

# CHAPTER 8

## Water Shortage Contingency Planning



The San Bruno Municipal Code (SBMC) authorizes the City Council to declare a water supply emergency and impose mandatory water conservation measures and/or water rationing as they see fit. The following section describes the components of the City’s conservation measures, including staged reductions in the City’s water use in response to supply cutbacks, emergency response plans to catastrophic supply interruption, and water use prohibitions and enforcement mechanisms.

The City’s mandatory conservation policy, regulations, and enforcement are codified in the “Water Conservation” Chapter 10.16 of the SBMC (see Appendix M).

### 8.1 STAGES OF ACTION

The City has four Stages of Action to be followed during a water shortage. These stages were developed as part of San Bruno’s 2001 UWMP to meet water supply cutbacks ranging from 5 percent to 50 percent. Each of the four stages describes actions to be taken by the City to achieve the stated cutback for that particular stage. All of the stages allow for adequate water to protect public health and to safety and to satisfy the fire protection needs of the City.

Each of the four stages corresponds to a specific City-wide water use reduction goal of 10 percent, 20 percent, 35 percent, and 50 percent. These water use reduction goals are based on San Bruno’s potential supply cutbacks during times of drought, with up to a 50 percent water supply reduction as mandated by the UWMP Act. The four stages and their associated cutbacks are listed in Table 8-1.

Stage	Percent Supply Reduction	Water Supply Condition
I	10%	Voluntary Stage
II	20%	Mandatory Conservation Stage
III	35%	Rationing Stage
IV	50%	Intense Rationing Stage

The first stage, Stage I, aims at reducing the City’s water use by 10 percent in response to a reduction in supply ranging from 5 percent to 10 percent. Stage I reflects a scenario, such as that described in Section 7.1.1.7, where the SFPUC is forced to reduce wholesale water deliveries to customers of the Regional Water System by 10 percent. Stage I includes voluntary water conservation measures that are promoted through a public information campaign aimed at increasing awareness through the distribution of literature and bill inserts, newspaper advertisements, and educational speakers for schools and other groups.



The actions outlined in Stage II are to be implemented when the City requires a 20 percent reduction in water use. The City may be faced with such cutbacks during multiple dry year periods when the Regional Water System experiences a 20 percent reduction in water supply. Stage II calls for mandatory conservation measures as determined necessary by the City Council and the Public Services Director, an aggressive public information campaign, and voluntary water allocations. Conservation measures may include the nonessential water uses listed in SBMC §10.16, shown in Table 8-2, or any additional measured deemed necessary to meet the target use reduction.

Stage III water conservation and rationing measures are geared toward a 35 percent reduction in City-wide water use. The steps to achieve a Stage III reduction include all of the steps outlined in Stage II, as well as mandatory water allotments for all accounts, increased monitoring of water use, and increased rates and penalties for excess water use.

Stage IV identifies mechanisms by which the City could reduce total water use by up to 50 percent, as required by the UWMP Act. To achieve a reduction in water use of 50 percent, the City would adjust mandatory allotments and reductions from Stage III as necessary to reach a City-wide water use reduction of 50 percent. If necessary, the City may prohibit all water use except as required for public health and safety (50 GPCD). Increased enforcement mechanisms would be instituted to enforce the Stage IV cutbacks.

#### 8.2 PROHIBITIONS ON END USES

SBMC §10.16 authorizes the City Council to impose water conservation and rationing measures described in the municipal code (or elsewhere appropriate) to reduce water consumption during a water shortage emergency. Conservation measures include, among other things, the prohibition of the following:

- Excess landscape watering;
- Irrigation more than two days a week according to the address of service;
- Irrigation between the hours of nine a.m. and four p.m.;
- Daytime watering (when evapotranspiration rates are highest);
- Unattended leaks or breaks;
- Washing vehicles with any hose not having an automatic shut-off device;
- The use of a hose for cleaning buildings, sidewalks, or other hard surfaces;
- The operation of a car wash unless the used water is recycled;
- Use of water from a fire hydrant unless specifically authorized;
- The filling of decorative lakes, fountains, or swimming pools;
- Service of water in restaurants unless requested by the customer;
- Fire hydrant or main flushing unless determined necessary by the Public Services Director;



- The indiscriminate running of water resulting in runoff;
- Substantial planting or replanting of new landscaping;
- The use of potable water for dust control or soil compaction unless reclaimed water is not available; and
- Any other use of domestic water as deemed to be wasteful by the Public Services Director.

