



WATER SHORTAGE

Response Plan



ABSTRACT

Procedures to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demand for potable water. (15A NCAC 02E.607)

Jim Sells

Emergency Planner

Approved by the Town of Mount Pleasant Board of Commissioners on April 8, 2024.

Mayor Tony Lapish

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SYSTEM INFORMATION

System Name: Town of Mount Pleasant, North Carolina

PWSID: 01-13-020

Date: October 2023

Directions to the WTP: The Mount Pleasant Water Treatment Plant is located at a latitude of 35°23'43.37"N and a longitude of 80°25'51.97"W with a physical address of 8696 Foil Street, Mount Pleasant, NC 28124.

This plan and the procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

PURPOSE

The Water Shortage Response Plan (WSRP) provides guidelines for the Town of Mount Pleasant Water Resources to manage water supply and demand in the event of a water shortage. The plan enables the Town to maintain essential public health and safety and minimize adverse impacts on economic activity, environmental resources and the Town's water use preferences. Water shortages could result from forecasted, progressive events such as droughts, as well as immediate crisis such as system failure like a major infrastructure break.

AUTHORIZATION

As documented in Section 5-1.19 of the Town of Mount Pleasant Code of Ordinances, the Town Manager has the authority to and shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section 5-1.9 are met. In his or her absence, the Water Resources Director will assume this role.

Town Manager
Mr. Randy Holloway
(704)436-9803
hollowayr@mtpleasantnc.us

8690 Park Drive
P.O. Box 787
Mount Pleasant, NC 28124

Water Treatment Plant Director
Trent Christenbury
(704)782-3112
christenburyt@mtpleasantnc.us

P.O. Box 787
Mount Pleasant, NC 28124

This plan replaces the “The Safe Yield Update and Regional Drought Operations Plan, January 23, 2004” as developed by Black and Veatch for the Water and Sewer Authority of Cabarrus County. Since July 1, 2017, Mount Pleasant has purchased and assumed operations of its Water Treatment Facility.

SITUATION

Mount Pleasant water resources provides for a continuous, sustainable water supply, which can be delivered to customers at a reasonable cost. The system consists of renewable surface water supply and ground water wells.

Surface Water Sources

Surface water enters the reservoir through Black Run Creek. Surface water is then stored in the Black Run Creek reservoir and is delivered to the Town of Mount Pleasant’s Water Treatment Plant through natural flow of Dutch Buffalo Creek. The Town has an estimated 22 miles of distribution system lines with 138 meters and a finished water storage capacity of .8000 million gallons.

Stream	Reservoir	Average Daily Withdrawal		Maximum Day Withdrawal (MGD)	Available Raw Water Supply		Usable On-Stream Raw Water Supply Storage (MG)
		MGD	Days Used		MGD	* Qualifier	
Black Run Creek	Black Run Creek	0.0000	0	0.0000	0.0000	SY20	370.0000
Dutch Buffalo Creek	N/A	0.2810	291	0.5410	1.5000	F	2.0000

Stream	Reservoir	Drainage Area (sq mi)	Metered?	Sub-Basin	County	Use Type
Black Run Creek	Black Run Creek Reservoir	7	No	Rocky River (18-4)	Cabarrus	Emergency
Dutch Buffalo Creek		35	Yes	Rocky River (18-4)	Cabarrus	Regular

Wells

Mount Pleasant’s water supply also consists of an allocation of ground water pumped from wells owned by the Town.

Name or Number	Well Depth (Feet)	Casing Depth (Feet)	Well Diameter (Inches)	12-Hr Supply (MGD)
1	445	164	6	0.0125

2	453	75	6	0.0108
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Water Purchased from Other Systems

Seller	Average Daily Purchased (MGD)	Days Used	Contract			Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
			MGD	Expiration	Recurring			
City of Concord	0.0002	11	0.2000	2018	Yes	Yes	12	Emergency

Water Treatment Plants

Plant Name	Permitted Capacity (MGD)	Is Raw Water Metered?	Is Finished Water Output Metered?	Source
Town of Mt. Pleasant Water Treatment Plant	1.0000	No	Yes	Black Run Ck. Reservoir, Dutch Buffalo Ck, Well #1&2

Water Use by Type

Type of Use	Metered Connections	Metered Average Use (MGD)	Non-Metered Connections
Residential	1,073	0.1240	0
Commercial	24	0.0190	7
Industrial	6	0.0090	0
Institutional	6	0.0130	1

Emergency Connection

An emergency connection with the City of Concord Water Utilities is provided through a 12-inch connection.

Types of Droughts

Drought Classification Definitions

Meteorological Drought	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
Hydrological Drought	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.

Agricultural Drought	Soil moisture deficiencies relative to water demands of plant life, usually crops.
Socioeconomic Drought	The effect of demands for water exceeding the supply as a result of a weather related supply shortfall.

Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

Droughts are the most common reason this WSRP would be implemented. Droughts are naturally occurring, unpredictable weather events of varying frequency, duration, and severity. The area served by the Mount Pleasant water supply system has experienced several short-term and long-term droughts. Available data indicate a very low probability of a multi-year drought. During the summer, water resource levels decrease because water use outstrips replenishment from rain. During the fall, their levels increase as water use decreases and fall rains return. Drought affects this cycle and can cause water shortages. The types of droughts that affect the Piedmont regional water supply systems range from dry hot summers, to delayed onset of rains in the fall. Since the nature of these droughts varies, the Town’s response will also vary. Examples of past drought events are provided in Appendix C.

ASSUMPTIONS

- Drought is a natural occurring weather event
- Drought reduces the amount of water available for agriculture, municipalities, industry, commerce, tourism, fire suppression and wildlife.
- The local farming community may become severely affected, including reduction in crops and the availability of pastureland to support livestock without supplemental feed.
- Impacts from severe drought have occurred across the State resulting in significant effects.
- As vegetation becomes dry an enhanced risk of wildfires can occur. Major wildland fires can cause a strain on firefighting resources. The North Carolina Forrest Service will ban open burning when there is an increase fire weather risk.
- Long term droughts can result in reduced revenue for the Town and the regional impact on the economy.
- Less impactful water shortages may require only partial activation of this plan.

CONCEPT OF OPERATIONS

NOTIFICATION

The following notification methods will be used to inform both Town water system employees and customers (citizens and wholesale customers under contract, if applicable) of a water shortage declaration:

- Use of Alert Cabarrus, an automated telephone notification system which can be used to contact all customers or selected customers as needed in instances such as a water system failure in a particular area of the Town,
- notice posted on City’s website homepage,
- Social Media, use of employee email system and
- Issuing press releases.
- Notices posted in public locations such as Town Hall.

Water resource customers will be provided several opportunities to comment on the provisions of the new WSRP. First the draft plan will be available for customers to view at Town Hall, located at 8590 Park Drive,

Mount Pleasant, NC 28124. In addition, the same draft plan will be published on the Town’s website (www.mtpleasantnc.org), and a notice of the plan’s availability will be in the local newspaper (Independent Tribune) and social media at least thirty (30) days prior to an adoption by Town Council.

LEVELS OF RESPONSE

The Drought Response Plan is broken into five levels (*Table 1*). These drought levels and implementation of their associated actions would also apply in another water shortage situation, such as water quality, contamination, or equipment failure situation. These levels, and associated water reduction measures, are further defined in the [Section 5-1.18](#), Water Emergency Management of the Code of Ordinances. Prior to the development of this plan, Mount Pleasant received water treatment from the Water and Sewer Authority of Cabarrus County. This is reflected in the current submitted plan entitled “The Safe Yield Update and Regional Drought Operations Plan, January 23, 2004” as developed by Black and Veatch for the Water and Sewer Authority of Cabarrus County.

Level 0 is unrestricted water use. In Level 1, also considered a water conservation stage, there is unrestricted water use; however, the Town encourages voluntary water conservation and does public education in support of the voluntary conservation. A tiered residential rate structure to discourage excessive water use was in place during that baseline timeframe.

Table 1 - Drought Stages

Drought Level	Level Name	Reduction Goal
0	Drought Planning	Conservation
1	Drought Watch	Voluntary 3 – 5% use reduction
2	Drought Warning	Mandatory 5 – 10% use reduction
3	Drought Emergency Level I	Mandatory 10 – 20% use reduction
4	Drought Emergency Level II	Mandatory 20 - 30% reduction

Note: These stages would also apply in any water situation

TRIGGERS

Triggers developed for the Town’s Water Shortage Response Plan are the same as those identified in Section 5-1.19 Water Emergency Management section of the Town Ordinances. The Town will implement its plan when one of the three (3) trigger points or reached or if statewide requirements are implemented under the Water Use During Drought and Water Supply Emergencies section of 15A NCAC 02.E.0600, when a drought stage declaration is made by the North Carolina Drought Management Advisory Council (NCDMAC). Therefore, four sets of trigger points are applicable to the Town. Further, if a state of emergency related to water supply is declared by the Town Mayor, an emergency action plan and vulnerability assessment will trigger these staged responses.

TABLE 2: Triggers

Level	Triggers	Reduction goal	Stage
0	Day to day conservation operations	-	Advisory
1	Usable raw water storage level at Black Run Creek Reservoir is less than eighty (80) percent of full capacity.	3 – 5%	Voluntary
2	Usable raw water storage level at Black Run Creek Reservoir is less than sixty (60) percent of full capacity	5 – 10%	Mandatory

Level	Triggers	Reduction goal	Stage
3	Usable raw water storage level at Black Run Creek Reservoir is less than forty (40) percent of full capacity.	10 – 20%	Mandatory
4	Usable raw water storage level at Black Run Creek Reservoir is less than twenty-five (25) percent of full capacity.	20 – 30%	Emergency

NC Drought Management Advisory Council

Drought level designation by the NC Drought Management Advisory Council is also a trigger mechanism for this WSRP and will be followed.

Easing Triggers as Conditions Improve

As drought conditions improve and the triggers described above are eased over time, the Town would ease its stages of water conservation in reverse order.

ENFORCEMENT

Water use violations can be reported to the Town by a variety of means. The most common means will be through customer complaints. Also, Town staff has the responsibility to report violations they observe during daily operations.

The following is a list of actions that can be taken by the Town upon customers who do not adhere to the water restrictions outlined above and in Section 5-1.19, Water Emergency of the Town ordinance.

