

4. Municipal Water Curtailment Element

This section satisfies the requirements of OAR 690-086-0160.

This rule requires a description of past supply deficiencies and current capacity limitation. It also requires inclusion of stages of alert and the associated triggers and curtailment actions for each stage.

Introduction

The District developed this water supply shortage plan to guide the Board of Commissioners and District staff in the event of a water shortage. Water supply shortage plans (i.e. curtailment plans) outline proactive measures that water suppliers may take to reduce demand and to find alternative supply during short-term water supply shortages. The intent of water curtailment plans is to minimize the impacts of water supply shortages, which may result from incidents such as: prolonged drought, equipment failure in the system, catastrophic events (e.g. flooding, landslides, earthquakes, and contamination), or events not under control of the water supplier (e.g., localized or area-wide power outages and intentional malevolent acts).

The District may undertake a variety of curtailment actions, depending on the time of year and the expected duration of any water supply shortage. Throughout any such shortage, the District will continue to pursue the following objectives:

- Maintain adequate volume of high-quality water supplies for all District customers.
- Provide clear customer communications and rapid customer service. Be consistent with public expectations based on information shared to date.
- Promote water use efficiency.
- Control costs that come with curtailed water use, such as losses in revenue, or higher-cost water supplies (e.g., the purchase of peaking water from the PWB or the lease of extra water from the JWC).
- Have an equitable impact on all users – public and private, urban and suburban, business and residential. Prioritize actions to have the least permanent negative impact.

History of System Curtailment Episodes

OAR-690-086-0160(1)

Assessment of Water Shortages & Limitations

In the past 10 years, the District has not implemented a curtailment stage beyond Stage 1: Summer Advisory, which it routinely implements every year during the summer (peak-demand) season. Nonetheless, the following is a description of earlier curtailment events that were Stage 2 or higher. These events prompted the District to develop an effective conservation program and to diversify its sources of supply.

Drought

Drought has been the principal cause of water shortages and resulting curtailment for the region in recent years.

1992 Drought Affecting the City of Portland

During 1992, PWB and its wholesale customers, including the District, experienced severe water supply shortages for five reasons: (1) the Bull Run watershed, which serves the Portland metropolitan region, had experienced the lowest spring rainfall and stream flows since the year 1899; (2) demand for water during May and June of that year was unusually high due to record-breaking temperatures that occurred in the region; (3) reservoir levels were low, as is typical in the late summer months; (4) the PWB back-up source, the Columbia South Shore wellfield, was unavailable because of concern that a contamination plume would move into the well field aquifer if those wells were used; and (5) voluntary requests to reduce water use were not effective. (Similar shortages also occurred in 1952, 1987, and 1991.)

In response to the severe water supply shortage, the PWB implemented mandatory water restrictions to reduce water use during the peak season. The District, as a wholesale customer of the City of Portland, was subject to the curtailment measures declared by the PWB. In response, the District prepared an ordinance in July 1992, declaring a water source emergency and imposing mandatory water conservation on its customers. The ordinance prohibited lawn watering (except in the case of newly seeded or sodded lawns and parks), washing of hard surfaces such as sidewalks and parking lots, and car washing. Following a warning, penalties for ordinance violations ranged from \$100 for the first violation to \$500 for repeat violations. The District also purchased water from the JWC to partially offset the reduced supply from the PWB and lessen the severity of water curtailment measures. In addition, the District also activated its three emergency wells and obtained additional water supply from the City of Hillsboro via an emergency connection with that city.

In the aftermath, the District formed a conservation committee and designed and installed a demonstration garden to promote the efficient use of water through innovative landscape design, construction, and maintenance principles. Furthermore, it held landscaping workshops for customers, and participated in the conservation activities of the Columbia-Willamette Water Conservation Coalition, which later merged with the Regional Water Providers Consortium. In addition, the District purchased an ownership interest in the JWC, which provides access to additional water supply from multiple sources.

