



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: May 15, 2013

ITEM NO. 10

SUBJECT: 2013 Annual Review of Sustainable Water Supply for Zone 7 Water Agency

SUMMARY:

- Based on retailer requests, water demands over the next five years are projected to increase from 50,400 acre-feet (AF) to 52,700 AF by 2017 (a 4.6% increase) without water conservation, but could decrease by around 8.3% depending on the success of water conservation efforts.
- Water supply yield in 2013 from existing water supply contracts and Zone 7's existing water right permit is approximately 31,000 AF based on Department of Water Resources current allocation of State Water Project Table A amount (35%); 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 232,000 AF of water in storage is available to Zone 7, of which, about 70,600 AF is available in 2013 through existing pump back and conveyance facilities. At a minimum, Zone 7 could dependably take approximately 36,900 AF per year from stored water supplies between 2014 and 2017.
- Zone 7 has sufficient water supplies to meet projected water demands over the next five years—with or without water conservation. However, Zone 7's long-term water supply is at risk and subject to a very uncertain future due to court rulings and biological opinions associated with the Sacramento-San Joaquin Delta, and climate change.
- In response, Zone 7 staff continues to investigate and implement the recommendations of the 2011 Water Supply Evaluation (2011 WSE). 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, 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.

FUNDING:

No funding impact.

RECOMMENDED ACTION:

Information only.

ATTACHMENT:

Interoffice memorandum providing additional information.

INTEROFFICE MEMORANDUM

DATE: May 15, 2013
TO: Jill Duerig, General Manager
FROM: Brad Ledesma, Associate Engineer
SUBJECT: Annual Review of Sustainable Water Supply for Zone 7 Water Agency

On October 17, 2012, Zone 7 Water Agency (Zone 7) adopted the Water Supply Reliability Policy (Resolution 13-4230).¹ Resolution 13-4230 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 13-4230, the 2013 annual review covers the following:

- Projected Water Demands: Next Five Years
- Available Water Supplies to Zone 7 at the Beginning of 2013
- Comparison of Supply and Demand: Next Five Years
- Programs Necessary to Meet Water Demands

SUMMARY OF FINDINGS

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 protection of species in the Sacramento-San Joaquin Delta (Delta), and climate change.² 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 2013 to 2017. As shown in Table 1, Zone 7's total water demands are projected to increase by 4.6% percent between 2013 and 2017, but could decrease by 8.3% with additional water conservation; water demands for Zone 7's untreated customers are expected to remain constant.

¹ A copy of Resolution 04-2662 is provided as Attachment A.

² Both the 2010 UWMP and the 2011 WSE are available on Zone 7's website (see www.zone7water.com).

In general, the 2013 water demand projections without conservation are similar (less than 3% different) to 2012 projections; however, the water demand projections with conservation are about 5 to 6% lower than the 2012 projections because the projected water conservation savings submitted by the local water supply retailers is twice as high (i.e., increased from about 3,000 to 6,000 acre-feet).

Table 1. Projected Zone 7 Water Demands: Next Five Years, acre-feet^(a)

Component		2013	2014	2015	2016	2017
Without Conservation	M&I ^(b,c,d)	45,900	46,300	47,000	47,800	48,200
	Untreated	4,500	4,500	4,500	4,500	4,500
	Total	50,400	50,800	51,500	52,300	52,700
	<i>Projected Demand from 2012 Annual Report</i>	<i>49,100</i>	<i>49,600</i>	<i>50,300</i>	<i>50,900</i>	<i>52,100</i>
	<i>% Increase from 2012 Annual Report</i>	<i>2.6%</i>	<i>2.4%</i>	<i>2.4%</i>	<i>2.7%</i>	<i>1.2%</i>
With Conservation	Total	50,400	50,800	51,500	52,300	52,700
	Additional Water Conservation	(6,100)	(6,300)	(6,300)	(6,500)	(6,500)
	Revised Total	44,300	44,500	45,200	45,800	46,200
	<i>Projected Demand from 2012 Annual Report</i>	<i>46,800</i>	<i>47,300</i>	<i>47,700</i>	<i>48,000</i>	<i>49,200</i>
	<i>% Decrease from 2012 Annual Report</i>	<i>5.3%</i>	<i>5.9%</i>	<i>5.2%</i>	<i>4.6%</i>	<i>6.1%</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 2013

Zone 7 has developed a robust water supply system consisting of imported surface water, local runoff, groundwater recharge activities, and non-local storage.³ 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.

³ 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.

The purpose of this section is to review the water supplies, including contracted supply and storage, available to Zone 7 at the beginning of 2013.

Projected Yield from Contracted Water Supplies in 2013

Each year Zone 7 receives water from its contracts with the Department of Water Resources (DWR) for importing State Water Project (SWP) water, its water right permit for diversions from Arroyo del Valle, its contract with Byron Bethany Irrigation District (BBID), and its contract with 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.

For planning-level purposes, Zone 7 staff estimates the projected yield from each of 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 2013 and the long-term average yield based on a review of actual deliveries, rainfall, DWR projections from January to May 2013, and a review of any new planning-level documents. 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 2013 from Zone 7's existing contracted water supplies is approximately 31,000 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 35% less in 2013 than in 2012 due to drier conditions and lower allocations.⁴

Table 2. Projected Yield in 2013 from Existing Contracted Water Supplies, acre-feet

Source ^(a)	Available in 2013		Long-term Average	
	Yield	% of Total	Yield	% of Total
State Water Project	28,200 ^(b)	85.0%	48,400 ^(c)	83.5 %
Arroyo del Valle Runoff	1,000	3.0%	7,300	12.6 %
Byron Bethany Irrigation District	3,000 ^(d)	9.0%	2,000	3.5 %
Yuba Accord (via DWR)	1,000	3.0%	250	0.4 %
Subtotal	33,200	100.0%	57,950	100.0 %
Operational Losses ^(e)	(2,200)	6.6%	(2,900)	5.0%
Total	31,000	93.4%	55,050	95.0%
<i>Projected Yield in 2012 Annual Report</i>	47,400		55,050	
<i>% Decrease from 2012 Annual Report</i>	35%		0%	

^(a) The 2010 Urban Water Management Plan provides additional detail on each contract; see <http://www.zone7water.com/publications-reports/reports-planning-documents>.

