WATER SHORTAGE RESPONSE PLAN

JULY 13, 2023

Orange Water and Sewer Authority

Carrboro, North Carolina

ORANGE WATER AND SEWER AUTHORITY

WATER SHORTAGE RESPONSE PLAN

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SECTION 1.

PURPOSE AND BACKGROUND

This Water Shortage Response Plan (WSRP) describes the actions Orange Water and Sewer Authority (OWASA) will take during a water shortage condition due to drought or special operational constraints, including the measures that OWASA will implement to reduce potable water use during such shortage conditions. This plan has been prepared as required by North Carolina General Statute (NCGS) 143-355(l).

That statute requires most public water systems in the State to have a State-approved WSRP as a component of their Local Water Supply Plan. State regulations governing water use during droughts and water emergencies (15A NCAC 02E .0607) and Session Law 2008-143 passed in July 2008 set forth specific items that must be included in local WSRPs.

OWASA's WSRP is generally organized along the lines of the North Carolina Division of Water Resources' (DWR) *Water Shortage Response Plan (WSRP) Guidelines* issued in January 2009. This plan meets the following criteria as required by the State, including:

- ✓ tiered levels of water conservation measures or other response actions based on the severity of a water shortage condition;
- ✓ the water conservation measures are tiered each tier is based on increased severity of drought or water shortage condition;
- ✓ specific measurements of available water supply, water demand and system conditions that OWASA *must use* to determine the severity of water shortage conditions and to initiate water use reduction measures and the movement between various water shortage stages;
- ✓ procedures that will be followed to ensure compliance with the provisions of the plan;
- ✓ procedures for affected parties to review and comment on the plan prior to final adoption;
- ✓ procedures to receive and review applications for variances from specific requirements, and the criteria that will be used to evaluate such requests;
- ✓ general method for evaluating the effectiveness of the plan; and
- ✓ procedures for reviewing and revising the plan, which must be done at a minimum of every five years concurrent with the update of the state-required Local Water Supply Plan.

DWR is responsible for reviewing all WSRPs to ensure they meet the State's minimum requirements.

This WSRP is one part of OWASA's long-term water conservation and demand management efforts. The OWASA Board of Directors approved a Water Conservation Plan in September 2022. This Water Conservation Plan summarized our existing policies, pricing structures, and programs

that incentivize water conservation and efficiency, as well as the use of reclaimed water. The Plan also provides a path forward to enhance our existing Water Conservation Program based on the American Water Works Association's standard for Water Conservation and Efficiency Program Operation and Management. Current strategies include:

- ✓ implementing conservation pricing structures, including increasing block water rates for single-family residential customers, year-round water rates for all irrigation use, seasonal water rates applicable to commercial and institutional customers, and drought surcharges;

- ✓ promoting the use of reclaimed water for non-drinking purposes;

- ✓ treating and recycling drinking water treatment plant process water back to the head of the water plant and other practices to conserve and recycle water at OWASA; and

- ✓ providing education and awareness, free-of-charge water conservation kits, and leak detection through our automated metering technology.

SECTION 2.

AUTHORIZATION

OWASA's Executive Director is responsible for: (a) declaring a Water Shortage as described in this Plan; (2) enacting the applicable provisions of this WSRP; and (3) overseeing implementation of the Plan. In the Executive Director's absence, OWASA's General Manager of Operations is responsible for such actions.

As required by NCGS 143-355, OWASA will implement the provisions of this Plan whenever the trigger conditions established herein (and/or as they may be revised from time to time in accordance with Section 10 of this plan) occur.

Following is the contact information for the above-listed individuals as of the date of this plan:

PRIMARY RESPONSIBILITY
Todd Taylor, or Successor
Executive Director
Orange Water and Sewer Authority
400 Jones Ferry Road
Carrboro, NC 27510

Telephone: 919-537-4216
E-Mail: ttaylor@owasa.org

ALTERNATE
Mary Darr, or Successor
General Manager of Operations
Orange Water and Sewer Authority
400 Jones Ferry Road
Carrboro, NC 27510

Telephone: 919-537-4246
E-Mail: mdarr@owasa.org

SECTION 3.

NOTIFICATION OF EMPLOYEES AND CUSTOMERS

OWASA will, as soon as possible, notify its employees, customers, and the public if and when a Water Shortage declaration is issued as described in Sections 4 and 5. Such notification will be provided via several methods, including but not limited to the following:

1. OWASA's Executive Director (or designee) will notify the following officials and agencies:

   - ✓ OWASA Board of Directors;
   - ✓ OWASA General Counsel;
   - ✓ Managers of the Towns of Carrboro and Chapel Hill, and Orange County; and
   - ✓ Division of Water Resources and the Public Water Supply Section within the NC Department of Environmental Quality.

2. The Executive Director (or designee) will inform all OWASA employees of changes in Water Shortage stages and conservation requirements applicable to OWASA customers. This will be communicated via one or more methods, including but not limited to:

   - ✓ e-mail through the OWASA Local Area Network;
   - ✓ presentations at staff and crew meetings; and
   - ✓ memoranda or other written materials.

   Employees will be reminded of their role and responsibility and applicable procedures for monitoring and responding to potential or actual violations of applicable water use restrictions. If an employee observes such an event, he/she will be instructed to attempt to inform the customer of the restrictions in effect, the observed violation, the need for corrective action by the customer, and consequences of repeat violations.

3. OWASA's Public Information Officer (or designee) will contact the news media (including newspapers, television, and radio) and provide them with information about the applicable declaration, associated requirements, water rate surcharges if applicable, etc. Such notifications may be made by e-mail, website postings, news releases, telephone, etc. News releases will include the name(s) and contact information of the OWASA staff member(s) that will be primarily responsible for addressing media inquiries.

   OWASA will make extensive use of e-mail, social media, the media, OC Alerts when warranted, and the OWASA website, to provide information to its customers about the need to conserve water, the use restrictions in effect, and water rate surcharges if applicable.