Enforcement actions include:

1. Penalties. Any person violating the mandatory provisions of this section shall be issued a civil citation pursuant to section 1-1005 and a penalty not to exceed \$100.00 for residential customers and \$500.00 for commercial industrial users. Each occurrence of a violation of this section shall be considered a separate violation.
2. Discontinuance of service. Pursuant to the provisions of N.C.G.S. 162A-88 and this section, water service may be temporarily discontinued for willful disregard of this section. All applicable penalty fees may be applied in the event of service suspension. In the event of continued gross noncompliance with this section, removal of the meter and service will be deemed proper, and service will be discontinued. Tap fees and deposits will be forfeited.
3. Adoption and enforcement of section provisions. Municipal customers, water corporations or company compliance municipalities, or companies purchasing water from the city Town shall adopt and enforce this entire section as a condition of continuing existing water sales agreements. Upon declaration of a water emergency, such municipalities and companies shall enforce the appropriate water use restrictions for the level of declared emergency. Water service to such municipalities and companies shall be terminated for not enforcing the provisions of this section.

VARIANCE PROTOCOLS

The Town understands that water restrictions can cause economic hardships on certain portions of their water customers; additionally, the restriction could be infeasible for others that have implemented water use reduction strategies into their daily practices prior to drought conditions being in place. Variances will be considered for:

- those showing proof of economic hardship,
- public health care facilities,

- or those that have previously implemented and documented water use reduction strategies such that achieving further water reduction goals may not be achievable.

Variance requests should be directed in writing to the Town Manager. The Manager, or his or her designee, will issue a ruling on the variance. A decision on the variance will be made within two weeks of the submittal.

EFFECTIVENESS

The effectiveness of the Town's WSRP will be determined by comparing the stated water conservation goals with observed water use reduction data. Tracking will be conducted using a spreadsheet, updated monthly, which compares water use against the baseline time period seasonal data. Other factors to be considered include use of the tiered rate structure, frequency of plan activation, notification procedures, any problem periods without activation, and total number of violation citations.

REVISION

This WSRP will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of the [Local Water Supply Plan](#). Further, a water shortage response planning work group (Town Staff) will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to the Town's Council. If revisions are not recommended following a review, a memo will be filed documenting the effectiveness of the WSRP. The Water Resources Supervisor is responsible for initiating all subsequent revisions.

Implementation Considerations

The Town of Mount Pleasant has learned a great deal over the years about how best to operate the utility during water shortage events, while minimizing impacts to customers and instream resources. This knowledge is reflected in this WSRP, and articulated in the following principles:

- **Plan Should be Flexible:** Each water shortage situation has enough unique characteristics that a plan cannot specifically define all the scenarios and specific supply and demand management actions. The usefulness of a Water Shortage Response Plan lies in planning the range of supply and demand management actions in advance of the situation, and in defining the communication mechanisms by which decisions will be made during the event.
- **Shortage Should Be Shared:** A key assumption of this plan is that shortage and risk must be shared among all beneficiaries of the water resource. For example, instream flow levels below normal minimums are resorted to only after human water consumption is curtailed. Additionally, all water utilities in the community should participate in management of the shortage. Similarly, all customer sectors should participate.
- **Conservation Versus Curtailment:** Given the varying impacts of a drought or other water emergency, it is important to distinguish between the short-term curtailment actions necessitated by a water shortage event, and the conservation actions the Town regularly promotes to its customers. Conservation focuses on long-term efficiencies which do not adversely affect customers' accustomed use of water, whereas curtailment actions involve short-term water use reductions or restrictions that can create hardships.
- **Voluntary Preferred Over Mandatory:** Customers prefer the opportunity to meet targeted demand reduction levels through voluntary compliance actions. The decision to move to mandatory

restrictions is more acceptable if the voluntary approach has been tried first but has not resulted in sufficient demand reduction.

- **Safeguard Water Quality:** It is essential to closely monitor water quality during water shortages and particularly during a warm weather drought. This applies to water quality in water resources as well as to the drinking water provided to customers. Water quality issues must be considered for drinking water and instream uses when supply management decisions are made. The Town's water distribution system is designed to meet the daily demands of the community and for potential firefighting. If demand is significantly lowered, coupled with warmer temperatures, water quality can significantly degrade and should be monitored and managed more carefully than typical.

Implementation for an Immediate Crisis

This chapter focuses on implementing the WSRP when an event, such as a system failure, hinders the Town's ability to supply enough water to meet customer demands, and requires immediate action. Implementing the WSRP under these circumstances has both differences and similarities from implementation for a progressive event such as a drought.

Implementation of the WSRP for an immediate crisis is different in the following ways:

- **Lack of Preparation Time:** In a typical progressive event, The Town has weeks or months to prepare for action. In an immediate crisis, there is typically little to no preparation time and the Town takes action within minutes, hours, and/or days.
- **Initial Stage:** In a typical progressive event, the WSCP is activated at the Advisory Stage and progresses sequentially through stages as necessary. In an immediate crisis, the WSCP is activated at one of the more aggressive stages, likely either the mandatory or emergency stage.
- **Larger Volume:** The volume of the water shortage for an immediate crisis could be more significant, thereby requiring larger-scale demand reductions.
- **Localized:** The immediate crisis could be very localized, thereby requiring demand reduction for only a limited geographic area.
- **Heightened Public Health & Safety:** The need to protect water quality and availability to support public health and safety are heightened, including issues such as minimizing any outages and having sufficient water and pressure for fire fighting.
- **The Town Emergency Response Plans:** Implementation of the WSRP would likely dovetail with implementation of other higher-level and/or more specific Town and/or Cabarrus County response plans. Both the Town and the County have broader, plans, such as the Town's Emergency Operations Plan and the County's Comprehensive Emergency Management Plan, that describe how their emergency management system is organized and managed to prepare for, prevent, mitigate, respond to, and recover from emergencies.
- **Incident Command System:** The response would most likely be implemented under an Incident Command System (ICS), which is a nationally sanctioned, standardized approach to the command, control, and coordination of emergency response. ICS is integral to the Town and County emergency response plans mentioned above.

There are numerous crisis situations that could necessitate implementing the WSRP. Several examples are described below. Note that each of these situations has in fact occurred, yet they did not trigger formal activation of the WSRP due to mitigating circumstances. The need to activate the WSRP would depend on the amount of the supply impacted, the amount of time needed to restore the system to normal functions, how easily water could be re-routed to customers in the affected area, and the amount of water being used

by customers given the season. Connection to the City of Concord water system results in much less vulnerabilities to the situations below.

- **Major Contamination of the Water Supply System:** A major contamination of the water supply system such as a hazardous chemical spill due to a vehicle accident or other source, could require activation of the WSRP in an immediate crisis mode.
- **Temporary Treatment Plant Shutdown:** A temporary unplanned shutdown of the Town's Water Treatment plant would require activation of the WSRP in an immediate crisis mode.
- **Severe Weather Event:** Substantial flooding of Black Run Creek or Dutch Buffalo Creek, structure damage to the treatment plant. Damage from the effects of severe weather could lead to temporarily stop use of the treatment plant or the primary water source.

Components

The following nine components are discussed below. (The definitions are repeated here so this chapter functions as a stand-alone chapter, which may be important in a crisis.) These are the same components as a progressive event. Therefore, while a stage is declared when implementing the WSRP for an immediate crisis, that stage may look slightly different than under a progressive event.

Triggers

The appropriate stage (Voluntary, Mandatory, or Emergency) will be implemented when an event occurs that would prevent the Town from supplying enough water to meet customer demands and requires immediate action. (The selection of the appropriate stage will be based on the severity of the shortage.)

Objectives

- Maximize the amount of water delivered to customers and restore full supply capabilities as soon as possible.
- Achieve the demand reduction goals by voluntary or mandatory customer action. If activated at the Emergency Stage, restrictions may significantly impact customers' lives and businesses.
- Prepare for potentially moving to the next aggressive stage, if not already in the Emergency Stage.

Stage Activation

The authority to declare a water supply emergency and activate the WSRP for an immediate crisis lies with the Town Manager. However, the underlying event may warrant a proclamation of civil emergency, which would be declared by the Mayor per Part 3 Chapter 4 Section 3.4.1 of the Town Ordinances.

Demand Reduction Goal

The demand reduction goal will be based on supply conditions and demand reduction potential consistent with any water use restrictions.

Key Public Messages

- **Activated WSRP:** We have activated the WSRP due to an immediate crisis. The details of the crisis are as follows (*to be developed at the time of the crisis*).
- **Meet Demand Reduction Goal:** We are asking customers to reduce their water use to meet the demand reduction goal.
- **Mandatory Water Restrictions (*If Activating at the Mandatory or Emergency Stage*):** It is necessary to impose mandatory restrictions on certain water uses. Those restrictions are as follows: (*to be determined at the time of the crisis*). There are exemptions for the following: (*to be determined at the time of the crisis*).

- Rate Surcharge: If applicable, the rate surcharge is as follows: (to be determined at the time of the crisis).
- Water Quality: If applicable, customers may find taste, odor or discolored water issues with their water due to changes in water supply operations (*be more specific if appropriate*). While the water may not be pleasing, it is safe to drink.
- Pressure Reduction: If applicable, customers may experience a loss of pressure due to system operations. Customers with no water should call the Town at (*TBD*).

