

## MEMORANDUM

**TO: CITY COUNCIL**

**FROM: GEOFF ENGLISH, DIRECTOR OF PUBLIC WORKS**

**BY: SHANE TAYLOR, UTILITIES MANAGER**

**SUBJECT: MONTHLY WATER SUPPLY AND DEMAND UPDATE**

**DATE: NOVEMBER 22, 2016**

### **RECOMMENDATION:**

It is recommended the City Council receive and review the monthly Water Supply and Demand Report.

### **IMPACT ON FINANCIAL AND PERSONNEL RESOURCES:**

The cost to provide the report is limited to staff time, which equates to approximately \$350.

### **BACKGROUND:**

The severe drought continues to impact the City's water supply and demand. As a result, the City Council declared a Stage 1 Water Shortage Emergency on May 26, 2015. This monthly update on the current supply and demand statistics will provide the Council with the data required to make decisions related to Emergency Water Shortage Restrictions and Regulations.

### **ANALYSIS OF ISSUES:**

The exceptional drought continues. We have received 2.3" of rain since July 1, 2016 at the Corporation Yard gauge. Lopez Lake is currently at 23% capacity (11,410 AF of storage). The Low Reservoir Level Response Plan (LRRP) has been enacted.

At the Zone 3 Advisory Board meeting on May 21, 2015, the Board recommended that the deliveries from the Water Treatment Plant be reduced by 10% starting April 1, 2015. This was in advance of the Lake reaching 15,000 AF of storage, which is the automatic reduction trigger. We are voluntarily reducing deliveries by 20% to keep lake supply above the 10,000 AF level, which mandates an automatic 20% reduction retroactive back to April 1, 2016.

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MONTHLY WATER SUPPLY AND DEMAND UPDATE  
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In October the City's water use was 34% below October 2013. The reduction requirement imposed by the State Water Resources Control Board for Arroyo Grande is 28%.

Based on current use and weather patterns, Lopez Lake is predicted to reach the 10,000 AF storage level around February 1, 2017. The Lopez supply for water year 2016/17, which began April 1, 2016, for Arroyo Grande is 2,998 AF, which includes 936 AF of carry-over water. Based on the projected water demand of 2,300 AF, we will meet the demand in water year 2016/17.

**ADVANTAGES:**

No advantages noted at this time.

**DISADVANTAGES:**

No disadvantages noted at this time.

**ALTERNATIVES:**

Not applicable at this time.

**ENVIRONMENTAL REVIEW:**

No environmental review is required for this item.

**PUBLIC NOTIFICATION AND COMMENTS:**

The Agenda was posted at City Hall and on the City's website in accordance with Government Code Section 54954.2.

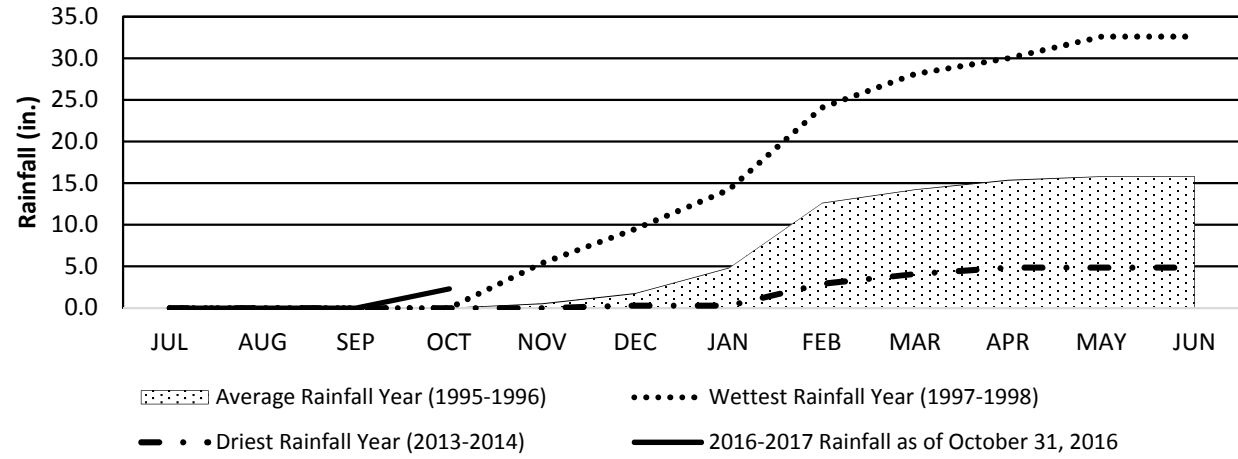
Attachments:

