



## ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

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**ORIGINATING SECTION:** Integrated Planning  
**CONTACT:** Brad Ledesma/Carol Mahoney

**AGENDA DATE:** 5/16/12

**ITEM NO.** 5c

**SUBJECT:** Annual Review of Sustainable Water Supply for Zone 7 Water Agency

**SUMMARY:**

- Water demands over the next five years are projected to increase from 49,100 acre-feet (AF) to 52,100 AF by 2016 (a 6.1% increase) without water conservation, but could remain constant pending the success of implementing additional water conservation.
- Water supply yield in 2012 from existing water supply contracts and Zone 7's existing water right permit is approximately 43,400 AF based on Department of Water Resources current allocation of State Water Project Table A amount (60%); this is not expected to change.
- Long-term average water supply available from existing water supply sources has remained constant since 2009 at approximately 55,050 AF.
- Approximately 222,400 AF of water in storage is available to Zone 7, of which, about 67,300 AF is available in 2012 through existing pump back and conveyance facilities. At a minimum, Zone 7 can count on approximately 36,900 AF per year of stored water supply between 2013 and 2016.
- Zone 7 has sufficient water supplies to meet projected water demands over the next five years—with or without water conservation.
- Zone 7 staff completed the 2011 Water Supply Evaluation (2011 WSE) in July 2011. As recommended in the 2011 WSE, Zone 7 is moving forward with a set of no regret actions to help minimize the risk of water supply shortages in the more distant future, and continues to evaluate several different potential future water supply portfolios. The 2011 WSE is available on Zone 7's website at [www.zone7water.com/2011-water-supply-evaluation](http://www.zone7water.com/2011-water-supply-evaluation).

**FUNDING:**

No funding impact.

**RECOMMENDED ACTION:**

Information, only.

**ATTACHMENTS:**

Memorandum.

## INTEROFFICE MEMORANDUM

**DATE:** 5/16/12  
**TO:** Jill Duerig, General Manager  
**FROM:** Brad Ledesma, Associate Engineer  
**SUBJECT:** Annual Review of Sustainable Water Supply for Zone 7 Water Agency

On August 18, 2004, Zone 7 Water Agency (Zone 7) adopted the Reliability Policy for Municipal and Industrial (M&I) Water Supplies (Resolution 04-2662).<sup>1</sup> Resolution 04-2662 requires that Zone 7 staff complete an annual review of sustainable water supplies (Annual Review); the purpose of this memorandum is to comply with this requirement.

As outlined in Resolution 04-2662, the 2012 annual review covers the following:

- Projected Water Demands: Next Five Years
- Available Water Supplies to Zone 7 at the Beginning of 2012
- Comparison of Supply and Demand: Next Five Years
- Programs Necessary to Meet Water Demands

The review completed in this memorandum indicates that Zone 7 has sufficient water supplies to meet projected water demands over the next five years with or without additional water conservation.

As demonstrated by the analysis completed in both the 2010 Urban Water Management Plan (2010 UWMP) and the 2011 Water Supply Evaluation (2011 WSE), Zone 7's water supply is at risk and subject to a very uncertain future in the longer-term due to court rulings and biological opinions associated with the Sacramento-San Joaquin Delta (Delta), and climate change.<sup>2</sup> Consequently, as presented in the 2010 UWMP, Zone 7 is evaluating several potential future water supply options. Additionally as recommended in the 2011 WSE, Zone 7 is moving forward with a set of no regret actions to help minimize the risk of water supply shortages.

### **PROJECTED WATER DEMANDS: NEXT FIVE YEARS**

Every year Zone 7 obtains water demand projections, with and without water conservation, from all of its customers for the next five years—Table 1 summarizes these projections for 2012 to 2016. As shown in Table 1, Zone 7's total water demands are projected to increase by 6% percent between 2012 and 2016, but could remain constant with additional water conservation; water demands for Zone 7's untreated customers are expected to remain constant. In general, the 2012 water demand projections are about 5 to 10% lower than the water demand projections presented last year in the 2011 Annual Report and therefore, projected water demands have decreased since 2011.