⁴ Local rainfall was only 73% of average through April 2013.

- (b) 2013 yield is based on 35% (current 2013 allocation) of Zone 7's Table A amount of 80,619 AF.
- (c) Long-term average yield is based on 60% of Zone 7's Table A amount of 80,619 AF, as presented in DWR's 2011 Reliability Report.
- (d) Although Zone 7 has up to 5,000 AF available for purchase, only about 3,000 AF will be purchased this year due to higher than normal SWP carryover from last year.
- (e) Operational losses include the losses associated with artificial recharge in the groundwater basin, brine losses, evaporative losses, and putting water into either Semitropic and/or Cawelo. Quantity is based on the Annual Operations Plan for 2013, updated in April 2013.

AVAILABLE STORAGE AT THE BEGINNING OF 2013

Zone 7 currently stores water in various storage facilities or groundwater banking programs to help meet water demands when needed. Table 3 summarizes the total accumulated water in storage available to Zone 7 over the next five years, the maximum water in storage available in 2013, and estimated annual water supply from storage between 2014 and 2017. As shown in Table 3, Zone 7 has about 4.3% more accumulated storage and the same amount of minimum storage in 2013 that was available in 2012, while the storage available in 2013 is about 4.1% higher due to additional supply available in Cawelo. Zone 7 was able to store additional water in Cawelo during the previous year (i.e., 2012).

Table 3. Available Storage in 2013, acre-feet

Storage Facility or Program	Total Accumulated Water in Storage ^(a)	Estimated Water Supply in Storage Available for Use in 2013	Estimated Annual Water Supply in Storage Available for Use between 2014 and 2017
Main Groundwater Basin	92,000	20,200 ^(b)	14,000 ^(c)
Lake Del Valle Carryover	3,800	3,800	10,000 ^(e)
State Water Project Carryover	25,400	25,400 ^(d)	
Semitropic	86,000	11,200 ^(f)	9,100 ^(g)
Cawelo	25,000	10,000 ^(h)	3,800 ^(h)
Total	232,000	70,600	36,900
<i>Available Storage from 2012 Annual Report</i>	<i>222,400</i>	<i>67,800</i>	<i>36,900</i>
<i>% Increase from 2012 Annual Report</i>	<i>4.3%</i>	<i>4.1%</i>	<i>0%</i>

- (a) Accumulated storage estimate is through April 2013.
- (b) As the amount of water stored decreases in the main basin, the amount of groundwater available in any given year also decreases due to well locations, physical/hydrogeological conditions and defined historic lows. For 2013, 20,200 acre-feet was used as a conservative estimate for planning-level purposes in this memorandum.
- (c) A conservatively small pumping amount of 14,000 acre-feet per year was used assuming the next few years were dry.
- (d) Zone 7 did not lose any SWP carryover this year because San Luis Reservoir did not fill.
- (e) Zone 7 typically carries approximately 10,000 acre-feet from one year to the next.
- (f) 2013 availability includes pump back of 9,100 acre-feet, and potential exchange water of approximately 2,100 AF assuming the SWP delivery remains at 35% of Zone 7's Table A amount.

- (g) Zone 7 can pump back up to 9,100 acre-feet from Semitropic, and depending on the SWP allocation, and also request exchange water. This analysis conservatively assumed that Zone 7 can only request up to 9,100 acre-feet between 2014 and 2017.
- (h) For conservative planning level purposes, it was assumed that Zone 7 would use 10,000 acre-feet in 2013, and that the remainder (15,000 acre-feet) could be used in equal amounts between 2014 and 2017, or about 3,800 acre-feet per year over four years.

COMPARISON OF SUPPLY AND DEMAND: NEXT FIVE YEARS

Table 4 compares available water supplies in 2013 to projected water demands over the next five years. For comparative purposes in this memorandum, long-term average supplies and water supply in storage available for use over the next five years were used to compare with projected water demands between 2014 and 2017. 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.⁵

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

Component		2013	2014	2015	2016	2017
Without Conservation	Water Supply	31,000	55,050	55,050	55,050	55,050
	Water Supply in Storage Available for Use	67,800	36,900	36,900	36,900	36,900
	Water Demand ^(a)	(50,400)	(50,800)	(51,500)	(52,300)	(52,700)
	Total	48,400	41,150	40,450	39,650	39,250
With Conservation	Water Supply	31,000	55,050	55,050	55,050	55,050
	Water Supply in Storage Available for Use	67,800	36,900	36,900	36,900	36,900
	Water Demand ^(a)	(44,300)	(44,500)	(45,200)	(45,800)	(46,200)
	Total	54,500	47,450	46,750	46,150	45,750

^(a) 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 and evaluating with a set of no regret actions to help minimize the risk of water supply shortages; actions include:

⁵ Analysis completed as part of the 2011 WSE; approved by the Board in July 2011 (see www.zone7water.com/2011-water-supply-evaluation).

- 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).

ATTACHMENT A: WATER SUPPLY RELIABILITY POLICY