



Town of Rocky Mount Drought Response & Water Emergency Plan

Drafted by: Matthew C. Hankins, Assistant Town Manager
T.W. Wade, Water Treatment Plant Director

*Submitted for Town Council's consideration Monday, February 11, 2008
Revised for Public Comment 3/26/2008*

Statement of Purpose

The Town Council of Rocky Mount, a municipal corporation of the Commonwealth of Virginia, recognizes the value of water resources for maintaining public health and sanitation, commercial and industrial enterprises, vegetation growth, and pet and livestock welfare within the Town and its water utility service territory.

Within recent years, the town's only source for raw water has experienced extended periods of low flows caused by historic droughts, and the Town must protect itself and its residents by establishing a set of standards for town staff to follow in cases of water emergencies.

Recognizing state and regional drought conditions, Governor Tim Kaine in November 2007 directed localities and water systems throughout the Commonwealth to examine or draft drought contingency plans in case of continuing drought, and the Virginia General Assembly (through legislation) and Department of Environmental Quality (through regulation) have mandated the town complete its Drought Response Plan by 2010.

The Town, in turn, recognizes that in light of its expanding population, number of planned new residential units in development within the Town utility service area and likelihood of new industrial development and existing industry expansion, the Town must develop additional water resources and take measures to protect utility customers during times of water shortages.

In order to ensure the continuous supply of water adequate to meet residential, commercial, recreational and industrial needs within the community, the Council of the Town of Rocky Mount hereby sets forth and enacts the following Drought Response Plan as a guide for the staff and public to use in cases of water emergency.

Statement of Enforcement Authority

A number of key factors determine the availability of water for use by the Town of Rocky Mount and its residents, and those factors fall into two main categories: climate-influenced and human-influenced.

Insofar as residential, agricultural, commercial and industrial activities determine the town's ability to process, store and distribute water, Town Council authorizes the Town Manager and all town departments to implement the remedies contained within this plan to mandate conservation during water emergencies, regulate water use and set limits for fair use.

The Town Council recognizes its authority under Virginia Code §44-146.13 and Town Charter Article XII to declare, manage and mitigate local emergencies, and authorizes the Town Manager and staff to take all steps necessary to mitigate the negative impact of water emergencies, in accord with the Code of Virginia, Virginia Regulatory Code, Town Charter & prudent water management practices.

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TOWN CODE REFERENCES TO WATER SYSTEM

ARTICLE XII. CONDITIONS FOR USE OF WATER SYSTEM

Sec. 58-291. Water use restrictions during period of drought or emergency.

(a) The manager shall have the authority to designate and formulate all necessary conditions and restrictions concerning the conservation of public water during periods of drought or emergency.

(b) The manager shall have the authority to permit or not permit sprinkling of grass, gardens, washing of automobiles and other activities involving the use of water from the water system. Such conditions and restrictions shall bear a reasonable relationship to the conservation of water or water pressures, and shall be advertised by the publication of the conditions and restrictions at least once in a newspaper having general circulation in the town.

(c) Any person who fails to comply with or violates any conditions or restrictions imposed by the manager under the authority of this section shall be guilty of a misdemeanor and shall be punished by a fine not more than \$250.00.

(Ord. of 7-11-94, art. XIII, § 1)

Sec. 58-292. Records of amount of water treated.

The manager shall cause to be kept an accurate daily record showing the number of gallons of water treated by the municipal water supply. The manager shall also see that any regulations of the state department of health regarding the operation of a municipal public water supply are met by the town.

(Ord. of 7-11-94, art. XIII, § 2)

Sec. 58-293. Unlawful furnishing or taking of water.

(a) It shall be unlawful for any occupant of a lot or tenement on which there has been placed a hydrant, cock or other fixture for the purpose of supplying town water to permit such water to be used, taken or received by any person other than himself, a member of his family or a visitor without the permission of the town manager.

(b) The person taking, using or receiving the water shall be guilty of a misdemeanor. In such case, the manager shall direct that the water be cut off from such lot or tenement and the water shall not be turned on until such satisfactory security is given that use, taking or receipt will not recur.

(Ord. of 7-11-94, art. XIII, § 3)

Sec. 58-294. Temporary use of water from other premises.