2001 Drought Affecting the JWC

The summer of 2001 was not particularly hot, but Hagg Lake filled to only 51 percent. As a result, all municipalities using supplies from the JWC were asked to curtail use in order to leave supplies for more senior irrigation water rights, as well as to leave adequate water supplies for instream use. Evaporation in the lake during the summer further reduced municipal supplies. The District was able to meet its customers' demands by purchasing additional water from the City of Portland, thereby avoiding the need to ask customers to curtail water usage. Although the District ultimately did not need to curtail water use, this event has been mentioned because it demonstrates the ability of water providers in the region to work cooperatively to avoid curtailment.

Other Events Resulting in Supply Deficiencies

In addition to drought, numerous other events or conditions in the JWC's and PWB's sources of supply could cause the District to experience supply deficiencies. For example, water quality problems in the PWB's Bull Run watershed could reduce supply available to the District. Other conditions that could cause supply deficiencies for the District include requirements of the Endangered Species Act that reduce access to Bull Run water supplies, contamination of the PWB or JWC's water supply sources, long-term interruptions in power supplies, breaks in major transmission lines, or damage to reservoirs as the result of earthquakes or other causes.

Planning for Future Events

In the event of a future water shortage, the District plans to meet its customers' water needs by offsetting the reduced supply with water from another water provider, accessing its groundwater supply, utilizing emergency interconnections, and implementing curtailment.

Curtailment Event Triggers and Stages

OAR-690-086-0160(2) and (3)

The District has adopted a four-stage curtailment plan to be invoked in the event of a water supply shortage. These stages are designed to be initiated and implemented in progressive steps. The plan includes both voluntary and mandatory rationing, depending upon the cause, severity, and anticipated duration of the shortage.

Exhibit 4-1 presents the four curtailment stages, as well as their initiating conditions (i.e. triggers). Curtailment could be initiated by any of the corresponding initiating conditions.

Exhibit 4-1. Curtailment Stages 1 through 4.

Curtailment Stages	Initiating Conditions
Stage 1: Routine Summer Advisory	<ul style="list-style-type: none"> • PWB issues a “notice of drawdown,” announcing the release of stored water in the Bull Run System. • PWB activates groundwater wells as part of its supplies. • Hagg Lake fails to fill 100 percent by May 1. • Barney Reservoir fails to fill 100 percent by May 1. • The JWC issues a “notice of drawdown,” announcing the release of stored water.
Stage 2: Moderate Water Supply Shortage	<ul style="list-style-type: none"> • PWB is operating under a warm-dry scenario [see the example diagram below under Stage 2]. • Hagg Lake is filled to less than 80 percent before May 1. • District customer use reaches contractual and/or facility capacity for seven consecutive days.
Stage 3: Severe Water Supply Shortage	<ul style="list-style-type: none"> • PWB has only groundwater sources available. • PWB cannot meet supply demands of wholesale customers. • JWC reservoirs drop below 40 percent of “normal conditions”; under such circumstances JWC enacts mandatory curtailment for its members. • Water supplies fail to meet U.S. Environmental Protection Agency Safe Drinking Water Act standards. • The District’s distribution system experiences a significant and sustained reduction of water pressure. • District customer use reaches contractual and/or facility capacity for 14 consecutive days.
Stage 4: Critical Water Supply Shortage	<ul style="list-style-type: none"> • PWB offloads (i.e. ceases serving) the District from its system and JWC cannot meet the District’s resulting additional demands for water. • JWC offloads the District from its system, and PWB supplies cannot meet the District’s resulting additional demands for water. • Water supplies from the JWC or the PWB are either physically cut off or otherwise become unavailable. • District customer use reaches contractual and/or facility capacity for 28 consecutive days.

Authority

The District’s Chief Executive Officer has the authority to enact the four stages of curtailment.

Enforcement

District field staff will enforce mandatory curtailment measures, if necessary.

