscape and Irrigation Evaluations and Rebates
Category: Landscape and Irrigation Evaluations with Rebates
Sector: Large Property Landscape Evaluation with Smart Controller
Cost per Rebate: \$2,850

Year		Units	Savings/Account Gallons/account/day	Total Savings (gal/day)
2007	Planned	20	35,000	700,000
	Reported	20	35,000	700,000
	Difference	0		
2008	Planned	20	35,000	700,000
	Reported	50	35,000	1,750,000
	Difference	30		1,050,000
2009	Planned	20	35,000	700,000
	Reported	25	35,000	875,000
	Difference	5		175,000
2010	Planned	25	35,000	875,000
	Reported	26	35,000	910,000
	Difference	1		35,000
2011	Planned	35	35,000	1,225,000
	Reported	44	35,000	1,540,000
	Difference	9		315,000
2012	Planned	25	35,000	875,000
	Reported	36	35,000	1,260,000
	Difference	11		385,000
2013	Planned	26	35,000	910,000
	Reported	28	35,000	980,000
	Difference	2		70,000
2014	Planned	27	35,000	945,000
	Reported	25	35,000	875,000
	Difference	-2		-70,000

2015	Planned	69	35,000	2,415,000
	Reported	42	35,000	1,470,000
	Difference	-27		-945,000

BMP Implementation for: Water-Efficient Landscape and Irrigation Evaluations and Rebates
Category: Landscape and Irrigation Evaluations with Rebates
Sector: Single Family Homes (UCU) Landscape Evaluation and Rebate
Cost per Rebate: \$500

Year		Units	Savings/Account Gallons/account/day	Total Savings (gal/day)
2007	Planned	0	233	0
	Reported	0	233	0
	Difference	0		
2008	Planned	0	233	0
	Reported	0	233	0
	Difference	0		
2009	Planned	200	233	46,600
	Reported	200	233	46,600
	Difference	0		
2010	Planned	120	233	27,960
	Reported	131	233	30523
	Difference	11		2563
2011	Planned	120	233	27,960
	Reported	145	233	33,785
	Difference	25		5,825
2012	Planned	100	233	23,300
	Reported	81	233	18,873
	Difference	-19		-4427
2013	Planned	75	233	17,475
	Reported	58	233	13,514
	Difference	17		-3961
2014	Planned	75	233	17,475
	Reported	75	233	17,475
	Difference	17		0

2015	Planned	195	233	45,435
	Reported	84	233	19,572
	Difference	-111		-25,863

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations
Category: Evaluations Without Rebates
Sector: Non-Residential – County Owned Facilities Landscape Evaluation
Cost per Evaluation - \$250

Year		Units	Savings/Measure Gallons/measure/day	Total Savings (gal/day)
2007	Planned	22	1,500	33,000
	Reported	22	1,500	33,000
	Difference	0		
2008	Planned	10	1,500	15,000
	Reported	38	1,500	57,000
	Difference	28		42,000
2009	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2010	Planned	0	1,500	0
	Reported	3	1,500	4500
	Difference	3		4500
2011	Planned	10	1,500	15000
	Reported	7	1,500	10,500
	Difference	3		-4,500
2012	Planned	0	1500	0
	Reported	16	1500	24,000
	Difference	16		24,000
2013	Planned	0	1500	0
	Reported	0	1500	0
	Difference			
2014	Planned	0	1500	0
	Reported	1	1500	1500
	Difference	1		1500

2015	Planned	0	1500	0
	Reported	0	1500	0
	Difference	0		0

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations**Category: Evaluations Without Rebates****Sector: Non-Residential – Green Restaurant Program****Cost per Evaluation and Spray Nozzle: \$250**

Year		Units	Savings/Measure Gallons/measure/day	Total Savings (gal/day)
2007	Planned	0	100	0
	Reported	0	100	0
	Difference	0		
2008	Planned	12	100	1,200
	Reported	14	100	1,400
	Difference	2		200
2009	Planned	12	100	1,200
	Reported	12	100	1,200
	Difference	0		
2010	Planned	12	100	1,200
	Reported	11	100	1,100
	Difference	-1		-100
2011	Planned	0	100	0
	Reported	0	100	0
	Difference	0		
2012	Planned	0	100	0
	Reported	0	100	0
	Difference	0		
2013	Planned	0	100	0
	Reported	0	100	0
	Difference	0		
2014	Planned	0	100	0
	Reported	9	100	900
	Difference	0		900

2015	Planned	0	100	0
	Reported	0	100	0
	Difference	0		0

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations**Category: Evaluations Without Rebates****Sector: Non-Residential – Green Lodging Project****Cost per Evaluation: \$250**

Year		Units	Savings/Measure gallons/measure/day	Total Savings (gal/day)
2007	Planned	0	1,617	0
	Reported	0	1,617	0
	Difference	0		
2008	Planned	12	1,617	19,404
	Reported	17	1,617	27,489
	Difference	5		8,085
2009	Planned	12	1,617	19,404
	Reported	21	1,617	33,957
	Difference	9		14,553
2010	Planned	0	1,617	0
	Reported	4	1,617	6,468
	Difference	4		6,468
2011	Planned	0	1,617	0
	Reported	3	1,617	4,851
	Difference	3		4,851
2012	Planned	0	1,617	0
	Reported	2	1,617	3,234
	Difference	2		3,234
2013	Planned	0	1,617	0
	Reported	1	1,617	1,617
	Difference	1		1,617
2014	Planned	0	1,617	0
	Reported	1	1,617	1,617
	Difference	1		1,617

2015	Planned	1	1,617	1,617
	Reported	80	1,617	129,360
	Difference	79		127,743

BMP Implementation for: Non-residential Water-Use Evaluations/Implementations
Category: Evaluations Without Rebates
Sector: Non-Residential Industrial, Commercial and Institutional (ICI) – Private Facilities
No Expenditures in 2015

Year		Units	Savings/Measure (gpm/d)	Total Savings (gal/day)
2007	Planned	22	1,500	33,000
	Reported	22	1,500	33,000
	Difference	0		
2008	Planned	10	1,500	15,000
	Reported	38	1,500	57,000
	Difference	28		42,000
2009	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2010	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2011	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2012	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2013	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		
2014	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		0

2015	Planned	0	1,500	0
	Reported	0	1,500	0
	Difference	0		0