Nothing in this article shall be construed to prevent the occupant of a lot or tenement supplied with town water, when his hydrant or pipe is out of order and when he is not in arrears in the payment of charges for water, from having the use of water from another lot or tenement with the consent of the occupant or owner thereof.

(Ord. of 7-11-94, art. XIII, § 4)

Sec. 58-295. Repair of leaking fixtures.

(a) If a water connection, hydrant or cock or other plumbing fixture is found leaking on any premises, and the owner of such premises, after notification by the manager or his agent, refuses or fails to have the necessary repairs made, the manager shall cut off the water from such premises, and any person who shall then turn on the water before such repairs are made shall be guilty of a misdemeanor, punishable by a fine of not more than \$250.00.

(b) In addition to any fine as provided under subsection (a) of this section, the owner shall pay the cost of restoration of service as provided in this chapter or the town treatment works user charge ordinance.

(Ord. of 7-11-94, art. XIII, § 5)

Sec. 58-296. Water and energy conservation.

The conservation of water and energy shall be encouraged by the manager. To the greatest extent possible, the manager shall encourage the conservation of water and energy needed to operate the municipal water system. The manager shall promote the conservation of water and energy at all municipal buildings and grounds. Where practical, water meters will be installed at municipal facilities to enable the monitoring and use of water.

(Ord. of 7-11-94, art. XIII, § 6)

Sec. 58-297. Damaging or tampering with waterworks.

It shall be unlawful for any person to tamper with, change, alter or manipulate any water meter, water box or any other fixtures or appurtenance connected with the water meters placed by the town upon any property using town water.

(Ord. of 7-11-94, art. XIII, § 7)

Sec. 58-298. Disconnection of service when customer vacates premises.

(a) Before any person who uses town water at a house or other structure or premises moves therefrom, he shall, or before the date of such removal, notify the town finance director. The finance director shall see that account balance is cleared.

(b) The finance director shall report the vacancy date to the water department. The water department shall cause the water service to the vacated structure to be disconnected.

(Ord. of 7-11-94, art. XIII, § 8)

Sec. 58-299. Right of town to discontinue service to property outside town.

The town, in supplying water to any person occupying property outside the corporate limits of the town, reserves to itself the right to discontinue supplying water unless otherwise provided by contract or agreement.

(Ord. of 7-11-94, art. XIII, § 9)

Sec. 58-300. Application for service; use of service without established account.

(a) It shall be the affirmative duty of any person who shall occupy any dwelling within the town or who otherwise shall use town water, sewer or solid waste services to apply to the town finance director for an account, prior to use of such services. Occupancy in a dwelling shall be prima facie proof of usage of services.

(b) Any violation of this section shall be punished as a misdemeanor, and each day that the violation continues shall be a separate offense.

(c) In addition, the manager shall take all necessary steps to collect past due water charges from any user, on behalf of the town, for services used prior to a proper account being established.

(Ord. of 7-11-94, art. XIII, § 10)

Secs. 58-301--58-320. Reserved.

Suggested amendments to the code:

Sec. 58-291. Revise Part C to read (c) Any person who fails to comply with or violates any conditions or restrictions imposed by the manager under the authority of this section shall be guilty of a Class misdemeanor and shall be punished by a fine ~~not more than~~ of \$250.00 for the first offense, \$500 for the second offense, and \$1,000 for the third and subsequent offenses.

Add D. Notwithstanding the annual budget ordinance, the Town Manager may, during water emergencies, institute a pricing structure designed to curb excessive water use.

PARTNERS

Public Sector

Water Department

The Rocky Mount Water Department draws and processes raw water from the Blackwater River, which originates near the Franklin-Roanoke-Floyd County line, draining tributaries in its watershed as it moves through the Callaway area and on toward Rocky Mount. The Water Plant filters out impurities using two settling tanks and chemical application to purify water for drinking and all other uses.

Public Works

Public Works supervisors and employees install, maintain, upgrade and repair all water mains, taps, meters and accessory structures within the Town of Rocky Mount water system.

Wastewater Treatment

The Wastewater Treatment Plant and its employees treat wastewater, removing sludge, dewatering it for removal and disposal, and releasing cleaned water into the Pigg River.

Finance

Finance accepts applications for service, reads meters, bills and accepts payment for water, shuts off water service for non-payment, and for reporting purposes aggregates usage by type for all water customers served by the Town of Rocky Mount water system.