Coordination and Communication Actions

- Formal Declaration of Water Supply Emergency and/or Civil Emergency: Depending on the event, the mayor makes formal declarations of emergencies and activation of the WSRP.
- Incident Commander & Team: Identify the incident commander and the team members. An Incident Command System organizational chart is provided in Appendix A. Note that the functions of the Water Shortage Response Team used during a progressive application of the WSRP are incorporated into the Incident Command System.
- Wholesale Customers: Inform wholesale customers about the crisis and that the WSRP has been activated. Request their cooperation, as identified under the Wholesale Customer Actions section.
- WATER SHORTAGE ADVISORY GROUP (WSAG): Formation of WSAG is not appropriate unless the event is anticipated to be of long duration. If formed, the role of the WSAG is to provide feedback on implementation of customer demand reduction actions. Early meetings will focus on explaining the crisis, the role of the WSAG, and educating the WSAG about the water system and the customer base.
- CABARRUS COUNTY HEALTH ALLIANCE (CCHA): Inform the CCHA about the crisis and the activation of the WSRP.
- PUBLIC AGENCIES: Coordinate with all Town departments and public agencies (e.g., county, state, and federal resource agencies, as appropriate).
- OUTREACH: Develop and implement the initial communication and outreach plan. As described in the Communication and Outreach Framework in Appendix D, the plan should include the overall purpose, goals, audiences, and tools (e.g., FAQs, press releases, tips flyers). Additional outreach tools such as highway message boards, social media, or dial out phone systems might be used in an immediate crisis.
- TOWN EMPLOYEES: Establish a regular communication mechanism to keep Department employees up to date on goals, conditions, and actions.
- CUSTOMER INQUIRIES: Establish one point of contact for responding to customer inquiries.
- Revenue: Assess revenue implications and potential remedies, including reprioritizing expenses and potential withdrawals from.
- TOWN LEGISLATURE: Request Council to adopt legislation on water use restrictions, enforcement, and any surcharges, if anticipated needing and not already in place.
- SHERIFF'S AND FIRE DEPARTMENT: Coordinate with police and fire departments requesting their assistance in promoting and enforcing any water restrictions, if entering the Emergency Stage.

Water Quality and Supply Management Actions

- Data Collection: Continue increased data collection actions (e.g., streamflow's, snowpack conditions) and monitoring weather forecasts.
- Modeling: Continue increased calculations of projected supply, storage, demand and revenue scenarios.

- Instream Flows: Continue coordination with state and federal resource agencies and tribes, to review supply and conditions to determine appropriate instream flow levels.
- Flushing: If necessary, implement flushing to maintain water quality. Include flushing information in public communication and outreach so the public understands it is essential for drinking water quality.
- Emergency Supplies: Ready emergency supplies, such as wells, for use and activate if appropriate.
- System interconnections: Investigate using existing connections with other water utilities to increase supply availability and activate if appropriate.

Retail Customer Demand Actions

- General Customer Actions:
 - Implement the Voluntary Stage customer demand reduction actions (that were determined in the Advisory Stage).
 - Determine the list of customer demand reduction actions that would be requested if the WSRP advances to the Mandatory Stage. A list of potential actions customers can take to reduce water use is provided in Appendix E. The actual actions selected for the Mandatory Stage will depend on the severity, likely duration, and timing of the shortage, as well as the demand reduction needed. Additionally, establish appropriate exemptions for the Mandatory Stage. Appendix G includes possible exemptions to water use restrictions for the Town to consider in creating actual exemptions at the time of the event. Finally, determine appropriate enforcement strategies.
- Town Departments: Request that Town departments reduce their water use. The specific actions requested for this stage will be determined during implementation of the WSRP, however likely actions include the following:
 - All Departments
 - Water Resources
 - Public Works
 - Fire Department

APPENDIX A: North Carolina General Statute 143-355.2

§ 143-355.2. Water conservation measures for drought.

- (a) Each unit of local government that provides public water service and each large community water system shall develop and implement water conservation measures to respond to drought or other water shortage conditions as provided in this section. Pursuant to G.S. 143-355(1), water conservation measures to respond to drought or other water shortage conditions shall be set out in a water shortage response plan and submitted to the Department for review and approval. The Department shall approve the water shortage response plan if the plan meets all of the following criteria:
 - (1) The plan includes tiered levels of water conservation measures or other response actions based on the severity of water shortage conditions.
 - (2) Each tier of water conservation measures shall be based on increased severity of drought or water shortage conditions and will result in more stringent water conservation measures.
 - (3) All other requirements of rules adopted by the Commission pursuant to S.L. 2002-167.
 - (4) Does not contain any provision that meters or regulates private drinking water wells, as defined in G.S. 87-85.
- (b) The Department may require a unit of local government that provides public water service or a large community water system to implement the more stringent water conservation measures described in subsection (d) of this section if the Department makes written findings that any county, as determined by subsection (e) of this section, in which the source of water for the public water system operated by the unit of local government or by a large community water system is in:
 - (1) Severe, extreme, or exceptional drought, and the Department finds all the following:
 - a. The unit of local government that provides water service or large community water system has not begun implementation of any level of water conservation measures set out in the water shortage response plan.
 - b. Implementation of measures is necessary to minimize the harmful impact of drought on public health, safety, and the environment, including the potential impacts of drought or other water shortage on interconnected water systems and other water systems withdrawing from the same water source, or
 - (2) Extreme or exceptional drought, and the Department finds that the unit of local government that provides water service or large community water system has implemented the measures required under the water shortage response plan for the appropriate tier of water conservation measure for 30 days or more and that implementation of the measures required has not reduced water use in an amount sufficient to minimize the harmful impacts of drought on public health, safety, and the environment, including the potential impact of drought or other water shortage on interconnected water systems and other water systems withdrawing from the same water source.
- (c) In making the findings required under subsection (b) of this section, the Department shall consider the:
 - (1) Hydrological drought conditions.
 - (2) Drought forecast.
 - (3) Reductions in water use achieved under water conservation measures in effect.

- (4) Availability of other water supply sources and other indicators of the extent and severity of drought impacts.
 - (5) Economic impacts on the community to implement more stringent water conservation measures.
 - (6) Conservation measures of all registered water withdrawals within the same 8 digit hydrologic unit code established by the U.S. Geological Survey to the extent the Department is able to document those measures.
- (d) Based on the findings required under subsection (b) of this section, the Department may require the unit of local government that provides public water service or the large community water system to begin implementation of its plan or to implement the next tier of water shortage response measures. If, after consultation with the unit of local government or the large community water system, the Department makes a written finding that the next tier of measures set out in the plan, together with any other reasonable steps that may be available to reduce water use, will not reduce water use in an amount sufficient to minimize the harmful impacts of drought on public health, safety, and the environment, including the potential impact of drought or other water shortage on interconnected water systems and other water systems drawing from the same water source, then the Department may require implementation of the tier that is two levels more stringent than the tier being implemented.
- (e) For purposes of this section, the drought designation for an area shall be the U.S. Drought Monitor designation for the county in which the water source is located as published by the Drought Management Advisory Council. The Secretary may approve a county drought designation that is different from the U.S. Drought Monitor designation pursuant to G.S. 143-355.1(f1). If the water source is located in more than one county and the counties have different drought designations, the Council shall recommend to the Secretary the drought designation to be applied to water systems that withdraw water from the water source. The recommendation of the Council shall be based on the drought indicators identified in G.S. 143-355.1(f) as applied to the water source.
- (f) A unit of local government that provides public water service or a large community water system that does not have a water shortage response plan shall implement the default water conservation measures for extreme and exceptional drought set out in the rules adopted by the Commission pursuant to S.L. 2002-167.
- (g) A unit of local government that provides water service or a large community water system that does not have an approved water shortage response plan shall implement the default water conservation measures specified in subsection (f) of this section within 10 days following a drought designation that requires implementation of water conservation measures. A water shortage response plan is presumed to be approved until the Department notifies the unit of local government or large community water system that the plan has been disapproved. A unit of local government that provides public water service and a large community water system shall be deemed to be in compliance with this section if, within 10 days after water shortage conditions identified in the plan require implementation of water conservation measures, the water system begins implementation of the water conservation measures required by the plan.
- (h) Water conservation measures imposed by a unit of local government that provides public water service or by a large community water system may be more stringent than the minimum water conservation measures required under this section.

- (h1) A trade or professional organization representing commercial car washes may establish a voluntary water conservation and water use efficiency certification program to encourage and promote the use of year-round water conservation and water use efficiency measures. Implementation of a voluntary water conservation and water use efficiency program shall be considered in determining compliance with local government water shortage response plans as follows:
- (1) A water conservation and water use efficiency certification may only be issued to a person that demonstrates full implementation of a voluntary water conservation and water use efficiency program that is approved pursuant to subdivision (3) of this subsection. In order to receive and maintain certification, a person must have its facility inspected on an annual basis by a licensed plumbing contractor who will confirm that the applicant is in compliance with the standards of the certification program.
 - (2) A unit of local government that provides public water service or a large community water system shall recognize and credit a commercial car wash that has met the standards of a certification program for at least six months prior to the most recent extreme drought designation for water conservation achieved under the program. To the extent that a tiered response stage in the water shortage response plan requires commercial or industrial users to implement a percentage reduction in use, a car wash certified under a program shall be credited with the percentage reduction achieved by measures implemented under the program. Car washes certified under a program shall not be required to reduce consumption more than any other class of commercial or industrial water users during a water shortage emergency.
 - (3) To qualify as an approved water conservation and water use efficiency certification program, the Department of Environmental Quality shall determine that the program achieves year-round reductions in water use and results in a reduction of twenty percent (20%) or more in average water use per vehicle. Best management practices may include, but are not limited to, recycling, reclaiming, or reusing a portion of the water in the consuming processes. If a unit of local government that provides public water service or a large community water system determines that a person certified under such a program is not complying with the terms and standards of the certification program, it may refuse to recognize and credit the conservation measures.
- (i) A unit of local government that provides public water service and a large community water system shall report that the water system has begun implementation of water conservation measures set out in the water system's water shortage response plan or the default water conservation measures to the Department within 72 hours after beginning implementation.
 - (j) This section shall not be construed to authorize or require the implementation of water conservation management measures that conflict with or are superseded by the provisions of any order of a federal or State court or administrative agency, any interstate agreement governing the allocation of water to which the State is a party, or any license for a hydroelectric generating facility issued by the Federal Energy Regulatory Commission; including, without limitation, any protocol or subsidiary agreement that may be part of or incorporated in any such order, interstate agreement, or operating license. (2008-143, s. 5; 2009-480, s. 1; 2010-180, s. 8; 2015-241, s. 14.30(u).)

APPENDIX B: WATER SHORTAGE ADVISORY GROUP

The Water Shortage Advisory Group (WSAG) is a team of key customers and stakeholders whose role is to advise the Town on requests or actions made to customers regarding utility water shortage response actions and programs. Membership should represent diverse perspectives. Potential members are shown in the table below.

