

# City of Calistoga

## Memorandum

**TO:** Honorable Mayor and City Council  
**FROM:** Susan Sneddon, City Clerk  
**SUBJECT:** Presentation Regarding the City's Water Supply  
**DATE:** November 18, 2008

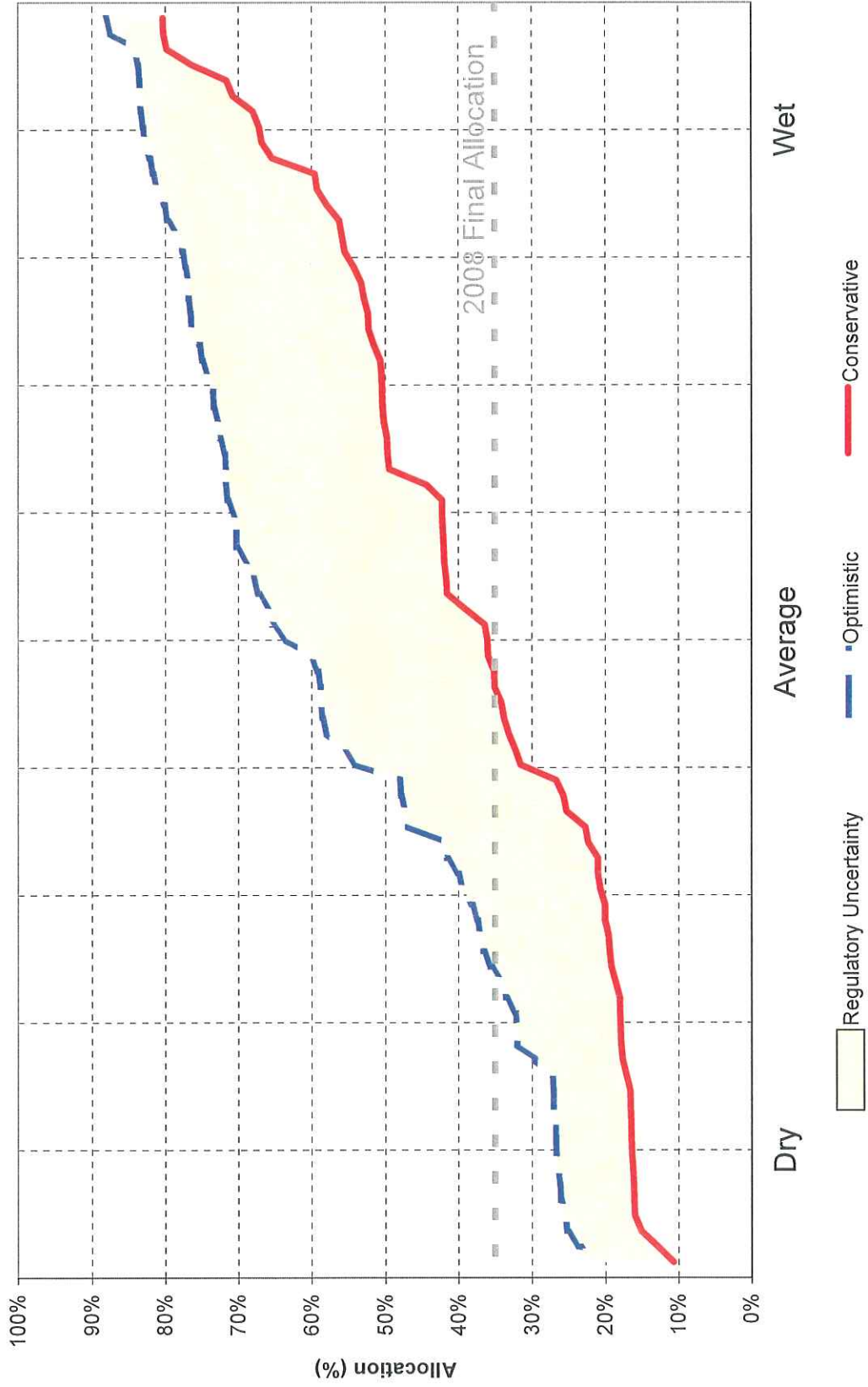
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Public Works Director/City Engineer Dan Takasugi and Principle Water Resources Engineer Felix Riesenbergl will provide a presentation regarding the City's water supply.