Community Development Office

Planning approval for new residential units, commercial enterprises and industrial developments should take into account water usage for those new units, and should communicate anticipated new needs to the Water Department for inclusion in planning purposes. Planning should work with developers to ensure the use of water efficient appliances and fixtures during the pre-construction planning phase of developments.

Police Department

In cases of extreme water emergency, the Police Department's patrols will be able to assist in determining when water users engage in activity harmful to the overall stability of the town water system.

Franklin County

The Town serves a number of residents outside its corporate limits. Any development of new water storage reservoirs must be a partnership with Franklin County to qualify for Virginia Resources Authority funding and Virginia Department of Environmental Quality approval.

Private Sector

The Public

As approximately one-third of the usage for the Town of Rocky Mount water system, residents play a vital role in decreasing water volume demand. It is important for residents to maintain their homes, fixtures, and appliances in a manner that supports water conservation efforts.

Commerce & Industry

Commercial and industrial customers have the greatest impacts on use of water, consuming approximately two-thirds of all water used. As the largest users, those industries stand to feel the greatest impact from any reduction in available water and from water rationing in cases of extreme drought. Industries use large quantities of water for a variety of processes, and some commercial and industrial interests use disproportionate amounts of water, such as for car washes, pressure washing, ice manufacturing, veneer processing, landscaping, greenhouses, groceries, and other water intensive activities.

Residential Developers

Residential developers play an important role in future residential development, and should work with the Community Development Office to include water-efficient appliances, plumbing and fixtures in new construction and renovation.

Media

The Franklin News-Post, Cable 12, WBZZ-FM and WYTI-AM are critical to notifying the public of emergencies and steps necessary to mitigate the impact of those emergencies.

PERMIT

In 1981, the Rocky Mount Water Treatment Plant was permitted by the Virginia Department of Environmental Quality to draw two million gallons per day (3.095 cubic feet per second of river flow) from the Blackwater River at its intake located just off U.S. Route 220 north of the town limits on Shady Lane. There are no downstream flow considerations required by the DEQ in the town's permit, and the town's water usage has little to no impact on downstream water systems or hydroelectric production.

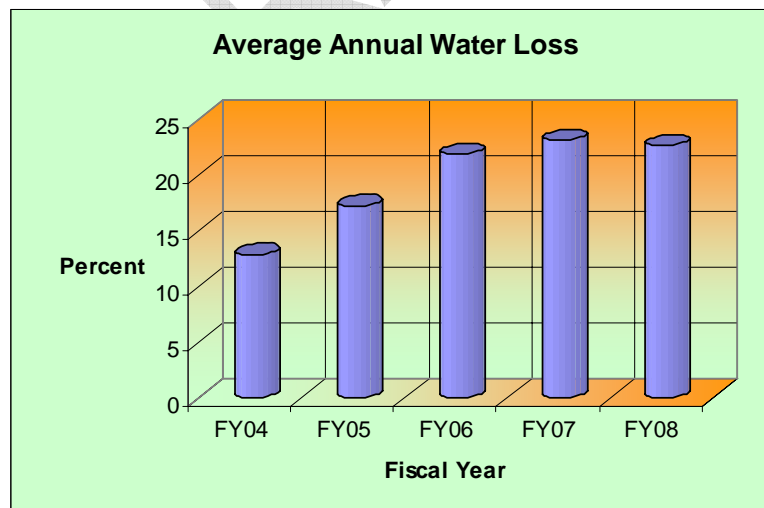
The Water Plant's intake is located behind a short dam which allows extremely limited surface storage of water and ease of intake into the Town system. The plant is capable of treating and finishing a maximum of 2 MGD, and meets current demand average of 32.7 million gallons per month.

The town's water production capacity is equal to its 2 MGD draw from the Blackwater. In other words, the town cannot increase its water output by requesting an increase in its permit, and cannot increase its permit without expanding the plant's capacity.

Current monthly raw water drawn is typically between 50 and 55 percent of capacity, with the midpoint FY08 average monthly capacity at 54.65 percent. For a single-source water provider such as Rocky Mount, Virginia Department of Health regulations mandate that when average water use consistently exceeds 65 percent of its maximum draw (1.3 MGD), the Town must begin searching for an additional source of water. At 80 percent of capacity, the Town must bring another source online.

