



STAFF REPORT

TO: Standing Advisory Committee
THRU: Mark Foree, General Manager
FROM: Shawn Stoddard, Senior Resource Economist
DATE: October 25, 2016
SUBJECT: Presentation on 2016 summer water usage

Findings

- Total retail water usage to date between 2015 and 2016 increased by 2.5%.
- Average use per water service increased less than 1% between 2015 and 2016.
- Compared to 2013 (the last “normal” year), 2016 average retail water use per service is down 11.6%.
- The summers of 2013, 2015, 2016 were very similar in terms of temperature.
- The summer of 2015 was wetter than 2013 and 2016 in terms of both number of precipitation days and inches of water.
- All three years have precipitation similar to the average summer precipitation with 2016 being below average and 2013 and 2015 being above average.

Discussion

2016 total retail water usage to date (January through September) exceeds 2015 by 2.5%. Figure 1 shows that 2015 and 2016 are comparable to 2010 and 2011. Through September, the percentage increase in usage between 2015 and 2016 are:

Total Retail Use	2.5%
Total Residential Use	2.9%
Commercial Use	1.6%
Irrigation Use	1.8%

However, the average use per water service is practically unchanged between 2015 and 2016 for all customer classes with increases of less than 1% as shown in Table 1.

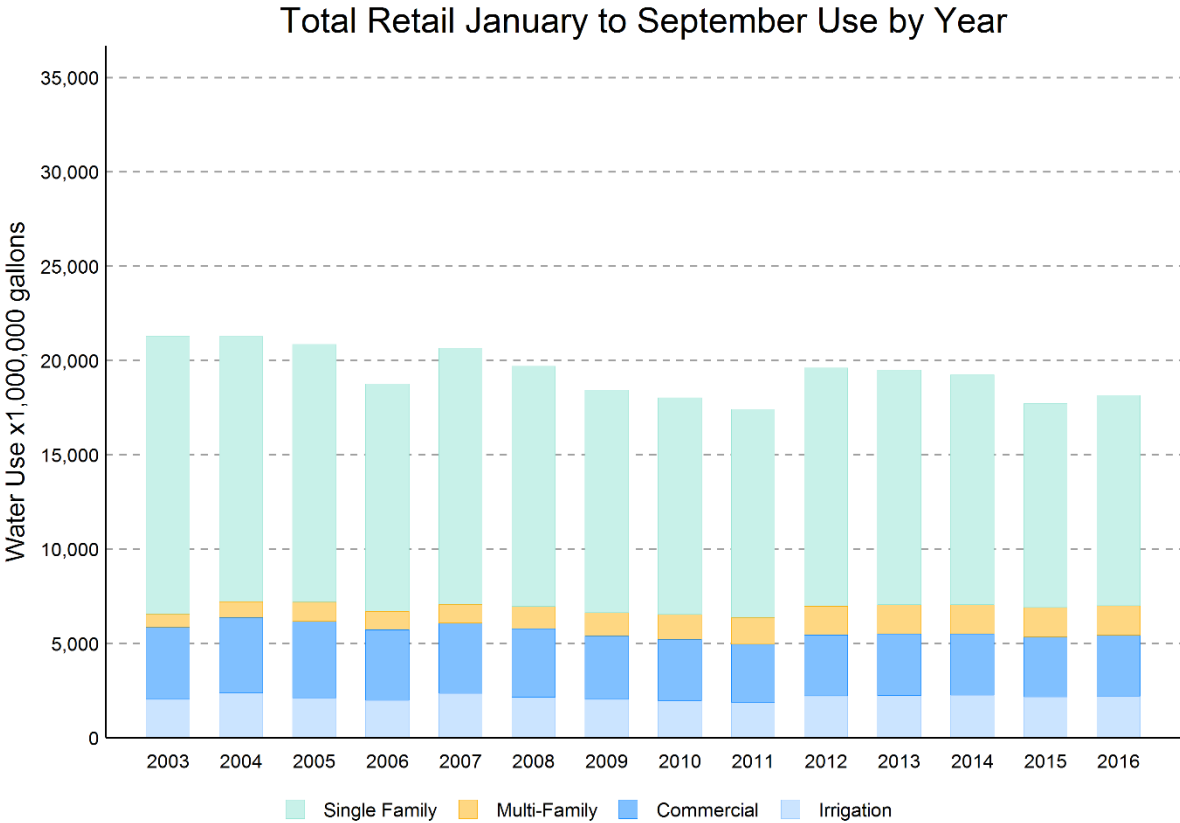


Figure 1: Total Retail January to September Use by Year.

Table 1: January to September Average Water Use per Service.

	Usage x 1,000 gallons			Percentage Change	
	2013	2015	2016	2013 to 2016	2015 to 2016
Total Retail	171	150	151	-11.6%	0.6%
Residential	133	114	115	-13.7%	0.8%
Single Family	125	105	106	-13.7%	0.8%
Commercial	502	475	480	-3.5%	0.8%
Irrigation	763	689	686	-9.6%	-0.4%

Summer Weather Profiles for 2013, 2015 and 2016

Using NOAA's Global Summary of Daily Weather Data for Reno-Tahoe Airport 1943 to 2016 (74 years) for daily temperature and 1974 to 2016 (43 years) for daily precipitation, summer summary weather statistical profiles were developed. A comparison of 2013 (the last "normal" water use year), 2015 (requested customers to reduce usage by at least 10%), and 2016 (current year with no additional request to reduce usage) is presented.

2016 summer temperatures were cooler than 2013 and very similar to 2015 when looking at the daily average and the daily high temperatures. The 2016 overnight lows were slightly cooler, but not significantly different. Between the three years, the primary difference is the number of precipitation days with 2015 being the wettest summer with 30 precipitation days. 2016 was the driest with 13 precipitation days. Table 2 shows selected statistics for 2013, 2015 and 2016.

Growing degree units (GDUs) are a measure of heat accumulation used by horticulturists, gardeners, and farmers to predict plant and animal development rates such as the date that a flower will bloom, or a crop will reach maturity. GDUs are a direct indicator of irrigation demands; seasons with similar GDUs will have similar irrigation requirements. For 2013, 2015 and 2016, the GDUs were very similar and thus the water demands of the plants would have been similar.

While all three summers are drought years, summer precipitation is similar to average precipitation, using precipitation records for 1974 to 2016. 2016 was ranked as the 8th driest in terms of fewest days of precipitation. 2015 was ranked as the 37rd driest (or 6th wettest) in days of precipitation.

Table 2: Selected Summer Weather Statistics (April 1 to September 30).

Statistic	2013	2015	2016	All Years
Maximum Daily Average Temp.	89.2	87.2	86.9	89.6
Maximum Daily High	105.1	102.0	102.9	108.0
Maximum Daily Low	71.1	70.0	66.9	80.1
Average Daily Growing Degree Units	18.5	18.2	18.3	19.2
Total Summer Growing Degree Units	3,389	3,322	3,343	3,516
Number of Precipitation Days	20	30	13	21
Precipitation Days Rank (Driest = 1)	23	37	8	
Total Precipitation In Inches	2.71	2.91	2.16	2.39
Precipitation Rank	29.00	33.00	20.00	

Note: Temperature is based on 1943 to 2016 (74 years) daily data and precipitation is based on 1974 to 2016 (43 years) daily records.