1. October 2016 Water Supply and Demand Charts
2. Lopez Reservoir Storage Projections
3. Zone 3 - Lopez Project - Monthly Operations Report

**Rainfall**

Cumulative Rainfall from July 1, 2016 to October 31, 2016: 2.3 inches

Cumulative Rainfall



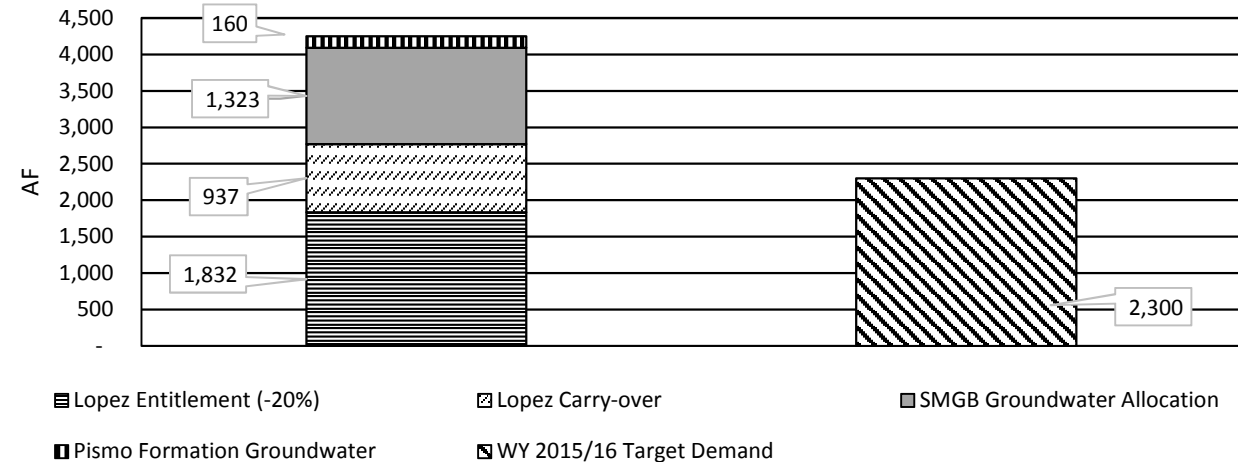
Note: Precipitation data from AG Corp Yard Station No. 177.1 from July 1966 -October 31, 2016.

**Water Demand**

<u>Total City Demand (AF)</u>	
October 2013	276.6
October 2016	182.9
% Difference from 2013	-34%
WY 2013/14 YTD	1,808.7
WY 2015/16 YTD	1,275.2
% Difference from WY 2013/14	-29%

**Predicted Supply and Demand**

WY 2016/17 Predicted Supply and Demand



Note: The Water Year (WY) for water demand is from April to March.

**Water Supply**

**Lopez Lake**

	<u>Oct-16</u>	<u>WY 15/16 Year to Date</u>	<u>Remaining Allocated Supply</u>
Lake Elevation (full at 522.37 ft)	458.98		
Storage (full at 49,200 AF)	11,064		
Storage - Percent Full	22%		
Status	Enacted		
Current Entitlement Reduction	20%		
Deliveries (AF)	164.79	1,045.73	1,722.87

Note: The Water Year (WY) for Lopez Lake is from April to March. The actual amount of storage in Lopez at the end of October 2016 was 11,410 AF; however, the storage amount and storage percentage above were adjusted to account for the 346.27 AF of stored State Water Project water in the lake.