4. The Public Information Officer (or designee) will be responsible for updating the OWASA website in a timely manner regarding current information on the status of local water supply and demands, Water Shortage declarations, conservation requirements, and water rate surcharges if applicable.

5. The Public Information Officer (or designee) will be responsible for providing information about the water shortage on social media.

6. The Public Information Officer (or designee) will assist OWASA staff in responding to customer inquiries.

7. The Public Information Officer (or designee) will contact local law enforcement personnel about the applicable water conservation requirements in effect during the declared Water Shortage.

8. If feasible, OWASA will notify residential and non-residential customers of water restrictions via media, e-mail, and OC Alerts. In addition, OWASA staff may provide targeted information to the following customers:

    - ✓ The University of North Carolina at Chapel Hill;
    - ✓ UNC Hospitals;
    - ✓ Chapel Hill-Carrboro City Schools;
    - ✓ multi-family residential property owners/managers/residents;
    - ✓ irrigation customers;
    - ✓ hotels, motels, and restaurants; and
    - ✓ others as appropriate.

9. OWASA may place informational signs at high-visibility locations, such as the OWASA Administration Building, local town halls, and entranceways to Carrboro and Chapel Hill.

SECTION 4.

WATER SHORTAGE RESPONSE PROGRAM

The cornerstones of OWASA's water shortage response strategy are:

1. Water Conservation Standards, including year-round water use restrictions;

2. OWASA's water rate surcharges that are implemented during a declared water shortage and increase as the severity of the shortage increases; and

3. Public education and awareness, including provisions for voluntary issuance of a water shortage advisory by OWASA during unusually dry periods.

Water Conservation Standards

OWASA has established Water Conservation Standards that apply to the use of OWASA drinking water by all customers. The current Standards, which went into effect in June 2009, include year-round water use restrictions and four tiers of increasingly strict requirements depending on the severity of water shortage conditions. The Water Conservation Standards are summarized in Table 4-1.

To complement and support OWASA's water shortage response program, the Town of Carrboro, Town of Chapel Hill, and Orange County enacted local water conservation ordinances which incorporate all of OWASA's Water Conservation Standards. The applicable provisions of the local ordinances go into effect upon a request by OWASA and subsequent proclamation by the chief elected official of each jurisdiction.

(The implementation and associated enforcement actions under the local water conservation ordinances is outside the direct control of OWASA. OWASA works very closely with the local governments to coordinate monitoring and enforcement efforts to promote compliance with applicable use restrictions.)

Table 4-1.

SUMMARY OF KEY CONSERVATION STANDARDS FOR OWASA DRINKING WATER *

Effective June, 2009

Water Use	Year-Round	Stage 1	Stage 2	Stage 3	Emergency
Spray Irrigation of **Turf / Grass** (on designated days of the week as noted)	3 days per week, up to 1 inch per week, 6 pm - 10 am only ** Odd Addresses: Tu/Th/Sat Even Addresses: Sun/W/F	1 day per week, up to 1/2 inch per week, 6 pm - 10 am only ** Odd Addresses: Tues. Even Addresses: Thurs.	X**	X**	X
Spray Irrigation of **Non-Turf Plant Materials** (on designated days of the week as noted)	3 days per week, up to 1 inch per week, 6 pm - 10 am only ** Odd Addresses: Tu/Th/Sat Even Addresses: Sun/W/F	3 days per week, up to 1 inch per week, 6 pm - 10 am only ** Odd Addresses: Tu/Th/Sat Even Addresses: Sun/W/F	1 day per week, up to 1/2 inch per week, 6 pm - 10 am only ** Odd Addresses: Tues. Even Addresses: Thurs.	X***	X
Drip irrigation, underground drip emitters, soaker hose, hand-watering, and other non-spray methods allowed *at any time* or frequency	✓	✓	✓	✓	X
Washing of Building Exteriors **Before Painting**	✓	✓	✓	X	X
General Cleaning of Building Exteriors, Paved Areas, Etc.	✓	✓	X	X	X
Filling, Refilling, or Topping Off Ornamental Ponds, Fountains, etc.	✓	✓	X	X	X
Vehicle Washing	✓	✓	Only at commercial or institutional facilities where at least 50% of the water is being recycled, or is from a non-potable source or well	X	X
Filling, Refilling, or Topping Off of Swimming Pools and Backyard-Scale Facilities to Support Wildlife	✓	✓	✓	✓	X
Flushing or Pressure Testing New Water Lines	✓	✓	✓	✓	Only if captured and returned to system

Year-Round Requirements, Regardless of Water Shortage Condition

> Automatic controllers and rainfall or soil moisture sensors required on all irrigation systems
> "Wasteful" water use* prohibited at all times
> Water leaks must be repaired within 10 days of discovery and/or notification by OWASA
> Water may be served in restaurants and other dining facilities only at customer's request
> Hotel/motel linens may only be changed upon customer changeover, every 5 days, or upon customer request

Symbols and Notes

* *For the actual text of OWASA's Water Conservations Standards, please see Appendix A*

✓ *Water use is allowed.*

X *Water use is not allowed.*

** *Restrictions may not apply to public purpose athletic fields, recreational fields, or public purpose botanical sites operated in compliance with OWASA-approved Water Conservation Plans.*

*** *Restrictions may not apply to public purpose botanical sites operated in compliance with OWASA-approved Water Conservation Plans.*

Water Rate Surcharges During Declared Water Shortages

In 2007, OWASA adopted water rate surcharges to be imposed during declared water shortages. The surcharges were implemented during the 2007-2008 drought and resulted in a substantial reduction in water use.

Based on that experience, OWASA refined the surcharges in 2008 to apply more equitably to all customer classes throughout all drought stages.

Table 4-2 summarizes the water rate surcharges included in OWASA's October 1, 2022 schedule of rates and fees. When the surcharges are implemented, the applicable water rates in effect are increased by the factors shown in the table. The OWASA Board of Directors, at its discretion, may from time to time revise the water rate surcharges following a public hearing on OWASA's rates, fees and charges.

Table 4-2.