### ATTACHMENTS:


1. 2009 State Water Project (SWP) Allocation Graph
2. October 22, 2008 Memorandum — Update on City's Water Supply
3. May 1, 2007 Staff Report — Presentation Regarding the City's Water Supply

# 2009 SWP Allocation



# City of Calistoga Memorandum

**TO:** Honorable Mayor and City Councilmembers

**FROM:** James C. McCann, City Manager  and Dan Takasugi, Public Works Director

**SUBJECT:** Update on City's Water Supply

**DATE:** October 22, 2008

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This memo is intended to provide Council with updated information on the City's water supply in the face of growing water availability concern in the community. To recap some of staff's previous communication to Council:

- A water supply presentation was provided to Council on 5/1/07 (staff report attached).
- Another update of water supply was through a memo from the City Manager on 2/13/08 (attached), informing Council of a potential sale of carryover water and provided an update of water supply.
- On 5/20/08, a staff report (attached) was presented to Council for the one-time sale of carryover water, which again recounted the City's water supply status.

The City's water supply picture has many complex side issues, yet it can also be simplified without losing the general context. The simplified version is presented here.

- The City has contracted for 1,650 acre-feet of State Water Project (SWP) water this year. This amount increases by 25 acre-feet per year for the next 12-years, resulting from the 1999 American Canyon water purchase for (a total of 1,950 acre-feet of SWP water entitlements when fully activated). However, the State Water Resources Control Board typically cuts back this allocation during dry year conditions.
- If the City does not use all of its SWP contracted water, then some of the unused allocation may carry forward to the next year, adding to the City's available SWP allocation. This was highlighted in the 5/20/08 Council approval to sell 500 acre-feet of one-time SWP carryover water allocation to the City of Napa and American Canyon.
- The City is licensed for beneficial use of at least 536 acre-feet of Kimball Reservoir water (both from direct diversion and taken from reservoir storage). The reservoir itself holds roughly 291 acre-feet of water. Our water use from Kimball Reservoir is strictly governed by two (2) water rights licenses dating back to 1971. With our current treatment capacity, prior to the treatment plant improvements in construction, we would be hard pressed to use the full 536 acre-feet of Kimball water licensed for beneficial use.

- Dredging Kimball Reservoir could increase the reservoir's storage by roughly 118 acre-feet. However, such a project would not likely help the City gain more water supply for beneficial use, as the City is constrained by our 2 licenses to 536 acre-feet and the City would not be able to treat more water without additional capacity improvements at the Water Treatment Plant. A dredging project would be enormously challenging from an environmental and permitting perspective, not to mention property acquisition challenges for dredge spoils disposal.
- Thus, with our present activated SWP allocation of 1,650 acre-feet, and our Kimball Reservoir licensed water of 536 acre-feet, our total water entitlement is at the present at least 2,186 acre-feet. As mentioned, because of state dry-year cutbacks, pumping capacity, and our treatment capacity, we would not likely ever be able to take full advantage of the full 2,186 acre-feet of water entitlement. In addition, the annual activation of 25 acre-feet of SWP water purchased from American Canyon in 1999 will provide additional water (300 acre-feet remain to be brought "on-line") to address growth consistent with the pace established in the City's Growth Management System over the coming 12 years.
- The City of Calistoga has consistently used between 800 and 835 acre-feet of water in recent years, from both the SWP and Kimball Reservoir sources. Depending on a number of variables, between 50% and 65% of City water is drawn from the SWP source.
- The trend of future "dry years" is impossible to predict. In 2008, the City was faced with a 65% cutback of our SWP allocation. Yet, the City has been able to meet water customer demands, and provide sufficient water availability to support our Growth Management System applications.
- If the State has another "dry year" the SWP cutbacks could be more drastic, possibly requiring voluntary and mandatory conservation measures, as spelled out in the City's municipal code.

In summary, the City of Calistoga is quite fortunate to have over double the amount of water entitlement than our population uses. This is not to say that there are no risks or threats to our water entitlement, as there are many. Staff is continually searching for opportunities to improve our water supply quantity, quality, and reliability. Where feasible, staff seeks out low-cost financing and grant sources to accomplish this task, as shown in the \$1 million USDA grant recently secured for the Water Treatment Plant improvements. Staff is also exploring opportunities to use Measure A funding to improve water supply reliability.