Curtailment Plan Implementation

OAR-690-086-0160(4)

Stage 1: Routine Summer Advisory

The District predicts that it will face Stage 1 curtailment initiating conditions each summer as warm dry weather settles into the region and drawdown of the reservoirs begins. Summer water use is much greater than winter use as a result of customers irrigating their landscapes, washing cars, and using water for cooling purposes.

Water Reduction Goal

The goal of Stage 1 curtailment is for each water user to strive to maintain, and not exceed, average summer usage levels.

Triggers (any of these)

Events causing the District to activate Stage 1 curtailment include:

- PWB issues a “notice of drawdown,” announcing the release of stored water in the Bull Run System.
- PWB activates groundwater wells as part of its supplies.
- The JWC issues a “notice of drawdown,” announcing the release of stored water.
- Hagg Lake fails to fill 100 percent by May 1. (Hagg Lake holds 53,000 acre-feet (17.3 billion gallons).)
- Barney Reservoir fails to fill 100 percent by May 1. (The holds 20,000 acre-feet (6.5 billion gallons).)

During Stage 1 curtailment, the District will implement the following curtailment actions, including providing public messages, taking identified possible actions and working with partner agencies.

Public Message: Voluntary Conservation Measures

- Each summer, the District asks its customers to voluntarily limit water application to 1-inch of water per week for turf areas and less for areas with trees and shrubs.
- The District promotes already-existing conservation messages, such as “Use Water Wisely!” Suggested water conservation measures are posted on the District’s Web site.

Possible District Actions

- Partner with Regional Water Providers Consortium and west side providers to send consistent conservation messages to the media.
- Place conservation reminders and tips in Water Words, bill message, and on the District’s Web site and conservation hotline. Use various venues to distribute information. Set up public information booths where opportunities exist and look for other opportunities for public outreach, such as speaking engagements, etc.

Partners to Contact

- Work with local agencies to coordinate resources and uniform messages for water customers, and to prepare, review and/or update local water ordinances regarding curtailment enforcement.

Stage 2: Moderate Water Supply Shortage

Stage 2 curtailment may be a temporary condition lasting several days, such as a supply shortage caused by service interruptions in the region. During this time, the District may redirect supplies to areas experiencing shortages. Alternatively, Stage 2 curtailment may be an intermediate stage in an ongoing water supply shortage, such as when regional reservoirs have begun “summer drawdown,” with no rain in the forecast.

Water Reduction Goal

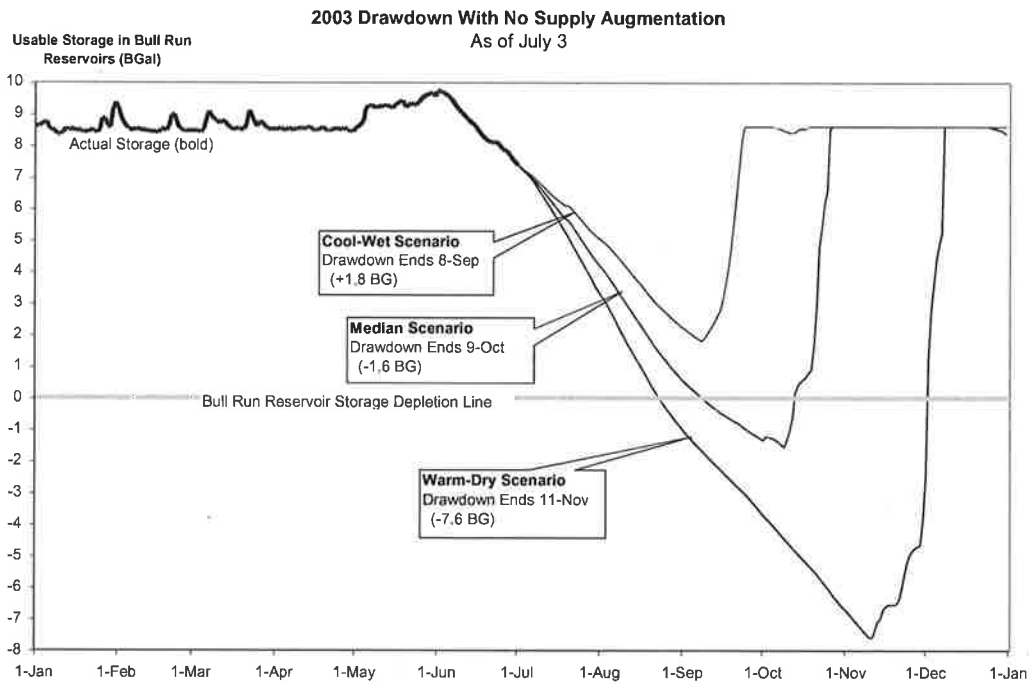
The goal of Stage 2 curtailment is to decrease overall daily water use by 10 percent. Voluntary curtailment use is intended to extend existing water supplies to last throughout the shortage.

