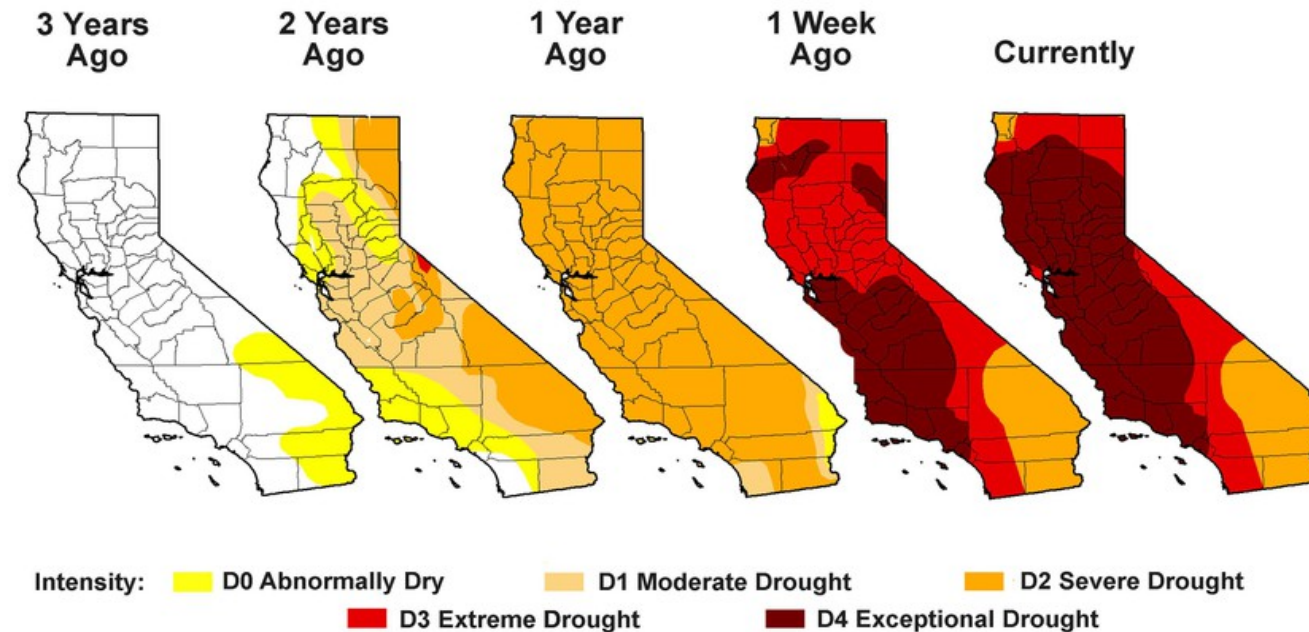


MANAGING WATER DURING TIMES OF DROUGHT

TANISHA-JEAN MARTIN
SDSU/USD

Drought Regulations

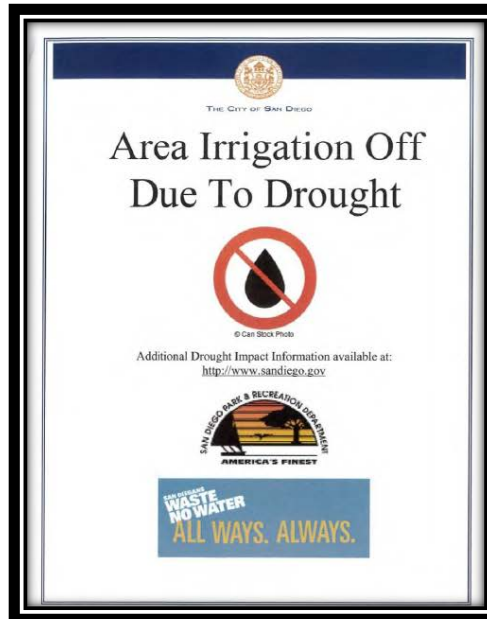
- ▶ California's water supply is at historically low levels after four consecutive years of drought.
- ▶ April 2015, Governor Jerry Brown ordered a 25 percent statewide reduction in urban water use.
- ▶ May 2015, the State Water Resources Control Board mandated the City of San Diego to conserve 16 percent between June 1, 2015, and February 13, 2016.