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<sup>1</sup> A copy of Resolution 04-2662 is provided as Attachment A.

<sup>2</sup> Both the 2010 UWMP and the 2011 WSE are available on Zone 7's website (see [www.zone7water.com](http://www.zone7water.com)).

**Table 1. Projected Zone 7 Water Demands: Next Five Years, acre-feet<sup>(a)</sup>**

Component		2012	2013	2014	2015	2016
Without Conservation	M&I <sup>(b,c,d)</sup>	44,600	45,100	45,800	46,400	47,600
	Untreated	4,500	4,500	4,500	4,500	4,500
	Total	49,100	49,600	50,300	50,900	52,100
	<i>2011 Annual Review</i>	<i>52,300</i>	<i>52,600</i>	<i>53,100</i>	<i>53,800</i>	<i>N/A</i>
	<i>% Decrease</i>	<i>6.1%</i>	<i>5.7%</i>	<i>5.3%</i>	<i>5.4%</i>	<i>--</i>
With Conservation	Total	49,100	49,600	50,300	50,900	52,100
	Additional Water Conservation	(2,300)	(2,300)	(2,600)	(2,900)	(2,900)
	Revised Total	46,800	47,300	47,700	48,000	49,200
	<i>2011 Annual Review</i>	<i>51,900</i>	<i>51,100</i>	<i>50,800</i>	<i>50,700</i>	<i>N/A</i>
	<i>% Decrease</i>	<i>9.8%</i>	<i>7.4%</i>	<i>6.1%</i>	<i>5.3%</i>	<i>--</i>

(a) Demands were rounded to the nearest 100 acre-feet.

(b) M&I = Municipal and Industrial.

(c) Demands include California Water Service Company, Dublin San Ramon Services District, City of Livermore, City of Pleasanton, Zone 7's direct retail customers, and Zone 7's unaccounted-for water.

(d) Demands include unaccounted-for water and groundwater-pumping quota for Dublin San Ramon Services District.

For planning purposes in this review, Zone 7 staff compared projected water supplies with projected water demands, with and without water conservation, over the next five years.

### **AVAILABLE WATER SUPPLIES TO ZONE 7 AT THE BEGINNING OF 2012**

Zone 7 has developed a robust water supply system consisting of imported surface water, local runoff, groundwater recharge activities, and non-local storage.<sup>3</sup> This diverse water supply system allows Zone 7 to store excess water during normal and wet years, and draw on these reserves during dry years to create a sustainable and reliable water supply for the Livermore-Amador Valley.

The purpose of this section is to review the water supplies, including contracted supply and storage, available to Zone 7 at the beginning of 2012.

#### Projected Yield from Contracted Water Supplies in 2012

Each year Zone 7 receives water supply from its contracts with the Department of Water Resources (DWR) for State Water Project (SWP) water, its water right permit for diversions from Arroyo del Valle, its contract with Byron Bethany Irrigation District (BBID), and DWR for Yuba Accord Water. The exact quantity of water supply available through these contracts is unknown at the beginning of the year because the yield depends on many factors, including both local precipitation and snowfall in the Sierra Nevada mountain range.

<sup>3</sup> Additional information on each of Zone 7's water supply and storage components is available in the UWMP, which is posted on Zone 7's website.

For planning-level purposes, Zone 7 staff estimates the projected yield from these water supplies at the beginning of the year, along with an estimate of the long-term average yield. Table 2 presents the projected yield in 2012 and the long-term average yield based on a review of actual deliveries, rainfall, DWR projections from January to April 2012, and a review of any new planning-level documents.<sup>4</sup> Table 2 also includes the long-term operational losses associated with artificial recharge in the local groundwater basin and participation in non-local groundwater banking programs.

