Excerpt from the:

City of Santa Barbara
Urban Water Management Plan

2010 Update – Adopted June 2011
(Including Addendum dated June 12, 2012)

Section 5: Water Supply Reliability and Water Shortage Contingency Plan

Water Supply Reliability and Drought Planning

During the recent update of the LTWSP, the City paid particular attention to the effects of water shortage caused by drought. This is appropriate based on a long history of drought in this region. Two key issues related to drought were analyzed:

1. Planned Duration of Critical Drought Period ("Multiple Dry Year Period")

   The critical drought period for the City's water supply occurs when there are multiple consecutive years of below average rainfall. This is due to the particular hydrology of the Santa Ynez River, where little or no inflow to Lake Cachuma typically occurs until at least average rainfall has occurred. When this condition of average or less rainfall continues for multiple years in succession, the storage level of Lake Cachuma drops and shortages in deliveries occur. Based on historical data, the critical drought period has had a duration of five years, with the worst local drought being the drought of 1947-1951.

   Climate change has the potential to impact the water supply, though it is still unclear whether this will have a significant effect during the planning period. To the extent information is available for the local area, overall rainfall amounts would be expected to be similar to recent history, but an increasing frequency of extreme rainfall events can be expected. This has the potential to result in an extended irrigation season with some associated increase in demand. From a water supply perspective, more concentrated rainfall events may have the benefit of increased inflow to Lake Cachuma. Guidance from the state planning agencies is that California can expect a 20% increase in both the frequency and the duration of dry periods. For the City's water supply this would suggest a critical drought

period frequency of perhaps once every 30 years, instead of 40 years, and a duration of 6 years, instead of 5 years. Even though climate change impact information is incomplete and still undergoing critical review, the six-year drought period is a reasonable test and staff has used it for critical drought period analysis of the water supply, as discussed below under "Water Supply Performance."

2. Role of Desalination

The City's desalination facility is a vital resource as a back-up for potential prolonged drought and unforeseen interruptions of the water supply and would help mitigate the economic impact of such situations. It is also a reliable source of water, once in operation. However, as noted above, reactivation of the facility will result in significant costs, if only for the planning and design work that would be needed to start the process. In recent years, a dry period of only three years has been enough to trigger the start of planning to reactivate the facility in case of continuing dry weather. In 2004, after three years of drought, the storage level at Lake Cachuma had been reduced to about 70,000 AF out of 190,000 AF (37% of capacity) and the City was beginning this process of planning for reactivation.

As a result of discussion of this issue between staff and the Water Commission, the water supply has been modeled to stretch available Cachuma supplies over a potential 6-year drought period, with the goal of deferring the reactivation process, i.e. to plan for operation in the sixth year of a critical drought period instead of the fifth year. This would reduce the frequency of the planning and design effort, as well as reducing the likelihood that the substantial expense of actually reactivating the desalination facility would be needed. This is another basis for the six-year critical drought period used in performance modeling.

Water Supply Performance – Multiple Dry Year Periods

The three charts included in Appendix E are based on a worksheet model developed to provide a long-term simulation of the City's water supply as a part of the LTWSP update. The City considers this sort of long term analysis to be the best way to illustrate water supply vulnerability during multiple year dry periods of various durations.

The worksheet uses a water supply target of 14,000 AFY of potable and recycled water production, plus 10% safety margin as applicable based on the various scenarios. The target is based on:

- The combined effects of new development during the planning period;
- Reductions in water use due to updated plumbing codes and appliance standards, the effects of the City's water conservation program; and
- The statutory requirement to meet a reduction in per capita daily water use by 2020.

The 14,000 AFY value also represents the rounded 5-year average demand for 2006 through 2010. Note that this is conservative compared to actual projected urban water use under the Water Conservation Act of 2009. Given uncertainties in water supply in California, it is appropriate to be conservative when viewing water management from the supply perspective.