The average water loss (unbilled, unmetered or leaking water) ratio over the previous five years is 19.23 percent, which is at the high end of the normally acceptable range for municipal water systems. At its peak over those five years, the system reached a maximum monthly water loss ratio of 39.04 percent in April 2007, and the Town's additional steps to stop leaks, find unauthorized and unbilled taps, and minimize the use of unbilled water for all purposes has slowed overall water loss. However, since 2004, the average annual growth of total finished water produced (7.79 percent) still outpaces the average annual growth of water billed (5.18 percent).

On a fiscal year basis in FY07, the water system could not account for 23.13 percent of its finished water, and the recent trend since 2004 is an increase in unaccounted water every year. Through half of FY2008, the annual average is 22.74 percent unaccounted, or nearly 7.3 million gallons lost monthly, approximately 243,000 gallons per day.



The Town's Code Enforcement & GIS Technician has worked to locate unbilled taps, and the Public Works Department has ongoing efforts to reduce leaks in the system. The town administration is exploring the availability of grants to assist in the location of leaks.

There are currently no plans to replace infrastructure on a large scale except in the Uptown Revitalization District, where new water supply lines will all be installed during reconstruction in 2008. New water and wastewater infrastructure is planned to support residential unit development along Old Ford Road.

RECENT HISTORY

The Town Water Plant was constructed beginning in 1981 and came online in 1983.

The Town has in recent years taken steps to increase its tank storage capacity, with 2.7 million gallons of finished water storage, approximately two days' maximum storage with average use. The Town commissioned an alternative water source study in 2003, and a new water storage tank came online at Grassy Hill in July 2005. In the same month, a 300,000-gallon fire suppression tank was filled at MW Windows, and the Town's 220 North Tank was filled to 200,000 gallons.

The Town has drilled deep wells in an attempt to locate additional water sources near the Water Treatment Plant, but well water production was so low as to make this an ineffective alternative. The Town has been unable to locate additional water sources to date. While recent leadership staff changes have delayed that process, the new leadership staff continues to explore options for alternative water sources, and will make recommendations to Town Council as appropriate for funding engineering studies and capital development.

The Town and Franklin County were unable to come to a mutual agreement on supplying water to the Plateau Plaza area outside the town limits, and Franklin County now has an agreement in place with the Western Virginia Water Authority to construct a 12-inch main along U.S. 220 from the Roanoke County line through Boones Mill and on to Plateau Plaza. Construction should be complete in 2008.

T.W. Wade has served as Water Treatment Plant Supervisor since 2001. He has a staff of five operators who work to filter and treat water and maintain the plant and its equipment.

Water Storage

The Town of Rocky Mount currently has approximately two days' reserve storage capacity via seven storage tanks:

Tank Location	Capacity
220 North	200,000 gallons
220 South	1,000,000 gallons
Bald Knob	300,000 gallons
Grassy Hill	500,000 gallons
Pendleton 1*	100,000 gallons
Pendleton 2*	300,000 gallons
Scuffling Hill	300,000 gallons

*The two Pendleton tanks function as a single tank.

All tanks are filled from plant pumps and are on altitude valves, except Grassy Hill, which is filled by two pump booster stations.

Exhibit 1.

Data provided by Rocky Mount Finance Department.

