

# **WATER SHORTAGE RESPONSE PLAN**

City of Burlington, NC

January 1, 2013

## **PURPOSE**

It is the purpose and intent of this document to assure that available water resources are put to reasonable beneficial uses to avoid depletion of the City water supply during a water shortage. This plan shall be liberally construed to effectuate such purpose and intent. This plan shall satisfy the requirements to develop and approve a Water Shortage Response Plan as required by the NC Division of Water Resources.

## **BACKGROUND**

The City of Burlington owns three water supply reservoirs with over 10,700 million gallons of water storage. In 2008 ARCADIS G&M of North Carolina, Inc. performed a reservoir analysis of Lakes Cammack and Mackintosh. Under normal precipitation and usage the combined 20-year safe yield of our lakes is approximately 53 million gallons per day (MGD) and the 50-year safe yield is approximately 50 MGD.

## **AUTHORITY**

The Water Shortage Response Plan recognizes the authority of the City of Burlington to declare a water shortage emergency (Chapter 37 “Water and Sewers” of the City of Burlington Code of Ordinances), and the authority of the highest city official (Mayor, Mayor-Pro-tem, Manager, etc.) available as able to declare a water shortage emergency. Such declaration will be made upon the recommendation of the Water Resources Director to the City Manager.

Declaration of a water shortage emergency will be announced based on the time-sensitive nature of the problem. Drought related shortages will be announced in open session of the Burlington City Council, in local newspapers, and on the official City website. The City will also use bill stuffers and postings within the Municipal Building to inform the public of the severity of the shortage and the required measures. The Code of Ordinances and this Water Shortage Response Plan will serve as a guide for responding to these situations.

Shortages that develop more quickly (equipment failures, piping failures, process failures, contamination) may be announced using radio, website, and television media. The City’s Public Information Officer will coordinate with the Mayor, Manager, or other officials to make sure that these announcements are made in a timely manner. Measures enacted will be based on the severity of the event.

## **PUBLIC COMMENT**

Public input and review is encouraged as part of the adoption process for revisions to the relevant ordinance by the City Council. At other times the public may address concerns or grievances as outlined in the Code of Ordinances. The finalized Water Shortage Response Plan will be considered in open session of the City of

Burlington's City Council. The plan will be available for review prior to the meeting and public input will be considered.

#### PLAN REVIEW

The Water Shortage Response Plan is considered part of the local water supply planning process and will be reviewed at a minimum of every five (5) years during preparation of the Local Water Supply Plan. The Water Shortage Response Plan can be reviewed more frequently. Examples of when the plan might be reviewed are when there is an actual water shortage situation or when there are significant changes to the water supply, treatment, and distribution network. The Water Resources Department will be responsible for reviewing the plan and communicating necessary modifications to the City Manager for consideration by the City Council.

DEFINITIONS. The following terms, phrases, words and their derivation shall have the meaning given herein. The word "shall" is always mandatory and never discretionary.

(1) *City*: The term "City" means the City of Burlington, a North Carolina municipal corporation.

(2) *Customer*: The term "customer" refers to any person who is an owner, occupant, or user of real property to which water is supplied by the City. The term shall also refer to any person who uses water supplied by the City, or to any person who is billed for the supply of water from the City, or to any person who is responsible for or otherwise has the right or permission to utilize the supply of water provided by the City.

(3) *Person*: The term "person" means any natural person, any group of persons, any firm, partnership, association, corporation, company, or any other organization or entity.

(4) *Raw water*: The term "raw water" refers to water impounded in a City-owned reservoir or conveyed through pumps and pipes to a City-owned water treatment facility for further treatment to make potable water.

(5) *Water*: The term "water" refers to all water, except wastewater, supplied by the City to any customer.

(6) *Water shortage*: A "water shortage" shall be deemed to exist when the ordinary demands and requirements of water customers served by the City cannot be satisfied without depleting the water supply to or below a critical level, the level at which the continued availability of water for human consumption, sanitation and fire protection is jeopardized.