WATER RATE SURCHARGES IN DECLARED WATER SHORTAGES

Individually-Metered Residential						**Multi-family Master-metered Residential**	**Non-Residential and Irrigation-Only**
Block:	Res. Block 1	Res. Block 2	Res. Block 3	Res. Block 4	Res. Block 5		
Use Level: (gallons)	0 to 2,000	3,000 to 5,000	6,000 to 10,000	11,000 to 15,000	16,000 and up		
Stage 1	No surcharge	No surcharge	1.25 times normal Block 3 rate	1.5 times normal Block 4 rate	2 times normal Block 5 rate	1.15 times year-round rate	1.15 times seasonal and irrigation-only rate
Stage 2	No surcharge	1.25 times normal Block 2 rate	1.5 times normal Block 3 rate	2 times normal Block 4 rate	3 times normal Block 5 rate	1.25 times year-round rate	1.25 times seasonal and irrigation-only rate
Stage 3 and Emergency	No surcharge	1.5 times normal Block 2 rate	2 times normal Block 3 rate	3 times normal Block 4 rate	4 times normal Block 5 rate	1.5 times year-round rate	1.5 times seasonal and irrigation-only rate

Calculating OWASA's Water Rates With Water Shortage Surcharges in Effect

Based on the water rates in effect as of October 1, 2022 (and which will be revised at the discretion of the OWASA Board of Directors), here are a couple illustrations of how OWASA's water rates change when water rate surcharges are in effect.

Example 1: *The Block 3 water rate for individually-metered residences is $10.22 per 1,000 gallons of water use (use between 6,000 and 10,000 gallons). When the Stage 1 water rate surcharge is in effect, the Block 3 rate would increase to $12.78 per 1,000 gallons (an increase of 25%).*

Example 2: *The Peak Season (May – October) water rate for all non-residential except irrigation-only customers is $10.32 per 1,000 gallons of water use. Under Stage 3 surcharges, the Peak Season water rate would increase to $15.48 per 1,000 gallons (an increase of 50%).*

Public Education and Awareness

A comprehensive public education and awareness program is an essential component of OWASA's WSRP and water conservation efforts. During a drought or other shortage condition, the demand reductions achieved will depend primarily on how successful the education and awareness program is at gaining customer cooperation. That effort will be more successful if the public is informed about why conservation is necessary, the severity of the shortage, rate surcharges in effect, actual demand during the shortage and expected demand reductions, and how customers can achieve those reductions.

OWASA's public education and awareness program:

- ✓ provides for timely and regular notification to customers about the severity of a water shortage situation and why conservation is necessary;

- ✓ includes a variety of means to inform customers (electronic news releases to media, community organizations, and to customers who have shared their e-mail addresses; local and regional print and broadcast media; the OWASA website; social media; OC Alerts; direct mailings; signs and bus placards; newspaper articles and ads; etc.);

- ✓ provides information about what OWASA is doing to maintain a safe and adequate water supply and what specific measures customers can take to conserve water;

- ✓ provides the community with updates on the effectiveness of water conservation efforts; and

- ✓ includes information in multiple languages on our website and for regional Latino media and to local agencies serving the Hispanic community, etc.

OWASA will also declare a Water Shortage Advisory no later than when the total water storage in the reservoirs drops to within 10 percent of the mandatory Stage 1 triggers as shown in Section 5 of this Plan. At such time, OWASA will communicate with the Carrboro and Chapel Hill Town Councils, Orange County Board of Commissioners, and the University of North Carolina at Chapel Hill about the potential need for water use restrictions should the situation worsen. OWASA will also provide public notice to its customers and other stakeholders about the likelihood for water use restrictions.

Major Water Conservation Initiatives of OWASA

Following the extreme droughts of 2001-2002 and 2007-2008, OWASA implemented a number of important strategies to reduce and manage customer demands throughout the year, including:

1. Implementing a permanent process water recycling system at the Jones Ferry Road Water Treatment Plant. This has reduced average daily raw water withdrawals by about 7% since the fall of 2002.

2. Establishing seasonal water rates for all customers beginning in 2002 and subsequently implemented a five-tiered increasing block rate structure for all individually-metered residential customers beginning in 2007.

3. Implementing a new reclaimed water system to initially serve the University of North Carolina at Chapel Hill. This system reduces drinking water demands by approximately 0.7 million gallons a day (mgd).

4. Continuing water conservation education and awareness efforts for OWASA customers, including information and technical assistance for customers interested in implementing cost-effective conservation measures.

As a result of these strategies and the conservation efforts by OWASA customers, our peak day water demands are over 30 percent lower than they were in 2000 despite over a 30% increase in OWASA customer accounts during that period.

Together, these measures have reduced the community's risk to droughts and other water shortage conditions, thereby reducing the need for additional restrictions during such events. It is, however, essential that OWASA have a water shortage response program in place to respond to such events because the potential for a water shortage due to drought or other event always exists.

SECTION 5.

MANDATORY WATER SHORTAGE RESPONSE TRIGGERS

As required by NCGS 143-355, OWASA has established a set of specific measurements of available water supply and demand conditions to: assess the severity of water shortage conditions during extended droughts; guide the initiation of water use reduction measures; and guide the transition between the various water shortage stages described in this Plan. The measurements and rationale are explained below.

From time to time, it may be necessary to implement water use restrictions in response to certain drinking water system emergencies, such as water main breaks, water quality problems, planned and unplanned maintenance events, natural disasters, etc. OWASA's water shortage response strategy for operational emergencies is also described below.

OWASA staff continually monitors and evaluates the operational status of water supply, treatment, and distribution system components to ensure that customer demands can be met at any given time. Staff also tracks customer demands and the amount of raw water supply remaining in each supply source on a daily basis. USGS streamflow gaging data are monitored closely to determine conditions and trends in inflows to the reservoirs. This and other information is used to guide OWASA's water shortage response strategy.