Local supplies are estimated using results from the Santa Ynez River Hydrology Model developed by the Santa Barbara County Water Agency. State Water delivery estimates are based on the "Future Conditions" assumptions in DWR's 2009 State Water Project Delivery Reliability Report (as used for CCWA delivery projections for 2030), but modified to assume a delivery limit of 50% of Table A amount in any year. This is to provide a sensitivity analysis to illustrate the potential effect of restrictions similar to those experienced during the period of 2008-2010.

An additional hypothetical year was added at the end of the 1947-1951 drought (the worst historical drought on record for the Santa Ynez River) to simulate a 6-year critical drought period. For this sixth year, deliveries from Gibraltar, Mission Tunnel, and SWP are assumed to be the average of the preceding five years of drought. Cachuma is assumed to have negligible inflow during year six and the 5-year modeled yield is stretched out over the 6-year period. The charts illustrate how the City's water supplies would be used in the most cost effective manner to meet the projected demand during varying water supply conditions, ranging from very wet to very dry. The worksheet was used to explore the potential to defer the use of desalination at least until the sixth year of a drought.

Three scenarios are represented:

- The first represents "Current Conditions", with Cachuma entitlement of 8,277 AFY and no use of the safety margin.

- The second represents the near-term condition with Cachuma entitlement also at 8,277, but with a 10% safety margin included.

- The third represents 2030 conditions, with projected future Cachuma entitlement at 7,863 AFY and 10% safety margin included.

Planned demand reductions during the critical drought period are set at 10% in year 4, 15% in year 5, and 15% in year 6.

A category called "Drought Supplies" is used to indicate water that would be used defer the use of desalination, either from unused State Water that is banked for use during dry periods or from the purchase of water during the critical drought period. The worksheet estimates that approximately 4,400 AF of unused State Water would be available for banking if contractual arrangements could be made to store the water for future use. Assuming a 50% deduction for the service of banking the water, about

2,200 AF of water would be available to meet the need for drought supplies. Water purchases would be pursued if additional water were needed. The desalination facility is proposed to remain a part of the City's water supply and would be used, if needed, to address shortages remaining after the use of banked water and purchased water.