Category	Potential Member
State and County Agencies	NCDEQ CCHA CCEM
Business Community	Volunteer members from the business community.
Town Departments	Water Resources Fire Public Works Finance Emergency Planning Planning and Zoning
System connections	City of Concord Water Resources

APPENDIX C: HISTORICAL DROUGHT OCCURRENCES

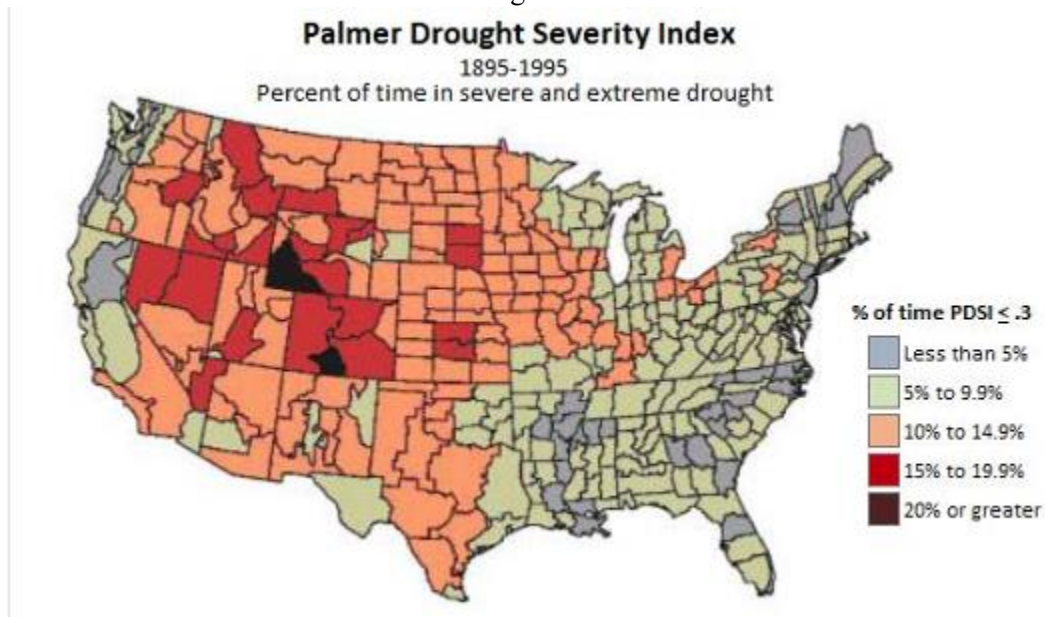
A drought is a prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfire. Human demands and actions can hasten or mitigate drought-related impacts on local communities. There have been 19 regional drought events between 2010 and 2018, therefore future occurrences are likely. The North Carolina Drought Monitor reports drought conditions in nineteen (19) out of the last nineteen (19) years in the Region.

The 2020 Regional Mitigation Plan identifies drought as a significant hazard, while droughts are discussed in the North Carolina State Mitigation Plan as a lesser hazard, the plan lists drought as a top hazard for the Piedmont Region where the Town is located.

Droughts are slow-onset hazards, but, over time, can have very damaging effects on crops, municipal water supplies, recreational uses, and wildlife. If drought conditions extend over several years, the direct and indirect economic impact can be significant. The Palmer Drought Severity Index (PDSI) is based on observed drought conditions and ranges from -0.5 (incipient dry spell) to -4.0 (extreme drought). Evident in Figure 5.2, the Palmer Drought Severity Index Summary Map for the United States, drought affects most areas of the United States, but is less severe in the Eastern United States.

Palmer Drought Severity Index (1895-1995)

Percent of time in severe and extreme drought



Historical Occurrences

The North Carolina Drought Management Advisory Council also reports data on North Carolina drought conditions from 2000 to 2018 through the North Carolina Drought Monitor. It classifies drought conditions using the scale set by the US Drought Monitor, which classifies conditions on a scale of D0 to D4. Each class is further explained below:

USDM DROUGHT CLASSIFICATIONS

D0	Abnormally Dry	- Short-term dryness slowing planting, growth of crops - Some lingering water deficits - Pastures or crops not fully recovered
D1	Moderate Drought	- Some damage to crops, pastures - Some water shortages developing - Voluntary water-use restrictions requested
D2	Severe Drought	- Crop or pasture loss likely - Water shortages common - Water restrictions imposed
D3	Extreme Drought	- Major crop/pasture losses - Widespread water shortages or restrictions
D4	Exceptional Drought	- Exceptional and widespread crop/pasture losses - Shortages of water creating water emergencies

Date	Description
7/1/1998	Dry weather continued through much of the month of July, affecting crops during the critical part of the growing season. Corn and other vegetables sustained the most damage, but a dollar amount was not available at the time of this writing.
10/1/1998	The drought which began during the summer continued through October. The only significant rainfall during the month occurred on the 7-8th. Cities and counties began to restrict water usage and streamflows for several mountain locations were reduced to the lowest seen in 50 years.
11/1/1998	Dry weather persisted into the late fall with rainfall deficits between 5 and 10 inches. This affected late season crops and caused water shortages. Water usage restrictions were initiated in many communities.
7/1/1999	A long-term dry spell became a drought in July. Without any widespread rain events, the only relief came in the form of widely scattered afternoon and evening thunderstorms. But even those were few and far between. The lack of rainfall lowered water tables significantly and significant damage to crops began to occur. The North Carolina northern foothills and northwest piedmont were affected first, followed by the southern foothills and southern piedmont. Dollar amounts of the damage were unavailable at the time of this writing.
8/1/1999	The drought worsened during the month of August as high evaporation rates and little rainfall occurred. The most severe conditions by the end of the month had developed in the foothills and piedmont. Water restrictions began in several communities, and for some, the first time in memory. Hay and late crops dried up in many counties. Ponds and wells began to dry up as well, affecting homeowners, farmers, and businesses such as nurseries. In addition, boaters were running aground on recreational lakes due to low water levels.
9/1/1999	Rainfall continued to be scarce across much of western North Carolina through the month of September, prolonging the drought conditions which existed all summer. However, some areas in the piedmont picked up some rain from the remnants of Hurricane Dennis early in the month and from Hurricane Floyd itself two weeks later. Although this rain brought some relief, more wells ran dry and many more areas began mandatory water restrictions. 10/1/1999 The return of some rainfall as well as lower evaporation rates due to the change of seasons, resulted in the drought easing somewhat. Drought classifications were lowered in some cases, and some places lifted water restrictions. However, the drought had not ended by the end of the month.
8/1/2000	The 2-year drought was reaching a critical stage by late summer. Many 80 to 100-foot wells were going dry. Area lakes were at record low levels causing property damage to docks, boats, etc. 9/1/2000 Overall, drought conditions continued across western North Carolina despite some locations receiving near their month's average rainfall. Low stream flow and municipal water supply remained the largest issues with many towns and cities enacting water restrictions. Citizens were quoted as saying this is the driest, they have ever seen it. Despite the drought conditions, impact on crops seemed to be minimal.
10/1/2000	Effects of the drought intensified as many areas received absolutely no rain during the month, setting records for the longest stretch without measurable rainfall in several locations. Wells and mountain streams continued to dry up and lake levels continued to drop. Many communities were forced to start more stringent water conservation measures.
11/1/2000	The long-term drought continued to affect the region. Rainfall during the month was near or slightly above normal, but this had little effect on the ground water levels. Numerous wells dried up during the

Date	Description
	fall, and well borers and drillers could not keep up with the demand. Large lakes reported record low levels and some communities continued or initiated water control measures.
2/1/2001	The long-term drought's impact became more severe, even during the winter, as water levels in lakes dropped and stream flow on rivers reached the lowest in memory. More and more communities began water restrictions and started preparing for a busy fire weather season. 3/1/2001 Despite beneficial rain during March, the drought continued to grip most of the area. Severe water restrictions were implemented in parts of the North Carolina piedmont.
9/1/2007	Extreme drought conditions persisted across western North Carolina through September, as the region experienced another month of well-below normal precipitation. By the end of the month, most locations were running a yearly rainfall deficit of 11-17 inches. Stream flows and groundwater levels were near record low levels, with many streams running at 5 percent or less of normal flow. Water levels on area reservoirs were some of the lowest in recorded history. Agricultural interests continued to be especially hard hit. Farmers continued to struggle to feed livestock due to a lack of hay and poor pasture conditions, forcing many cattle to be sold or slaughtered. Agricultural and other losses attributed to the drought are estimated to be in the hundreds of millions of dollars.
10/1/2007	Unusually dry weather continued across western North Carolina through October. Although a soaking rain near the end of the month resulted in near-normal monthly precipitation for the mountains, the piedmont saw another month of well-below normal rainfall. Most areas were on pace to break yearly rainfall deficit records. By the end of the month, exceptional drought conditions were reported across most of the area. Water flow on area streams continued at 3 to 6 percent of normal, while lake levels remained at near-record lows. Although most cities and towns were requesting voluntary water restrictions be observed, mandatory restrictions were ordered in quite a few communities. In some areas, the water situation was becoming dire, with Monroe, NC officials reporting that water supplies would be exhausted by early 2008 if significant rain did not occur. Also, private wells were beginning to dry up in many areas. Agriculture continued to be severely impacted by the drought.
11/1/2007	November provided no relief from the effects of the long-term drought. In fact, another month of well-below normal rainfall made an already dire situation even worse. Many locations remained on pace to set annual records for rainfall deficit. By the end of the month, the vast majority of the region was experiencing exceptional drought conditions. Streamflow on area rivers remained extremely low, generally less than 10 percent of normal. Meanwhile, lakes continued to gradually fall toward record low levels.
12/1/2007	The latter half of December saw a transition to a wetter pattern across the southeast. Most observing stations in western North Carolina reported above normal monthly rainfall for the first time since January 2007. However, this was not enough to put much of a dent in the long-term drought as extreme to exceptional drought conditions persisted into the New Year. Although the increase in rainfall did allow for some recharge of area streams, many were still running at less than 25 percent of normal flow at the end of the month.
1/1/2008	January saw a return to dry weather across western North Carolina. Most observing stations across the region reported a rainfall deficit of 1 to 2 inches during the month, resulting in another month of exceptional drought conditions across most of the area. Water levels on area lakes remained within a foot or two of record low stages. However, rivers and streams remained somewhat recharged from the December rains, with streamflow on most waterways running 25 to 75 percent of normal.
6/1/2008	Although near normal rainfall was observed across much of the area during the late winter and early spring, another period of abnormally dry weather in May and June exacerbated severe to extreme drought conditions over the western Carolinas and northeast Georgia. Much of the area saw less than 2 inches of rain during this period of time. By the end of the month, much of the mountains and foothills of western North Carolina were running 10 inches below normal annual rainfall. Total rainfall deficits since the beginning of 2007 were around 20 inches or more in the hardest hit areas. By the end of the month, flow on almost all major streams was running less than 10 percent of normal. Many area crops suffered.