Triggers for Implementing Water Shortage Response Stages During Extended Droughts

OWASA's drought management decisions are guided primarily by the estimated level of risk that usable reservoir storage will decline to 20 percent (approximately 700 million gallons [MG]) or less during the next 12 months. At a raw water demand level of 7.5 mgd, 700 MG of raw water supply on-hand would meet customer needs for approximately three months during an extreme drought, thus providing time to implement emergency water supply augmentation and conservation measures.

Water supply risk is determined from OWASA's Reservoir Optimization Model (OWASA-ROM), which includes a statistical analysis of 82 years of actual and simulated streamflow records (1926-2007) for the Cane Creek/University Lake/Quarry Reservoir supply system. The model simulates what reservoir storage levels would be under various levels of annual average-day demand, storage volume remaining at a given time of the year, and historical streamflows and evaporation rates.

The average-day demand for the year is adjusted to reflect historical monthly demand ratios for the OWASA system. The model reflects OWASA's operating protocols and the capacities of existing raw water pumping and transmission facilities. It simulates reservoir inflows, levels and demands on a daily time-step, and evaluates the reliability of the system to meet demands while maintaining a minimum emergency storage reserve target of 20% of total capacity as a margin of safety.

OWASA-ROM has been used to estimate the total reservoir storage volumes (percent remaining) that correspond to approximately 2% (2 years in 82), 10% (8 years in 82) and 20% (16 years in 82) probabilities that reservoir storage will be drawn down to 20% or less of storage during the

following 12 months under various annual average-day demand levels and assuming no other action taken to reduce demands and/or augment the supply.

In the late fall, winter and early spring, when inflows are typically higher and demand lower, reservoir storage can drop to relatively low levels before the risk of drawdown to 20% or less during the following 12 months becomes significant. From late spring through fall, when demand rises and inflows decline, the level of risk for a given demand increases.

This analysis has been used to establish the trigger levels that will automatically result in OWASA's implementation of the various Water Shortage stages and associated restrictions.

Figures 5-1 through 5-4 show the trigger levels that will apply to the implementation of successive Water Shortage response stages under annual average-day demands of 7.0, 8.0, 9.0, and 10.0 mgd, respectively. (Average-day raw water withdrawals were about 6.6 mgd in Fiscal Year 2022)

Figures 5-1 through 5-4 also include a water shortage advisory level, which is represented by a black dashed line on the graphs. OWASA will declare a Water Shortage Advisory no later than when the total water storage in the reservoirs drops to within 10 percent of the mandatory Stage 1 triggers as shown on Figures 5-2 through 5-4. At such time, OWASA will communicate with the Carrboro and Chapel Hill Town Councils, Orange County Board of Commissioners, and the University of North Carolina at Chapel Hill about the potential need for water use restrictions should the situation worsen. OWASA will also provide public notice to its customers and other stakeholders about the likelihood for water use restrictions and request that customers voluntarily conserve water.

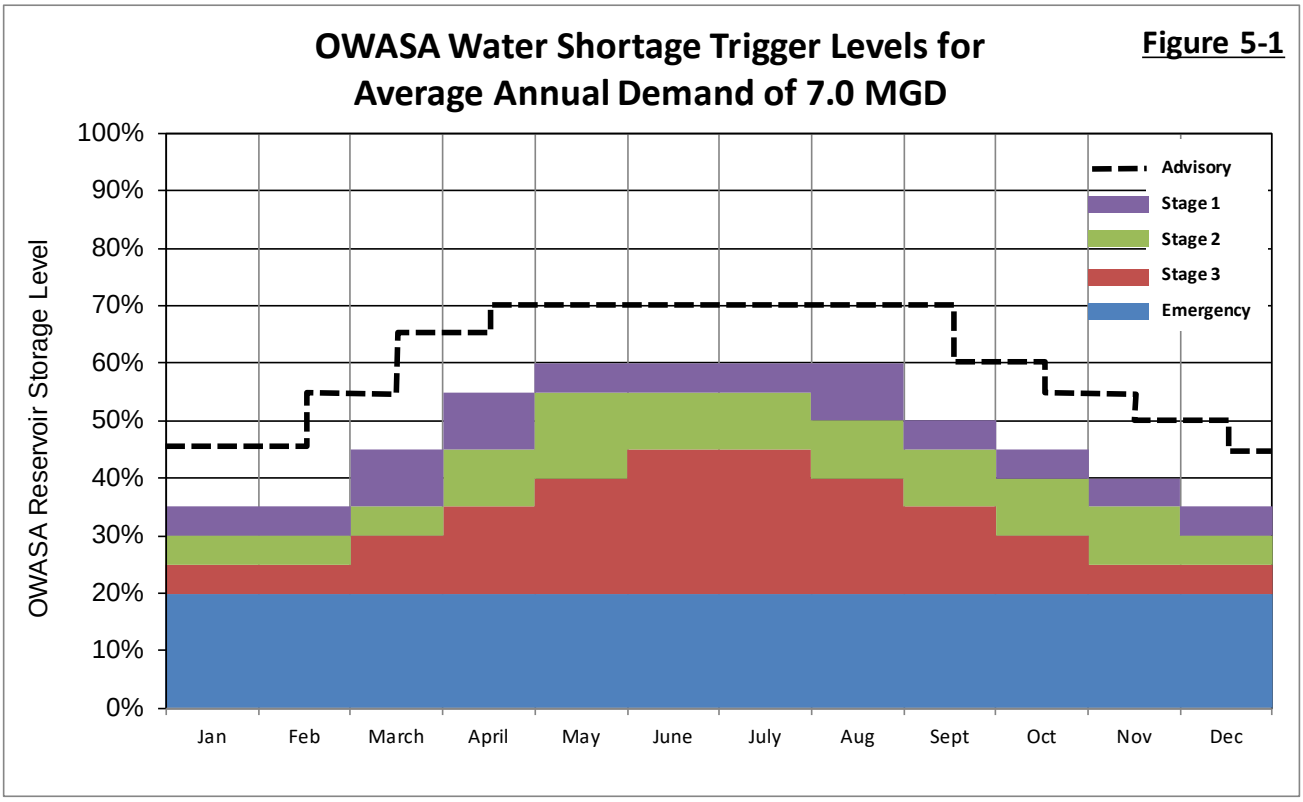
OWASA's Executive Director will declare the appropriate Water Shortage stage (including the Advisory) within five (5) working days after the trigger has been reached (assuming storage remains at or below the applicable level). However, OWASA may declare a Water Shortage or Advisory or implement stages before the specific trigger is reached (sooner than the applicable Figure would indicate) if other factors indicate such an action is appropriate or required upon approval by the Board of Directors.