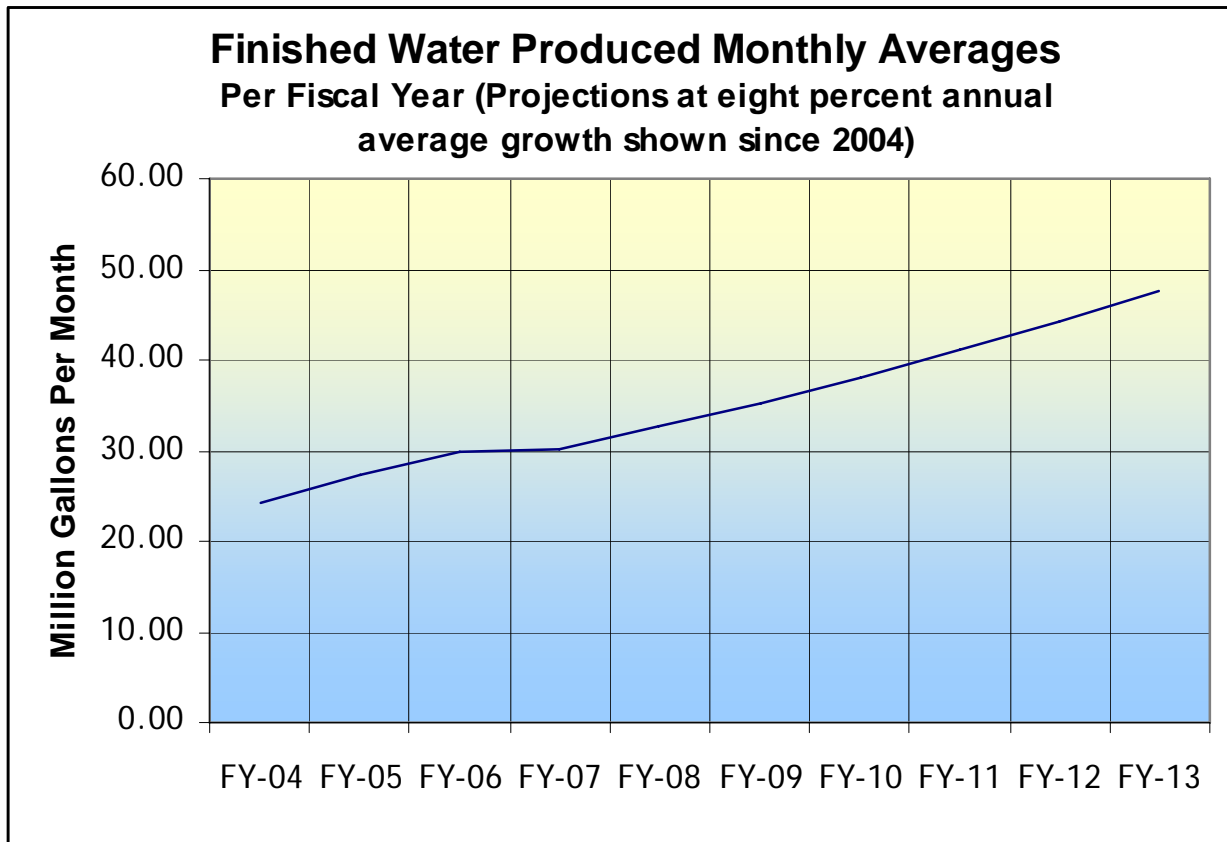
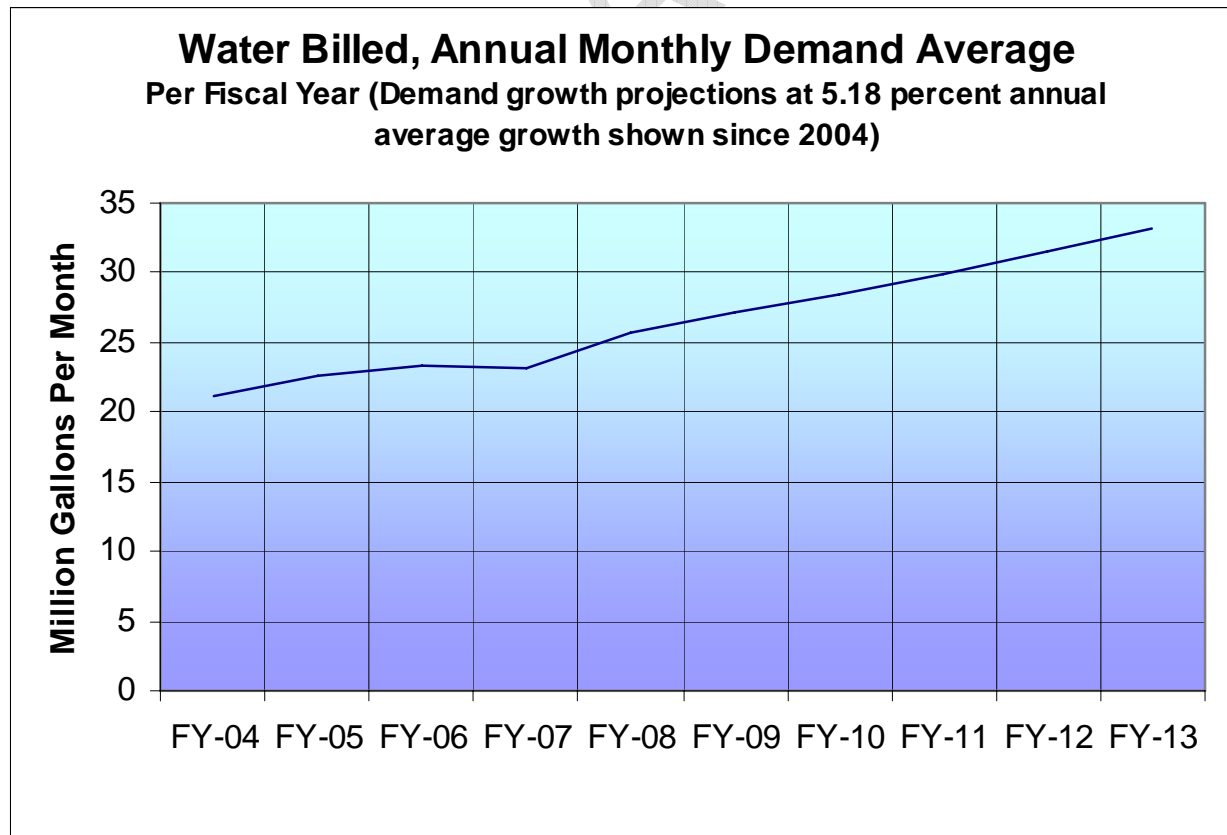