A more complete explanation of these prohibitions is included in Table 8-2.

### 8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

To help ensure compliance with conservation measures during a water shortage, SBMC §10.16 also includes enforcement and penalty measures, including the installation of water flow restriction device, disconnection of water service, or the removal of water service connection. Violation of any provision under SBMC §10.16 is subject to an infraction punishable by a fine, not to exceed \$50 for the first offense, \$100 for the second violation within the same year, and \$250 for each additional violation within one year. Additionally, each day that any such violation is committed constitutes a separate offense and is punishable as such (\$250). If necessary, violations may even be prosecuted by criminal complaint, filed by San Bruno's City Attorney, or by citation from the police department, or neighborhood improvement representative.

### 8.4 CONSUMPTION REDUCTION METHODS

In accordance with California Water Code Section 10632(a)(5), the City may implement consumption reduction methods during water emergency stages. These methods, to be used by the City to reduce water demand, are summarized in Table 8-3.

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**Table 8-2. Restrictions and Prohibitions on End Uses<sup>(a),(b)</sup>**

Stage <sup>(c)</sup>	Category of Restriction	Description
II	Landscape - Restrict or prohibit runoff from landscape irrigation	The watering of grass, lawn, groundcover, shrubbery, open ground crops and trees, in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste.
II	Landscape - Limit landscape irrigation to specific times	Restricted between 9:00 am and 4:00 pm. Odd addresses may water Monday and Thursday, even addresses may water Tuesday and Friday, and non-numerical addresses may water Monday and Thursday. Irrigation shall be limited to 15 minutes per irrigation station. Outdoor irrigation during and 48 hour following measurable precipitation is prohibited.
II	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Customer will have 10 days after leak discovery.
II	Other - Require automatic shut of hoses	The use of hoses not having automatic shut-off devices for the washing of cars, boats, trailers or other vehicles.
II	Other - Prohibit use of potable water for washing hard surfaces	The use of water from a hose for the cleaning of buildings, structures, walkways, sidewalks, driveways, patios, parking lots or hard-surfaced areas. The washing of windows or structures with a bucket and squeegee is not prohibited
II	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	The operation of a car wash using water from the city's domestic water system, unless water for such use is recycled.
II	Other	Restrict use of water from any fire hydrant unless for fire protection or with an authorized permit from director of public services.
II	Water Features - Restrict water use for decorative water features, such as fountains	The use of water to fill, clean or maintain artificial or decorative lakes, fountains or ponds with a capacity of one thousand gallons or more.
II	Other water feature or swimming pool restriction	Customer may not fill swimming pool without approval of director of public services.
II	CII - Restaurants may only serve water upon request	The service of water in restaurants except upon request by the customer.
II	Other	Hydrant Flushing restricted unless approved by Public Services Director, San Bruno Fire Chief, or City Manager
II	Other	The indiscriminate running of water or washing with water than results in flooding or runoff in or on sidewalks, gutters and streets not otherwise prohibited above.
II	Landscape - Other landscape restriction or prohibition	Substantial planting or replanting of new landscaping which is not drought tolerant will be prohibited until such time the San Bruno city council has determined that the emergency has passed. For new developments in which water dependent (not drought tolerant) landscaping is required as a use permit condition, the city shall require a cash bond or other form of security subject to approval of the city from the developer in an amount specified which will be placed in an account in which the interest shall accrue to the developer. "Substantial" planting or replanting is hereby defined as planting or replanting in excess of ten percent of the total planted area of the development, parcel, site or lot.
II	Other - Prohibit use of potable water for construction and dust control	Using potable water from whatever source, in construction for dust control, or soil compaction unless reclaimed (or "nonpotable") water is not available. Vehicles hauling and spraying such water must have standardized signs indicating "reclaimed" or "nonpotable" water.
II	Other	Any other use of domestic water as deemed to be wasteful as determined by the director of public services. (Ord. 1533 § 2, 1991; Ord. 1522 § 3, 1990)
<p><sup>(a)</sup> Restrictions are listed in Section 10.16.060 of the San Bruno Municipal Code</p> <p><sup>(b)</sup> All restrictions are subject to enforcement according to Section 10.16 of the San Bruno Municipal Code.</p> <p><sup>(c)</sup> Stage II calls for mandatory conservation measures as determined necessary by the City Council and the Public Services Director, and is not limited to the measures identified in this table. If Stage III is enacted, all of the above measures will be in force.</p>		