Staff will provide regular informational reports to the Board and community during extended droughts. Other factors that will be considered when determining whether to declare a Water Shortage or Advisory before a specific trigger is reached include but are not be limited to:

- regional water supply and demand conditions and forecasts;
- likelihood of obtaining raw or finished water from other utilities;
- Drought Advisory issued by the NC Drought Management Advisory Council; and
- long-term weather forecasts.

It is also possible that Water Shortage response stages may not necessarily be implemented sequentially if water supply and/or demand conditions change rapidly.

If and when OWASA determines a Water Shortage stage is in effect, it will clearly explain to its customers and the public the basis for the decision, including the estimated risk that the local water supply could be drawn down to very low levels (at or below 20% of total storage) over the following 12 months.


OWASA Water Shortage Trigger Levels for Average Annual Demand of 7.0 MGD
Figure 5-1
OWASA Reservoir Storage Level
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan
Feb
March
April
May
June
July
Aug
Sept
Oct
Nov
Dec
Advisory
Stage 1
Stage 2
Stage 3
Emergency

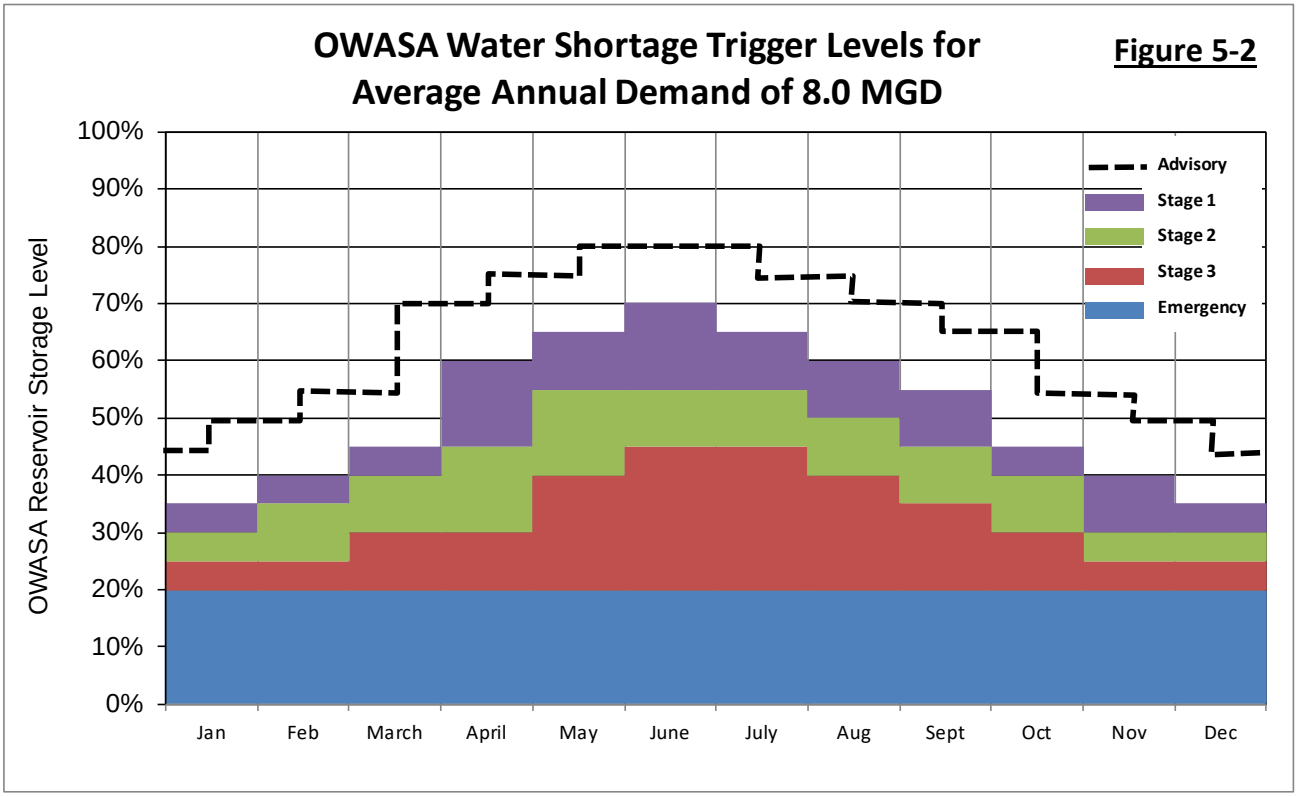

OWASA Water Shortage Trigger Levels for Average Annual Demand of 8.0 MGD
Figure 5-2
OWASA Reservoir Storage Level
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan
Feb
March
April
May
June
July
Aug
Sept
Oct
Nov
Dec
Advisory
Stage 1
Stage 2
Stage 3
Emergency