Date	Description
7/1/2008	<p>Unusually dry weather continued through the month of July, with severe to extreme drought conditions persisting across the area. Afternoon and evening thunderstorms provided some degree of relief across portions of the North Carolina piedmont, but locations across Upstate South Carolina and extreme western North Carolina reported annual rainfall deficits of nearly 11 inches by the end of the month. Mandatory water restrictions were instituted across much of the North Carolina foothills. Water well levels began to descend below record low levels, most of which were recorded during the 1999-2002 drought. The vast majority of major streams across the area continued to run 1-10 percent of normal flow. Agriculture continued to be hard hit, with some areas reporting a 100 percent loss of the corn crop.</p>
8/1/2008	<p>Dry weather persisted across much of the area for most of August, although portions of the North Carolina Piedmont began to see relief from the dry conditions early in the month, due to an increase in daily thunderstorm activity. Elsewhere, exceptional drought conditions persisted and even expanded slightly westward to cover more of far western North Carolina and northeast Georgia. During the early part of the month, flows on most of the major streams across the area were running at record low levels, with the French Broad River setting a minimum flow record that had stood for almost 100 years. Only a handful of streams were running at more than 1 to 7 percent of normal. Groundwater levels were 2-5 feet below normal. Significant agricultural impacts persisted, with losses to summer crops, including hay, estimated at 30%. The dry weather also affected the livestock industry, due to shortages of pasture crops necessary for feeding. By the end of the month, Tropical Storm Fay had dropped up to 11 inches of rainfall across the area, providing some relief from the drought conditions, especially across the North Carolina Piedmont. 9/1/2008 The heavy rain brought by Tropical Storm Fay in late August provided some relief to the drought conditions across the area. This was particularly true across the North Carolina piedmont, where improving conditions were aided by normal September rainfall. However, another dry month resulted in a persistence of extreme to exceptional drought conditions across the North Carolina mountains and foothills. Voluntary water restrictions remained widespread during the month. A few communities held onto mandatory restrictions early in the month, but many of these were lifted by the end of the month. Well water remained near record low levels in many areas, while lake levels persisted well below normal stages. Rainfall from Fay resulted in some improvement in streamflow, although most rivers and major streams remained at less than 25 percent of normal, with many still running at less than 10 percent of normal. By the end of the month, government officials had requested a federal disaster declaration for most of the counties in the area, due to crop damages.</p>

APPENDIX D: COMMUNICATION AND OUTREACH FRAMEWORK

This document is intended to provide a framework for communication and outreach efforts during implementation of the Water Shortage Response Plan. The actual communication and outreach plan will be developed during implementation of the WSRP. The initial plan will be developed in the Advisory Stage, during which the Town plans for the potential of moving into the Voluntary Stage. The communication and outreach plan will be modified as implementation of the WSRP continues, especially if the Town moves into the Mandatory and/or Emergency Stage. The communication and outreach plan should include the following elements:

- overall purpose,
- goals,
- audience, and
- tools.

More information on each of these elements is provided below. Selected examples of tools are also included.

The following steps should be used to develop the communication and outreach plan:

1. Confirm/modify the overall purpose.
2. Confirm/modify the goals.
3. Identify which audiences to target and/or to prioritize.
4. Identify which tools to develop.
5. Match the audiences and the tools.
6. Identify staff responsible for developing the tools.
7. Identify staff responsible for implementing the communication/outreach.
8. Track the implementation.
9. Modify as necessary.

Overall Purpose

The overall purpose of the communication and outreach effort is to make sure everyone is aware of the "drought/shortage message", which consists of the following components:

1. We are experiencing a drought/shortage.
2. We are asking everyone to help by..... (to be determined for appropriate WSRP stage)
3. We have suggestions/requirements on how to reduce water use.
4. Also see the "key public messages" under each WSRP stage

Goals

There are three goals of the communication and outreach effort, as follows:

1. Build awareness
2. Create a community presence
3. Targeted messaging

Audiences

There are a variety of audiences for communication and outreach efforts. Some audiences are broad in nature, while others are very specific. The seven main audiences, including locations/organizations/other subcategories, are as follows:

1. General Public
 - a. Mount Pleasant community centers
 - b. Mount Pleasant Library
 - c. Community events
 - d. Farmers markets
 - e. Multifamily property management associations (thinking of the apartments on 73 and similar)
 - f. Churches
2. Irrigation Community
 - a. Area parks and recreation departments (New County Park)
 - b. Schools (if shortage occurs during the school year when irrigation of ballfields is most likely)
 - c. Nurseries
 - d. Professional landscape/nursery organizations
3. Large Users (other than irrigation community)
 - a. Town key water services accounts
4. Business Community
 - a. Chambers of commerce
 - b. Commercial building operators
 - c. Hotel and restaurants
 - d. Cabarrus County Economic Development
5. Environmental Community
6. Non-English Speakers
7. Town of Mount Pleasant Employees

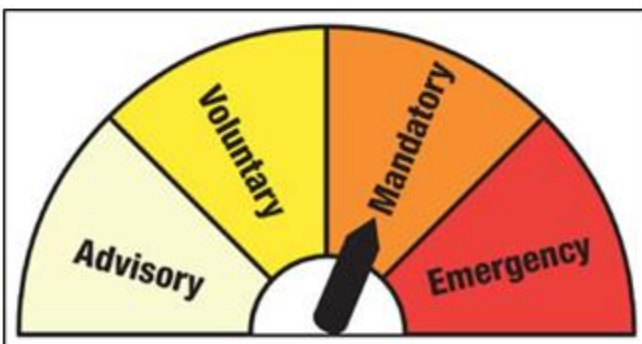
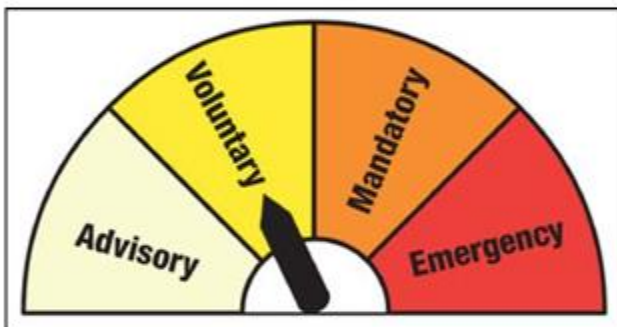
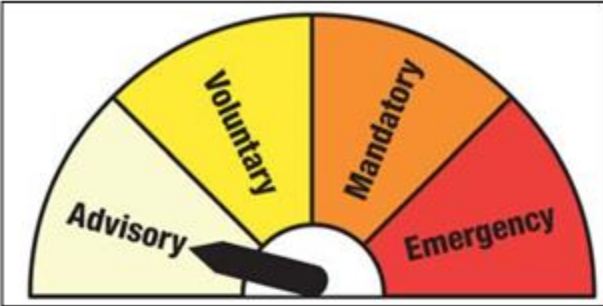
Tools

There are a variety of tools that can be used for communication and outreach efforts. Tools used, or considered, for previous WSRP implementations are show below. The list includes both paid and “earned” media. Note that tools may change over time, especially as changes occur in technology and customers’ preferences.

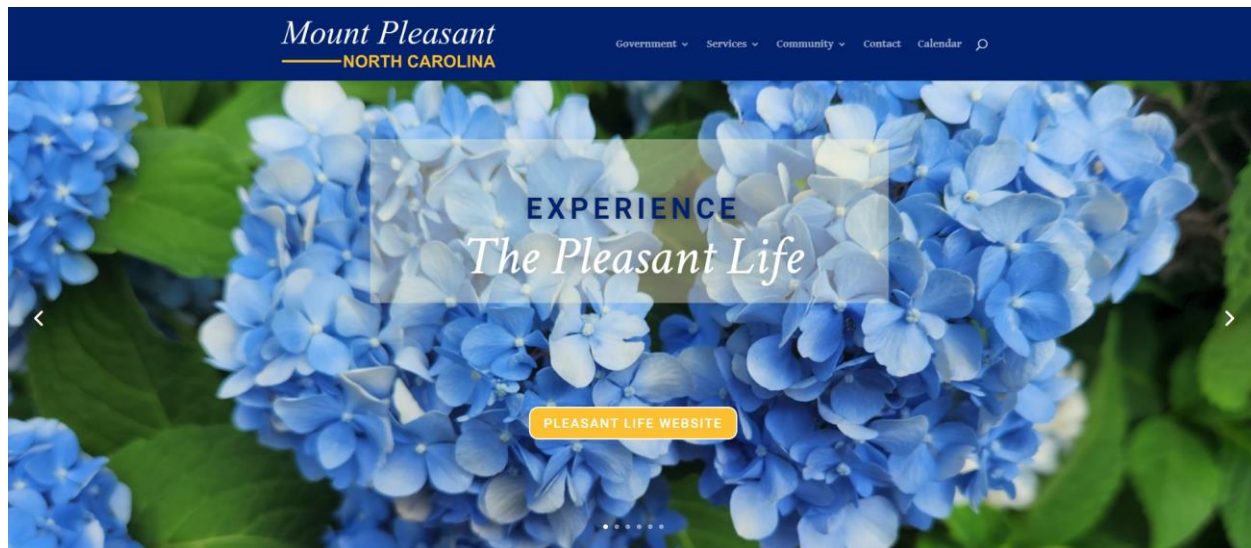
1. 4-Stages Graphic
2. Utility website (Duke Energy, Union Power, Concord Electric)
3. Tips/restrictions flyer
4. Regular utility publication (bills, bill inserts, newsletters, etc)
5. Press release
6. FAQ
7. Print ad
8. Television ad 9. Radio ad
9. Web ad
10. social media posting (Facebook, Twitter, Nextdoor, blogs, etc)
11. Signage (building, vehicle, park, etc)

12. Email
13. Letter/postcard
14. Phone call
15. Presentation at meeting
16. Business newsletter
17. Drought message in email signature line

Stages Graphic

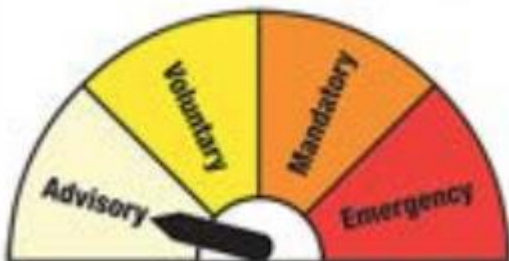


Web Page Example



Advisory Stage Activated

The Town of Mount Pleasant Water System is in the ADVISORY STAGE of its Water System Response Plan ([link to plan](#)). Read a weekly report on water supply conditions ([link to report](#)) for Mount Pleasant.