Exhibit 2.

Data provided by Rocky Mount Finance Department.



Data for FY2008 is incomplete and will be refigured to ensure accuracy in July 2008.

DROUGHT & WATER EMERGENCY ACTION PLAN

Determining Events & Determinant Data

The Governor and the Executive Branch agencies responsible for water planning, drought monitoring and long-term planning recognize that each water system is unique and requires its own response consistent with local conditions. Water supply planners for the Virginia Department of Environmental Quality indicate that each system must implement drought response plans based on available water, relevant climate and hydrologic data.

Drought response typically takes the form of stages, wherein a locality's water system reaches a determining trigger point, which causes a new and higher level of response to impending crisis within the water system service territory. This plan uses a five step system similar to the Terrorist Threat Assessment system used by the Federal Department of Homeland Security, in that the Town is never out of a water watch regardless of the level of water available.

Monitoring

The Water Plant Supervisor and operators shall diligently and daily monitor the flow of the Blackwater River, which shall serve as the primary trigger of each stage of conservation. The Town Manager and staff shall use river flow as the principal determinant when deciding whether to implement conservation and restrictions, in conjunction with other relevant factors, such as annual rainfall to date, per capita water usage averages, daily average temperature, plant operational status, distribution system status, Virginia Department of Health inspections and notices, and any other relevant input with direct impact on the Town of Rocky Mount's ability to deliver safe water throughout its service territory. In determining per capita usage, this report uses a population estimate of 5,100.

Water availability data will be derived from the following sources:

US Geological Survey Hydrological Data for Rocky Mount (stream flow). The USGS site is located downstream from the Water Treatment Plant. As a result, additional water flows from smaller tributaries and drainage areas into the river between the plant and the gauge. Therefore, this plan uses slightly higher levels (approximately five percent) than mandated by the state to account for a slightly smaller flow at the Water Treatment Plant intake. Data is available online for the Rocky Mount gauge at <http://waterdata.usgs.gov/nwis/uv?02056900>.

The daily update of the Water Watch is available in .pdf format through the USGS website at <http://water.usgs.gov/waterwatch/?m=real&w=map&r=va>.

National Weather Service – National climatological data, precipitation forecasts and drought monitoring are all online and accessible through <http://www.erh.noaa.gov/er/rnk/>.

National Oceanic & Atmospheric Administration Drought Report for Virginia is online at http://www.drought.unl.edu/dm/pdfs/va_dm.pdf.

Virginia Drought Management Task Force – Localized data and reports on statewide drought conditions are available through the Virginia Department of Environmental Quality site at <http://www.deq.state.va.us/waterresources/>.

Water Emergency Management Team

The following members of staff shall serve as a committee to implement, coordinate and direct the Town's response to any water emergency. The committee shall meet as often as required by the Town Manager to ensure the Town's goals for water conservation are met.