Figure 5-3

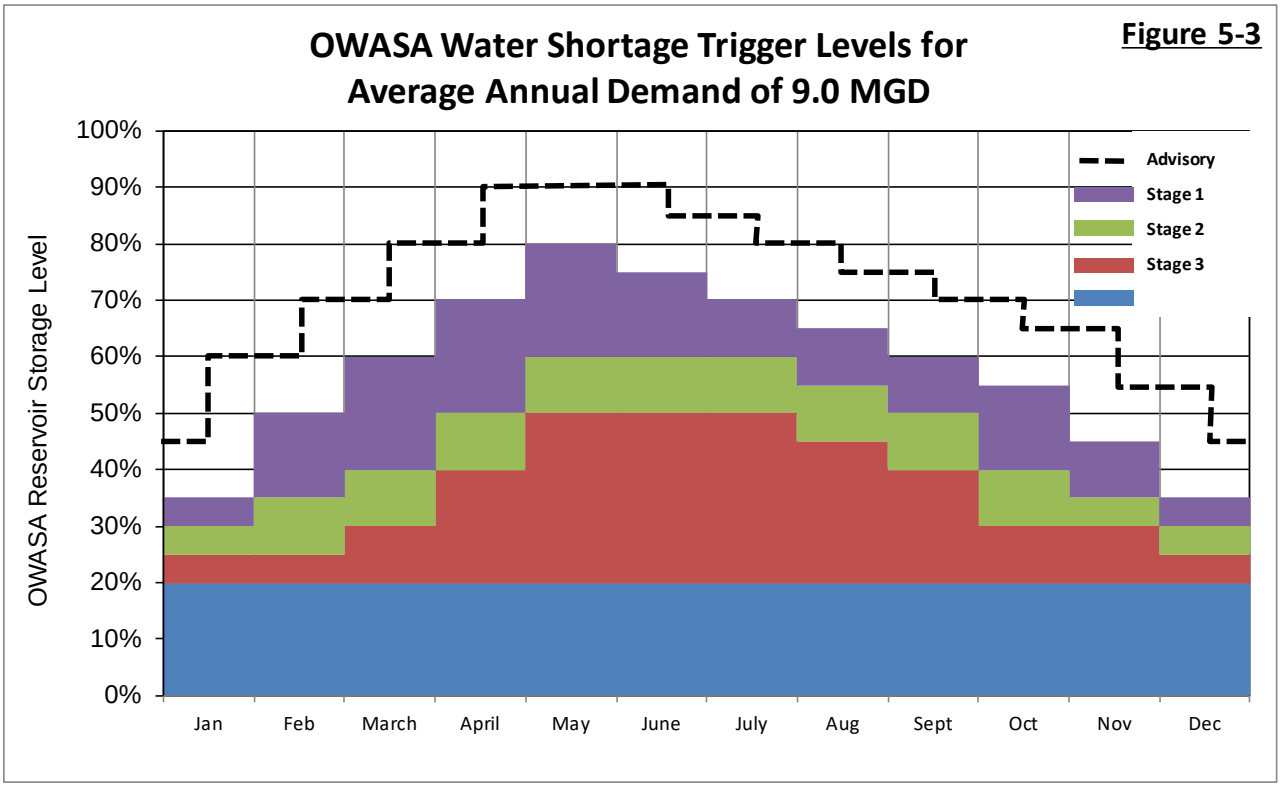
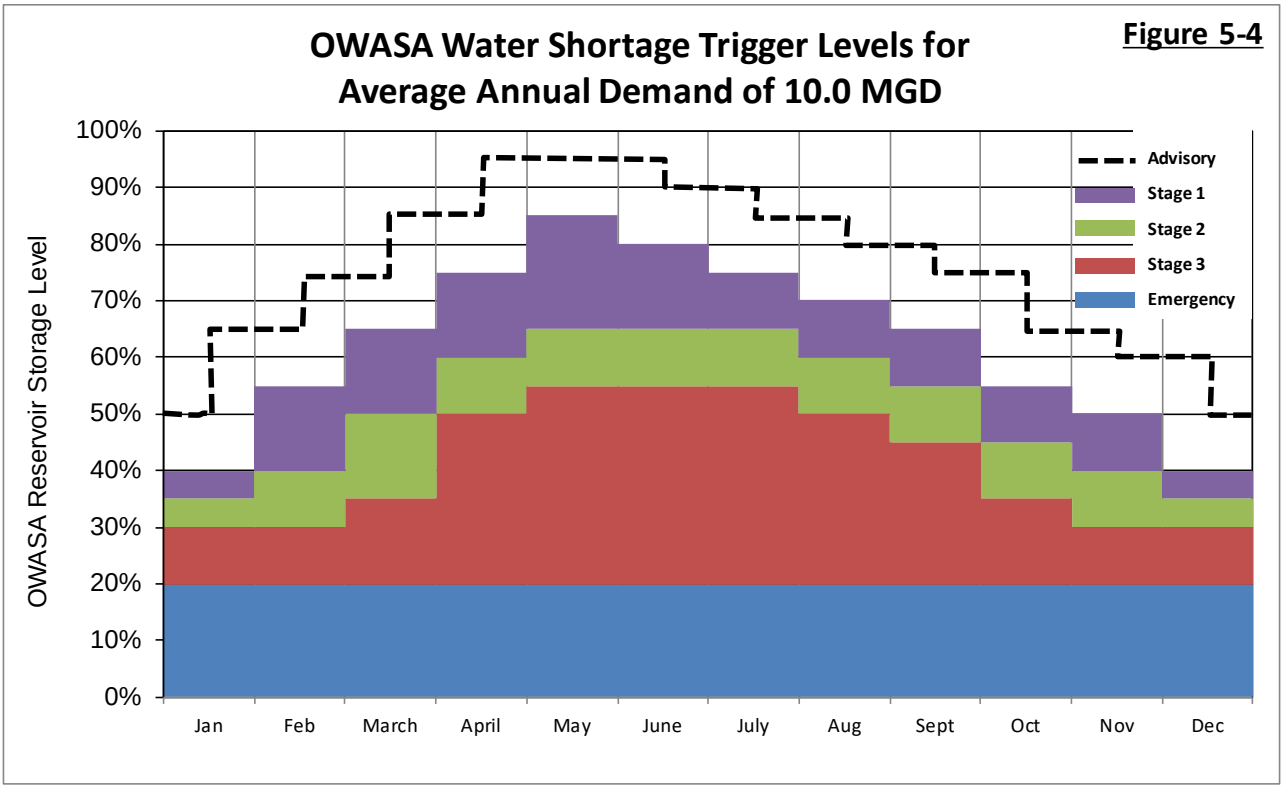


Figure 5-4



Triggers for Rescinding Water Shortage Response Stages During Extended Droughts

For a Water Shortage stage to be rescinded, the water supply storage volume must be at least ten percent (10%) above the specified Water Shortage initiation trigger for the applicable stage. However, OWASA's Executive Director may delay the rescission of a Water Shortage stage depending on water supply and demand conditions, extended weather forecast, regional water supply conditions and outlook, and other factors.

