



Meeting Water Planning Goals with New Data on Urban Conservation Programs

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Project Overview

- Low-hanging fruit: conservation without behavior change or capital-intensive infrastructure
- Targeting high-density real estate
 - 100 unit apartment complex is the same as 100 single-family homes but with just one driveway
- Projecting savings with data
 - Comprehensive audit of historical water consumption
 - Monitor occupancy and tenant density



Project Overview

Baseline program: showerheads, aerators, manifolds, drips/leaks, rebuild toilets

- Benchmarked to **55 gpcd**
- Crew member can complete 7 units per day

Baseline program plus toilet replacement: everything in baseline plus replace current toilets

- Benchmarked to **40 gpcd**
- Crew member can complete 2 units per day



Case Study: Baseline

Read Date	Consumption	No. Days	GPD	Occ	Gal/Day/ Occ/Unit
7/18/2013	2,715,000	31	87,581	257	340
8/19/2013	2,665,000	32	83,281	260	320
9/17/2013	2,375,000	29	81,897	255	321
10/14/2013	2,137,000	27	79,148	255	311
11/18/2013	2,534,000	35	72,400	250	290
1/21/2014	2,579,000	34	75,853	255	298
2/19/2014	2,053,000	29	70,793	257	275
3/17/2014	2,048,000	26	78,769	257	306
4/16/2014	2,174,000	30	72,467	255	284
5/15/2014	2,598,000	29	89,586	255	352
6/16/2014	2,072,000	32	64,750	252	257

Average: 305

Save Water Co Conservation Program Begins 11/16/2014

1/19/2015	1,423,000	34	41,853	260	161
2/17/2015	1,529,000	29	52,724	255	207
3/17/2015	1,330,000	28	47,500	255	186
4/21/2015	1,207,000	35	34,486	255	135
5/20/2015	1,353,000	29	46,655	255	183
6/16/2015	1,252,000	27	46,370	252	184
7/20/2015	1,611,000	34	47,382	255	186
8/19/2015	1,415,000	30	47,167	257	183

Average: 178

Reduction: -42%

260 units/10 days

Water Savings

984,000 gallons/
3.02 acre-feet per month

11,808,000 gallons/
36.24 acre-feet per year



Case Study: Baseline

Read Date	Consumption	No. Days	GPD	Occ	Gal/Day/ Occ/Unit
12/27/2013	4,993,000	32	156,031	188	830
1/31/2014	4,970,400	35	142,011	191	742
3/3/2014	3,478,900	31	112,223	191	586
3/29/2014	4,109,800	26	158,069	209	757
4/30/2014	4,521,400	32	141,294	223	634
5/30/2014	4,010,900	30	133,697	223	600
7/3/2014	3,975,500	34	116,926	223	525
7/30/2014	3,974,800	27	147,215	226	651
8/27/2014	3,334,200	28	119,079	226	526
9/27/2014	3,566,800	31	115,058	239	481
10/27/2014	3,381,000	30	112,700	243	463
Average:					618

348 units/15 days

Water Savings

3,128,300 gallons

9.60 acre-feet per month

Save Water Co Conservation Program Begins 11

3/3/2015	2,025,700	33	61,385	275	223
3/31/2015	1,979,900	28	70,711	275	257
4/30/2015	1,886,300	30	62,877	275	229
6/1/2015	2,234,400	32	69,825	275	254
6/29/2015	1,890,800	28	67,529	275	246

37,539,600 gallons

115.21 acre-feet per year

Average: 242

Reduction: -61%



Case Study: Baseline plus Toilets

Read Date	Consumption	No. Days	GPD	Occ	Gal/Day/ Occ/Unit
12/13/2013	1,364,000	29	47,034	146	321
1/14/2014	1,415,000	32	44,219	146	302
2/14/2014	1,255,000	31	40,484	146	277
3/14/2014	1,115,000	28	39,821	146	272
4/14/2014	1,279,000	31	41,258	146	282
5/14/2014	1,164,000	30	38,800	146	265
6/6/2014	1,335,000	23	58,043	146	397
7/15/2014	1,292,000	39	33,128	146	226
9/15/2014	1,071,000	28	38,250	146	261
10/16/2014	1,170,000	31	37,742	146	258
11/18/2014	1,245,000	33	37,727	146	258