Town Manager, Assistant Town Manager, Finance Director, Police Chief

Water Treatment Plant Director, Public Works Director, Wastewater Treatment Plant Director

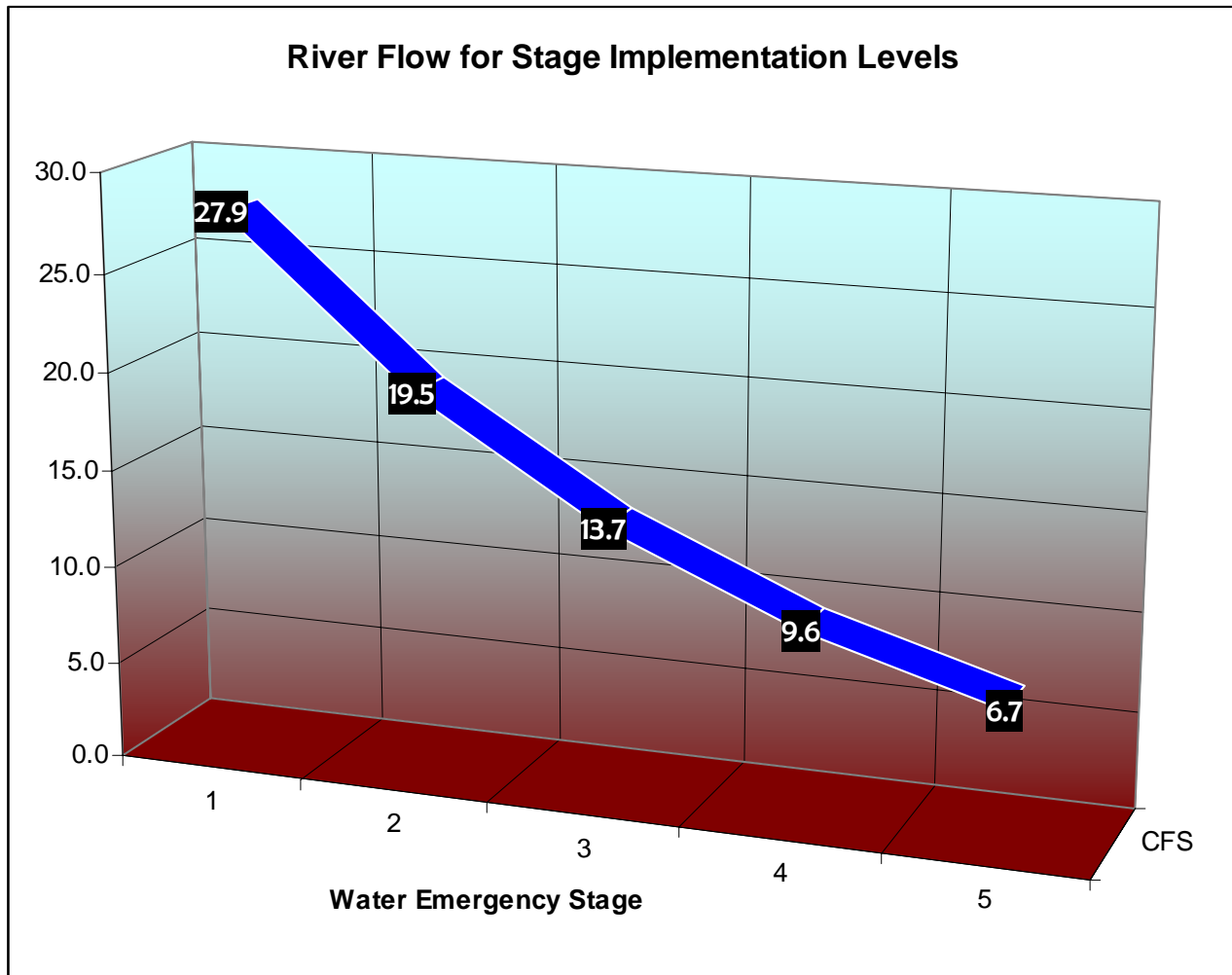
Oversight of the Water Emergency Management Team

Public Utilities Committee

Town Council

STAGES & TRIGGERS

Exhibit 3. Stages of implementation in flow of Blackwater River, in cubic feet per second (CFS).



Assumptions:

- For calculation purposes, Stage 1 is shown at 27.9 cfs, but includes everything above that flow. Stage 2 does not kick in until 19.5 cfs.
- Each stage after Stage 2 is 70 percent (varies slightly due to rounding) of the previous stage.
- Stage 5 just barely meets the Town's maximum daily water production, as the Water Plant intake cannot capture 100 percent of the river volume.
- The current river gauge does not account for up to 3.1 cfs removed from the river by the Water Treatment Plant.