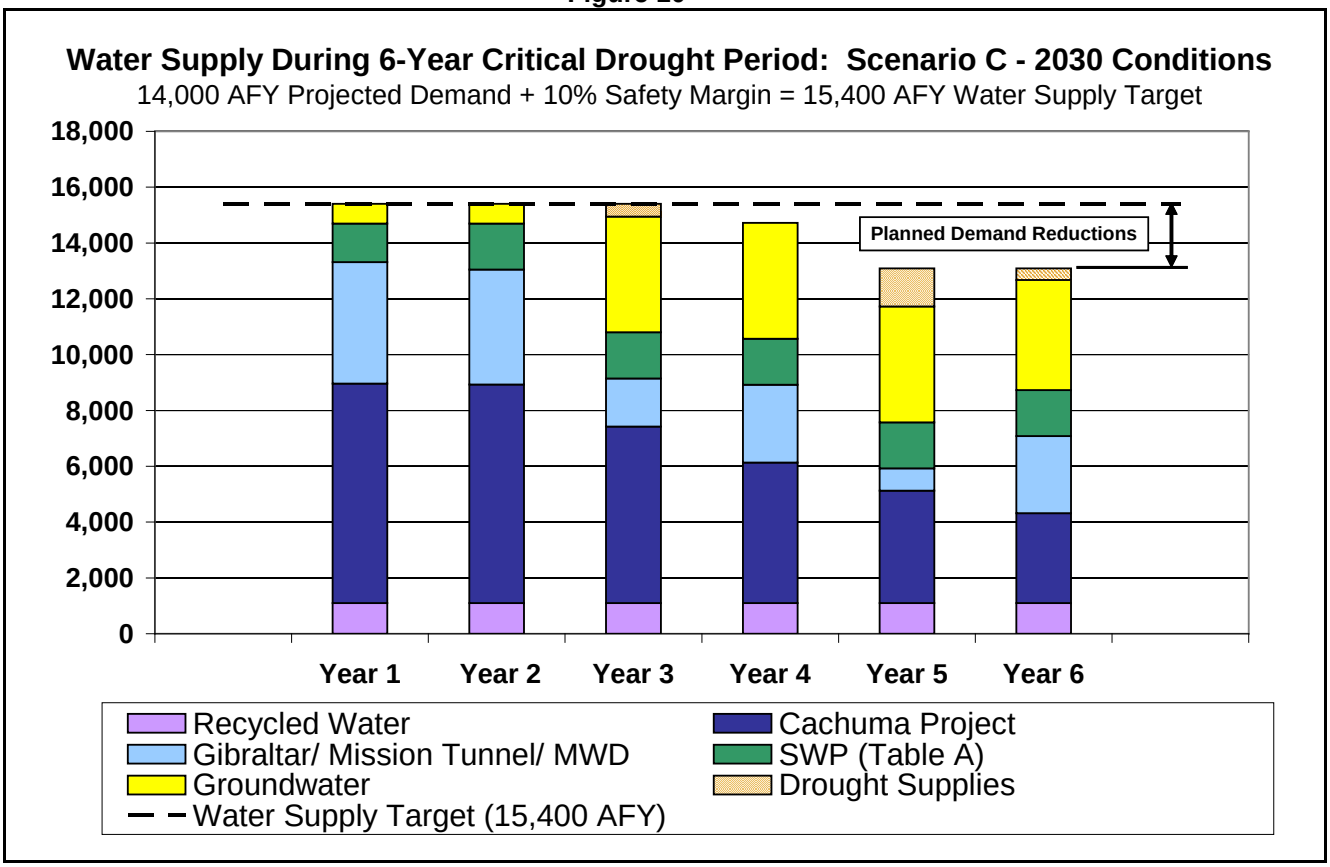
The worksheet uses supplies as needed to meet the water supply target according to the following sequence of priorities:

1. All available water from Gibraltar, Mission Tunnel and the Montecito Water District transfer, plus the 1,100 AFY of recycled water;
2. Minimum groundwater usage of 700 AFY;
3. The City's "exchange water" obligation of SWP Table A water (600 AFY);
4. Available Cachuma entitlement (except that remaining SWP Table A water is taken in year 2 and later to preserve available Cachuma water)
5. Remaining available SWP Table A water;
6. Added groundwater pumping up to the maximum amount of 4,150 AFY, subject to a cumulative pumping limit to minimize seawater intrusion;;
7. Deliveries of "Drought Supplies" (banked water or purchased water as available) through SWP facilities.
8. Desalination (if necessary)

The worksheet is set up to invoke Planned Demand Reductions in years 4, 5, and 6 prior to taking delivery of Drought Supplies. The cumulative drawdown of available groundwater is tracked.

The water supply charts illustrate that the City's water supply can be met in most years with limited groundwater pumping, an average of only about 75% of available State Water, no drought supplies (banked water, purchased water, or desalination), and no need for extraordinary demand reductions. The real test of the water supply is the six-year critical drought period, beginning with model year 1947. Note that the sixth year is a hypothetical year that extends the historical 5-year drought to a 6-year drought. The 6-year critical drought period is highlighted in Figure 10 below.

Figure 10



Key points illustrated include:

- Years 1 & 2: much like any non-drought year (mostly surface water, plus limited groundwater pumping)
- Year 3: Cachuma deliveries reduced to stretch remaining supplies; maximum groundwater pumping begins; small amount of Drought Supplies required
- Year 4: First year of Planned Demand Reductions (4% of allowed 10%); further reduction at Cachuma is offset by some increased inflow at Gibraltar; no Drought Supplies required
- Year 5: 15% Planned Demand Reductions; 1,364 AF of Drought Supplies taken; zero water delivered from Gibraltar
- Year 6: 15% Planned Demand Reductions; maximum pumping constrained slightly by the cumulative limit; some Drought Supplies required as a result; rainfall provides water from Gibraltar, but not enough to increase Cachuma deliveries.