As shown in Table 2, the projected yield in 2012 from Zone 7's existing contracted water supplies is approximately 43,400 acre-feet (AF), while the long-term average yield is projected to be approximately 55,050 AF after considering operational losses. Table 2 also indicates that the yield from Zone 7's water supply sources is 36% less in 2012 than in 2011 due to drier conditions.<sup>5</sup>

**Table 2. Projected Yield from Existing Contracted Water Supplies, acre-feet**

Source <sup>(a)</sup>	Available in 2012		Long-term Average	
	Yield	% of Total	Yield	% of Total
State Water Project	48,400 <sup>(b)</sup>	93.3%	48,400 <sup>(c)</sup>	83.5 %
Arroyo del Valle Runoff	1,000	1.9%	7,300	12.6 %
Byron Bethany Irrigation District	2,000 <sup>(d)</sup>	3.9%	2,000	3.5 %
Yuba Accord (via DWR)	1,100	0.9%	250	0.4 %
Subtotal	52,500	100.0 %	57,950	100.0 %
Operational Losses <sup>(e)</sup>	(9,100) <sup>(f)</sup>	0.0 %	(2,900)	5.0%
Total	43,400	100.0 %	55,050	95.0%
<i>2011 Annual Review</i>	<i>67,400</i>		<i>55,050</i>	
<i>% Decrease</i>	<i>36%</i>		<i>0%</i>	

<sup>(a)</sup> The 2011 WSE provides additional detail on each contract; see [www.zone7water.com/2011-water-supply-evaluation](http://www.zone7water.com/2011-water-supply-evaluation).

<sup>(b)</sup> 2012 yield is based on 60% (current 2012 allocation) of Zone 7's Table A amount of 80,619 AF.

<sup>(c)</sup> Long-term average yield is based on 60% of Zone 7's Table A amount of 80,619 AF, as presented in DWR's Draft 2011 Reliability Report.

<sup>(d)</sup> Although Zone 7 has up to 5,000 AF available for purchase, only about 2,000 AF will be purchased this year due to higher than normal SWP carryover from last year.

<sup>(e)</sup> Operational losses include the losses associated with artificial recharge in the groundwater basin, and putting water into either Semitropic and/or Cawelo. Quantity is based on the Annual Operations Plan for 2012, updated on 4/24/12.

<sup>(f)</sup> Includes 7,500 AF associated with planned Cawelo storage operations.

### AVAILABLE STORAGE AT THE BEGINNING OF 2012

Zone 7 currently stores water in various storage facilities or groundwater banking programs to help meet water demands during acute or prolonged droughts. Table 3 summarizes the total

<sup>4</sup> New planning-level documents include DWR's Draft 2011 Reliability Report.

<sup>5</sup> Local rainfall was only 68% of average through April 2012.

accumulated storage available to Zone 7 over the next five years, the maximum storage available in 2012, and minimum storage available between 2013 and 2016. As shown in Table 3, Zone 7 has about 12.6% more accumulated storage and 3.6% more minimum storage in 2012 than in 2011, while the storage available in 2012 is about 23.3% higher due to SWP carry over. Zone 7 was able to store additional water in 2011 due to higher than average local rainfall and an 80% allocation of SWP water from DWR.

**Table 3. Available Storage in 2012, acre-feet**

Storage Facility or Program	Total Accumulated Storage <sup>(a)</sup>	Storage Available in 2012	Minimum Annual Storage between 2013 and 2016
Main Groundwater Basin	88,000	20,200 <sup>(b)</sup>	14,000 <sup>(c)</sup>
Lake Del Valle Carryover	8,000	8,000	10,000 <sup>(e)</sup>
State Water Project Carryover	25,400	25,400 <sup>(d)</sup>	
Semitropic	86,000	13,700 <sup>(f)</sup>	9,100 <sup>(g)</sup>
Cawelo	15,000	0 <sup>(h)</sup>	3,800 <sup>(h)</sup>
<b>Total</b>	<b>222,400</b>	<b>67,300</b>	<b>36,900</b>
<i>2010 Annual Report</i>	<i>197,500</i>	<i>54,600</i>	<i>35,600</i>
<i>% Increase</i>	<i>12.6%</i>	<i>23.3%</i>	<i>3.6%</i>

<sup>(a)</sup> Accumulated storage estimate is through April 2012.