(7) *Well water or private water*: Water from sources other than the City water system. This can include groundwater from private wells, captured rainwater, or recycled water.

RESPONSE TO WATER SHORTAGE. It shall be the duty of the Water Resources Director to report to the City Manager conditions adversely affecting the City water supply. The Manager shall review all relevant and available information, and if deemed necessary, shall recommend that the City Council declare water conservation

measures contained herein be in full force and effect as necessary. Conditions to be considered include abnormally dry weather conditions, lake water levels below normal for the season, forecasts for persistent drought, failure of treatment processes, piping or equipment, excessive water demand compared to treatment or storage capacity, contamination of supplies, declarations by the Governor of North Carolina, or a combination of these factors. If there is a time sensitive emergency (system failure) the highest-ranking official available shall declare a water emergency and require appropriate water conservation measures.

A study titled “Reservoir Analysis: Lakes Mackintosh and Cammack” performed by ARCADIS Engineering (March 2008) will be used to determine the relationship between reservoir water level and remaining water supply storage.

USE OF RAW WATER. It shall be unlawful for any person to remove water from City-owned reservoirs for any reason. The City of Burlington shall have sole access to the water for purposes of treatment or other official City needs.

WATER CONSERVATION RATES. In the event of a prolonged drought with worsening consequences, it shall be at the discretion of the City Manager to propose an adjustment to the water rates to help promote water conservation. The water conservation rate can be used to address residential, commercial and / or industrial water consumption by increasing the cost per unit volume according to a published rate schedule. The City Manager shall recommend as necessary the adoption of water conservation rates by the City Council.

#### EFFECTIVENESS

The City’s response to water shortages shall follow the restrictions related to the following stages of severity. During a water shortage event, the volume of treated water pumped to the distribution system will be monitored to assess the effectiveness of the conservation measures. Because of daily variability in water use, thirty (30) day trend charts will be used as an assessment tool. Water usage and capacity will be tracked to assess the effectiveness of conservation measures and to evaluate the need for more stringent measures.

#### PROGRESSIVE RESPONSE

In response to the various types of water shortages, the stages spelled out below present the types of restrictions commensurate to the degree of severity. These stages are considered the minimum response actions and will be implemented as the trigger conditions occur. The City Council may choose to enact more stringent measures not enumerated in this document or the Code of Ordinances.

(1) ***Continuing voluntary conservation practices, ongoing.***

Customers shall be encouraged to observe water conservation measures to reduce the wasting of water as follows:

- (a) Check plumbing and toilets for leaks annually, and if necessary, repair.
- (b) Repair leaking faucets whenever they develop.
- (c) Store drinking water in the refrigerator to avoid trying to run it cool at the tap.
- (d) Use shower for bathing or reduce the depth of water used for tub baths. Limit showers to four (4) minutes where possible.
- (e) Refrain from running faucets while shaving or rinsing dishes or brushing teeth.
- (f) Install water flow restrictive devices in shower heads.
- (g) Install water-saving devices such as plastic bottles or commercial units in toilet tanks.
- (h) Wash full loads in clothes washers and dishwashers.
- (i) Review water uses and where feasible install recycle systems, particularly commercial and industrial customers.

(2) **Stage I - Voluntary conservation, water alert.**

Customers shall be encouraged to observe the recommendations for ongoing conservation practices and to increase the level of the conservation effort as follows:

- (a) Limit the use of clothes washers and dishwashers, and when used, to operate fully loaded.
- (b) Reduce the flushing of toilets to the minimum whenever practical.
- (c) Limit lawn watering to only when grass shows signs of withering and apply water as slowly as possible to achieve deep penetration.
- (d) Limit shrubbery watering to the minimum reusing household water when possible.
- (e) Limit car washing to the minimum. Use a hose with a nozzle to control water flow and minimize waste.
- (f) Limit wash downs of outside areas such as sidewalks, patios, driveways, or other similar purposes.
- (g) Limit hours of operation of water-cooled air-conditioners if possible.
- (h) Use disposable dishes and utensils, both for residential and commercial purposes, where feasible.