Single Dry Year and Three Year Dry Periods

As discussed above, the City's diverse water supply and multi-year storage capacity at Lake Cachuma minimize the effect of a single dry year. An example is 1977 where rainfall in the local (Santa Ynez River) and State Water Project watershed were below average. The water supply charts illustrate that State Water deliveries are significantly reduced, but local surface water deliveries remain about average and the small difference is made up with added groundwater, with no need to implement any extraordinary measures. A dry period over the next three years is best illustrated by Year 1 through Year 3 in Figure 10.

Water Quality Impacts on Reliability

Water quality has potential impacts on the City's water supply in three areas:

- Reaction of Dissolved Organic Material to Produce Disinfectant Byproducts: More stringent State drinking water standards for disinfection byproducts have been adopted, causing the potential for violations due to relatively high levels of dissolved organics in water coming to Cater Treatment Plant from surface water supplies. The City has recently finished a complete rehabilitation of the plant and is in the pilot stage of a study to determine the best manner to insure the Cater water can continue to meet applicable standards for disinfection byproducts. Several feasible options have been identified and it is expected that facilities can be constructed to successfully address the problem.

- Groundwater Quality: Much of the City's groundwater supply exceeds secondary standards for taste and odor, as well as iron and manganese. In the Foothill Basin, the levels are low enough that they can be successfully treated at the wellhead. In Storage Unit No. 1, water has traditionally been pumped to the Ortega Groundwater Treatment Plant before being put into the distribution system. A complete overall of the plant is planned. It has just completed the pilot phase and is being designed. The completed project will allow full use of the City's groundwater resources and may play a part in complying with new standards for disinfection byproducts mentioned above.

- Recycled Water: Due to hardness of local water supplies, many customers use the ion exchange process to soften water at their homes and businesses. The result is added salt, particularly sodium chloride, in the City's recycled water. This has been addressed by monitoring salt levels in the soil over a ten-year period and by blending potable water with recycled supplies to meet water quality standards for irrigation. The City also promotes the use of potassium chloride as a substitute for sodium chloride.

Water Shortage Contingency Plan

On November 1, 1988 the City Council adopted a Drought Contingency Plan in anticipation of worsening drought. While the plan provided useful guidance during the drought, the City's experience during the drought suggested that a revised plan should have more flexibility. This is especially important with the increased diversity of the City's current water supply. Accordingly, the original Drought Contingency Plan has been updated and is included herein.

The plan is intended to provide guidance, rather than absolute direction, for City action in response to water shortage. The stages are defined in relation to maximum acceptable shortage of 10% - 15% per policy in the updated Long-Term Water Supply Plan. A moving 12-month total of production is used to monitor water usage during periods of normal supply and during water shortages, with actual consumption compared to the target on a monthly basis.

Water Use Restrictions

Chapter 14.20 of the Santa Barbara Municipal Code (applicable portions attached as Appendix F) defines specific water use restrictions that apply during water shortage conditions, subject to Council direction. These include the following:

1. Prohibition on water waste (prohibited at all times regardless of stage);
2. Runoff prohibited (prohibited at all times regardless of stage);
3. Use of potable water prohibited when recycled water is available and deemed feasible (applicable at all times regardless of stage);
4. Restaurant notices required; no water service without request;
5. Prohibition on hosing of hard surfaces;
6. Operation of ornamental fountains prohibited;
7. Water shortage notices required in hotel/motel rooms;
8. Restrictions on irrigation (degree of restriction may vary from night-time irrigation only to complete prohibition on irrigation, except by hand-held bucket);
9. Shut-off nozzle required for boat and vehicle washing;
10. Introduction of water to swimming pools restricted;
11. Potential interruption of service to irrigation meters.