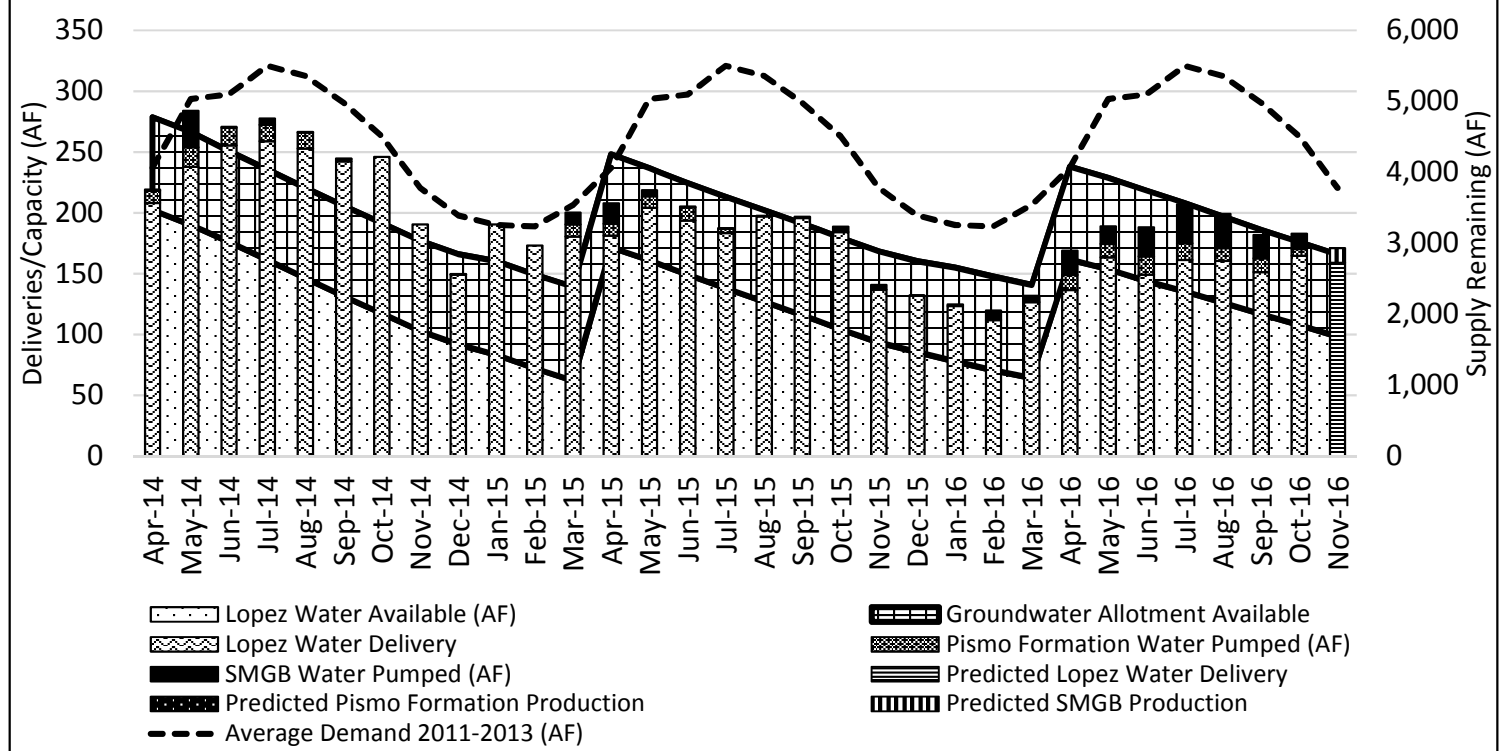
**Groundwater**

	<u>Oct-16</u>	<u>Calendar Year to Date</u>	<u>Remaining Entitlement</u>
SMGB Production (AF)	12.7	165.0	1,158.0
Pismo Formation Production (AF)	5.4	79.0	NA

City SMGB average well levels for October 2016 were half a foot lower than October 2015.

Note: Groundwater entitlement and production data is based on the calendar year.

