HICKORY PUBLIC UTILITIES DEPARTMENT

WATER SHORTAGE MANAGEMENT

Implementation Plan For

City of Hickory

(PWS: 01-18-010)

Owned, Managed and Controlled solely by the City of Hickory

Executive Summary

The Water Shortage Implementation Plan takes the Water Shortage Ordinance and flushes out the mechanics of putting the ordinance to work during times of need. Several issues guided this process. First, the enforcement of any mandatory restrictions has to be done with minimal cost. Therefore, this plan attempts to vigorously enforce its provisions in the most efficient and effective scenario possible.

This plan is the result of many months of research, interviews, and analysis of previous actions, available resources and lessons learned. With this plan, Hickory Public Utilities Department is positioned to quickly and effectively respond to any water shortage crisis.

This plan shall be revised to reflect the needs of the most current situation and to best serve our customers. This plan shall be comprehensively reviewed and modified as appropriate every five years.

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WATER SHORTAGE MANAGEMENT

IMPLEMENTATION PLAN

PURPOSE

A Water Shortage Management Plan is a useful tool in managing water supply problems and emergencies. This plan can be utilized in any number of situations, such as drought, water supply disruption, distribution or quality problems. It can also aid in response to man-made and natural disasters (acts of terrorism, contamination, flood, hurricanes, etc.).

WATER SHORTAGE CONDITIONS

A water shortage shall be declared by the City Manager or his authorized designee in the event of absence, upon recommendation of Hickory Public Utilities, based on some or all of the following factors:

- Such factors as identified by the Drought Management Advisory Group of the Catawba River, in accordance with the drought phase triggers incorporated in to the Low Inflow Protocol;

-AND-

A water shortage may be declared by the City Manager or his authorized designee in the event of absence, upon recommendation of Hickory Public Utilities, based on some or all of the following factors:

- Pressure at monitoring locations of the water system.
- Ability to re-fill water storage tanks of the water system.
- Ability to maintain an amount of water in the ground level storage tanks at HPUD's water treatment plants that is adequate for fire protection.
- Ability to maintain adequate water pressure in every portion of the HPUD water system;
- Adequacy of the water supply in terms of quantity and/or quality for the foreseeable future to satisfy the anticipated demand for water;
- Conditions downstream of the Hickory Public Water Supply water intakes;

- Regulatory requirements affecting operation, repair or maintenance of any portion of the water system;
- Such factors as may affect our ability to supply, treat and/or distribute water through its water system;
- Drought declarations by the State of North Carolina.

PRIORITY USES

Water use prioritization is the key to the success of a Water Management Plan. By grouping water uses by category, Utilities can maintain service consistent with community values and priorities. All users/customer groups will be affected by the implementation of a Water Shortage Management Plan, but in a logical and progressive manner. This strategy allows for decisions to be made when conditions change.

1) Essential Water Use

Essential use means water necessary to maintain public health and safety. All entities charged with ensuring those services are deemed essential functions. In emergencies, water delivery may be limited to specific locations.

Sample uses: Sustaining human health and safety.

Fighting fires.

Testing for public safety standards.

Continued operation of water system.

Operation of medical care facilities.

2) Community/Business Water Use

Community/Business use defines any use of water that is critical to the function of a business or institution or has significant value to the community.

Sample uses: Watering plant stock at nurseries, tree farms.

Commercial car washing.

Maintaining community pools.

Agricultural applications.

Drip irrigation/hand applied water to trees, plant beds.

Water used in production of a product.

3.) Discretionary Water Use

Discretionary water includes water for activities that are deemed elective or non-essential. These activities are the first to be regulated when restrictive measures are enacted.

Sample uses: Turf irrigation.

Ornamental water use – fountains, decorative use.

Water to fill or re-fill pools.

Non-commercial car/vehicle washing.

Irrigation during a rain event.

Water applied to impervious surfaces – driveways, streets, sidewalks, parking lots.

STAGES OF RESPONSE

Trigger points that demonstrate worsening hydrologic conditions will define various stages of drought response. A summary of trigger points for various stages is provided in the table below. The specific triggers required to enter successive stages are defined in the procedure for each stage.

Summary of Trigger Points

Stage	Storage Index		Drought Monitor (3 mo Average)		USGS Streamflow Gages
0	90%< SI<100%TSI		3 mo. Avg DM>0		Avg < 85% LT 6 mo Avg
1	75%<SI</= 90%TSI	And	3 mo. Avg 1 > DM	Or	Avg < 78% LT 6 mo Avg
2	57%<SI</= 75% TSI	And	3 mo. Avg 2 > DM	Or	Avg < 65% LT 6 mo Avg
3	42%<SI</= 57% TSI	And	3 mo. Avg 3 > DM	Or	Avg < 55% LT 6 mo Avg
4	SI </= 42% TSI	And	3 mo. Avg 4 = DM	Or	Avg < 40% LT 6 mo Avg

Stage 0

The preliminary stage of the Water Shortage Plan. The Catawba Wateree Drought Management Advisory Group (DMAG) will initiate monthly meetings to focus on:

Reporting information.