Action under each shortage stage includes a determination as to which, if any, of the above measures are necessary.

Rates and Revenue Issues

Since 1989 the City has used an inverted block rate billing system providing standardized allotments for residential customers based on the type of building and number of dwelling units. Fiscal Year 2011 rates are shown in Appendix G. Historical

usage has not been used as the basis for allotments since it tends to penalize customers who practice efficient water use. Commercial and industrial allotments are based on historical off-peak usage since standardized allotments are infeasible for such customers. The system worked well during the 1987-1992 drought when allotments and block prices were modified as necessary to shape demand and insure adequate revenue. The system proved to be workable even for the 50% shortages experienced. It is important to note that even severely increased rates will have the mixed effect of reducing demand and providing added revenue to offset losses from reduced overall consumption. The City's experience has been that block prices and allotments are best determined based on actual circumstances rather than trying to determine appropriate values in advance based on hypothetical situations. It is important to note that a continuing decline in demand will result in increased unit rates to generate the revenue required to fund the mostly fixed costs of operating the water system.

Normal Supply Stage

Definition: Supplies are considered normal when the projected water supply availability is sufficient to equal or exceed the projected normal demand for the next three years.

Actions:

- ⇨ Continue efforts to preserve water supply sources, such as management of watersheds to minimize siltation, banking of water as feasible to firm up deliveries through the State Water Project, and development of optimal groundwater pumping capacity;
- ⇨ Continue promotion of long-term water conservation practices designed to improve efficiency without impacting lifestyles, including high efficiency plumbing retrofits, low water using landscaping, efficient irrigation practices, public information regarding water awareness, and inverted block rate pricing;
- ⇨ Extend the use of recycled water where feasible and cost effective;
- ⇨ Monitor demand in terms of actual consumption and cumulative commitments to serve;
- ⇨ Water use restrictions are limited to prohibition of water waste.

Stage 1 Water Shortage Condition -- "Water Shortage Watch"

Definition: A short-term water shortage condition declared by Resolution of the City Council upon being advised that projected supply availability during the next three years may be approximately 10% less than projected normal demand.

Actions:

- ⇨ Staff prepares a report to the Water Commission and City Council addressing:

- Status of surface water supplies;
- Status of City's groundwater resources and pumping capability;
- Availability of desalination facility and related cost and permitting issues;
- Projected deliveries of State Water Project entitlement;
- Anticipated availability of banked water and one-time purchase of water through the State Dry Weather Purchase Program or other short term transfers of water;
- Possible reduction in Cachuma deliveries to City in excess of reductions agreed to by member units to allow build-up of City carryover at Cachuma.
- A range of water supply scenarios based on various levels of assumed rainfall;

⇨ Water Commission and City Council consider Staff recommendation regarding adoption of a resolution declaring a Stage I Water Shortage Condition.

⇨ Cachuma Project deliveries reduced by up to 20% as agreed by Member Units when Project storage drops below 100,000 AF;

⇨ Public advised of the City's water supply situation; extraordinary reductions in water use are not anticipated to be necessary at this stage.

⇨ Water use restrictions are limited to prohibition of water waste.

Stage 2 Water Shortage Condition -- "Water Shortage Alert"

Definition: A short-term water shortage condition declared by Resolution of Council upon being advised that projected supply availability during the current or impending water year is anticipated to be approximately 10% less than projected normal demand.

Actions:

⇨ Staff prepares a report to the Water Commission and City Council addressing:
- Updated water supply scenarios based on various levels of assumed rainfall;
- Need for:
  - ✓ Demand reduction by the public;
  - ✓ Water use restrictions;
  - ✓ Design and permitting work associated with temporary water supply augmentations;
  - ✓ Possible activation of the desalination facility;
- Revenue projections and appropriate changes in water rates;

⇨ City Council considers staff and Water Commission recommendation regarding adoption of a resolution declaring a Stage II Water Shortage Condition.

⇨ Public advised of need for 10% added water conservation savings.