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**Table 8-3. Consumption Reduction Methods**

Stage	Consumption Reduction Method	Description
All	Expand Public Information Campaign	Already implemented as a Demand Management Measure (see Chapter 9)
All	Provide Rebates on Plumbing Fixtures and Devices	Already implemented as a Demand Management Measure (see Chapter 9)
All	Provide Rebates for Turf Replacement	Already implemented as a Demand Management Measure (see Chapter 9)
I	Increase Frequency of Meter Reading	Metering will be increased to measure the effectiveness of the implemented water conservation measures.
II	Decrease Line Flushing	See Table 8-2

**8.5 DETERMINING WATER SHORTAGE REDUCTIONS**

In February 2016, the City completed the installation of an Advanced Metering Infrastructure (AMI) system that reads water consumption to an accuracy of 1 cubic foot of water. The City has upgraded 11,000 of its residential meters with the AMI system. The cost of the AMI project was \$5 million. The AMI system allows for real-time monitoring of customer water use. City water customers can now easily monitor their own water use using an on-line portal and can set up alerts to better manage their water use.

Through the City’s on-going monitoring of water production and water consumption, the City will ensure compliance with water shortage rationing measures and be able to impose penalties on those who are not complying with the directed mandatory water conservation measures or water allocations. Non-compliance with the required water conservation will result in the penalties described in Section 8.3, potentially including fines, flow restriction devices, and termination of service.

**8.6 REVENUE AND EXPENDITURE IMPACTS**

Because San Bruno bills its customers per unit volume of water consumed, the City would experience a reduction in revenue upon implementation of the water conservation and/or rationing plan. To compensate for the expected revenue reduction cause by water conservation, the City Council reserves the authority to adopt a temporary rate increase and institute an excess water surcharge (SBMC §10.16.140). Such rate increases would be based on a variety of components (including the change in quantity of sales, and fiscal impacts to the City and to customers) and evaluated at the time of drought. In addition to rate increases, capital reserves could potentially be used but would require approval from the City Council.



#### 8.7 RESOLUTION OR ORDINANCE

In July 2014, the City adopted Resolution No. 2014-91 declaring a state of water emergency as outlined in the San Bruno Municipal Code and Activating the City's Water Shortage Contingency Plan. The City also adopted a Resolution 2015-29 amending Stage II of the City's Water Shortage Contingency Plan. Restrictions were extended and expanded to restrict outdoor watering to two days a week according to the customer's address. The resolution also limited irrigation to 15 minutes per irrigation station and prohibited outdoor irrigation during and 48 hours following measurable precipitation. Both ordinances are provided in Appendix N.

#### 8.8 CATASTROPHIC SUPPLY INTERRUPTION

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. In the event of a catastrophic supply interruption, the response procedures that the City would follow are described in:

- SFPUC Emergency Operations Plan;
- San Mateo County's Emergency Operation Plan; and
- City of San Bruno's Emergency Response Plan.

Actions described in these plans focus on maintaining flow within the regional and local water system pipelines. In the event that this water is unsafe for consumption (e.g., only available for fire flow), the City plans to distribute potable water to residents at emergency distribution centers. The following sections summarize the information presented in the aforementioned plans, including measures to be taken to ensure the reliability of the water supply.