Triggers (any of these)

Events causing the District to activate Stage 2 curtailment include:

- PWB is operating under a warm-dry scenario [see Exhibit 4-2, which is updated by PWB officials each year].

Exhibit 4-2. PWB Reservoir Drawdown Scenarios.



- Hagg Lake fails to fill 80 percent before May 1, which equates to 42,400 acre-feet (or 13.8 billion gallons). The JWC will only make the full allotment available to municipal users if the lake fills to at least 80 percent.
- District customer use reaches contractual and/or facility capacity for seven consecutive days.

In the event of Stage 2 curtailment, the District would take the following curtailment actions.

Public Message: Voluntary Conservation Measures

The District will provide public messages that describe the following voluntary conservation measures:

- Reduce all water use by 10 percent (as a rule of thumb, for example, residential customers in a four-person single-family household should try to reduce their use by about 20 gallons per household per day during the winter and 27 gallons per household per day during the summer).
- Limit use of water in commercial businesses (e.g., do not serve water to restaurant customers unless specifically requested).
- Reduce watering of lawns, plants, trees, gardens, shrubbery, and flora on private or public property to the minimum necessary. Conduct outdoor watering during early morning hours to reduce evaporation (preferably between 4 and 8 a.m.; must conclude by 10 a.m.).
- Eliminate all other kinds of outdoor water use, including:
 - a. Washing down of hard surface areas, decks, buildings, gutters, and vehicles;
 - b. Use of water in fountains, reflection ponds, and decorative water bodies for aesthetic or scenic purposes, except where necessary to support aquatic life;
 - c. Filling or maintaining private swimming pools (except children's wading pools);
 - d. Use of fire hydrants for any purpose other than firefighting or flushing essential to maintain water quality.

Possible District Actions

- Issue a notice to the local media that the District is in a Moderate Water Supply Shortage.
- Send postcard notification of Moderate Water Supply Shortage to District customers.
- Turn off automatic irrigation and water features in the District's Water Efficient Demonstration Garden.
- Provide reminders to non-efficient users (including customers who have been given a 30-day notice to repair one or more leaks and have failed to do so).
- Continue to encourage and educate customers to implement voluntary water conservation.

- Routinely publish in the Beaverton Valley Times, Hillsboro Argus, Tigard Times, and The Oregonian the voluntary conservation measures that the customers are requested to follow during a Moderate Water Shortage.
- Place reminder messages on in Water Words, in the bill messages and on the District Web site, as well as on billboards, signs, bus-sides, and movie theatre ads.

Partners to Contact

- Contact potential institutional partners in water conservation, including local businesses that are the most affected (e.g. landscapers/green industry, commercial carwashes, nurseries, restaurants, water-intensive manufacturers, etc.).
- Ask cities and counties to postpone enforcement of regulations that require the use of water (landscape ordinances, etc.).
- Make conservation presentations to Homeowner Associations (HOAs) and Community Planning Organizations (CPOs).