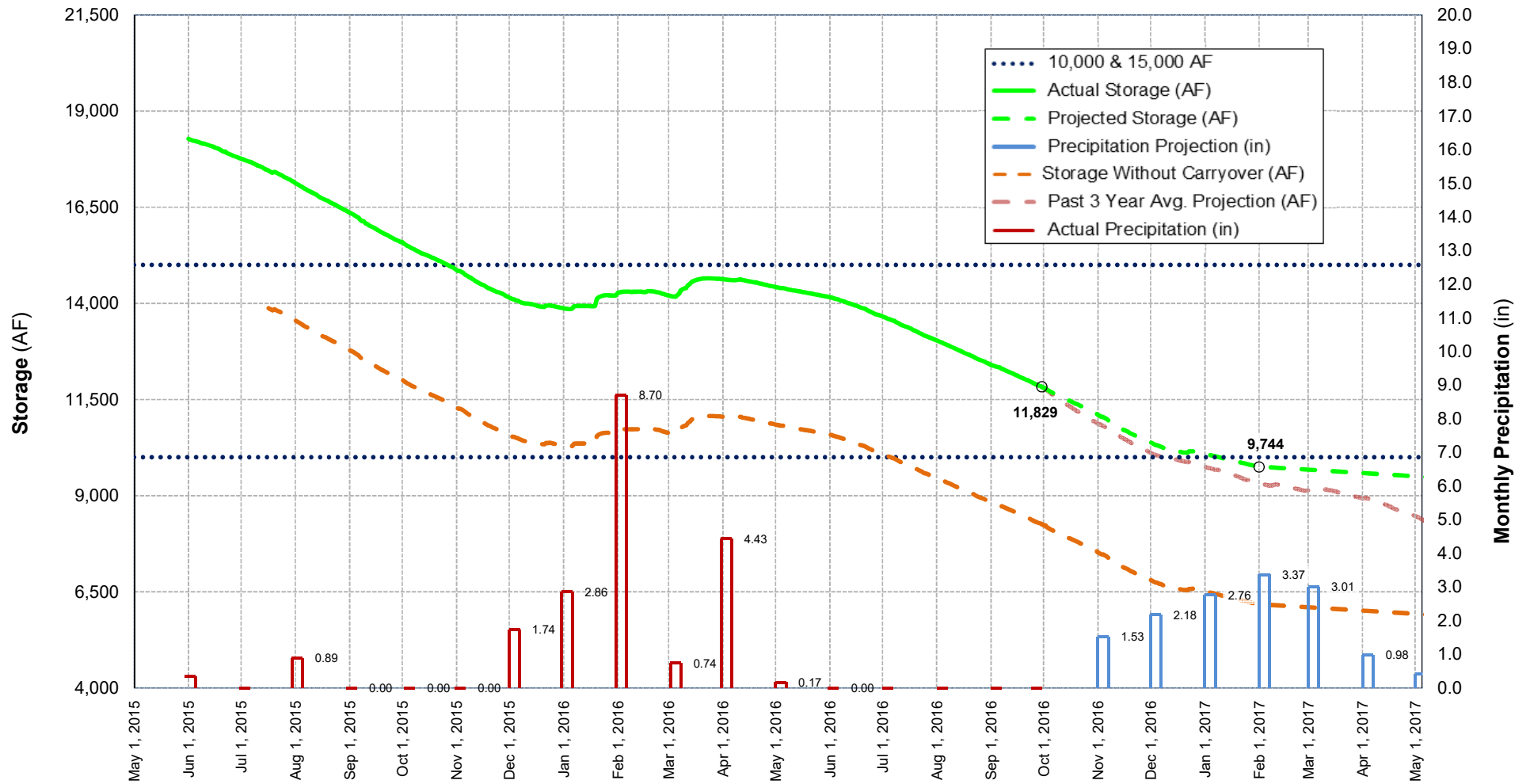
Water Supply, Demand and Delivery Chart



Note: These production forecasts contain preliminary estimates of water production and draft predictions of future production based on historical averages.

**Lopez Reservoir Storage Projections**  
 (precipitation scenario source: www.LongRangeWeather.com)

Revised: 9/30/2016

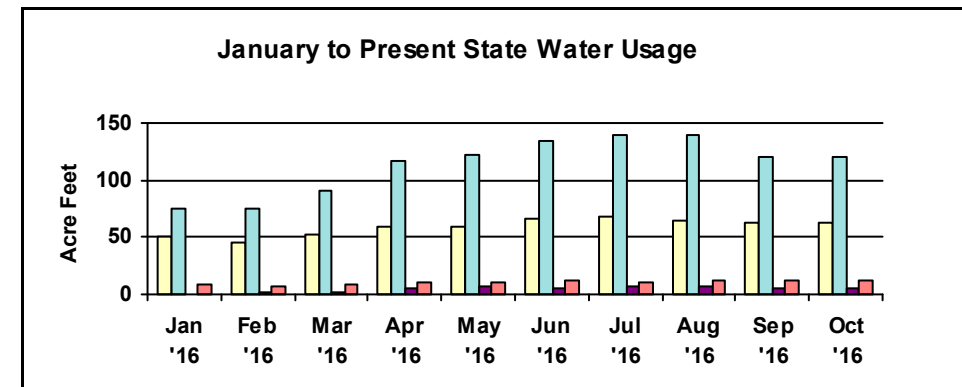
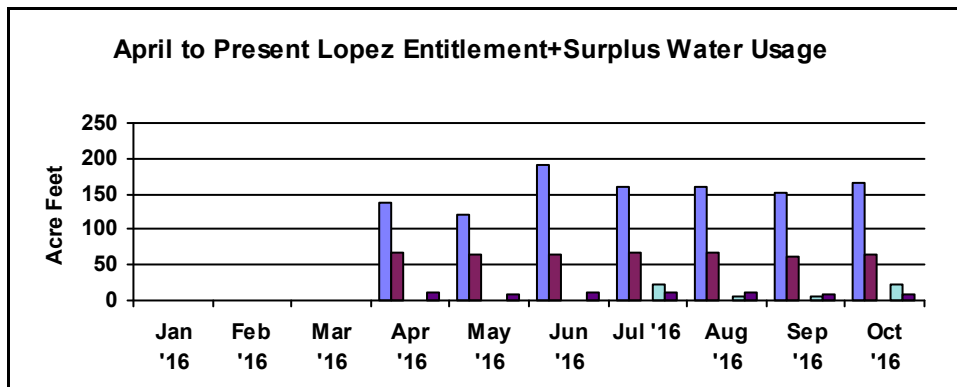