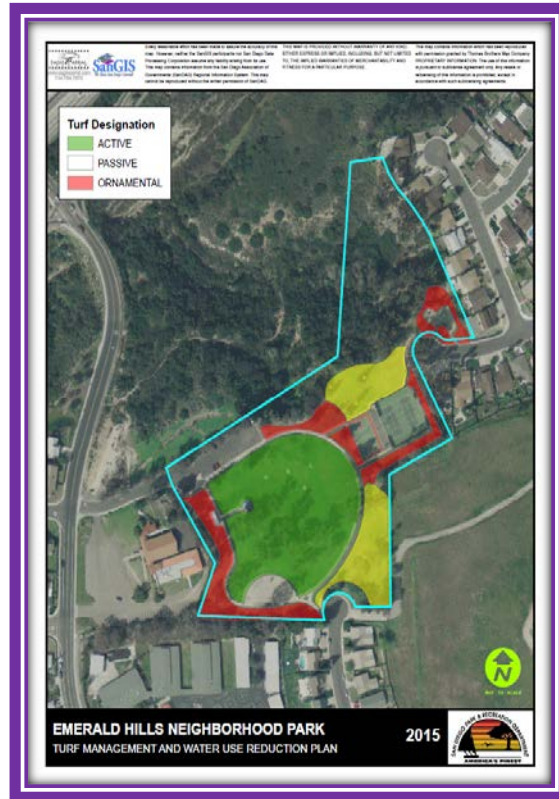
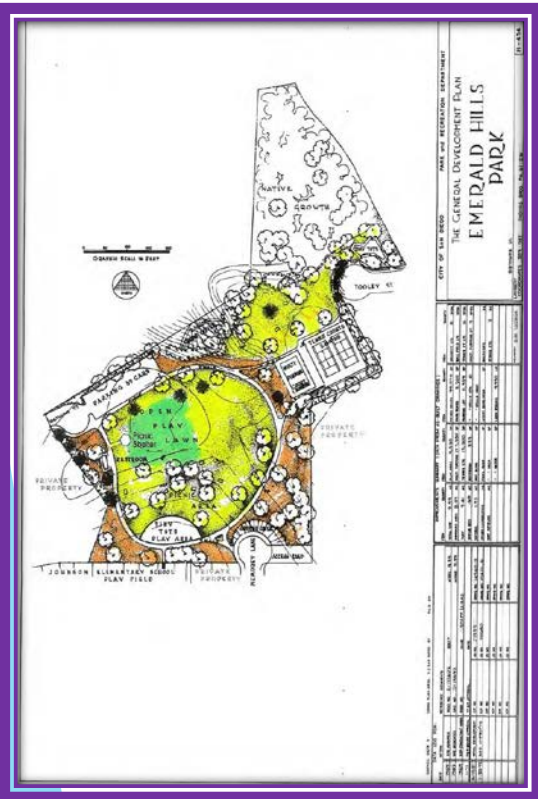
Archived maps by the U.S. Drought Monitor show drought levels at the end of July for each year since 2011.
DEPARTMENT OF AGRICULTURE

Making Adjustments

- ▶ In City parks:
 - ▶ Hundreds of sprinkler heads were replaced with water-efficient nozzles,
 - ▶ Irrigation was stopped at dog parks, and more drought-tolerant landscaping is being planted.
 - ▶ Toilets replaced with water-efficient models,
 - ▶ Self-closing drinking fountains and sinks have been installed in City facilities.
 - ▶ Outdoor irrigation during a 48 hour period following measurable precipitation is prohibited.
 - ▶ Measurable precipitation is defined as 1/8" or 0.125 of an inch of rain.

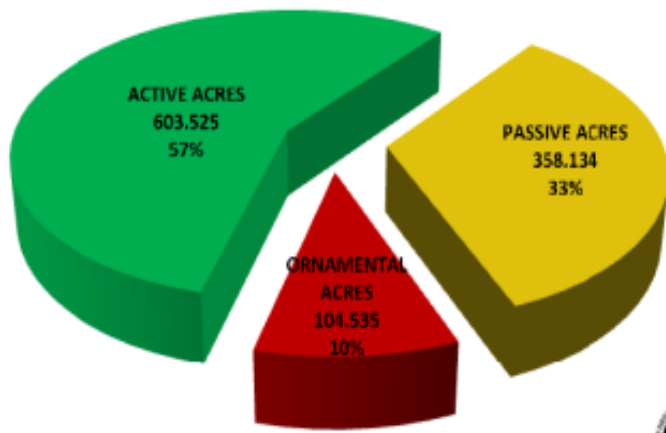


Turf Designation Project



- ▶ **Active Turf (3X/week)**
 - ▶ Athletic Fields, historically designated areas, high-tourism areas, and special community spaces.
- ▶ **Passive Turf (2x/week)**
 - ▶ Well utilized areas around picnic areas, playgrounds, and athletic fields.
- ▶ **Ornamental Turf (Turn off)**
 - ▶ Under-utilized areas and slopes, preferably bordered by hardscape and/or fence line.