##### 8.8.1 Capital Projects for Seismic Reliability and Overall System Reliability

As discussed previously in Section 7.1.1, the SFPUC is also undertaking a WSIP to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply. The WSIP projects include several projects located in San Francisco to improve the seismic reliability of the in-city distribution system, as well as many projects related to the SFPUC RWS to address both seismic reliability and overall system reliability. According to the WSIP Regional Projects Quarterly Report dated February 2016, all WSIP projects are expected to be completed by 2019.

In addition to the improvements that will come from the WSIP, San Francisco has already constructed the following system interties for use during catastrophic emergencies, short-term facility maintenance and upgrade activities, and in times of water shortages:

- A 40 MGD system intertie between the SFPUC and the Santa Clara Valley Water District (Milpitas Intertie); and
- One permanent and one temporary intertie to the South Bay Aqueduct, which would enable the SFPUC to receive State Water Project water.

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The WSIP includes intertie projects, such as the East Bay Municipal Utility District (EBMUD)-Hayward-SFPUC Intertie. The SFPUC and EBMUD have completed construction of this 30 MGD intertie between their two systems in the City of Hayward, as part of the WSIP.

The WSIP also includes projects related to standby power facilities at various locations. These projects, which have been completed, provide for either an emergency generator or electrical receptacles to accommodate a portable emergency generator at the following sites: Alameda West Portal, San Antonio Reservoir and Dam, Harry Tracy Water Treatment Plant, Millbrae Yard, San Pedro Valve Lot and Capuchino Valve Lot.

#### 8.8.2 SFPUC Emergency Operations Plan

Following San Francisco's experience with the 1989 Loma Prieta Earthquake, the SFPUC created a departmental SFPUC Emergency Operations Plan (EOP). The SFPUC EOP, originally released in 1992, and has been updated on average every two years. The EOP addresses a broad range of potential emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's Emergency Operations Plan prepared by the Department of Emergency Management. Specifically, the purpose of the SFPUC EOP is to describe the department's emergency management organization, roles and responsibilities and emergency policies and procedures.

In addition, the SFPUC divisions and bureaus have their own EOPs that are in alignment with the SFPUC EOP and describe each division's/bureau's specific emergency management organization, roles and responsibilities and emergency policies and procedures. The SFPUC tests its emergency plans on a regular basis by conducting emergency exercises. Through these exercises the SFPUC learns how well the plans will or will not work in response to an emergency. Plan improvements are based on exercise and sometime real world event response and evaluation. Also, the SFPUC has an emergency response training plan that is based on federal, state and local standards and exercise and incident improvement plans. The SFPUC employees have emergency training requirements that are based on their emergency response role.

##### 8.8.2.1 Emergency Planning

With respect to emergency response for the SFPUC Regional Water System, the SFPUC prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan (ERRP)*, completed in 2003 and regularly updated. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond and recover from a major RWS seismic event, or other major disaster.

The SFPUC has also prepared an SFPUC-Suburban Customer Water Supply Emergency Operations and Notification Plan. The plan was first prepared in 1996 and is regularly updated. The purpose of this plan is to provide contact information, procedures and guidelines to be implemented by the following entities when a potential or actual water supply problem arises: the SFPUC Water Supply and Treatment Division (WS&TD), Water Quality Bureau (WQB), and the SFPUC wholesale customers, BAWSCA, and City Distribution Division (CDD). For the purposes of this plan, water quality issues are treated as potential or actual supply problems.



#### 8.8.2.2 Power Outage Preparedness and Response

The SFPUC's water transmission system is primarily gravity fed. Although water conveyance throughout the RWS would not be greatly impacted by power outages because it is gravity fed, the SFPUC has prepared for potential regional power outages as follows:

- The Tesla disinfection facility, the Sunol Valley Water Treatment Plant, and the San Antonio Pump Station have back-up power in place in the form of generators or diesel powered pumps. Additionally, both the Sunol Valley Water Treatment Plant and the San Antonio Pump Station would not be impacted by a failure of the regional power grid because they run off of the SFPUC hydro-power generated by the RWS.
- Both the Harry Tracy Water Treatment Plant and the Baden Pump Station have back-up generators in place.
- Additionally, the WSIP includes projects which will expand the SFPUC's ability to remain in operation during power outages and other emergency situations.