Stage of Mount Pleasant water shortage.

Advisory Stage Top Tips

- View full list of advisory stage tips ([link](#))
- Water Early or Late – Water before 8 a.m. or after 7 p.m. which reduces water evaporation.
- Water Deeply but infrequently. It is better to have one or two deep waterings, rather than several shallow waterings.
- Fix Leaks – Fix obvious leaks indoor and outdoor such as faucets, hose bibs and sprinkler spray heads. Check for less obvious leaks such as silent toilet leaks. Put several drops of food coloring in your toilet tank; after 10 minutes, if you have color in the toilet bowl, you have a flapper leak.
- Wash Vehicles Wisely – Wash your vehicle(s) at locations that recycle water.
- Use a Broom, Not a Hose – Use a broom, rather than a hose to clean sidewalks, driveways and patios.
- Wash Full Loads – Wait until your clothes washer and dishwasher are full before starting.






Water Young Trees Efficiently



Using a water bag. Trees planted 5 or fewer years ago need 15-20 gallons of water twice a week to survive.

TIPS FLYER (Voluntary Stage)



<p>Outdoor Tips</p> 	<ul style="list-style-type: none"> • Let your lawn go dormant and limit plant watering to twice a week. • Water plants before 8am (best) or after 7pm. • Wash your vehicle(s) at locations that recycle the water. • Do only essential pressure washing. • Minimize refilling swimming pools and hot tubs. • Turn off water features. • Fall is the best time for planting. <p>(link to more outdoor tips)</p>	
<p>Indoors Residential Tips</p> 	<ul style="list-style-type: none"> • Reduce your showering time • Check for and fix leaks • Wash only full loads of laundry and dishes • Turn off the tap while brushing your teeth or shaving • Don't pre-rinse dishes • If purchasing fixtures/equipment, choose water-efficient models 	
<p>Indoor Businesses Tips</p> 	<ul style="list-style-type: none"> • Serve water only on request • Check for and fix leaks • Wash only full loads of laundry/dishes • Provide new towels only on request • If purchasing fixtures/equipment, choose water-efficient models 	

UTILITY BILL INSERT



Ways of saving water

1



Shower Bucket

Put a bucket under the faucet while you wait for your shower water to heat up. You can use the water for flushing the toilet or watering your plants.

2



Turn off the tap while brushing your teeth

Don't let all that water go down the drain while you brush your teeth. Turn off the faucet after you wet your brush, and leave it off until it's time to rinse.

3



Turn off the tap while washing your hands

Save a few gallons of water and turn the faucet off after you wet your hands until you need to rinse.

4



Don't use the toilet as a litter

Every time you flush a facial tissue, or other small bit of trash, you're wasting gallons of water. Put them in the garbage, or better yet, recycle.

5



Take Shorter Showers

One way to cut down on water use is to turn off the shower after soaping up, then turn it back on to rinse.

7



If you wash dishes by hand, don't leave the water running for rinsing

First soap up the dishes, and then rinse them all together.

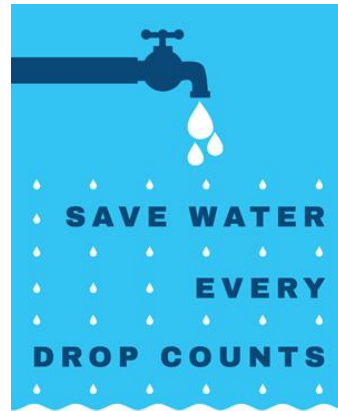
6



Save up your dirty clothes

Only use the washing machine when you have enough clothes to fill it.

PRINT ADD



WE CAN SAVE WATER ON A DAILY BASIS
SAVING WATER STARTS AT HOME

SAVE THE WATER

- Check your toilet for leaks
- Put a plastic bottle in your toilet tank
- Turn off the water while brushing your teeth
- Turn off the water while shaving
- Take shorter showers.

A large, stylized orange hand is shown holding a large, glowing blue water drop. The background is a light blue gradient. The text "SAVE THE WATER" is written in large, bold, blue letters. Below the hand, there is a blue wavy border. Underneath the border, there are five white icons representing different water-saving actions: a toilet, a toilet tank, a faucet with a brush, a faucet with a shaving brush, and a showerhead.

Signage (For Town Facilities)



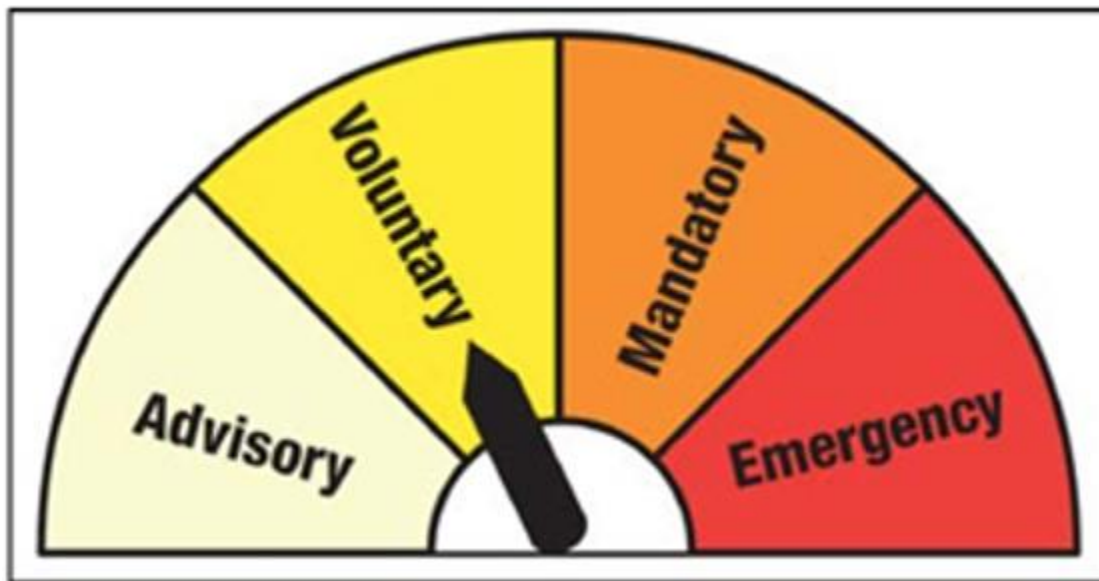
As of *(insert date)*, we are in the voluntary stage of our water shortage response plan.

Everyone is asked to voluntarily reduce water use by 10%.

Please be mindful of your water use. For example, don't leave water running in the kitchen or bathroom.

Go to [10 Ways to Save Water at Home \(americanrivers.org\)](http://10 Ways to Save Water at Home (americanrivers.org)) to further explore ways to save water.

OUR CUSTOMERS ARE STEPPING UP TO THE PLATE.....LET'S DO OUR PART!!



Signage for Doors of Town Businesses, schools, etc...



As of (insert date), we are in the voluntary stage of our water shortage response plan.

Everyone is asked to voluntarily reduce water use by 10%.

Please be mindful of your water use. For example, don't leave water running in the kitchen or bathroom.

Go to [10 Ways to Save Water at Home \(americanrivers.org\)](http://americanrivers.org) to further explore ways to save water.