**SAN DIEGO PARK & RECREATION
TURF DESIGNATION ACRES:
DEVELOPED PARKS**

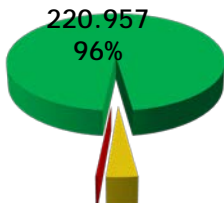


<u>DEVELOPED PARK NAME</u>	<u>TURF DESIGNATION</u>	<u>TOTAL TURF ACRES</u>	<u>COMMUNITY</u>
----------------------------	-------------------------	-------------------------	------------------

30TH STREET MINI PARK	PASSIVE ORNAMENTAL	0.082 0.024	SOUTHEASTERN SAN DIEGO
41ST ST MINI PARK	PASSIVE ORNAMENTAL	0.097 0.013	SOUTHEASTERN SAN DIEGO
ADAMS AVENUE COMMUNITY PARK	PASSIVE ORNAMENTAL	0.058 0.089	MID-CITY: NORMAL HEIGHTS
ADOBE BLUFFS NEIGHBORHOOD PARK	ACTIVE PASSIVE	2.179 0.569	RANCHO PENASQUITOS
ALLEN, DENNIS V NEIGHBORHOOD PARK	PASSIVE ORNAMENTAL	4.622 0.524	SOUTHEASTERN SAN DIEGO

**SAN DIEGO PARK & RECREATION
TURF DESIGNATION ACRES:
JOINT USE FIELDS**

ACTIVE ACRES



PASSIVE ACRES
8.312
4%



**SAN DIEGO PARK & RECREATION
TURF DESIGNATION ACRES:
OTHER TYPE AREAS**

ORNAMENTAL ACRES
1.925
3%



Water Consumption in HCF

Water Measurement Conversion Chart

1 million gallons	equals	1,336 hundred cubic feet (HCF), or 3.06 acre feet (AF)
1 cubic foot (CF)	equals	7.48 gallons
1 hundred cubic feet (HCF)	equals	748.05 gallons
1 acre foot (AF)	equals	325,851 gallons, or 43,560 cubic feet (CF), or 435 hundred cubic feet (HCF)