<sup>(b)</sup> As the available storage decreases in the main basin, the amount of groundwater available in any given year also decreases due to well locations and defined historic lows. For 2012, 20,200 acre-feet was used as a conservative estimate for planning-level purposes in this memorandum.

<sup>(c)</sup> A conservatively small pumping amount of 14,000 acre-feet per year was used assuming the next few years were dry.

<sup>(d)</sup> Zone 7 did not lose any SWP carryover this year because San Luis Reservoir did not fill.

<sup>(e)</sup> Zone 7 typically carry's approximately 10,000 acre-feet from one year to the next.

<sup>(f)</sup> 2012 availability includes pump back of 9,100 acre-feet, and potential exchange water of approximately 4,600 AF assuming the SWP delivery remains at 60% of Zone 7's Table A amount.

<sup>(g)</sup> The minimum pump back from Semitropic is 9,100 acre-feet.

<sup>(h)</sup> Zone 7 plans to send water to Cawelo in 2012; therefore, no water would likely be pumped back. For comparative purposes in the 2012 Annual Review, Zone 7 staff assumed that Cawelo storage could be used in equal amounts between 2013 and 2016, or about 2,500 acre-feet per year over four years.

### COMPARISON OF SUPPLY AND DEMAND: NEXT FIVE YEARS

Table 4 compares available water supplies in 2012 to projected water demands over the next five years. For comparative purposes in this memorandum, long-term average supplies and minimum storage available over the next five years were used to compare with projected water demands between 2013 and 2016. As shown in Table 4, Zone 7's existing water supply exceeds projected water demands over the next five years, with or without water conservation. Additional analysis also showed that Zone 7 could meet projected water demands during Single

Dry and Multiple Dry years over the same period.<sup>6</sup>

**Table 4. Comparison of Supply and Demand: Next Five Years**

Component		2012	2013	2014	2015	2016
Without Conservation	Water Supply	43,400	55,050	55,050	55,050	55,050
	Available Storage	67,300	36,900	36,900	36,900	36,900
	Water Demand <sup>(a)</sup>	(49,100)	(49,600)	(50,300)	(50,900)	(52,100)
	Total	61,600	42,350	41,650	41,050	39,850
With Conservation	Water Supply	43,400	55,050	55,050	55,050	55,050
	Available Storage	67,300	36,900	36,900	36,900	36,900
	Water Demand <sup>(a)</sup>	(46,800)	(47,300)	(47,700)	(48,000)	(49,200)
	Total	63,900	44,650	44,250	43,950	42,750

<sup>(a)</sup> Includes both M&I and Untreated water demands.

#### **PROGRAMS NECESSARY TO MEET WATER DEMANDS**

The review completed as part of this memorandum indicates that Zone 7 has sufficient water supplies to meet projected water demands over the next five years with or without additional water conservation.

As presented in the 2010 UWMP, Zone 7 is evaluating several potential future water supply options, and as recommended in the 2011 WSE, Zone 7 is moving forward with a set of no regret actions to help minimize the risk of water supply shortages; the no regret actions include:

- Working with the local water supply retailers to develop additional water conservation savings and recycled water programs;
- Continuing to implement the Well Master Plan and Chain of Lakes projects;
- Confirming water supply available from the existing contract with BBID;
- Minimizing or reusing brine losses from the existing Mocho Groundwater Demineralization Plan;
- Reducing unaccounted-for water; and
- Enhancing Zone 7's existing in-lieu recharge program.

In addition to these actions, Zone 7 is also continuing to evaluate several major water supply portfolios, which include the Current Plan (i.e., Delta Fix), an In-Valley Portfolio (i.e., focused on recycled water), and an Intertie Portfolio (i.e., water transfers or regional desalination).

<sup>6</sup> Analysis completed as part of the 2011 WSE; approved by the Board in July 2011 (see [www.zone7water.com/2011-water-supply-evaluation](http://www.zone7water.com/2011-water-supply-evaluation)).

**ATTACHMENT A: RELIABILITY POLICY**