As with initiation, rescission of Water Shortage stages may not always occur sequentially, depending on how quickly supply and/or demand conditions change.

Water Shortage Response Triggers for Operational Emergencies

OWASA may occasionally need to implement mandatory water use restriction to address abnormal operating conditions – other than extended droughts – when current demand cannot be met. Such events include, but are not limited to:

- production problems at the Jones Ferry Road Water Treatment Plant;
- pump, tank, or pipeline failures;
- raw or treated drinking water quality problems;
- planned or unplanned maintenance events; and
- natural disasters.

Operational emergencies are typically characterized by the need for rapid response by OWASA and its customers and may require major curtailment of water use in a short period of time. Non-drought water emergencies are unique because of the potential lack of preparation time and the need for immediate and potentially large-scale demand reductions. Because each emergency scenario is different, no single strategy can meet OWASA's needs during all emergency scenarios.

Thus, OWASA's Executive Director may implement a Water Shortage response stage and associated mandatory water use restriction that he/she deems necessary and appropriate given the nature, extent, and expected duration of the emergency condition. The stage and duration of such a Water Supply Shortage or Emergency shall be guided by the degree to which customer demands approach or exceed OWASA's capacity to meet those demands, and by the degree to which conservation efforts successfully reduce short-term demands.

The Water Shortage response stage initially selected may be quickly modified as operating conditions are further assessed and there is a better understanding of the length of time that may be needed to restore normal operating and/or demand conditions.

SECTION 6.

ENFORCEMENT

OWASA does not have statutory authority to establish water conservation ordinances; therefore, as described in Section 4, it has established Water Conservation Standards applicable to all OWASA customers. The Standards include year-round mandatory water use restrictions as well as a system of increasingly stringent restrictions for different stages of a declared water shortage.

OWASA does not have statutory authority to directly impose civil or criminal penalty provisions for violations of its Conservation Standards. The Standards provide for the temporary disconnection of water service to any customer that repeatedly violates the Standards.

Upon learning of an actual, reported, or suspected violation, OWASA staff will contact the customer by phone, in person, and/or in writing to inform them of:

- ✓ the restrictions in effect;
- ✓ the nature of the actual, reported, or suspected violation;
- ✓ the need for corrective action by the customer; and
- ✓ the potential consequences of continued violations, including temporary disconnection of service for non-compliance with the Standards and the potential for citation by local government law enforcement officers.

In addition to OWASA's authority and approach to enforcing its Standards, the Carrboro, Chapel Hill and Orange County ordinances include civil penalty provisions for violations of their respective conservation ordinances, which, as noted before, are based on the OWASA Standards.

SECTION 7.

PROCEDURES FOR REVIEW OF VARIANCE REQUESTS

OWASA's Water Conservation Standards allow exemptions only for the following water uses during declared Water Shortages:

- ✓ Public purpose athletic fields and public purpose botanical sites are exempt from certain irrigation restrictions provided that an OWASA-approved site-specific Water Conservation Plan is in place.

- ✓ Car washes are exempt from certain restrictions provided that at least 50% of their water has been recycled, is from a non-potable water source, or is supplied from a well.

(Exemptions from water use restrictions do not include exemptions for water rate surcharges.)

Customers may request a variance from the Water Conservation Standards by submitting a letter or e-mail to OWASA's Executive Director (or designee) specifically describing the nature and reason for the requested variance and the customer's specific plan to reduce water use or to maintain a high level of water use efficiency during the declared shortage.

A decision to approve or deny individual variance requests will be provided to the customer within two weeks of receipt of the request, after careful consideration of the following criteria:

- ✓ purpose and necessity for use of drinking water;
- ✓ social and economic importance/hardship imposed by compliance with the Standards;
- ✓ the prevention of structural damage impact;
- ✓ expected duration of the use for which the variance is requested;
- ✓ expected direct and indirect impact on water demands; and
- ✓ practicality of options for alternative water sources.

Required Water Conservation Plans may be submitted at any time and will be reviewed and either approved or denied by OWASA within six weeks of receipt. To be considered for approval, a Water Conservation Plan must include:

1. Estimated amount of water use per day during both an average winter month and an average summer month for various purposes, including drinking water, basic sanitation, process water, irrigation, and other major uses specific to the customer

2. Description of alternate water sources available

3. Description of existing measures or high-efficiency fixtures in place to reduce water use

4. Measures that could be taken during each Water Shortage Response Stage for which a variance is requested in order to meet the percentage reductions in Table 8-1.

5. Description of the impact to the customer (e.g. reduced production, reduction of business hours, employment impacts, structural damage, etc.) of meeting the Table 8-1 water use reduction percentages during each Water Shortage Response Stage for which a variance is requested.

6. Proposed alternative measures to be taken during each Water Shortage Response Stage for which a variance is requested, and the resulting expected percentage reduction in water use for the categories listed in item 1, under both average winter and average summer conditions.

SECTION 8.

EXPECTED AND ACTUAL EFFECTIVENESS OF THIS PLAN

Because OWASA revised its Water Conservation Standards in June 2009 and no drought has occurred subsequent to that date, there is no actual data or experience regarding the effectiveness of these Standards. However, based on customer response to water use restrictions and other measures in place during the 2001-2002 and 2007-2008 droughts, OWASA has the following water use reduction objectives associated with the Water Shortage Response Stages in the Standards:

Table 8-1.

Expected/Targeted Water Use Reductions for OWASA's Water Shortage Stages

Water Shortage Response Stage	Target Reductions Relative to Normal* Water Use
Stage 1	10%
Stage 2	15%
Stage 3	20%
Emergency	To be Determined

* Normal Water Use is the level of customer demands that would be expected to occur during the time of the year that the Water Shortage Response Stage is in effect.