Year 2013

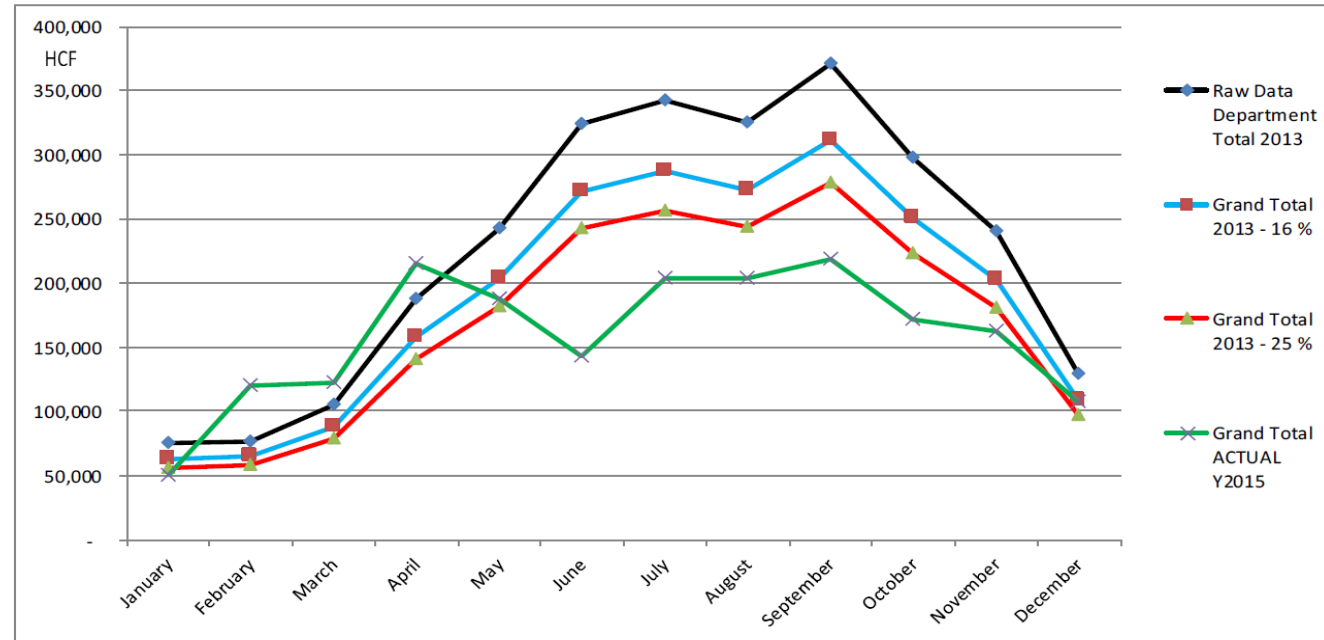
Sum of Water Consumption	Column Labels												
Row Labels	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Community Parks 1 Division	16,794	17,036	24,874	48,957	76,907	102,937	122,328	103,969	115,096	87,033	64,426	34,314	814,671
Community Parks 2 Division	11,904	17,011	15,811	28,535	42,869	57,668	59,516	63,493	66,470	52,823	44,279	29,704	490,083
Developed Regional Parks Division	17,337	17,141	22,730	55,286	54,075	76,190	70,613	71,969	90,614	58,846	48,048	31,905	614,754
Gas Tax Program - Open Space Division	1,504	1,671	1,277	1,616	1,985	2,557	2,500	3,018	3,854	3,706	3,269	2,643	29,600
Golf Division	10,252	10,532	16,129	17,521	23,067	28,325	31,818	26,859	24,941	40,004	39,455	8,019	276,922
Management Assessment District	16,996	13,481	24,149	35,854	43,214	56,036	55,750	55,740	70,418	55,487	41,176	23,103	491,404
Grand Total	74,787	76,872	104,970	187,769	242,117	323,713	342,525	325,048	371,393	297,899	240,653	129,688	2,717,434

2015

Column Labels													
January	February	March	April	May	June	July	August	September	October	November	December	Grand Total	
12,529	28,831	27,568	61,542	50,212	38,379	56,023	58,837	66,456	49,719	41,320	30,680	522,096	
6,256	20,585	24,377	36,960	40,156	20,136	41,092	38,274	46,612	34,973	29,865	22,384	361,670	
17,586	30,286	31,520	51,600	52,042	39,612	55,348	53,067	56,584	39,267	37,517	27,819	492,248	
1,507	1,794	1,922	3,035	2,614	1,864	2,375	2,154	1,927	1,057	1,947	1,646	23,842	
3,885	15,277	16,504	24,892	18,407	20,221	19,055	23,192	16,838	19,597	27,847	7,376	213,091	
8,360	23,518	20,900	37,664	24,422	23,073	30,285	28,521	30,508	26,672	23,940	17,334	295,197	
50,123	120,291	122,791	215,693	187,853	143,285	204,178	204,045	218,925	171,285	162,436	107,239	1,908,144	