Reviewing history and forecast.

Reviewing plans for responding to conditions.

Stage 1

At this level of alert, citizens are reminded of conservation techniques and encouraged to adopt some water saving measures intended to reduce overall water use. **This level of action is encouraged year round for efficient water use**.

Actions: Notify Employees and Customers of current conditions through local news print, bill inserts, City website, television and radio announcements.

Activate communications plan to raise awareness of conditions with employees, customers and visitors.

Request customers implement voluntary water use restrictions, to include;

Reduction in lawn and landscape irrigation to no more than two days a week by the following method:

Odd addresses may water on Tuesdays and Saturdays.
Even addresses may water on Thursdays and Sundays.
Unnumbered addresses follow the even address schedule.

Water no more than one inch of water per week.

Encourage reduction in residential vehicle washing.

Urge customers to avoid watering during daytime hours (sunrise to sunset).

Provide a status update to the DMAG on actual water withdrawal trends.

Goal: 3 - 5% reduction in demand.

Stage 2

This phase reflects a move in intensity from voluntary actions to **mandatory** restrictions. Restrictions at this time are designed to capture a significant savings with a minimum of regulation. Although this phase does require enforcement, it does not signal emergency or crisis. A move to mandatory restriction is necessary when voluntary measures are not effective in reducing the demand significantly when the supply continues to be threatened by long-range projections or localized interruptions. The following levels may be implemented sequentially or in any order that meets the immediate need to ensure adequate water for necessary uses.

Actions: Notify Employees and Customers of current conditions through local news print, bill inserts, City website, television and radio announcements.

Lawn and landscape water use is limited to the following schedule:

Odd addresses may water on Tuesdays and Saturdays.

Even addresses may water on Thursdays and Sundays.

Unnumbered addresses follow the even address schedule.

Eliminate residential vehicle washing.

Limit public building, sidewalk and street washing activities except as required for safety and health regulations.

Bubble, drip or hand irrigation applied to trees and plant beds is not restricted in Stage 2.

Athletic fields and golf course fairways may submit an alternative watering plan to achieve conservation goals. All customers are asked to reduce consumption and to defer discretionary uses to early morning or late evening hours.

Provide a status update to the DMAG on actual water withdrawal trends.

Enforce mandatory restrictions through assessment of penalties.

Goal: Overall reduction in water use by 5 - 10%.

Stage 3:

Mandatory requirements become more restrictive in an effort to lessen the impacts of worsening conditions.

Actions: Notify Employees and Customers of current conditions through local news print, bill inserts, City website, television and radio announcements.

Odd addresses may water one day a week.

Even addresses may water one day a week.

Unnumbered addresses follow the even address schedule.

Bubble, drip or hand irrigation applied to trees and plant beds is not restricted in Phase I.

These restrictions apply to turf irrigation, athletic fields and golf course fairway irrigation.

No residential vehicle car washing.

No outdoor ornamental water use (fountains, ponds without fish).

No filling or re-filling swimming pools (top offs allowed).

Limited construction uses, street washing or hydrant flushing except to maintain water quality and regulatory compliance.

Enforce mandatory water use restrictions through assessment of penalties.

Encourage industrial process changes that reduce consumption.

Provide a status update to the DMAG on actual water withdrawals.

Overall reduction in water use by 10 - 20%.

Stage 4

This is a severe measure and is reserved for situations where the public water supply is threatened and the Director must act to ensure an adequate supply for essential public needs. The restrictions remain in place until conditions improve to Stage 3 level or better.

Actions: Notify Employees and Customers of current conditions through local news print, bill inserts, City website, television and radio announcements.

Mandatory restrictions prohibit all outdoor water use.

Community/Business water users must reduce their consumption by 25%.

Irrigation of athletic fields and fairways with Hickory Public Utilities Department water is prohibited.

Essential water use customers (hospitals, nursing homes, emergency care providers, etc.) are asked to monitor their use for opportunities to conserve.

All employers are asked to educate their employees about water conservation.

Hand applied irrigation of trees and plant beds are permitted.

Make water available from fire hydrants equipped to dispense water.

Make water available for fire protection where possible, through whatever means.

Place medical facilities at the highest priority standing for available water.

Close valves or remove meters throughout the system to direct water to meet essential priority needs.

Limit total customer water consumption.

Issue a boil water advisory notice.