Stage 3: Severe Water Supply Shortage

Stage 3 curtailment occurs when customers still have time to prepare for and conserve water before a loss of service. Scenarios triggering Stage 3 curtailment include a protracted period of drought (similar to the drought of 1992) or multi-day disruption of service across sections of the District's service territory. Such scenarios may not affect both of the District's water sources equally.

Water Reduction Goal

The goal of Stage 3 curtailment is to decrease overall daily water use by 25 percent. Reduced water use will enable the District to re-direct unaffected water supplies without removing any customers from the system.

Triggers (any of these)

Events causing the District to activate Stage 3 curtailment include:

- PWB has only groundwater sources available.
- The PWB system cannot meet supply demands of wholesale customers.
- JWC reservoirs drop below 40 percent of "normal conditions" and JWC enacts mandatory curtailment for its members.
- Water supplies fail to meet U.S. Environmental Protection Agency Safe Drinking Water Act standards.
- The District's distribution system experiences a significant and sustained reduction of water pressure.
- District customer use reaches contractual and/or facility capacity for 14 consecutive days.

The District may take the following actions in the event Stage 3 curtailment is declared:

Public Message: Mandatory Curtailment Measures

The District will provide public messages that include the following:

- Water is in short supply.
- Reduce all water use by 25 percent (as a rule of thumb, for example, residential customers in a four-person single-family household should try to reduce their use by about 50 gallons per household per day during the winter and 70 gallons per household per day during the summer).
- The District will enforce its Water Supply Shortage Plan.
- Mandatory curtailment actions include:
 - a. Eliminate all outdoor water use, including:
 - i. Irrigation of established lawns (those at least six weeks old). Exceptions include: commercial sod farms, high-use athletic fields that are used for organized play, and daycare providers. Residents may hand-irrigate ornamental plants, flowers, and vegetable gardens during early morning hours to reduce evaporation (preferably between 4:00 a.m. and 8:00 a.m.; must conclude by 10:00 a.m.);
 - ii. Irrigation of golf courses. District water cannot be used to irrigate fairways or greens on golf courses. Hand watering of ornamental plants and flowers is permitted during early morning hours to reduce evaporation (preferably between 4:00 a.m. and 8:00 a.m.; must conclude by 10:00 a.m.);
 - iii. Washing down of hard surface areas, decks, buildings, gutters, or vehicles. Wash-down is allowed for sanitary purposes only;
 - iv. Use of water in ornamental fountains, reflection ponds, and decorative water bodies for aesthetic or scenic purposes, except where necessary to support aquatic life;
 - v. Filling or maintaining private swimming pools (except children's wading pools);
and
 - vi. Use of fire hydrants for any purpose other than firefighting or flushing essential to maintain water quality.
 - b. Prohibit chemical applications to lawns that require subsequent watering.
 - c. Limit expanding commercial nursery facilities, placing new irrigated agricultural land in production, or planting or landscaping except when required by the permitting jurisdiction.
 - d. Limit use of water in commercial businesses (e.g., do not serve water to restaurant customers unless specifically requested).
 - e. Repair leaks in hoses, faucets, and couplings.

Possible District Actions

- Issue a statement that the District is experiencing a Severe Water Supply Shortage; notify the local media and send postcard notification to District customers.
- Turn off automatic irrigation and water features in the District's Water Efficient Demonstration Garden.
- Cease water service to customers who have been given a 30-day notice to repair one or more leaks and have failed to do so.
- Implement the enforcement provisions of District's Water Supply Shortage Plan.
- Routinely publish in the Beaverton Valley Times, Hillsboro Argus, Tigard Times, and The Oregonian the mandatory restrictions to be placed on the use of water supplied by the District.
- Through the media and public outreach efforts, including door hangers, publicize widely the penalties to be imposed for violations of mandatory restrictions and the procedures to be followed if a variance in the restrictions is requested.
- Place curtailment reminder messages on in Water Words, in the bill message and on the District Web site, as well as on billboards, bus-sides, TV, radio, and movie theatre ads.
- Provide and advertise a conservation hotline that provides relevant curtailment information, such as the reason for the curtailment and information to help customers comply with the curtailment stage policy.
- Update and mail a conservation brochure to customers.