Water Consumption in HCF

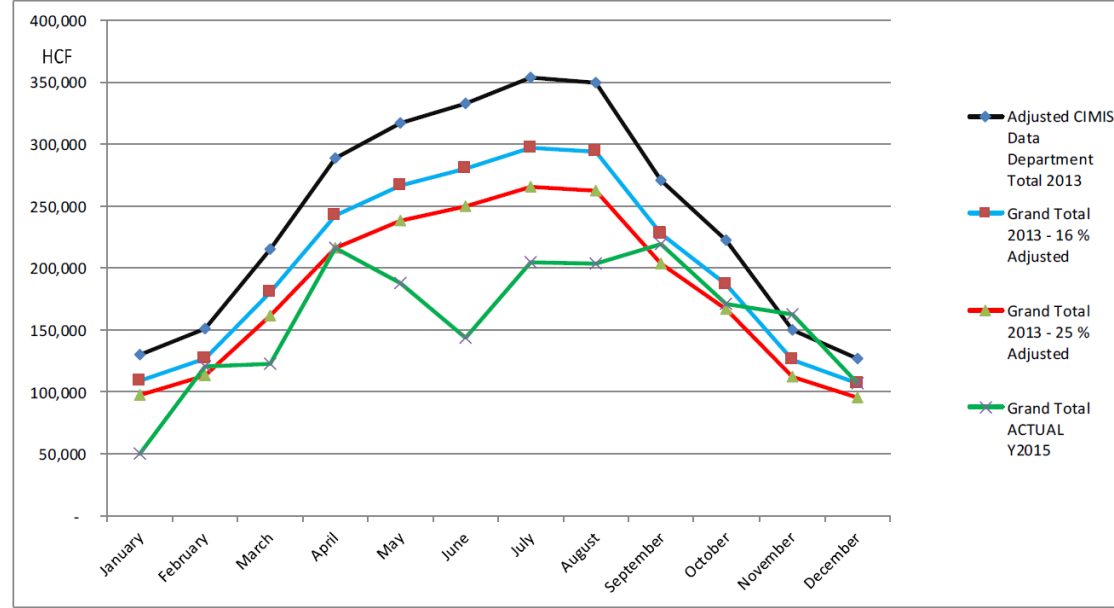
	Raw Data Department Total 2013	Grand Total 2013 - 16 %	Grand Total 2013 - 25 %	Grand Total ACTUAL Y2015
January	74,787	62,821	56,090	50,123
February	76,872	64,572	57,654	120,291
March	104,970	88,175	78,728	122,791
April	187,769	157,726	140,827	215,693
May	242,117	203,378	181,588	187,853
June	323,713	271,919	242,785	143,284
July	342,525	287,721	256,894	204,178
August	325,048	273,040	243,786	204,045
September	371,393	311,970	278,545	218,925
October	297,899	250,235	223,424	171,285
November	240,653	202,149	180,490	162,436
December	129,688	108,938	97,266	107,239
Grand Total	2,717,434	2,282,645	2,038,076	1,908,143



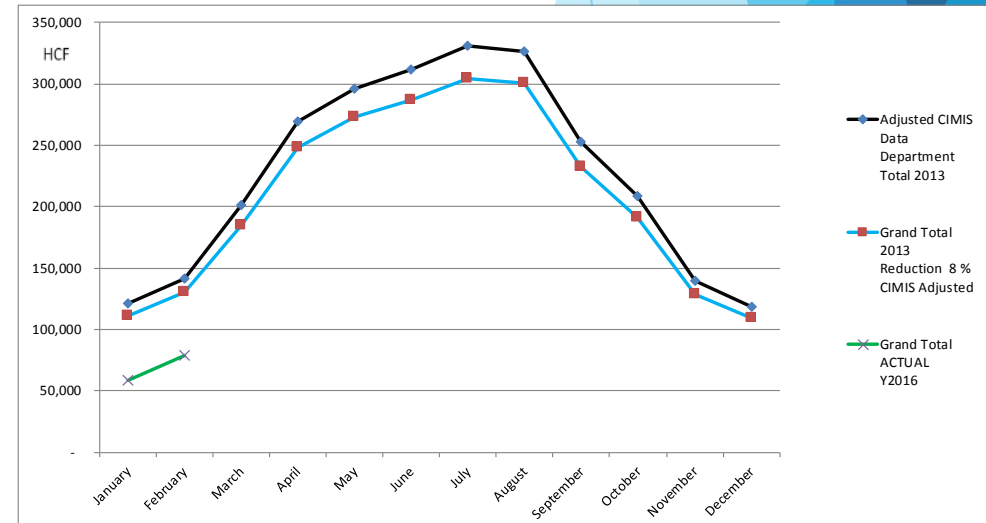
Percentage of Savings Per Governors Mandate			
June	323,713	143,284	- 55.74%
July	342,525	204,178	- 40.39%
August	325,048	204,045	- 37.23%
September	371,393	218,925	- 41.05%
October	297,899	171,285	- 42.50%
November	240,653	162,436	- 32.50%
December	129,688	107,239	- 17.31%

Adjusted California Irrigation Management Information System (CIMIS) Data Department