⇨ City Council considers need to begin planning and design work for activation of the desalination facility.

⇨ Suspension of development approvals is considered.

⇨ Determine the need for water use restrictions pursuant to SBMC Section

14.20.215 and incorporate appropriate exemptions into the water shortage resolution.

⇨ Public information effort is aimed at advising the public regarding:
- The City's water supply situation;
- Efforts being made by the City to minimize impacts of the water shortage;
- The public's role in achieving demand reductions;
- Staff enforces water use restrictions, pursuant to Council direction; and
- Staff implements rate changes, pursuant to Council direction.

Stage 3 Water Shortage Condition -- "Water Shortage Emergency"

Definition: A short-term water shortage condition declared by Resolution of Council upon being advised that there is a projected supply shortage of greater than 10% as compared to the projected normal demand.

Actions:

⇨ Staff prepares a report to the Water Commission and City Council addressing:
- Updated water supply scenarios based on various levels of assumed rainfall;
- Need for:
  - ✓ Further demand reduction by the public;
  - ✓ Increased water use restrictions, including potential prohibition on uses other than drinking water and sanitation;
  - ✓ Accelerated design, permitting, and construction work associated with temporary water supply augmentations;
- Review of revenue projections and appropriate changes in water rates;
- Evaluate supply availability from desalination facility:

⇨ City Council considers staff and Water Commission recommendation regarding adoption of a resolution declaring a Stage III Water Shortage Emergency Condition pursuant to California Water Code, Chapter 3.

⇨ Revised demand reduction target is announced to public, accompanied by information about how to achieve required reductions and efforts being made by the City to resolve the water shortage condition.

⇨ Water use restrictions adjusted as necessary pursuant to Santa Barbara Municipal Code Section 14.20.215.B.

⇨ Project potential need for activating desalination facility, including potential expansion of capacity.

⇨ Evaluate revenues and the need for further rate changes; staff implements changes pursuant to Council direction.

⇨ Consider further action regarding suspension of development approvals.

⇨ Water use restrictions enforced by staff pursuant to Council direction.

While the City's long-term supply planning is based on a maximum planned shortage of

10% - 15%, unforeseen circumstances may result in the need to respond to shortages of up to 50%. Based on the City's experience with the 1987-1991 drought, the measures identified above are expected to be useful in achieving short-term demand reductions of up to 50%, carefully tailored to the situation at hand. Flexible application of block rates and allotments, water use restrictions, and public information will be used to meet the required demand reduction target. Steeply inclined block rates would partially offset lost revenue due to demand reductions. City reserve policies dictate maintaining Water Fund reserves at about $12 million (about 30% of annual budget) to address a variety of contingencies. This will also help mitigate revenue impacts associated with a severe shortage. In addition, a separate $3 million reserve is maintained for potential reactivation of the City's desalination facility, or other capital projects associated with severe drought.

Measuring and Monitoring Actual Reductions

Water is produced into the distribution system to meet the demand. Therefore measurement of water production is a simple mechanism for monthly, weekly, or even daily monitoring of water demand to determine the effectiveness of demand reduction measures. Such monitoring proved feasible and useful during the previous severe drought.

Catastrophic Supply Interruption

Besides drought, the City may experience a catastrophic interruption of the water supply as a result of natural disasters such as earthquake or tsunami, a regional power outage, terrorism, wildfire, or sabotage. Emergency administrative procedures are detailed and kept updated in the City's Emergency Operations Center Manual. Noted below are planning and response measures particularly associated with the City's water supply.

Preparations for responding to catastrophic events:

- A diverse portfolio of supplies provides redundancy that increases the likelihood of being able to meet emergency needs even under catastrophic conditions.
- Primary water supply sources and the main treatment plant have been planned to flow to the City by gravity to reduce normal operating costs and minimize disruption during disasters.
- A groundwater production system has been developed and maintained to augment supplies to the distribution system or provide direct emergency drinking water supplies should the distribution system be put out of service. In the event of prolonged power outage, power would be provided by portable generators.
- Back-up power supplies with automatic transfer switching and SCADA control capability have been installed at the primary water treatment plant and critical distribution pump stations.