Stage I Voluntary conservation measures will be implemented when all of the following conditions are observed:

<u>Season</u>	<u>Cammack Drawdown, (In.)</u>	<u>AND</u>	<u>Mackintosh Drawdown (In.)</u>
Mar 1 – Aug 31	26”	AND	23”
Sept 1 – Feb 28 (29)	41”	AND	46”

(3) **Stage II - Moderate mandatory conservation, established drought.**

Customers shall be encouraged to observe the recommendations of the continuing voluntary conservation and Stage I Voluntary conservation, and the level of the

conservation effort shall be increased to require the following mandatory measures. No person shall:

- (a) Water lawns, grass, trees, shrubbery, flowers, golf greens or vegetable gardens except between 4:00 P.M. - 9:00 PM on Wednesday and 7:00 AM - 12:00 noon on Saturday. The use of well water or private water is the only exception to this rule.
- (b) Introduce water into wading pools or swimming pools except to the extent necessary to replenish losses due to evaporation or spillage, and maintain operation of chemical feed equipment.
- (c) Use water to wash down outside areas such as sidewalks, patios, driveways, or for other similar purposes.
- (d) Introduce water into any decorative fountain, pool or pond except where the water is recycled.
- (e) Serve water in a restaurant or similar establishment except upon request.
- (f) Use water for any unnecessary purpose or intentionally waste water.
- (g) Wash the exterior of a motor vehicle or boat (travel or camping trailers) except where fifty (50%) percent or more of the water is recycled, or where a well or private water system is used.
- (h) Golf courses and institutions owning athletic fields (including artificial surfaces) shall be required to reduce water usage by fifty (50%) per cent with watering only permitted between the hours of 10:00 PM and 5:00 AM.

Provided, however, any customer may secure a written license from the City Manager or his designee to use water contrary to the Stage II mandatory conservations measures where it can be shown to the Manager's satisfaction that use of water pursuant to conditions prescribed by the City Manager in the license will result in a 30% or greater saving of water. Any license issued pursuant to this provision: (1) must be in the possession of the licensee whenever water is used contrary to the Stage II mandatory conservations measures; and (2) is subject to amendment or revocation by the City Manager at any time for good cause. Businesses with a privilege license for the City of Burlington that use water to maintain their businesses may continue to operate under Stage II.

Stage II Moderate mandatory conservation measures will be implemented when all of the following conditions are observed:

<u>Season</u>	<u>Cammack Drawdown, (In.)</u>		<u>Mackintosh Drawdown (In.)</u>
Mar 1 – Aug 31	41”	AND	34”
Sept 1 – Feb 28 (29)	57”	AND	56”

**(4) Stage III - Severe mandatory conservation, prolonged drought.**

Customers shall be encouraged to observe the recommendations of the continuing voluntary conservation and Stage I Voluntary conservation measures and required to continue observing the mandatory requirements in Stage II. The level of the

conservation effort shall increase to require the following additional mandatory measures.

- a. No person shall:
  1. Water lawns, grass, trees, shrubbery, flowers, golf greens or vegetable gardens except by hand-held hose (with shut-off nozzle), container, or drip irrigation system during the hours of 4:00 P.M. - 9:00 PM on Wednesday and 7:00 AM - 12:00 noon on Saturday. No automatic sprinkler system or un-attended watering shall be allowed. The use of well water or private water is the only exception to this rule.
  2. Fill a wading pool or swimming pool or replenish any filled pool except to the minimum essential for operation of chemical feed equipment.
  3. Make non-essential use of water for commercial or public use.
  4. Operate water-cooled air conditioners or equipment that do not recycle cooling water, except when health and safety are adversely affected.
  
- b. Request industry reduce consumption by ten (10%) per cent.