	Adjusted CIMIS Data Department Total 2013	Grand Total 2013 - 16 % Adjusted	Grand Total 2013 - 25 % Adjusted	Grand Total ACTUAL Y2015
January	129,449	108,737	97,087	50,123
February	151,336	127,123	113,502	120,291
March	215,123	180,703	161,342	122,791
April	288,290	242,163	216,217	215,693
May	317,056	266,327	237,792	187,853
June	333,315	279,985	249,986	143,284
July	353,952	297,320	265,464	204,178
August	349,575	293,643	262,181	204,045
September	270,780	227,455	203,085	218,925
October	222,627	187,007	166,970	171,285
November	149,460	125,547	112,095	162,436
December	126,947	106,636	95,211	107,239
Grand Total	2,907,910	2,442,644	2,180,933	1,908,143

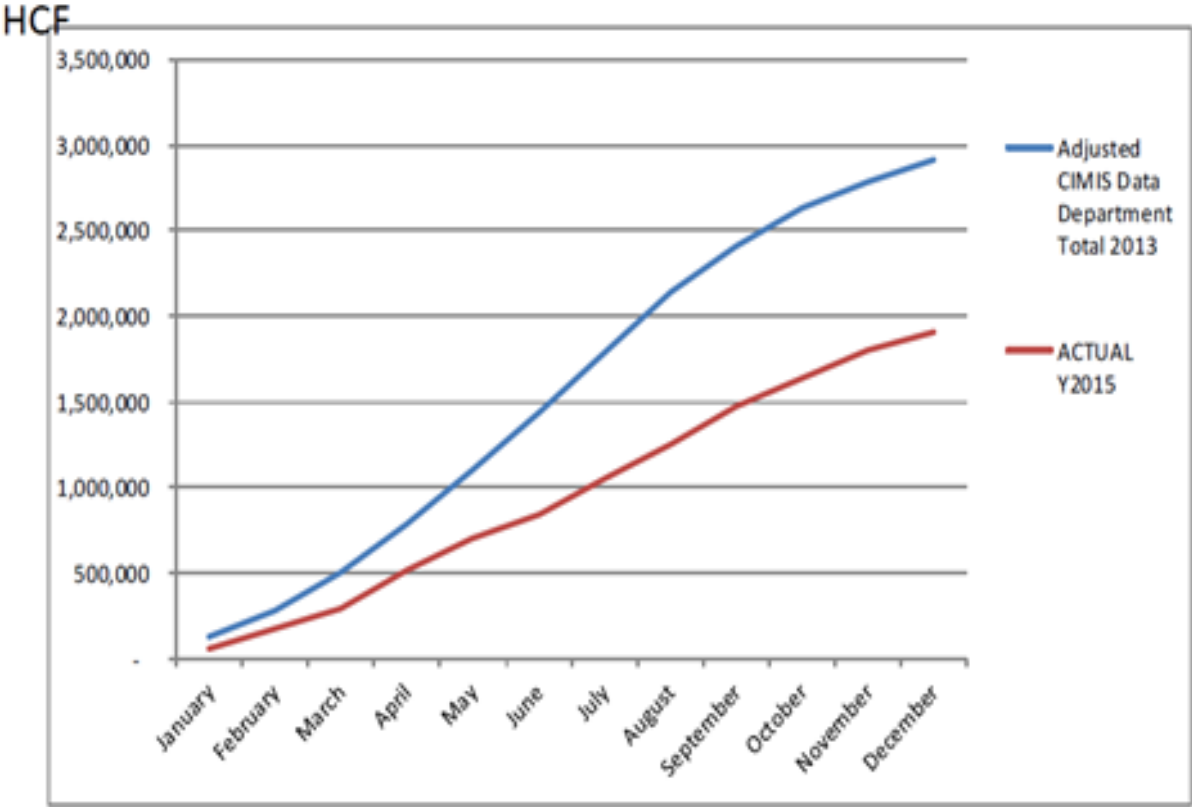


	Adjusted CIMIS Data Department Total 2013	Grand Total 2013 Reduction 8 % CIMIS Adjusted	% of reduction 2016 vs. 2013	Grand Total ACTUAL Y2016
January	120,970	111,292	51.42%	58,770
February	141,423	130,110	44.15%	78,985
March	201,032	184,949	-	-
April	269,406	247,853	-	-
May	296,288	272,585	-	-
June	311,482	286,564	-	-
July	330,767	304,306	-	-
August	326,676	300,542	-	-
September	253,043	232,799	-	-
October	208,044	191,401	-	-
November	139,670	128,497	-	-
December	118,632	109,141	-	-
Grand Total	2,717,434	2,500,039	47.78%	137,755