Attachments:

- Council Staff Report of 5/1/07 for Water Supply Presentation
- City Manager memo to Council of 2/13/08 on the potential sale of carryover water
- Council Staff Report of 5/20/08 for approval of one-time carryover water sale

# City of Calistoga


## Staff Report

**TO:** Honorable Mayor and City Council  
**FROM:** Warren Schenstrom, Water Systems Superintendent  
**VIA:** James M. Smith, Acting Director of Public Works/City Engineer  
**DATE:** May 1, 2007  
**SUBJECT:** Presentation Regarding the City's Water Supply

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**APPROVAL FOR FORWARDING:**

  
James C. McCann, City Manager

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1  
2 **ISSUE:**

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4 Presentation regarding the City's water supply.  
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6 **RECOMMENDATION:**

7  
8 Accept report and provide comment or direction, as may be necessary.  
9

10 **BACKGROUND/DISCUSSION:**

11  
12 **WATER SUPPLY:** In late January of this year, staff provided a report to the Council on  
13 the status of the rainfall and water supply. At that time, the City had received  
14 approximately 11 inches of rainfall for the season. Since that time, numerous storms  
15 have occurred, which have provided an additional amount of precipitation for Calistoga  
16 and the rest of the state. Nonetheless, this is still considered to be a 'dry' year. The  
17 City has received only about 24 inches of rain this year, compared to an average total of  
18 approximately 36 to 40 inches. These figures are based on the "water year", which runs  
19 from July 1st to June 30th. In a normal year, we would expect to have one to two  
20 additional inches of rain between now and July 31<sup>st</sup>.

21  
22 Based on the community's observations and press reports about the below normal  
23 precipitation throughout the state, staff has received several inquiries as to whether the  
24 City needs to monitor this rainfall and take steps to enact conservation efforts.

25 However, at the present time, no need exists to engage the mandatory water  
26 conservation measures as outlined in the Municipal Code.

27  
28 The City of Calistoga's water supply system relies on two separate sources of water,  
29 both of which are presently in good and stable condition. First is our locally owned and  
30 controlled Kimball Reservoir, which is currently at more than 90% of its capacity. Our  
31 secondary and more significant source of water is through our ownership of State Water  
32 Project (SWP) resources. Our SWP water is conveyed to the City by the North Bay  
33 Aqueduct connection pipeline via the City of Napa.

34  
35 The SWP provides periodic projections to its customers regarding future expected water  
36 deliveries. These reports are based on precipitation data, or more specifically, snow  
37 pack measurements, which comprises the major portion of the state's water supply. The  
38 most recent information from the state indicates that 60% of contracted water will be  
39 delivered this year, although it is considered likely that the delivery allocation could be  
40 cut to 50% or 55%, based on the state's evaluation of the final snow pack  
41 measurements of the season. As the Council may recall, the City contracts for twice the  
42 amount of water needed for annual consumption to ensure that in a severe, below  
43 normal year (when less than 50% of the contracted water can be delivered), the City will  
44 have adequate supplies, coupled with the excess provided from the local (Kimball)  
45 source.

46  
47 For the current year, the City has contracted for 1,625 acre-feet of SWP water. If the  
48 state takes the foreseeable future step of cutting the SWP allocation by 50%, the City  
49 can still expect delivery of slightly more than 800 acre-feet of water in the next year.  
50 The City's total water demand for 2006 was approximately 800 acre-feet, which was  
51 provided last year in almost equal parts from Kimball Reservoir and the SWP.

52  
53 While it is always prudent to conserve water resources, and this year it is even more  
54 important to do so, the City has taken deliberate steps over the years to secure our  
55 water resources and to anticipate below normal rainfall years. If a drought or insecure  
56 water source conditions exist (or persist beyond the current expectations), the Municipal  
57 Code provides steps to urge voluntary water conservation, or if necessary, to implement  
58 mandatory water restrictions.

59  
60 *WATER AVAILABILITY:* Staff has also received questions in recent weeks regarding the  
61 City's ability to serve current customers and new customers that are currently under  
62 construction. This issue is of particular interest as a result of the Auberge Solage  
63 project, scheduled to open this summer.

64  
65 As required by Chapter 13.16, Resource Management System, and Chapter 19.02,  
66 Growth Management System, of the Calistoga Municipal Code, staff prepares an annual

67 assessment of the availability of water and wastewater resources. The last report was  
 68 prepared in August 2006, and it is summarized in the excerpted table below:  
 69

70 **Estimated Water Available (in acre-feet, as of August 2006)**

|    |                                                     |                        |
|----|-----------------------------------------------------|------------------------|
| 71 |                                                     |                        |
| 72 | 1. Maximum Demand                                   | <u>993.8 af</u>        |
| 73 | 2. Demand Management                                | <u>99.4 af</u>         |
| 74 | 3. Adjusted Maximum Demand                          | <u>894.4 af</u>        |
| 75 | 4. Firm Yield Supply                                | <u>1168.0 af</u>       |
| 76 | 5. Unused Supply                                    | <u>273.6 af</u>        |
| 77 | 6. Growth Management, Standby and Other Allocations | <u>147.0 af</u>        |
| 78 |                                                     |                        |
| 79 | 7 <b>Available Supply</b>                           | <b><u>126.6 af</u></b> |

