

Excerpt from the 2005 Urban Water Management Plan

Section 5.5

The Water Shortage Contingency Plan

5.5.1 Introduction

Hydrologic water shortages, such as the 1976-77 and 1987-92 droughts, can span months and years. When City water demands exceed SFPUC water supplies, the City must intervene to moderate its customers' demands or acquire supplemental supplies. Although purchasing supplemental supplies is conceptually possible, neighboring water agencies will likely be in similar water shortage conditions, and finding willing sellers maybe impossible. Hence, the water shortage contingency plan focuses on mechanisms necessary to reduce internal water demands to balance the demand/supply situation. The Urban Water Management Planning Act requires that the water shortage contingency plan address the following six steps:

- Step One: Stages of Action
- Step Two: Estimate of Minimum Supply for the Next Three Years
- Step Three: Catastrophic Supply Interruption Plan
- Step Four: Prohibitions, Penalties, and Consumption Reduction Methods
- Step Five: Analysis of Revenue Impacts of Reduced Sales During Shortages
- Step Six: Draft Ordinance and Use Monitoring Procedure.

This section describes the City's water shortage contingency plan, and addresses each of the above steps. The water shortage contingency plan has two guiding principles:

- Water cutbacks are in proportion to outdoor water use. Outdoor water use is an important, but relatively discretionary end use in comparison to indoor water uses related to drinking, cooking, and sanitary activities.
- Water cutbacks are to be based on water needs, not historical water use whenever possible. If customers expect water shortage allocations to be based on historic water use, they may tend to overuse water during non-drought periods to increase their allocation during a shortage. Expressed in a different way, customers who adopt and sustain water conservation practices in their home and businesses ("demand hardened") should not be penalized by receiving the same percentage cutback as non-conserving customers.

5.5.2 Stages of Action

Table 5-2 identifies the stages of action that Redwood City will take in response to a water supply shortage. There are five stages that successively address cutbacks of greater magnitude. The City will largely rely on its Water Allocation Program (described in Chapter 6) to allocate maximum water use for its customers during shortages. Customers exceeding their water allocations will face higher water rates, especially during the higher stages of the plan.

Table 5-2 Water Shortage Stages of Action		
Stage	Water Reduction	City Actions
1	0 to 10%	<ul style="list-style-type: none"> ◆ Public education and voluntary cutback request. ◆ Purchase limited amounts of San Francisco water from as needed at perhaps increased prices. ◆ Cutback flushing of water distribution mains for water quality purposes.
2	10 to 20%	<ul style="list-style-type: none"> ◆ Aggressive public conservation education and voluntary cutback request. ◆ Acceleration of conservation BMP implementation. ◆ Water Allocation Program combined with moderate water rate incentives. ◆ Landscapes using potable water cutback up to 60%. ◆ Moratorium on new water connections. ◆ Cutback flushing of water distribution mains for water quality purposes.
3	20 to 30%	<ul style="list-style-type: none"> ◆ Aggressive public conservation education and voluntary cutback request. ◆ Acceleration of BMP implementation. ◆ Water Allocation Program combined with significant water rate incentives. ◆ Landscapes using potable water cutback up to 90%. ◆ Moratorium on new water connections. ◆ Cutback flushing of water distribution mains for water quality purposes.
4	30 to 50%	<ul style="list-style-type: none"> ◆ Aggressive public conservation education and voluntary cutback request. ◆ Acceleration of BMP implementation. ◆ Water Allocation Program combined with severe water rate incentives. ◆ Ban potable water used for irrigation of turf grass or all outdoor uses. ◆ Moratorium on new water connections. ◆ Cutback flushing of water distribution mains for water quality purposes.
5	50% or greater	<ul style="list-style-type: none"> ◆ If system is operational, prohibit all but water used for basic drinking, cooking, and necessary human hygiene. ◆ If system is not operational, establish basic water distribution stations/nodes for essential living conditions. ◆ Moratorium on new water connections.

Based on the first guiding principle described above, Table 5-3 shows the anticipated water cutbacks by customer type associated with 10, 15, and 20 percent cutback scenarios. The irrigation customers would be burdened with the largest percentage reductions. Single-family residential customers would have cutbacks roughly equaling the total percentage reduction. Commercial customers would have smaller cutbacks. Multiple-family residential customers

would experience the smallest percentage cutbacks because their water uses are largely related to indoor purposes.

Customer Type	10% Total Cutback	15% Total Cutback	20% Total Cutback
Single Family	10-12%	15-18%	19-24%
Multiple Family	3-4%	4-6%	6-8%
Commercial	7-9%	10-13%	14-17%
Irrigation	26-34%	40-51%	53-68%
Other	12-15%	17-23%	23-30%

(1) The percentage cutbacks shown are averages for customer types. Individual customer cutbacks will vary depending on the proportion of their water use associated with outdoor water use.

5.5.3 Estimate of Minimum Supply for Next Three Years

The minimum water supply for the next three years is shown in Table 4-2 in Section 4.4 of this UWMP.

5.5.4 Catastrophic Supply Interruption Plan

The Potable Water Emergency Plan was developed to prepare cities and towns and the San Mateo County/Operational Area for a planned response to emergency situations that affect water utilities, i.e., natural disasters, technological incidents, and national security/terrorism emergencies. The plan is not designed for responding to every conceivable contingency, but it addresses the major known hazards and general response/recovery considerations. Catastrophic interruption to the regional water system from earthquakes is one scenario that could occur. The City is also vulnerable to local failures in its water distribution system from such occurrences.

The plan serves to guide the City's emergency management and Water Coordinator in an organized response to water treatment and distribution emergencies, which affect the Redwood City (Office of Emergency Services, 2004). Detailed information is provided on personnel roles, responsibilities, emergency services, communication, recovery, and reporting procedures. Specifically, the plan describes the following:

- San Mateo County/Operational Area emergency management organization to assist in mitigating any significant emergency or disaster.
- Authorities, policies, responsibilities, and procedures required, protecting the health and safety of San Mateo County.
- Operational concepts and procedures associated with field response to emergencies, Emergency Operations Center (EOC) activity, and the recovery process.
- Standardized Emergency Management System (SEMS) for use within the City of Redwood City, San Mateo County/Operational Area, State Office of Emergency Services (OES) Coastal Region and state systems.

- Multi-agency and multi-jurisdictional coordination, particularly between local government (Redwood City) and San Mateo County; San Francisco Water Department and local, state, and federal agencies during emergency operations.
- Pre-event emergency planning as well as emergency operations procedures. This plan has been designed for conformance with SEMS (Government Code Section 8607) and should be used in conjunction with the State Emergency Plan and local emergency plans.

The procedures are designed to facilitate the acquisition and distribution of alternative potable water to Redwood City in the event of a local, Operational Area and/or Regional water emergency. These procedures require the support of public, private, and volunteer agencies.

5.5.5 Water Shortage Ordinance and Use Monitoring Procedure

Redwood City's use monitoring procedure and water shortage contingency ordinance are illustrated in the City's Water Shortage Contingency Ordinance adopted in 1990, and attached to this UWMP as Appendix E.

5.5.6 Mandatory Prohibitions and Penalties for Excessive Use

Redwood City's mandatory prohibitions and penalties for excessive water use are illustrated in the City's Water Shortage Contingency Ordinance adopted in 1990, and attached to this UWMP as Appendix E.

5.5.7 Revenue and Expenditure Impacts

The City Council adjusts water rates and charges each fiscal year as necessary to sustain balanced Water Enterprise Fund revenues and expenditures. The City's *Water Financing Plan* is substantially driven by the policies described in this UWMP.