Percentage of Water Saved

	Adjusted CIMIS Data Department Total 2013	ACTUAL Y2015	Year To Date Percentage Savings
January	129,449	50,123	- 61.28%
February	280,785	170,414	- 39.31%
March	495,908	293,205	- 40.88%
April	784,198	508,898	- 35.11%
May	1,101,254	696,751	- 36.73%
June	1,434,569	840,035	- 41.44%
July	1,788,521	1,044,213	- 41.62%
August	2,138,096	1,248,258	- 41.62%
September	2,408,875	1,467,183	- 39.09%
October	2,631,502	1,638,468	- 37.74%
November	2,780,963	1,800,904	- 35.24%
December	2,907,910	1,908,143	- 34.38%

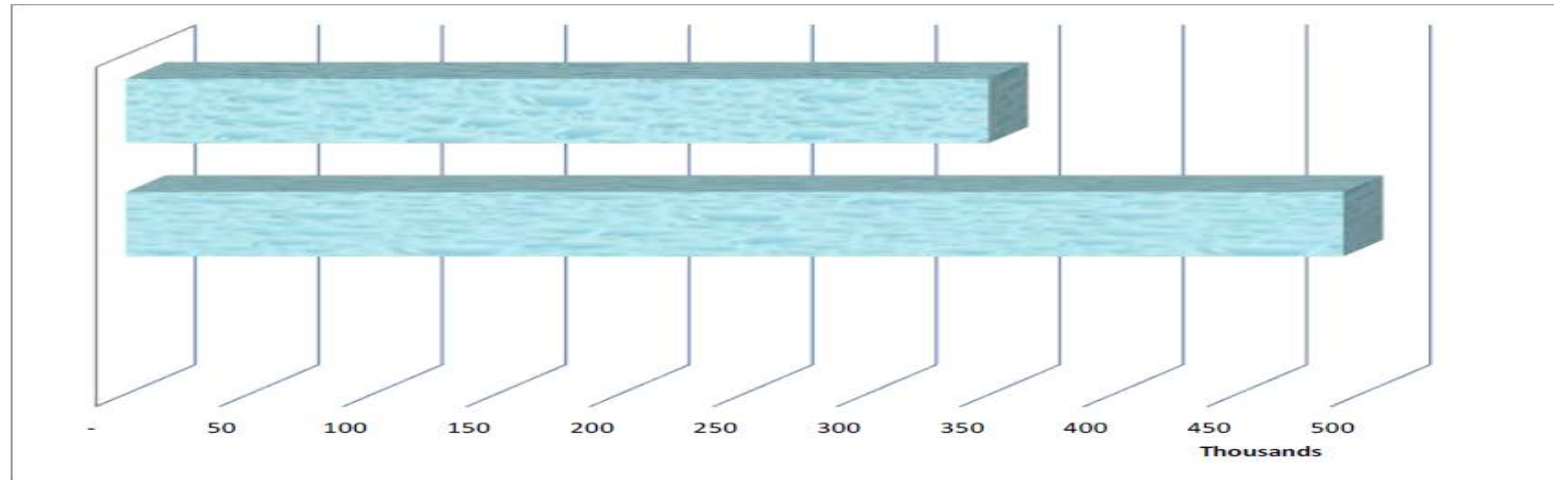


SAVED NEARLY 35%

Water Savings Summary

Mandated Water Reduction Goal Water Savings of 349,212 HCF to achieve 16%

June- December 2015 Water Savings
494,579 HCF, (369,945,062 Gallons)
which is approximated 141.63%



**GOAL
ACHIEVED**

- ▶ For the Governors Mandate* the Department saved:
- ▶ •833,421 HCF's (1 HCF = 748 Gallons)
- ▶ •623,398,908 Gallons
- ▶ •1,913 Acre Feet of Water (1 ACF = 325,851 Gallons)

Which is enough water too:

Provide 4,155,992 San Diegans with one day's worth of water

Fill 190 football fields ten feet high with water

*According to the San Diego County Water Authority the average San Diegan uses 150 gallons of water per day

** ACF covers a football field one foot deep

Irrigation Savings Reinvested

- ▶ Drought tolerant plantings
- ▶ Smart controllers
- ▶ Irrigation head replacements
- ▶ irrigation renovations
- ▶ Fertilization for athletic fields





Questions