80 =====

- 81 1. Maximum Demand: Calculated by multiplying the population (5,258 from State  
 82 Dept. of Finance for January 2006) by 0.189 acre feet per person per year  
 83 (Water Facilities Plan, Section 3.7.1, Summit Engineering, May 2000).
- 84 2. Voluntary Demand Management: Assumes 10% reduction through voluntary  
 85 conservation during a below normal year (Water Facilities Plan, Section 3.7.1,  
 86 Summit Engineering, May 2000).
- 87 3. Adjusted Maximum Demand: Maximum demand minus demand management.
- 88 4. Firm Yield Supply: Firm yield for a below normal year based upon 90% reliability.  
 89 Kimball supply is 336 af (Water Facilities Plan, Section 2.2.3, Summit  
 90 Engineering, May 2000). For the NBA sources a firm yield of 52% delivery can  
 91 be expected (Water Facilities Plan, Section 2.2.4, Summit Engineering, May  
 92 2000). NBA sources include 500 af of original NBA, 925 af of Kern County, and  
 93 175 af of American Canyon purchased water (500 af total increasing 25 af/y) for  
 94 a total of 1600 af and a firm yield of 832 af.
- 95 5. Unused Supply: Estimated current supply available before standby and other  
 96 obligations are subtracted.
- 97 6. Growth Management, Standby and Other Allocations:
 

|     |                                             |             |
|-----|---------------------------------------------|-------------|
| 98  | Standby                                     | 24.7        |
| 99  | Paid Allocations and Development Agreements | 62.2        |
| 100 | Bottling Works Unused Obligation            | 25.2        |
| 101 | Growth Management Allocations               | <u>34.9</u> |
| 102 | Total                                       | 147.0 af    |
- 103
- 104 7. Available Supply: Actual supply available for sale in 2007 calculated by  
 105 subtracting Standby and Other Obligations from the Unused Supply.

106 The foregoing information is based on a *below normal* water supply year, as we are  
107 currently having. The firm yield is slightly higher than reported above, since the SWP  
108 allocation has grown by 25 acre-feet, per the terms of the City's water supply contracts.  
109 (The City acquired 500 acre-feet of water from the City of American Canyon in 1999.  
110 That water is activated or introduced into our system in 25 acre-feet per year  
111 increments. At the present time, we have activated 175 acre-feet of the American  
112 Canyon water allocation, leaving 325 acre-feet for future use, over the next 13 years).

113  
114 Although there have been some minor variations in the water availability picture since  
115 last August, the overall determination that water is available is still valid. The City has  
116 sufficient water available to serve current customers plus the limited growth allowed by  
117 the Municipal Code and the General Plan. It is important to note that the water  
118 demands expected from all approved development projects, including the Solage  
119 project, have already been accounted for within the 'Growth Management, Standby and  
120 Other Allocations' category.

121  
122 **WATER DISTRIBUTION SYSTEM:** The City's water distribution system for treated  
123 water is comprised of a network of pipelines and water storage tanks. The pipeline  
124 network is in fairly good condition at present, especially due to the Kimball/Myrtledale/  
125 Grant pipeline completed in 2005 and the Silverado Trail interconnection pipeline  
126 completed two weeks ago. The City's Dunaweal Pump Station, which features a  
127 backup power supply, serves to maintain water flow from the SWP source to the City's  
128 distribution network.

129  
130 Water distribution storage is provided primarily at the City's Feige Reservoir (1 million  
131 gallons) and smaller amounts at the Kimball treatment plant clearwell and the High  
132 Street Reservoir. Staff is currently managing the design of an additional water storage  
133 reservoir at the Mt. Washington site. The design for this important project (1.5 million  
134 gallons of additional storage) will be completed later this year, and the project should be  
135 constructed and in service by the end of 2008. Similar to the situation described above,  
136 the water demands (especially the fire flow demands) expected from all approved  
137 development projects, including the Solage project, have been evaluated. The Solage  
138 project in particular has completed detailed hydraulic analyses indicating the ability for  
139 the City to provide adequate fire protection flows for the project, even during the  
140 approximate 16 month period when the resort is open but the Mt. Washington Reservoir  
141 is not yet in service.