APPENDIX E: POTENTIAL CUSTOMER DEMAND REDUCTION ACTIONS

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
1	Clothes Washing	Behavior	N/A - Conservation	Indoor	Year Round	NR	Towels On Request: Provide new towels only on request.	No	
2	Clothes Washing	Behavior	N/A - Conservation	Indoor	Year Round	SF & MF	Efficient Clothes washers: If buying a new clothes washer, select a water efficient model. Clothes washers are the second largest water users in homes.	No	
3	Clothes Washing & Dish Washing	Behavior	N/A - Conservation	Indoor	Year Round	All	Wash Full Loads: Wash only full loads of laundry and dishes.	No	
4	Cooling Towers	Behavior	N/A - Conservation	Indoor	Year Round	NR	Check Cooling Towers: Check cooling towers for overflow and excessive blowdown.	No	
5	Dish Washing	Behavior	N/A - Conservation	Indoor	Year Round	SF & MF	Don't Pre-Rinse Dishes: Don't pre-rinse dishes unless heavily soiled. Most new dishwashers don't require pre-rinsing	No	
6	Faucets	Behavior	N/A - Conservation	Indoor	Year Round	SF & MF	Turn Off Tap: Turn off the tap while brushing your teeth or shaving.	No	
7	Faucets	Behavior	N/A - Conservation	Indoor	Year Round	All	Minimize Garbage Disposal: Put food waste in your compost bin, rather than using your garbage disposal	No	
8	Faucets	Behavior	N/A - Conservation	Indoor	Year Round	NR	Thaw in Fridge: Thaw frozen food in the refrigerator, rather than under running water.	No	
9	Faucets	Hardware	N/A - Conservation	Indoor	Year Round	SF & MF	Efficient Faucets: Replace older bathroom faucet aerators with Water Sense models, which use far less water. (Note: There are different flow rates for residential vs non-residential. This is the residential version.)	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
10	Faucets	Hardware	N/A - Conservation	Indoor	Year Round	NR	Efficient Faucets: Replace older bathroom faucet aerators with newer, more-efficient models that use 0.5/1.0 gallon per minute or less. (Note: There are different flow rates for residential vs non-residential. This is the nonresidential version.)	No	
11	Faucets	Behavior	Voluntary	Indoor	Year Round	NR	Water On Request: Serve water only on request, and then ask before refilling.	No	
12	Fire Lines	Behavior	Mandatory	Indoor	Year Round	NR	No Fire Line Testing: Fire line testing within buildings is prohibited. (Note: Confirm w/ Fire Department this is reasonable.)	No	Yes
13	Hose	Behavior	N/A - Conservation	Outdoor	Year Round	All	Use a Broom Not Hose: Use a broom, rather than a hose, to clean sidewalks, driveways, and patios.	No	
14	Hose	Behavior	N/A - Conservation	Outdoor	Year Round	All	Hose Shut-Offs: Never leave a hose running; always use a shut-off nozzle.	No	
15	Hose	Behavior	Mandatory	Outdoor	Year Round	All	No Hose Washing: Using a hose to clean sidewalks, driveways, and patios is prohibited. Use a broom instead.	Yes	Yes
16	Irrigation - Frequency	Behavior	N/A - Conservation	Outdoor	Summer	All	Water Deeply, But Infrequently: It's better to have one or two deep waterings, rather than several shallow waterings.	No	
17	Irrigation - Frequency	Behavior	Voluntary	Outdoor	Summer	All	Eliminate One Watering Day: Cut one day from your typical weekly watering schedule (except for young trees as noted elsewhere). (Note: The similar "Water X Times A Week Maximum" series might be preferred wording, but this is included as an option.)	No	
18	Irrigation - Frequency	Behavior	Voluntary	Outdoor	Summer	All	Eliminate Two Watering Days: Cut two days from your typical weekly	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
							watering schedule (except for young trees as noted elsewhere). (Note: The similar "Water X Times A Week Maximum" series might be preferred wording, but this is included as an option.)		
19	Irrigation - Frequency	Behavior	Voluntary	Outdoor	Summer	All	Eliminate Three Watering Days: Cut three days from your typical weekly watering schedule (except for young trees as noted elsewhere). (Note: The similar "Water X Times A Week Maximum" series might be preferred wording, but this is included as an option.	No	
20	Irrigation - Frequency	Behavior	Voluntary	Outdoor	Summer	All	Water Twice A Week Maximum: Limit plant watering to twice a week.	No	
21	Irrigation - Frequency	Behavior	Voluntary	Outdoor	Summer	All	Water Once A Week Maximum: Limit plant watering to once a week (except for young trees as noted elsewhere).	No	
22	Irrigation - Frequency	Behavior	Mandatory	Outdoor	Summer	All	Water Twice A Week Maximum: Plant watering is only allowed twice a week, in accordance with the published schedule by address.	Yes	
23	Irrigation - Frequency	Behavior	Mandatory	Outdoor	Summer	All	Water Once A Week Maximum: Plant watering is only allowed once a week, in accordance with the published schedule by address.	Yes	
24	Irrigation - Method	Behavior	N/A - Conservation	Outdoor	Summer	All	Tune Up Automatic Systems: Do an efficiency tune up of your automatic irrigation system such as fixing overspray onto sidewalks and ensuring sprinkler heads reach adjacent sprinkler heads	No	
25	Irrigation - Method	Behavior	N/A - Conservation	Outdoor	Summer	All	Get Water to the Roots: Use soaker hoses, drip irrigation, or watering	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
							wants to deliver water where it's needed.		
26	Irrigation - Method	Behavior	N/A - Conservation	Outdoor	Summer	All	Water Young Trees Efficiently: Water young trees efficiently using a water bag. Trees planted 5 or fewer years ago need 15-20 gallons of water twice a week to thrive.	No	
27	Irrigation - Method	Behavior	Voluntary	Outdoor	Summer	All	Water Young Trees Efficiently: Water young trees efficiently using a water bag. Trees planted 5 or fewer years ago need 15-20 gallons of water once a week to survive. (Note: This is only appropriate if the maximum temperatures are in the low 70s w/ occasional showers and not peak daylight hours.)	No	
28	Irrigation - Method	Hardware	N/A - Conservation	Outdoor	Summer	All	Upgrade Automatic Systems: Consider efficiency upgrades to your automatic irrigation system such as weather-based or soil-based controllers.	No	
29	Irrigation - Method	Behavior	Mandatory	Outdoor	Summer	All	No Automatic Irrigation: Use of automatic irrigation systems is prohibited. Watering by hand, soaker hose, and/or drip irrigation is allowed.	Yes	Yes
30	Irrigation - Other	Hardware	N/A - Conservation	Outdoor	Summer	All	2 Inches of Mulch: Put 2 inches of mulch on planting beds and around trees, which reduces evaporation. Keep the mulch a hands-width away from the trunk.	No	
31	Irrigation - Other	Behavior	N/A - Conservation	Outdoor	Summer	All	No Irrigation: Irrigation is prohibited	Yes	Yes
32	Irrigation - Plant Material	Behavior	Voluntary	Outdoor	Summer	All	Mow High: Set your lawn mower blade to cut grass 2 inches high, which reduces evaporation	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
33	Irrigation - Plant Material	Behavior	Voluntary	Outdoor	Summer	SF & MF	Let Lawn Go Dormant: If your lawn isn't already dormant (brown), let it go dormant until the fall rains return. Just water deeply once each month to keep roots alive.	No	
34	Irrigation - Plant Material	Hardware	Voluntary	Outdoor	Summer	All	Plant in Fall: Consider delaying new plantings. Fall is the best time for planting new trees, shrubs, and perennials, since rain provides natural irrigation.	No	
35	Irrigation - Plant Material	Behavior	Mandatory	Outdoor	Summer	All	No Lawn Watering: Watering of lawns is prohibited.	Yes	Yes
36	Irrigation - Timing	Behavior	N/A - Conservation	Outdoor	Summer	All	Water Early or Late: Water before 8am or after 7pm, which reduces evaporation	No	
37	Irrigation - Timing	Behavior	Mandatory	Outdoor	Summer	All	Water Early or Late: Watering between 8am and 7pm is prohibited, due to high evaporation.	Yes	
38	Kitchen	Hardware	N/A - Conservation	Indoor	Year Round	NR	Commercial Kitchen Equipment: If buying new food steamers, dishwashers, or ice machines, select water-efficient models.	No	
39	Leaks	Behavior	N/A - Conservation	Outdoor	Summer	All	Fix Leaks: Check for and fix outdoor leaks, such as at hose bibs, spray heads, valves, and broken pipes.	No	
40	Leaks	Behavior	N/A - Conservation	Indoor	Year Round	SF & MF	Fix Leaks: Check for and fix indoor leaks, such as at faucets. Also, check your toilets for silent leaks. Put several drops of food coloring in your toilet tank. After 10 minutes, if you have color in the toilet bowl, you have a flapper leak. (Note: For the non-residential sector, specify for "tank" toilets for the toilet check.)	No	
41	Other	Behavior	N/A - Conservation	Indoor	Year Round	NR	Equipment Not in Use: Turn off water using equipment when not in	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
							use, including dishwashers, garbage disposals, and food troughs.		
42	Other	Behavior	N/A - Conservation	Both	Year Round	NR	Employee Awareness: Increase employee awareness about using water wisely and encourage their suggestions.	No	
43	Other	Hardware	N/A - Conservation	Indoor	Year Round	NR	Other Water-Using Equipment: Consider upgrading any other water using equipment to models that are more efficient	No	
44	Pools & Hot Tubs	Behavior	N/A - Conservation	Outdoor	Year Round	All	Pool & Hot Tub Covers: Use covers on swimming pools and hot tubs when not in use to reduce evaporation.		
45	Pools & Hot Tubs	Behavior	Voluntary	Outdoor	Year Round	All	Minimize Filling Pools & Hot Tubs: Minimize refilling swimming pools and hot tubs.		
46	Pools & Hot Tubs	Behavior	Mandatory	Outdoor	Year Round	All	No Pools & Hot Tubs: Filling swimming pools and hot tubs is prohibited. (Note: Add a statement about safety around empty pools/tubs.)	Yes	Yes
47	Pressure Washing	Behavior	Voluntary	Outdoor	Year Round	All	Minimize Pressure Washing: Do only essential pressure washing.	No	
48	Pressure Washing	Behavior	Mandatory	Outdoor	Year Round	All	No Pressure Washing: Pressure washing is prohibited.	Yes	Yes
49	Showers	Hardware	N/A - Conservation	Indoor	Year Round	All	Efficient Showerheads: Replace older showerheads with WaterSense models, which use far less water.	No	
50	Showers	Behavior	Voluntary	Indoor	Year Round	SF & MF	Shorter Showers (a): Reduce your showering time.	No	
51	Showers	Behavior	Voluntary	Indoor	Year Round	SF & MF	Shorter Showers (b): Reduce your showering time by one minute.	No	
52	Showers	Behavior	Voluntary	Indoor	Year Round	SF & MF	Shorter Showers (c): Reduce your showering time, by two minutes.	No	
53	Showers	Behavior	Voluntary	Indoor	Year Round	SF & MF	Shorter Showers (d): Limit showers to five minutes or less.	No	

Potential Customer Demand Reduction Actions ¹									
#	End use ²	Behavior vs Hardware ³	WSRP State ⁴	Indoor vs Outdoor ⁵	Season ⁶	Sector ⁷	Demand Reduction Action ⁸	Enforce ⁹	Potential Exemption ¹⁰
54	Toilets	Hardware	N/A - Conservation	Indoor	Year Round	All	Efficient Toilets: If buying a new toilet, look for a WaterSense or Premium WaterSense model, which use far less water than older models. Toilets are the largest water users in homes. (Note: For the non-residential sector, add urinals.)	No	
55	Toilets	Behavior	Mandatory	Indoor	Year Round	SF & MF	Less Toilet Flushing: Flush your toilet less often. As the saying goes, "If it's yellow, let it mellow." Toilet flushing is the largest water use inside the home	No	
56	Vehicle Washing	Behavior	N/A - Conservation	Outdoor	Year Round	All	Wash Vehicles Wisely: Wash your vehicle(s) at locations that recycle the water	No	
57	Vehicle Washing	Behavior	Voluntary	Outdoor	Year Round	All	Minimize Vehicle Washing: Reduce the frequency of, or eliminate, washing vehicles.	No	
58	Vehicle Washing	Behavior	Mandatory	Outdoor	Year Round	All	No Vehicle Washing: Washing of vehicles is prohibited, unless at a location that recycles the water.	Yes	Yes
59	Water Feature	Behavior	Voluntary	Outdoor	Year Round	All	Turn Off Water Features (a): Turn off non-recirculating water features such as fountains.	No	
60	Water Feature	Behavior	Voluntary	Outdoor	Year Round	All	Turn Off Water Features (b): Turn off all water features such as fountains.	No	
61	Water Feature	Behavior	Mandatory	Outdoor	Year Round	All	Water Features (a): Use of nonrecirculating decorative water features such as fountains is prohibited.	Yes	
62	Water Feature	Behavior	Mandatory	Outdoor	Year Round	All	No Water Features (b): Use of decorative water features such as fountains is prohibited.	Yes	

1. This is a list of potential actions that customers can take to reduce their water use. The actual actions requested/required for each stage will depend on the severity, likely duration, and timing of the shortage, as well as the demand reduction needed. The list is in Excel, to allow for sorting and filtering, which should help develop the actual list of actions to be implemented. The list is sorted by 1) end use, 2) behavior vs hardware, 3) WSCP stage.