OWASA will periodically evaluate the effectiveness of its Water Shortage response actions through several methods, including but not limited to:

- ✓ comparing actual demand reductions achieved to the objectives of the Water Conservation Standards, as well as demand information for the same period for prior years;
- ✓ monitoring the frequency, severity, and duration of declared Water Shortage conditions;
- ✓ identifying any situations where action should have been taken but was not required under this plan;
- ✓ monitoring the number, type and recurrence of violations of applicable water use restrictions, and any required enforcement actions; and
- ✓ reviewing the inquiries and feedback received from customers during declared Water Shortages.

SECTION 9.

PUBLIC REVIEW AND COMMENT

The core components of this Plan – OWASA's Water Conservation Standards, Water Shortage response stages, and associated water use restrictions – were adopted by OWASA in June 2009 following an extensive public review and comment process that included stakeholder meetings, review and comments from local governments and the Chapel Hill–Carrboro Chamber of Commerce, and a formal public hearing. Notice of the proposed Standards and restrictions was provided in the local newspaper and on OWASA's website. These water conservation standards have not changed since they were adopted in 2009.

Major modifications to the WSRP have not been made since OWASA's initial WSRP was approved in November 2010. Minor modifications were approved by the OWASA Board of Directors through resolution in open meetings in January 2015, June 2018, and December 2020.

The main changes in the 2023 update include:

- References and a link to OWASA's Water Conservation Plan, which was approved by the Board of Directors on September 8, 2022 were made in Section 1.
- A link was provided to the full text of OWASA's Water Conservation Standards in Section 4 of this document and removed from an appendix.
- An appendix with example outreach from the 2007-08 drought was removed as it contained outdated information on OWASA's Water Conservation Standards and water rates.

Other minor modifications were made including updating examples showing current rates, changing the title of Communications and Community Relations Officer to Public Information Officer, updating other references, and minor phrasing changes. The OWASA Board of Directors received this Plan in an open meeting along with the Local Water Supply Plan on July 13, 2023 and approved both by resolution.

SECTION 10.

FUTURE REVIEW AND REVISION OF OWASA'S WSRP

In accordance with State requirements, OWASA will review the local WSRP, and revise it where necessary, as follows:

- ✓ concurrent with the update of OWASA's Local Water Supply Plan as required per NCGS 143-355(l), which occurs a minimum of once every five years;
- ✓ following the rescission of all mandatory water use restrictions that were imposed during an event that required declaration of a Stage 1, Stage 2, Stage 3, or Emergency Water Shortage condition; and/or
- ✓ at any time as deemed necessary to reflect changes in water supply and demand conditions, new information regarding the effectiveness of conservation management practices including the water use restrictions in OWASA's Water Conservation Standards, experience gained with implementation of the plan, and other factors.

Prior to the OWASA Board's final consideration of any proposed major revisions to the WSRP, OWASA will provide its customers and the public an opportunity to review and comment on the proposed revisions. Information about proposed revisions and requests for comments on such proposals will be provided via OWASA's website, e-mail communications, news releases, notices of availability published in the local newspaper, etc. The draft plan will be available at OWASA's main office building and on our website (www.owasa.org) for public review.

The Executive Director (or designee) will be responsible for initiating all major WSRP updates, and for ensuring that OWASA customers and the public have the opportunity to comment on the plan and any proposed changes prior to final approval by the OWASA Board of Directors.

APPENDIX A

RESOLUTION APPROVING OWASA'S WATER SHORTAGE RESPONSE PLAN

Resolution Approving Orange Water and Sewer Authority's 2022 Local Water Supply Plan and Revised Water Shortage Response Plan as Approved by the NC Department of Environmental Quality, Division of Water Resources

Whereas, North Carolina General Statute (NCGS) 143-355(1) requires that each unit of local government that provides public water services to develop a Local Water Supply Plan, and that such Plan be revised at least once every five years; and

Whereas, NCGS 143-355(l) also requires each such unit of local government to develop a Water Shortage Response Plan for incorporation into its Local Water Supply Plan; and

Whereas, in March 2023 Orange Water and Sewer Authority (OWASA) staff submitted a draft 2022 Local Water Supply Plan to the Department of Environmental Quality, Division of Water Resources (DWR) for its review and approval, in accordance with NCGS 143-355(l); and

Whereas, on May 17, 2023 DWR approved OWASA's 2022 Local Water Supply Plan; and

Whereas, the 2022 Local Water Supply Plan must be approved and adopted by the OWASA Board of Directors after DWR approval in order to be compliant with NCGS 143-355(1); and

Whereas, OWASA in accordance with NCGS 143-355(l) developed its initial Water Shortage Response Plan in November 2010 and revised it in January 2015, June 2018, and December 2020; and,

Whereas, DWR and OWASA desire to update and obtain approvals for its Water Shortage Response Plan on the same schedule of five-year renewals as that exercised for obtaining updates and approvals for its Local Water Supply Plan, and accordingly, has updated and requested approval of its Water Shortage Response Plan; and

Whereas, DWR approved OWASA's update of its Water Shortage Response Plan May 17, 2023;

Now, Therefore, Be It Resolved By the Orange Water and Sewer Authority Board of Directors That:

1. OWASA's 2022 Local Water Supply Plan as approved by DWR in May 2023, is hereby approved and adopted for the purposes of NCGS 143-355(l), and the OWASA Board intends and directs that this plan should be revised to reflect changes in relevant data and projections at least once every five years or as otherwise requested by DWR, in accordance with the statute and sound planning practice; and,

2. OWASA's Water Shortage Response Plan as approved by DWR in May 2023 is hereby approved and adopted for the purposes of NCGS 143-355(l), and the OWASA Board of Directors intends and directs that this plan shall be reviewed and revised as needed, which will be at least

once every five years; or otherwise as requested by DWR, in accordance with the statute and sound planning practice.

Adopted this 13th day of July 2023.

Bruce Boehm, Chair

ATTEST:

Elmira Mangum, PhD, Secretary