Partners to Contact

- Remind business, industrial, and government (B.I.G.) customers of any letters of cooperation that the District may have signed with them to prepare for Stage 4 curtailment situations.
- Send pre-drafted letter of intent to local jurisdictions (Portland, Tigard, Hillsboro, and Beaverton) to let them know the District plans to begin issuing fines to any of their residents who are not complying with the District's mandatory restrictions.
- Inform landscape/green industry (i.e. landscape and irrigation construction professionals, landscape maintenance service providers, landscape irrigation equipment vendors, the Oregon Landscape Contractors Association, and the Oregon Landscape Contractor's Board) of prohibitions on irrigation and chemical applications that require irrigation.
- Work with Tualatin Valley Parks and Recreation to suspend irrigation of parks where applicable.
- Work with local governments and homeowners associations to temporarily suspend regulations that require the use of water (landscape ordinances, etc.).

Stage 4: Critical Water Supply Shortage

Stage 4 curtailment may be implemented in emergency conditions under which little or no water is flowing to customers (as in the case of natural disasters that result in sudden and acute water loss). It may be necessary for the District to proceed directly to Stage 4, or this stage may be the result of an extended period of time in which demand outstrips supply.

Water Reduction Goal

The goal of Stage 4 curtailment is to decrease overall daily water use by 50 percent or more, and to protect safety, health, and economic livelihood.

Triggers (any of these)

Events causing the District to activate Stage 4 curtailment include:

- Portland “offloads” (i.e. ceases serving) the District from its system and JWC cannot meet the District’s resulting demands for water.
- JWC “offloads” the District from its system, and the PWB cannot meet the District’s additional water demands.
- Water supplies from JWC or PWB are either physically cut off or otherwise become unavailable to the District.
- District customer use reaches contractual and/or facility capacity for 28 consecutive days.

Public Message: Mandatory Curtailment Measures

The District will provide its customers with public messages about the following mandatory curtailment measures:

- Water may be used for drinking, cooking, and sanitation purposes only.
- Reduce all water use by 50 percent (as a rule of thumb, for example, residential customers in a four-person single-family household should try to reduce their use by about 100 gallons per household per day during the winter and 140 gallons per household per day during the summer).
- Eliminate use of water at construction sites.
- Enforcement of the District’s Water Supply Shortage Plan including issuance of fines.

Possible District Actions

- Issue a statement that the District is experiencing a Critical Water Supply Shortage.
- Issue media releases.
- Continue to enforce Water Supply Shortage Plan with warnings, fines, and discontinued service if necessary.
- Place reminder messages in Water Words, in the bill message and on the District Web site, as well as on billboards, bus-sides, TV, radio, and movie theatre ads.

- Provide and advertise conservation hotline.
- If necessary, conduct the following emergency actions:
 - a. Activate the District's Emergency Operations Center (EOC).
 - b. Begin rationing water as needed.
 - c. Activate any curtailment agreements previously negotiated with B.I.G. customers.
 - d. Open interconnections with neighboring water suppliers.
 - e. Bring emergency wells on-line.
 - f. Declare emergency (per District Purchasing Policy) to allow suspension of the normal bidding process.
 - g. Place a moratorium on all new water service connections and new water main extensions. Provide notice to developers of the moratorium.
- Work with partners to distribute bottled water as needed.

Partners to Contact

- Ask Tualatin Valley Fire & Rescue Fire Marshall to issue statement banning burning or construction (because these activities are possible fire hazards).
- Notify B.I.G. customers of the District's intention to activate any previously agreed upon curtailment arrangements.
- Inform developers of the moratorium on all new water service connections and water main extensions.
- Notify and work with neighboring water providers.
- Activate partnerships with bottled water manufacturers, National Guard, Red Cross or other water distributors, if needed.
- Contact the Washington County Office of Consolidated Emergency Management for additional resources, as needed.