2. The end use is how the water is being used and is typically a type of water-using fixture/equipment (e.g., showers).
3. The requested/required list of actions should include both hardware and behavior actions in order to: 1) increase the demand reduction potential, 2) ensure every customer type has actions they can do, and 3) minimize the cost to participate. For example, since some customers do not have control over their water-using hardware, it is important to make sure they have behavior actions. Similarly, since behavior actions are typically free, it is important to include many of them.
4. The stage designation is a suggestion but may be appropriate to change due to circumstances of a particular shortage. Note the following about the stage designations:
 - **N/A - Conservation:** None of the actions are designated as Advisory since that stage is internally focused and is not intended to include outreach to customers. However, some actions are identified as Conservation for two reasons. First, if the public/press become aware that the Town has activated the WSRP (at the Advisory Stage level), the Town may be asked to provide suggested customer actions. In that case, Conservation actions (things the Town recommends continually and do not involve customer sacrifice) would be appropriate. Second, many of the Conservation actions can be promoted in the higher stages since some customers may choose not to follow these recommendations and, thus, while technically conservation actions, can be used as curtailment actions.
 - **Voluntary/Mandatory:** The Voluntary and Mandatory actions are true curtailment.
 - **Emergency:** No Emergency actions are identified; however they would likely be the Mandatory actions, without most exemptions.
5. The requested/required list of actions should include both indoor and outdoor actions in order to: 1) increase the demand reduction potential, and 2) ensure every customer type has actions they can do. For example, since apartment dwellers won't be able to implement most outdoor actions, it is important to make sure there is a sufficient number of indoor actions for them.
6. The seasonality of the action is important to consider in regards to the timing of the shortage. For example, if the shortage does not occur during the summer, it is unlikely that the Summer actions (mostly irrigation-related) would be useful.
7. **SF** = single family; **MF** = multifamily; **NR** = non-residential (commercial, industrial, institutional). The requested/required list of actions should include options for all sectors in order to: 1) increase the demand reduction potential, and 2) ensure every customer type has actions they can do.
8. The specific language for each measure has been carefully crafted, based on previous implementations of the WSRP. However, the language is still just a suggestion and can be edited for many reasons including length. Note that some end uses have several, similar sounding actions. In some cases, it is to provide options for the Town to consider (e.g., the number of days to restrict irrigation to). In other cases, it is to provide actions for several stages (e.g., minimize vehicle washing for voluntary and prohibit vehicle washing in mandatory.)
9. The column indicates whether the Town would likely enforce the action. Enforcement is only applicable to the Mandatory (and the eventual Emergency) actions. Outdoor actions are typically stronger candidates for enforcement, compared to indoor actions, since Town staff can more readily see outdoor water uses (e.g., irrigation, hose use, car washing, etc.).
10. Some Mandatory (and the eventual Emergency) actions will have exemptions associated with them, such as for irrigation restrictions. This column indicates a potential exemption. See a separate appendix for more details regarding exemptions.

APPENDIX F: UTILITY CUSTOMER OUTREACH CHECKLIST

This checklist is intended to be used by the Town during implementation of the Water Shortage Response Plan. The checklist differentiates between actions that the Town will perform on behalf of its wholesale customers and actions that each individual utility is responsible for

Check Box	CUSTOMER OUTREACH ACTION
	What the Town does
	Messaging – Coordinate with local communities, Cabarrus Health Alliance, Cabarrus Emergency Management and NCDEQ.
	Website – Post drought information prominently on the Town’s homepage and link to the regional drought website.
	Press Release – for regional droughts, coordinate with other water utilities for press releases to major media outlets.
	Tips Flyer – Create a flyer that helps customers 1) understand there is a shortage situation and 2) understand ways to reduce their water use.
	Regional Websites – Post information as required to a regional website.
	Landscaping community – Outreach to key landscaping community contacts including nursery’s, industry, county parks department. The Town will coordinate the outreach with the appropriate wholesale customer.
	Social media: Include drought messages in any social vehicles used by the utility such as Facebook, Twitter, Next Door, etc...
	Signage: Post signage in appropriate locations (e.g. at the Mount Pleasant Library, Schools, Town Facilities and other key locations in the service area.
	Brief Staff: Brief Town staff regarding the drought.
	Events: Highlight the drought message at any community events the Town is participating in.
	Key Customers: Contact key customers directly.
	Local press releases: Issued press releases to local media outlets and conduct subsequent interviews.
	Email Signature Line: Add a drought message in the email signature lines for Town Staff.

Appendix G: POTENTIAL EXEMPTIONS OR WATER USE RESTRICTIONS

This document provides a framework for developing and implementing exemptions to customer water use restrictions that are part of the Mandatory and Emergency stages of the WSRP.

Water use restrictions are key components of the Mandatory and Emergency Stages of the WSRP. For some water use restrictions, exemptions for continued water use may be appropriate. Exemptions can be useful in balancing the need to reduce overall water demand while minimizing hardships imposed on customers and certain industries, as well as protecting health and safety. For example, in the Mandatory stage, *the* Town may prohibit irrigation for established plants, while allowing irrigation for newly planted landscapes because of their need for water to survive their establishment period.

The importance of exemptions, and effective implementation of them. Prohibiting lawn watering is a sensitive issue, and doing so without clear exemptions can make the situation even more difficult. Both individual customers and the professional landscaping industry could become extremely frustrated. The Town's long-term relationship with the landscape industry is important to advancing the Town's water, drainage, and solid waste goals. One important consideration is to minimize exemptions and to advertise them up front.

As described previously, the WSRP does not pre-identify specific demand reduction actions for each stage. Rather a comprehensive list of potential actions customers can take to reduce water use is provided in Appendix E. The actual actions requested or required for each stage will depend on the severity, likely duration, and timing of the shortage, as well as the demand reduction needed. Similarly, the exact exemptions for the water use restrictions eventually selected for implementation in the Mandatory and Emergency Stages are not pre-identified. Rather this document provides a framework to be used during each implementation of the WSRP for how to develop and implement the restrictions.

Potential Exemptions

Potential exemptions that should be considered include, but are not limited to, the following:

Irrigation (Lines 29, 31 and 35 in Appendix E)

- Newly planted landscapes (Will need to define “new” which could be within 12 months, within the calendar year, or something else. For lawns, likely clarify that “new” does not include overseeding. Need to be clear that plantings done after restrictions are announced are not eligible unless done as part of a capital project and necessary for a function purpose such as slope stabilization rather than for aesthetics.)
- Sports fields (because they contribute to physical and psychological benefits of children and adults, and can be dangerous if not kept watered)
- Plant nurseries and garden centers watering plant inventory
- Food crops
- Disabled gardeners who cannot hand water (applicable to prohibition of automatic systems; likely do not publicize)

Vehicle Washing (Line 58 in Appendix E)

- Vehicle washing at a commercial car washing facility. (The default potential restriction for vehicle washing is “washing of vehicles is prohibited, unless at a location that recycles the water”.) This potential exemption is essentially changing that restriction to be “washing of vehicles is prohibited, unless at a commercial facility” and is a recognition that the former might have a significant negative financial impact on car washes that do not recycle the water.

Pressure Washing (Line 48 in Appendix E)

- Pressure washing necessary to protect public health and safety (not for aesthetic purposes), such as washing downtown parks/sidewalks to clear trash, food, and human waste.
- Pressure washing that is part of scheduled building rehabilitation, such as preparing a surface for painting.

Hose Washing (Line 15 in Appendix E)

- Hose washing necessary to protect public health and safety (not for aesthetic purposes), such as washing downtown parks/sidewalks to clear trash, food, and human waste.

Swimming Pools and Hot Tubs (Line 46 in Appendix E)

- Health care facilities such as hospital physical therapy pools
- Commercial businesses where swimming pools or hot tubs are central to their business and shutting them down would have a significant negative financial impact.
- Public swimming and wading pools, since they serve a large number of people and can offset the use of private, personal pools that serve a small number of people.

Fire Line Testing (Line 12 in Appendix E)

- Testing necessary to protect public health and safety.

Private Wells / Reclaimed Water

- Any use of water that is not from the public water system but is from private wells or reclaimed water. The Town does not have the authority to restrict use of these sources. The Town could encourage users to post signs to indicate that alternative sources of water are being used.

Development Process

- The recommended process to develop and implement the exemptions is as follows:

- Once the water use restrictions have been determined, develop any associated exemptions. The development of the exemptions should include input from the impacted parties. This can be done through the Water Shortage Advisory Group and/or outreach to specific industries such as landscaping, car washing, and building management.
- Decide whether each exemption will require pre-approval by the Town.
- Develop the process and systems necessary for processing exemption requests.
 - Customer contacts the Town
 - Need to determine submission method (e.g., email, phone, website)
 - Need to determine submission contents (e.g., name, address of water use, water account number, description of how they fit the exemption, any required proof)
- Enter request into tracking system.
 - Need to develop tracking system (e.g., Excel spreadsheet)
- Determine whether the request qualifies or not.
 - Need to set criteria to be considered for qualifying exemptions, with some discretion on behalf of the Town (e.g., undue financial hardship, public health, and safety, etc.)
 - Need to determine who can authorize exemptions (the primary contact or higher level?)
- Notify customer of result
 - Need to determine notification method (e.g., email, phone, website)
 - Need to determine whether customer will be required to post notice of exemption from the Town
 - Publicize the exemptions and the process to request an exemption when the restrictions are announced, including noting that exemptions may be revoked if the water supply situation worsens.