Stage III Severe mandatory conservation measures will be implemented when all of the following conditions are observed:

<u>Season</u>	<u>Cammack Drawdown, (In.)</u>		<u>Mackintosh Drawdown (In.)</u>
Mar 1 – Aug 31	49”	AND	56”
Sept 1 – Feb 28 (29)	66”	AND	76”

(5) ***Stage IV - Stringent mandatory conservation, severe water loss.***

Customers shall be encouraged to observe the recommendations of the continuing voluntary conservation and Stage I Voluntary conservation measures and required to continue observing the mandatory requirements in Stages II and III. The level of the conservation effort shall increase to require the following additional mandatory measures:

- a. No person shall:
  1. Use water outside a structure except in an emergency involving a fire.
  2. Operate evaporative air conditioning units, which recycle water except during the operating hours of the business.
  3. Use water to fill or refill any swimming pool or wading pool.
  4. Wash any motor vehicle, including commercial washing unless a private well is used.
  
- b. Request industry reduce consumption an additional twenty-five (25%) percent. Industries must submit water conservation plans for City review.

In addition to the conservation measures enumerated above customers of eating establishments shall use plates, cups and eating utensils that are disposable.

Stage IV Stringent mandatory conservation measures will be implemented when all of the following conditions are observed:

<u>Season</u>	<u>Cammack Drawdown, (In.)</u>		<u>Mackintosh Drawdown (In.)</u>
Mar 1 – Aug 31	66”	AND	76”
Sept 1 – Feb 28 (29)	84”	AND	103”

**(6) Stage V - Rationing.**

Customers shall be encouraged to observe the recommendations of the continuing voluntary conservation and Stage I Voluntary conservation measures and required to continue observing the mandatory requirements of Stages II, III, and IV. The level of the conservation effort shall increase to require the following mandatory measures:

- a. Fire protection will be maintained, but where possible, tank trucks shall use raw water.
- b. All industrial uses of water shall be prohibited, with the exception of water for domestic sanitation purposes.
- c. All other uses of water will be limited to those necessary to meet minimum health and safety needs of the customers as determined by the City Manager upon consultation with the Water Resources Director in light of conditions present.

Failure to act in accordance therewith or use of water in any manner or attempt to evade or avoid water-rationing restrictions, shall be unlawful.

Stage V Rationing measures will be implemented will be implemented when all of the following conditions are observed:

<u>Season</u>	<u>Cammack Drawdown, (In.)</u>		<u>Mackintosh Drawdown (In.)</u>
Mar 1 – Aug 31	84”	AND	103”
Sept 1 – Feb 28 (29)	112”	AND	139”

**SCOPE AND DURATION:** In the event that the City Council shall declare one (1) or more stages of water conservation to be in effect, said proclamation shall be applicable to all persons using water supplied by the City. Continuing voluntary conservation practices of the water conservation measures shall remain in full force and effect at all times or until such time as this article is amended or repealed. Whenever Stages I, II, III, IV, and V of the water conservation measures are declared, they shall remain in full force and effect until such time as this article be amended or

repealed, or until the Mayor (or his designee) by proclamation declares that the particular stage of the water shortage is over and the measures applicable to it are no longer in effect. Repeal of any stage of mandatory water restrictions shall become effective 30 days following the Mayor's proclamation and ratification of such action by the City Council. Measures in response to shortages caused by equipment, piping, process failure, or contamination may be repealed immediately upon resolution.

## VARIANCE

Requirements for Variances.

Persons who wish to use water under circumstances or during times when the water use activity would otherwise be prohibited by this ordinance must obtain a variance from the City Manager.

The variance procedure shall be as follows:

- a. All variance requests must be made to the City Manager who will determine if there are practical hardships that prevent compliance with the current level of water use restrictions.
- b. The applicant must demonstrate that the general intent of the Water Shortage response measures is met, compliance is proven to cause practical difficulties and unnecessary hardship, and all reasonable options for abatement through modified water management have been exhausted.
- c. The applicant must state the estimated volume of water per day for which the variance is being requested.