- The potentially unstable and uncovered Sheffield Reservoir has been demolished and replaced with underground tanks designed and built to current seismic standards.
- Computerized telemetry system (SCADA) is being provided throughout the distribution system to monitor system problems, whether minor day-to-day problems or major disruptions.
- An ongoing program of water main replacement targets sections of the distribution system with the highest history of breaks.
- Upgraded security, including more secure fencing, video monitoring, and alarms, is being provided at all water supply facilities.
- Public access to water supply facilities has been limited for security reasons.
- City distribution system crews are trained in pipe repair and replacement as a part of their normal duties and are continually ready to perform such work on an emergency basis as needed.
- All City employees are designated as emergency service workers and would be activated to do damage assessment and repairs, and to fill gaps left by staff that live out of town and may be unable to get to Santa Barbara due to disaster.
- The City's emergency response program includes emergency communications procedures that would be used for notifying the public about emergency water use restrictions, potential need to boil tap water prior to drinking, and locations where drinking water is available in the event of widespread distribution system failure.

Actions to be implemented during catastrophic conditions:

- Mobilization:
    - Supervisors assemble at Public Works Yard, 630 Garden Street
    - Determine which staff are present and which need to be contacted
    - Contact absent staff and direct them to report once families are safe
    - Check status of all equipment, refuel, and restock supplies on vehicles
    - Water Resources Laboratory staff mobilize at City lab and prepare for anticipated water quality test requests
- Dispatch crews to inspect, patrol, and report on condition of facilities and distribution piping in designated areas of the system:

<u>Group A</u>:

Vic Trace Reservoir & La Coronilla Pump Station
La Mesa Reservoir
Escondido Reservoir & Pump Station
Hope (Calle Las Caleras) Pump Station,
Hope Reservoir
Campanil Hills Pump Station

<u>Group B</u>:

Reservoir No. 1

East Reservoir & Bothin Pump Station
El Cielito Reservoir and Skofield Pump Station
Skofield Reservoir
La Vista Reservoir
Northridge Pump Station

Group C:

Reservoir No. 2
Sheffield Reservoirs No. 1 and No. 2 and El Cielito Pump Station
South Portal of Mission Tunnel
Rocky Nook Pump Station
Sheffield Pump Station
Tunnel Road Reservoir & Pump Station
Cater Cross-Tie Pump Station

Group D:

Wastewater Lift Stations at:
Campanil
Braemar
Cliff Drive
Linda Lane
El Camino De la Luz

Group E:

Wastewater Lift Stations at:
Skofield
La Colina
Via Lucero
Tallant Road
Miradero Lane
Andante
Vista Elevada

- Assign qualified staff to use SCADA telemetry system, to the extent it is still functional, to determine the extent of system damage and the most critical isolation points on the distribution system.
- Conduct a complete inspection of the Cater Water Treatment Plant and Ortega Groundwater Treatment Plant to determine status and extent of damage.
- Contact Cachuma Project operators (USBR and COMB) to determine condition of Bradbury Dam and related facilities.
- Contact the City's dam caretaker at Gibraltar Reservoir to determine condition of Gibraltar Dam and related facilities.
- Assess condition of City groundwater wells by measuring water levels and well depth, and taking water samples for analysis of water quality.
- Assess the condition of two tunnels (Tecolote Tunnel from Lake Cachuma and Mission Tunnel from Gibraltar Reservoir) by measuring flow from the tunnels. While earthquake may result in tunnel collapse, it is likely that some residual flow from tunnel infiltration will be available and will flow to the City's treatment plant by gravity.

