MEMORANDUM

TO: CITY COUNCIL

FROM: GEOFF ENGLISH, DIRECTOR OF PUBLIC WORKS

BY: SHANE TAYLOR, UTILITIES MANAGER

SUBJECT: MONTHLY WATER SUPPLY AND DEMAND UPDATE

DATE: JUNE 28, 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 $500.

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 13.5” of rain since July 1, 2015 at the Corporation Yard gauge. Lopez Lake is currently at 28.8% capacity (14,170 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 done in advance of the Lake reaching 15,000 AF of storage, which is the automatic reduction trigger.

In May the City’s water use was 49% below May 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, as predicted, reached the 15,000 AF storage level around November 1, 2015. 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 in front of City Hall on Thursday, June 23, 2016. The Agenda and staff report were posted on the City’s website on Friday, June 24, 2016.

Attachments:
1. May 2016 Water Supply and Demand Charts
2. Lopez Reservoir Storage Projections
City of Arroyo Grande Water Supply and Demand Update-May 2016

Rainfall

Cumulative Rainfall from July 1, 2015 to May 31, 2016: 13.4 inches

Cumulative Rainfall

<table>
<thead>
<tr>
<th>Rainfall (in.)</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runoff (in.)</td>
<td>0.5</td>
<td>1.0</td>
<td>1.8</td>
<td>1.4</td>
<td>1.2</td>
<td>0.8</td>
<td>1.0</td>
<td>0.4</td>
<td>1.8</td>
<td>2.0</td>
<td>1.0</td>
<td>0.5</td>
</tr>
</tbody>
</table>


Note: Precipitation data from AG Crop Yard Station No. 177.1 from July 1965 - May 31, 2016.

Water Demand

Total City Demand (AF)

<table>
<thead>
<tr>
<th></th>
<th>May 2013</th>
<th>May 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>295.8</td>
<td>147.4</td>
</tr>
</tbody>
</table>

% Difference from 2013

<table>
<thead>
<tr>
<th></th>
<th>% Difference from 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY 2013/14 YTD</td>
<td>-51%</td>
</tr>
<tr>
<td>WY 2015/16 YTD</td>
<td>-37%</td>
</tr>
</tbody>
</table>

Water Supply

Lopez Lake

<table>
<thead>
<tr>
<th>May 16</th>
<th>WY 15/16 Year to Date</th>
<th>Remaining Allocated Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>466.77</td>
<td>258.85</td>
<td>2,509.95</td>
</tr>
</tbody>
</table>

Lake Elevation (full at 522.37 ft)

Storage (full at 49,200 AF)

Storage - Percent Full: 29%

Status: Enacted

Current Entitlement Reduction: 20%

Deliveries (AF): 122.02

Note: The Water Year (WY) for Lopez Lake is from April 1 to March. The actual amount of storage in Lopez at the end of May 2016 was 14,170 AF; however, the storage amount and storage percentage above were adjusted to account for the -266.69 AF of stored State Water Project water in the lake.

Groundwater

SMGB Production (AF)

<table>
<thead>
<tr>
<th>May 16</th>
<th>Calendar Year to Date</th>
<th>Remaining Entitlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.5</td>
<td>49.0</td>
<td>1,274.0</td>
</tr>
</tbody>
</table>

Pismo Formation Production (AF)

| WY 15/16 | 10.9 |

City SMGB average well levels for May 2016 were two feet higher than May 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.

Updated: 6/15/2016
Lopez Reservoir Storage Projection

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 LRPF annual downstream release of 3,600 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 1/1993 through 9/2011.
- Storage projection for "Wet Months" assumes that unsaturated conditions exist.
San Luis Obispo County Flood Control and Water District  
Zone 3 - Lopez Project - Monthly Operations Report  
May, 2016

### Lopez Water Deliveries

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Entitlement This Month</th>
<th>Surplus This Month</th>
<th>Total This Month</th>
<th>April to Present Entitlement</th>
<th>Surplus</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arroyo Grand</td>
<td>3561</td>
<td>936.00</td>
<td>2997.60</td>
<td>122.02</td>
<td>5.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Oceano CSD</td>
<td>272.7</td>
<td>713.10</td>
<td>985.80</td>
<td>0.00</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Grover Beach</td>
<td>372.0</td>
<td>307.90</td>
<td>1027.90</td>
<td>64.87</td>
<td>9.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Pismo Beach</td>
<td>802.8</td>
<td>1227.60</td>
<td>2030.40</td>
<td>131.50</td>
<td>18.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>CSA 12</td>
<td>220.3</td>
<td>390.20</td>
<td>610.70</td>
<td>17.54</td>
<td>2.9%</td>
<td>0.0%</td>
</tr>
<tr>
<td>San Miguelito</td>
<td>110</td>
<td>10.60</td>
<td>120.60</td>
<td>15.24</td>
<td>24.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4077</strong></td>
<td><strong>3575.49</strong></td>
<td><strong>7652.46</strong></td>
<td><strong>2157</strong></td>
<td><strong>10.3%</strong></td>
<td><strong>537.00</strong></td>
</tr>
</tbody>
</table>

### State Water Deliveries

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Annual Request This Month</th>
<th>Surplus</th>
<th>Change in Storage</th>
<th>SWP Deliveries</th>
<th>Usage</th>
<th>% of Annual Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oceano CSD</td>
<td>750</td>
<td>56.73</td>
<td>66.67</td>
<td>65.69</td>
<td>32.7%</td>
<td>64.87</td>
</tr>
<tr>
<td>Grover Beach</td>
<td>1240</td>
<td>122.22</td>
<td>123.44</td>
<td>123.22</td>
<td>14.63</td>
<td>122.32</td>
</tr>
<tr>
<td>Pismo Beach</td>
<td>57</td>
<td>6.82</td>
<td>3.78</td>
<td>3.87</td>
<td>3.0%</td>
<td>3.4%</td>
</tr>
<tr>
<td>CSA 12</td>
<td>110</td>
<td>10.60</td>
<td>45.70</td>
<td>45.70</td>
<td>10.6%</td>
<td>10.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2157</strong></td>
<td><strong>198.47</strong></td>
<td><strong>806.12</strong></td>
<td><strong>806.12</strong></td>
<td><strong>37.4%</strong></td>
<td><strong>393.17</strong></td>
</tr>
</tbody>
</table>

**April to Present Lopez Entitlement+Surplus Water Usage**

**State Water Deliveries**

![Graph](image)

### Remarks

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

### Lopez Data Operations

- **Lake Elevation (fall at 522.37 feet)**: 466.77
- **Storage (fall at 49200 acre feet)**: 141.70
- **Rainfall**: 0
- **Downstream Release (4200 acre feet/year)**: 181.87
- **Spillage (acre feet)**: 0

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

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

Surplus water shown is actually "Canyon Overflow" 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 2.49 AF delivered to Canyon Crest was added to Oceano's State Water usage this month.