ENFORCEMENT

Any customer or user who violates the mandatory restrictions, willfully or accidentally is subject to penalties, to include surcharges and possible loss of service. Knowledge of the

prevailing restrictions and proper functioning of automatic sprinkler systems are the responsibility of the property owner and resident. This provision also applies to a customer who violates a variance or a hydrant permit. Customers who violate conditions of a variance, hydrant permit or alternate watering plan are subject to the enforcement penalties as well as additional surcharges.

Enforcement Plan for Stage 2

Enforcement efforts will be focused on the time when no customer should be watering. Customers, who water on the wrong day, Tuesday instead of Thursday, will not measurably affect our water supply condition. They are, in effect, swapping days. The customer who waters on prohibited days, when no one can water, is the problem and that's where our energies will be directed. Likewise, the customer who waters on the wrong day, but who does so at night (after 9 pm) is not placing a hardship on the system, so we will patrol most vigorously on the prohibited days during daytime hours when our system becomes most stressed.

Stage 2 Permitted Watering Schedule:

Odd addresses may water on Tuesdays and Saturdays
Even addresses may water on Thursdays and Saturdays
Unnumbered addresses may water on Thursdays and Sundays

DAYS OF PATROL

For the initial implementation period (first 2-3 weeks), patrols will be conducted on the days that all watering is prohibited – Monday, Wednesday and Friday.

Assessment will be made weekly to determine the results of the patrols.

If demand is not significantly reduced, patrols can be expanded to include every day to enforce the correct watering days.

If the restrictions change to weekends only, the patrols will shift to Tuesdays and Thursdays and one additional weekday (to rotate).

PATROL TEAMS

Surveyors	Revenue recovery
Service Techs	Distribution
WW Collection	

PROHIBITED WATER USE DURING STAGE 2

Lawn/Turf watering that takes place on days when lawn and landscape watering is prohibited, (Hand watering and drip irrigation is allowed any time).
Operating an ornamental water feature that does not support animal life.
Filling swimming pools.
Topping off swimming pools outside of the prescribed days.
Wasting water.

Fines

Violation	1 ½" meter	2" + meter
1st	$100	$200
2nd	$200	$400
3rd	$300	$600

Any customer who violates the Stage 2 restrictions more than 5 times is subject to loss of irrigation water service.

Enforcement Plan for Stage 3

Stage 3 is designed to manage a worsening situation. Limited discretionary outdoor water use is permitted one day a week and business use must be reduced as well. To make the most efficient use of limited resources to patrol for violators, the emphasis must be placed on allocating resources during the times that most severely stress our system. Conscious effort also should be directed to eliminating watering in highly visible, high traffic areas. Depending on the length of time Stage 2 was in place, the customers will have an awareness of the days a week they were allowed to water. The transition down to one day a week will allow watering on one of the previously designated watering days.

COMMERCIAL/INDUSTRIAL COMPLIANCE

These customers must reduce their consumption by 20%.
Meters should be read weekly.

PROHIBITED WATER USE DURING STAGE 3

Lawn or turf watering at any time (Hand watering and drip irrigation is allowed).
Watering fields or fairways. (Watering tees and greens is allowed.)
Residential/non-commercial car washing.
Filling or topping off swimming pools.
Hydrant use except for emergency uses and fire protection.
Applying water to buildings, pavement, decks, hard surfaces unless preparing for imminent painting.

Fines

Violation	1 ½" meter	2" + meter
1st	$200	$400
2nd	$400	$800
3rd	$600	$1200

Any customer who accumulates more than 2 violations is subject to loss of irrigation water service.

Enforcement Plan for Stage 4 Emergency

If the Water Shortage situation progresses to Stage 4 – Emergency, the situation will be managed by Hickory Public Utilities Management, City Manager and other agencies.

Water Rationing would be utilized to ensure public health and safety.

Valves and meters will be adjusted to direct water to meet essential needs.

A Boil Water Advisory may be issued.

All customers will be limited in their total consumption capability.

Business hours may be curtailed.

Patrols will be dispatched according to need and to protect and regulate hydrant use.

PROHIBITED WATER USE DURING PHASE III EMERGENCY

No outdoor water use except for emergency purposes, such as fire protection , water main repair, etc.

Fines same as Stage 3.

Enforcement Policies and Procedures

1. A customer is in violation of the prevailing water restrictions when he/she is using water outdoors in conflict with existing regulations as declared by the City Manager.
2. A citation for a violation is warranted when a Utilities employee observes the watering or sees evidence of the watering during prohibited days or times. Evidence of watering may include:
   - Sprinkler spray pattern on driveway, sidewalk, street or parking lot.
   - Runoff from sprinkler or hose use.
   - Wet turf in absence of recent rain.

3. Prior to issuing a citation, employee must check data sheet containing list of variances granted, previous citations issued and identified well water users.
   Well water users are not subject to the water restrictions.
   Customers with previous citations are subject to increased surcharges.
   Customers given a variance must comply with the stated conditions on the variance form and must post the variance on site.