Average: 284

154 units/7 days

Water Savings

641,000 gallons/
1.97 acre-feet per month

Save Water Co Conservation Program Begins 5

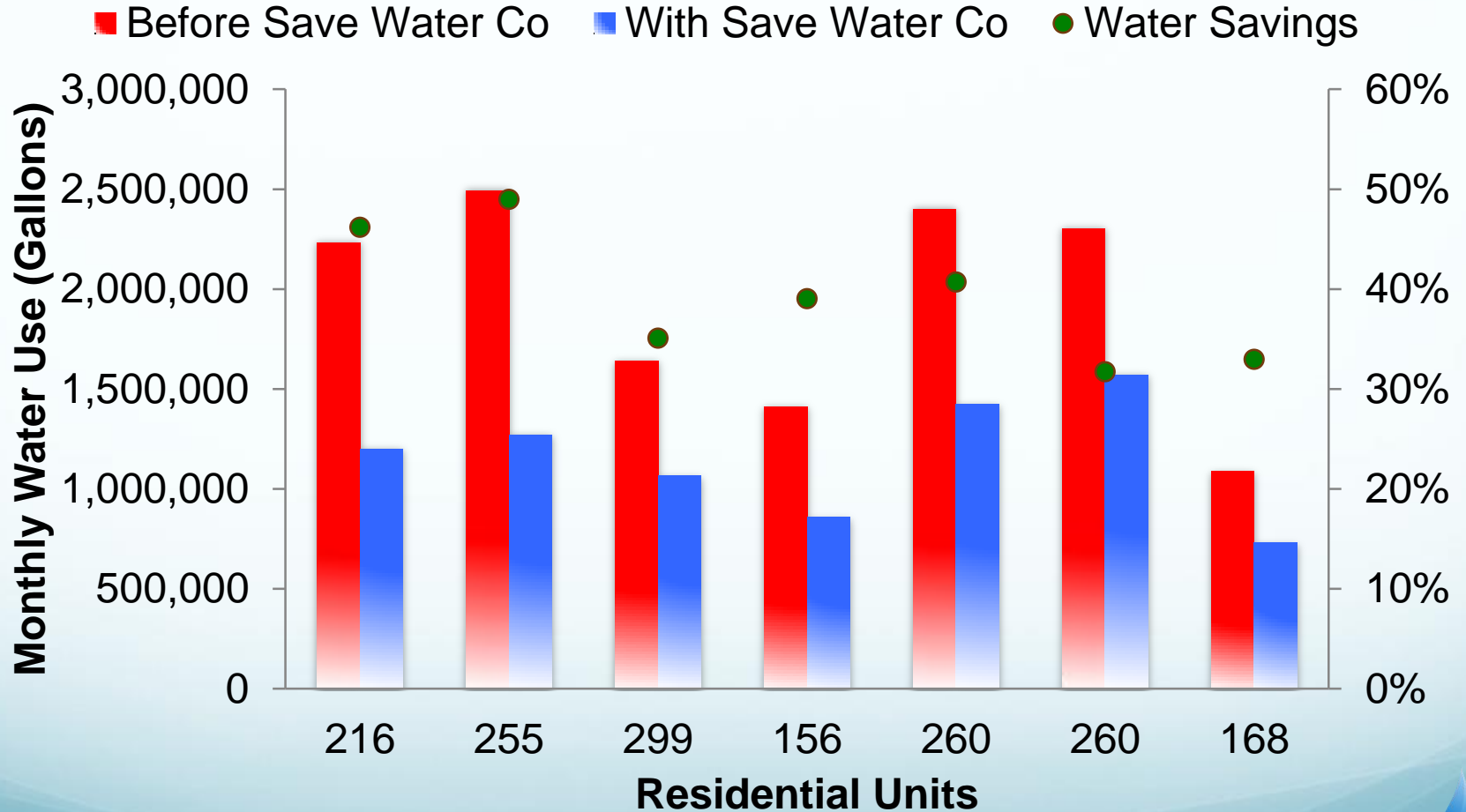
7/14/2015	348,000	29	12,000	122	99
8/14/2015	360,000	31	11,613	112	103

Average: 101
Reduction: -64%

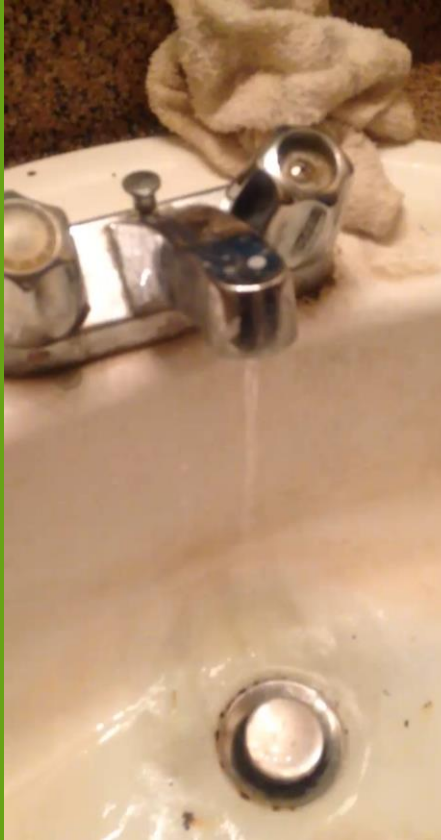
7,690,000 gallons/
23.60 acre-feet per year