- Assign qualified staff to utilize the City's hydraulic computer model to simulate identified field deficiencies and run scenarios to identify the most efficient repair, isolation, or reconstruction recommendations.
- Prioritize distribution system repairs to best meet critical needs, including fire fighting, drinking water, and sanitation; consider reserving a portion of available potable supply for drinking water purposes in the event of prolonged interruption.
- Develop materials list for treatment plant and distribution system repairs and communicate with potential suppliers.
- Allocate available portable generators and pumps according to highest need for groundwater wells, flood remediation, sanitation, firefighting, or powering emergency facilities.
- Develop a clear message for dissemination to the public regarding:
    - Status of distribution system
    - Water use prohibitions
    - Allowable water uses
    - Potential need to boil drinking water prior to consumption
    - Location and availability of emergency drinking water in the event of distribution system failure.

Potential Catastrophic Interruption Scenarios

Given the diversity of the City's water supply, there is a range of catastrophic supply interruption scenarios that may occur. At the extreme end of the range, a catastrophic seismic event could include failure of both Gibraltar Dam and Bradbury Dam (Lake Cachuma), also impacting State Water deliveries. Damage to groundwater wells would be expected as well. Table 14 summarizes some foreseeable interruptions of lesser, but more probable, magnitude. In an actual event, detailed analysis would be conducted to assess the extent and duration of interruption and the alternatives for short term replacement of lost supplies.

Table 14
Catastrophic Interruption Scenarios

Description	Projected Water Supply Reduction	Anticipated Duration	Response
Damage limited to distribution system: Main breaks in various parts of the City	No reduction in supply; delivery capability interrupted to portions of the City	Ranging from days to months depending on extent of damage	• Valve off damaged sections • Inventory customers without service & provide for access to emergency drinking water as necessary • Prioritize repair efforts based on health, safety, and sanitation
Collapse of Mission Tunnel: Supplies from Gibraltar Reservoir and Mission Tunnel infiltration interrupted	Initial loss of 35% to 50% of potable supplies; reduced to 12% to 27% by increasing Cachuma deliveries and groundwater pumping	Ranging from months to a year or more	• Assess extent of remaining tunnel flow • Restrict irrigation uses • Water usage restrictions, pricing, and public notification to reduce water use to targeted level based on actual circumstances • Consider increases in State Water Project delivery requests • Initiate emergency design and construction process for repair of tunnel
Collapse of Tecolote Tunnel: Supplies from Lake Cachuma, tunnel infiltration, and State Water Project interrupted	Initial loss of 50% to 65% of potable supplies; reduced to 15% to 30% by increasing Gibraltar deliveries and groundwater pumping	Ranging from months to a year or more	• Assess extent of remaining tunnel flow • Curtail most or all irrigation uses • Water usage restrictions, pricing, and public notification to reduce water use to targeted level based on actual circumstances • Consider extent to which supplies are available to assist neighboring agencies affected by loss of Cachuma deliveries • Participate with COMB & USBR in emergency design and construction process for repair of tunnel
Collapse of both Tecolote and Mission Tunnels: Supplies from Cachuma, Tecolote Tunnel infiltration, State Water Project, Gibraltar Reservoir and Mission Tunnel infiltration interrupted	Initial loss of up to 100% of normal potable supplies; reduced to 66% by initiating groundwater pumping	Ranging from months to a year or more	• Assess extent of remaining tunnel flow • Activate all available groundwater wells at maximum production levels • Consider public notification to accumulate emergency personal drinking water supplies while distribution system remains functional • Curtail all customer use other than water used for drinking – priority will be to maintain all available supplies and distribution capability for drinking water, sanitation, and firefighting • Initiate selected shut-down of portions of the distribution system to maintain functional pressure and flow in the remaining system; priority areas will be identified based on firefighting needs and feeding emergency drinking water distribution stations • Consider shutting off customer service connections to assist in maintaining distribution system functionality • Initiate emergency design and construction process for repair of tunnels • Initiate emergency design and construction process for reactivation of desalination facility for mid-range contribution to water supplies