#### 8.8.3 San Bruno's Emergency Response Plan

In response to the requirements of the Public Health, Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act), Section 1433 amendment to the Safe Drinking Water Act, the City prepared a Water System Emergency Response Plan (ERP), completed in 2004 and regularly updated. The City's ERP provides a framework for emergency response by the City's Public Services Department (Department) and:

- Describes the Department's emergency management organization;
- Outlines the roles and responsibilities the Department and its staff during emergency response and recover;
- Compiles and organizes water system emergency response protocols and procedures; and,
- Identifies contingency plans to be implemented in the event that one or more of San Bruno's water supplies were to become unusable.

San Bruno's ERP also includes procedures for emergency chloramination at the City's four groundwater supply wells, a plan for distributing emergency water quality information, and a drinking water contamination response plan. These components provide guidance in response to disasters and attacks, both natural and man-made. For example, San Bruno's ERP is designed to be implemented in the event of structural damage triggered by an earthquake, and to provide emergency standby generators at wells and pump stations in the event of a power outage. Though San Bruno currently uses portable generators as a backup power supply, the City's long-term goal is to install backup power supply to each well and pump station.

#### 8.8.3.1 SFPUC Service Interruption

In the event that service is interrupted from any of San Bruno's SFPUC metered connections, personnel are instructed to shut down the affected connection and reroute water from the remaining



connections where possible, as described for each particular connection in the ERP Contingency Plan. If necessary, groundwater may be routed to higher pressure zones via booster stations and then back-fed through pressure reducing valves from the higher to lower zones within the distribution system.

**8.8.3.2 Emergency Inter-ties to Adjacent Distribution Systems**

Emergency inter-ties with NCCWD, the City of Millbrae, and Cal Water – South San Francisco have also been established to provide additional options for emergency water supplies in the event that neighboring agencies’ SFPUC connections remain intact. San Bruno maintains two interties with NCCWD, one with the City of Millbrae, and two with Cal Water – South San Francisco.

**8.9 MINIMUM SUPPLY NEXT THREE YEARS**

The driest three-year historic sequence on record that impacted the City’s potable water supply since 1920 occurred between 1990 and 1992. Based on the water supply information provided to the City by the SFPUC, the Tier Two water supply for the next three years (2016 to 2018) will be 1.75 MGD. The South Westside Basin GWMP estimates that no groundwater supply reduction is anticipated in the coming years, and the City will still have its 2.10 MGD supply. The estimated minimum available supply over the next three years of 3.85 MGD exceeds the FY 2014/15 water consumption of 2.89 MGD. The estimated minimum supply available to San Bruno for the next three years is shown in Table 8-4.

	2016	2017	2018
Available Water Supply, MGD	3.85	3.85	3.85
Available Water Supply, CCF	1,878,679	1,878,679	1,878,679
<sup>(a)</sup> According to the SFPUC's Tier Two Allocation Scenario, San Bruno's Total Available Supply under a Tier Two scenario would be 1.75 MGD. <sup>(a)</sup> The City's groundwater supply is assumed to not be reduced in the minimum supply scenario. It is assumed to remain 2.10 MGD.			

The minimum supply for the next three years shown in Table 8-4 is less than the projected multiple-dry year supplies presented in Table 7-3. The SFPUC projections in Table 7-3 are based on percentage reductions of the City’s contracted water supply of 3.25 MGD. The SFPUC Tier Two minimum supply of 1.75 MGD is based on a 20 percent reduction of the City’s FY 2013/14 base year water consumption of 1.94 MGD. See Section 7.1.1.8 for discussion of the Tier Two Drought Allocations.