Notes:

- For "Dry Months" (April - October), projected increases and/or decreases in storage estimated to mimic conditions from 2015.
- For "Wet Months" (November - March), projected storage declines assume LRRP annual downstream release of 3,800 AFY and deliveries of 4,077 AFY.
- For "Wet Months", projected storage increases based on historic trends from actual storm data for the period of 12/1993 through 6/2011.
- Storage projection for "Wet Months" assume that unsaturated conditions exist.
- Rainfall projection provided by www.LongRangeWeather.com, and updated 7/5/2016. Evaporation included in storage projection.
- Past 3 Year Avg. Projection uses historic daily capacity changes averaged from 2013, 2014, 2015

San Luis Obispo County Flood Control and Water District  
 Zone 3 - Lopez Project - Monthly Operations Report  
 October, 2016

Contractor	Lopez Water Deliveries												State Water Deliveries						Total Water Deliveries This Month				
	Entl.	Surplus	Total	This Month				April to Present				Annual Request	This Month			January to Present							
				Entitlement		Surplus		Entitlement		Surplus			Usage	% of Annual Request	SWP Deliveries	Change in Storage	Usage	% of Annual Request		SWP Deliveries			
				Usage	%	Usage	%	Usage	%	Usage	%												
Arroyo Grand	2061	936.60	2997.60	164.79	8.0%	0.00	0.0%	1087.24	52.8%	0.00	0.0%	1087.24	36.3%									164.79	
Oceano CSD	272.7	713.10	985.80	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	227	62.93	27.7%			591.13	260.4%			62.93
Grover Beach	720	307.90	1027.90	64.34	8.9%	0.00	0.0%	456.11	63.3%	0.00	0.0%	456.11	44.4%									64.34	
Pismo Beach	802.8	1227.60	2030.40	22.11	2.8%	0.00	0.0%	55.33	6.9%	0.00	0.0%	55.33	2.7%	1120	120.00	10.7%			1133.88	101.2%			142.11
CSA 12	220.5	390.20	610.70	7.68	3.5%	0.00	0.0%	68.56	31.1%	0.00	0.0%	68.56	11.2%	27	5.58	20.7%			45.66	169.1%			13.26
San Miguelito														127	12.81	10.1%			106.49	83.9%			12.81
<b>Total</b>	<b>4077</b>	<b>3575.40</b>	<b>7652.40</b>	<b>258.92</b>	<b>6.4%</b>	<b>0.00</b>	<b>0.0%</b>	<b>1667.24</b>	<b>40.9%</b>	<b>0.00</b>	<b>0.0%</b>	<b>1667.24</b>	<b>21.8%</b>	<b>1501</b>	<b>201.32</b>	<b>13.4%</b>	<b>259</b>	<b>57.68</b>	<b>1877.16</b>	<b>125.1%</b>	<b>2211.00</b>		<b>460.24</b>
												Last Month Stored State Water		<b>288.59</b>			This Month Stored State Water		<b>346.27</b>				



Note: Deliveries are in acre feet. One acre foot = 325, 850 gallons or 43, 560 cubic feet. Safe yield is 8,730 acre feet.

"Year to Date" is January to present for State water, April to present for Lopez deliveries, and July to present for rainfall.

Lopez Dam Operations	This Month	Year to Date		
Lake Elevation (full at 522.37 feet)	458.98		Difference (feet)	-63.39
Storage (full at 49200 acre feet)	11410		% Full	23.2%
Rainfall	2.77	2.77		
Downstream Release (4200 acre feet/year)	309.53	2119.24		
Spillage (acre feet)	0	0.00		

**Comments:** Reservoir is currently operated under the Low Reservoir Response Plan, therefore Entitlements shown represent a 10% reduction.

Surplus water shown is actually "Carry Over" water as designated in the LRRP and updated per BOS May 10, 2016 Declaration of Surplus.

1) Oceano supplied State Water to Canyon Crest via Arroyo Grande's Edna turn out. A total of 2.03 AF delivered to Canyon Crest was added to Oceano's State Water usage this month

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