Project Impact



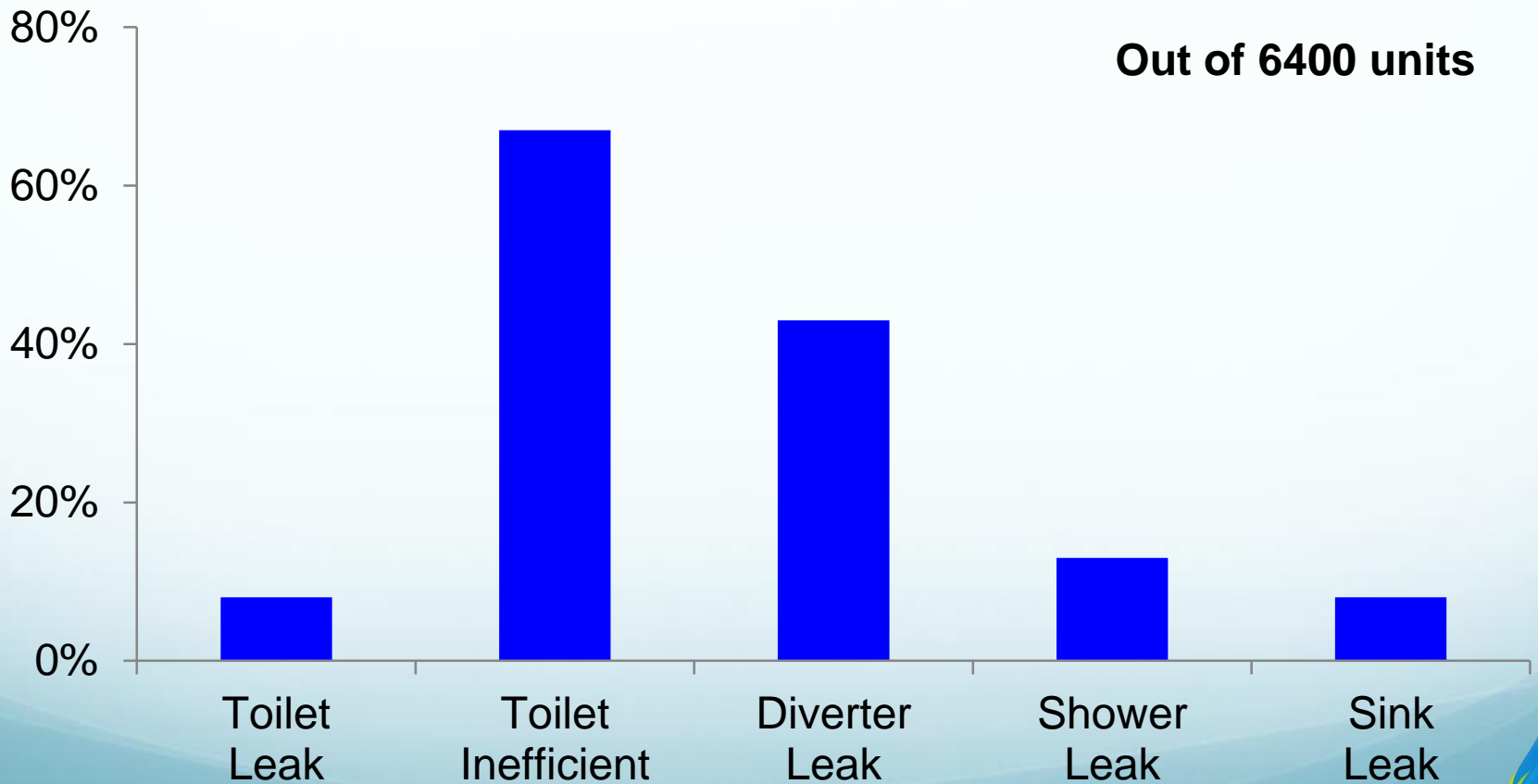
Just One Leak



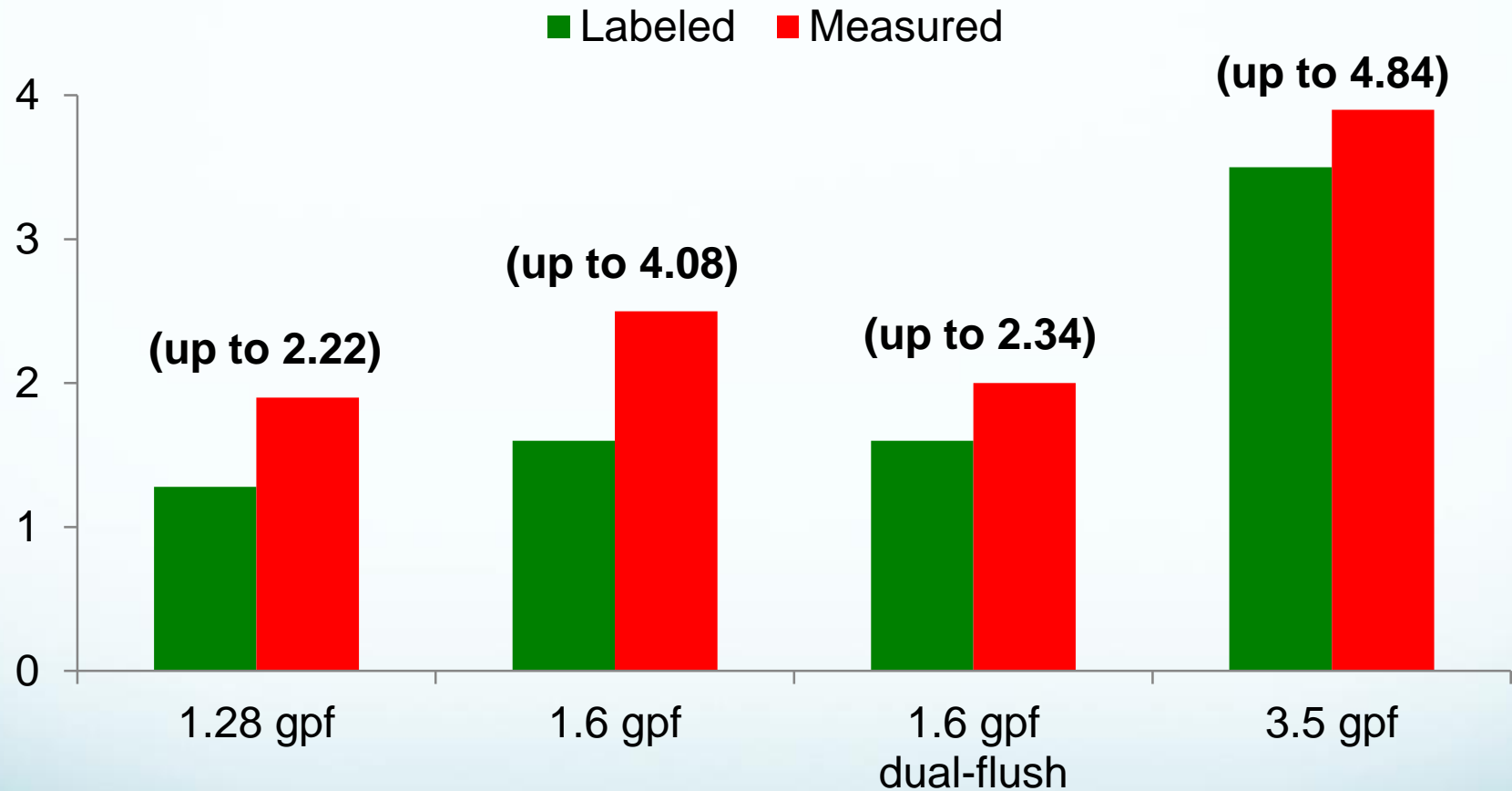
Toilet Truth

Region L 2015 IPP Assumptions:

Toilet retrofit 25 yr lifespan, showerhead/aerator 15 yrs



Toilet Truth



Lower labeled use does not necessarily guarantee consistency or durability



Regional Impact

Potential new water with full implementation of such conservation programs:

- Region C: 81,000 acre-feet
- Region H: 75,000 acre-feet
- Region K: 21,000 acre-feet
- Region L: 23,000 acre-feet



Project Cost

- **\$1,100** per acre-foot Save Water Co baseline program
 - 1 acre-foot per approx. 9.5 units
 - Approx. \$120 per unit
- **\$2,607** per acre-foot baseline plus toilet replacement
 - 1 acre-foot per approx. 6.6 units
 - Approx. \$395 per unit
- **\$250 per acre-foot after initial implementation**



Cost Comparison

- 2012 SWP: **\$6,000** per acre-foot for all new sources (\$53 Billion total)
- Current Region H draft: **\$12,010** per acre-foot (\$1.8 Billion total) for conservation



Project Benefits

- Real-world monitoring and data
- Does not depend on behavior change
- Eases urban – rural competition
- Enlists “unengaged middle”



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