The criteria used to consider a variance requests

- a. The criteria to determine hardship shall include but not be limited to the level of capital outlay and time required to achieve compliance.
- b. The decision to approve or deny a variance requests will be based upon consideration of criteria including but not limited to: impact on water demand, expected duration of water shortage, alternative source options, social and economic importance, purpose of water use, and the prevention of structural damage.

Duration of Variance

- c. Variances may be issued for a time-limited period and may stipulate both short-term corrective measures and a schedule for completion of long-term corrective measures. Variances may be renewed by the City Manager if good cause is shown.
- d. All variances will be considered permissive and subject to revocation at any time and without notice if it has been determined that:
  - I. Water use is inconsistent with the use established in the variance request
  - II. Actual water volume exceeds the volume established in the variance request
  - III. Conditions have developed that were not considered when the variance was approved



EFFECT OF INVALIDITY. Should any section or provision of this plan be declared by the courts to be unconstitutional or invalid such decision shall not affect the validity of this plan as a whole or any part other than the part so held unconstitutional or invalid.

VIOLATION PROHIBITED; ENFORCEMENT.

VIOLATION. In the event that the City Council shall declare one (1) or more stages of water conservation as set forth herein, it shall be unlawful for any person to use or permit use of water supplied by the City in violation of any mandatory restrictions instituted. Records of violations shall be maintained and carried forward to be used for imposition of penalties and fines against violators in subsequent stages as long as mandatory restrictions remain in effect.

ENFORCEMENT. It shall be the duty of the Water Resources Director to investigate violations of the mandatory restrictions and issue orders consistent with the purpose and intent of this article. All customers shall cease any violation of the mandatory restrictions upon the order of the Water Resources Director. Any customer who violates any provision of this article, or who shall violate or fail to comply with any order made hereunder shall be subject to penalty or a combination of the penalties as follows:

ASSESSMENT OF FINES OR OTHER FEES FOR VIOLATION OF MANDATORY RESTRICTIONS. The City Manager shall recommend fines and fees for violations of mandatory restrictions and these fines and fees shall be approved by the City Council. The schedule of fines and fees shall be announced.

DISCONTINUANCE OF SERVICE. The City may discontinue water service to any structure(s) or parcel(s) when the City Manager upon recommendation of the Water Resources Director gives written notice of any violation of mandatory restrictions and intent to discontinue service. Water service shall be discontinued within twenty-four (24) hours notice of any such violation unless the violation shall cease voluntarily.

When service is discontinued pursuant to the provisions of this section, service shall not be re-instituted unless and until the City Manager upon recommendation of the Water Resources Director determines that the risk to the City water supply has been alleviated.

The customers shall have a right of appeal to the city council, upon serving written notice of appeal on the City Manager within five (5) days after receiving notice of any violation and intent to discontinue service. The appellant will be notified by the City Manager of the time and place for the hearing of the appeal. The City Council shall act on the appeal as expeditiously as possible and shall notify the appellant in writing not later than two (2) days after the final decision.

EQUITABLE RELIEF. The provisions of this plan may be enforced by an appropriate remedy, including a mandatory or prohibitory injunction, issuing from a court of competent jurisdiction.

PENALTY NOT A SUBSTITUTE REMEDY. The imposition of one or more penalties for any violation shall not excuse any violation or permit it to continue.

PENALTIES. For the first offense, violators will be issued a warning. For the second violation of this ordinance a civil penalty in the amount of \$100.00 shall be assessed. For the third violation of this ordinance a civil penalty in the amount of \$250.00 shall be assessed. The fourth violation of the provisions of this plan shall result in interruption of water service to the offending customer. The City will issue written notification to the customer and occupant of intent to interrupt water service and twenty-four (24) hours later will interrupt water service unless the violation has ceased. Each day shall constitute a separate violation. If water service has been interrupted due to repeat violation of this plan, service will not be re-instated until the Utilities Director has determined that the risk to the city water supply has been alleviated or the Utilities Director is otherwise assured of compliance. Violation of this plan or the water conservation section of the City's ordinances may be punished by any of the means available to the city through the provisions of N.C.G.S. 160A-175.