4. When a violation is determined to have occurred, the Utilities employees should:
   Confirm all appropriate meter and street address information.
   Leave a door hanger/citation at the site of the violation which contains information about the water restrictions and the violation.
   Maintain the copy of the door hanger and turn it in to the team leader at the end of the patrol shift.
   Offer customer a brochure with water conservation information.
   Refer all questions about the violation to the Hotline.
   If customer refuses to stop his water use after being informed of the violation, Utilities employees should alert the dispatcher for further directions.
5. Utilities employees should not attempt to operate a customer's automatic sprinkler timer.
6. If questioned about the restrictions or the surcharges, employees can refer to the pocket guide issued to all patrol members.
7. In the event that a customer becomes hostile or threatening, the employee should leave the property and contact the City of Hickory Public Utilities Department immediately for support and directions.
8. Enforcement employee must turn in all violation notices and variance lists to team leaders at end of patrol shift.
9. Team leaders must submit all updated patrol results.
10. During Stage 3 and 4 Team Leaders will coordinate with meter reading routes to do spot checks of AMR meter consumption for compliance on irrigation meters.

APPEALS

Hickory Public Utilities Department Policy on Violations will be as follows:

All citations for unauthorized water use during any phase of water restrictions will not be changed unless shown to be in error. Knowledge of the prevailing restrictions and proper functioning of automatic sprinkler systems are the responsibility of the property owner and resident. Customers who are not in residence at the time restrictions take effect are still responsible for the operation of any irrigation system on their property using Hickory Public Utilities Department water. These conditions will not be considered a basis for an

appeal of a citation. All water that passes through the user's meter is the responsibility of the customer and is subject to the restrictions in effect.

Appeals are limited to loss of service actions. Customers do not have a right to appeal a citation or a surcharge. They may however ask for information regarding their violation. If a customer feels the citation was issued in error, he may submit additional information disputing the violation. That information should be directed to the violations/appeals team.

Customers whose service is terminated or who receive notice of termination shall have 5 calendar days after termination of service or notice of termination to appeal the action in writing to the Director of Utilities, or his designee. A hearing will be held within 3 business days of receipt of appeal. Termination orders will be suspended until an appeal decision is made. Appeal procedures will be available on the Utilities website.

REVISION TO PLAN

Revisions to the Ordinance will occur from time to time in accordance with previous sections of the Emergency Water Shortage Response Plan. All revisions to the Ordinance will be presented to City of Hickory City Council and a Public Hearing will be held for comment and modification of the Ordinance. Provision of comments by the Public and opportunity for Public inspection suggested modifications will be granted in accordance with General Statues affecting Public Hearings.

VARIANCE

A variance from the prevailing mandatory water restrictions may be granted to a customer satisfying the requirements to use water for a purpose that would be otherwise prohibited. Variances may be granted for new landscape installations to help the new planting become established.

In order to qualify for a variance, a customer/user must apply in writing, using a prescribed form, supplying all necessary information. Once the variance is approved for a specific time period, the variance is sent back to the customer to be displayed on site. All variances are recorded and maintained in a database for use by enforcement officials. All variances expire on the noted expiration date or at the onset of Phase III mandatory emergency restrictions

How to apply:	State request, reason and duration in writing addressed to City of Hickory Public Utilities Department.
Who may apply:	Property owners or resident at the location where the water will be used and where water bill is sent.
Notification:	Applicant will be notified of the status of the request within 3 business days.

Obligation: Property owner must display a copy of the variance on site when watering and must comply with all provisions of the variance.

Variance Stage 2: New landscape installation is granted permission to water on the day of installation, and for 30 days more, during the approved hours and under special conditions for outdoor water use. An additional 30 days may be granted to extend a variance if warranted and requested.

Variance Stage 3: Landscape installations installed during the previous 30 days may be granted permission to water for 30 days. No new landscape installations will be granted a variance.

Variance Stage 4: No variances allowed. All previous variances will be voided.

Variances are not needed for water use not restricted by this ordinance, such as garden centers, tree farms, well users, etc.

Violation of the terms of the variance will be treated as a violation of mandatory restrictions and all prescribed surcharges will apply. In addition, the variance will be voided at the time of the violation.

RETURN TO NORMAL CONDITIONS

When the factors measuring the water shortage conditions warrant, the Director of Utilities shall recommend that the City Manager issue a public notice declaring the water shortage resolved and the termination of water restrictions. This action means the emergency has eased but that conservation and wise water use should continue. Such actions will help to ensure the continuing availability of a safe and reliable water supply for our community.

The Water Shortage Management Plan is effective upon adoption by the Assistant Director of Public Services/ Public Utilities.

Approved as to form:

M. Shawn Pennell
Hickory Public Utilities Department

8.17.18
Date