IMPLEMENTATION

Implementation of any stage of the Drought Response Plan may be initiated by any member of the Water Emergency Management Team, although the typical expectation would be for the Water Plant Supervisor to lead this step.

Direction

The Town Manager shall direct the implementation of the plan. The appropriate steps shall be communicated by the administration to the Town Council and to residents utilizing communications plans contained within this plan.

The Town Manager and the Water Emergency Management Team may take into consideration any unforeseen data or event practical to the prevention or mitigation of water emergencies when making determination to implement the next stage of the Drought Response Plan.

Early or Delayed Implementation

The Town Manager may use liberal discretion in determining whether triggers have been, or will be, met, depending on meteorological and hydrological data and long-range forecasts generated by the National Weather Service and other reliable sources as may determined by the members of the Water Emergency Management Team.

In keeping with Town Code, the Town Manager may by executive order implement stages without prior council approval, and while council approval is not required, is suggested for each stage.

Examples:

Example 1:

If the Town water supply reaches triggers but near-term forecasts indicate the likelihood of significant precipitation, the Town Manager may delay implementation of the next conservation stage to determine the effect of precipitation on the water supply.

Example 2:

If triggers have not been met but are likely to be met based on available data and forecasts, the Town Manager may implement the next stage of conservation early.

Example 3:

The Water Plant has a need for a significant repair that will cause it to be offline for a full day's production. In scheduling the repair, the Town may implement any stage it feels is necessary to minimize water use during the production outage.

Stage 1: Routine Conservation, Monitoring & Water Watch

Stage One is continuous. To preserve natural resources, homeowners, tenants and landlords, commercial and industrial water users should use water carefully, maintain plumbing and water distribution systems, monitor monthly use and repair problems as soon as they are detected.

Triggers:

- Adequate river flow (27.9 cfs or more; 18 MGD available; 9 times maximum draw or more available; flow below 27.9 cfs triggers water watch)
- Per capita water demand average within 10 percent of norm
- Rainfall within 10% of annual norm
- Water plant production capacity normal

Actions:

Voluntary Conservation efforts

Customers should refrain from overusing water. If they notice unusual amounts of water use, they should work with private contractors to ensure fixtures and plumbing are in good repair. Encourage use of rain barrels, gray water recycling and other water-saving measures to ensure stability of water system.

System leak detection & elimination

Town water system employees must continually work to eliminate leaks in the water system, find unbilled taps and eliminate cross-connections. Leaks should be repaired as quickly as possible.

Meter maintenance & replacement

Water meters wear over time and become less accurate over time. The Town should implement and maintain a staggered meter-replacement program to ensure water meters account accurately for all water usage.

Line redevelopment

In areas where water lines have aged or deteriorated and leaks have become routine, the Town should implement a routine capital reserve fund to replace significant mains, increase pressure and improve fire protection while minimizing water loss.

Development of additional water sources

The Town system will not always be able to survive on a single source of water. The Town should explore, consider and commit capital investment to mutually beneficial water development opportunities.

Dam integrity

At regular intervals, the Town should dredge sediment from behind the water plants intake dam to allow for maximum storage. If practical and permitted by the state, the dam height should be raised to allow for greater storage capacity.

Planning

The Planning Department shall consider the impact on the water system when approving new developments and industries.

Hydrant Maintenance

The Town Volunteer Fire Department should work with Public Works to clean out and maintain hydrants to ensure readiness for fire service.

Communications & Public Education Efforts:

- Place news with local media to enhance public conservation awareness.
- Occasional direct mailings to water customers to offer conservation ideas.
- Include conservation reminders on Town website and television channel.

Stage 2: Water Concern & Voluntary Conservation

Triggers: *Two or more of these events should be met for implementation.*

- River flow is 19.5 cubic feet per second or less (just over 6 times permitted draw; 12.6 MGD available) for 30 days or more, with action prior to 30 days if water levels show rapid decreases.
- Per capita water demand $\geq 10\%$ above annual average.
- Past six months' rainfall 75 percent or less of normal average for the same period.
- Extended 30-day forecast calls for less than five days of precipitation.
- One day or less of water plant production outage.
- Additional concerns, such as action by the Virginia Drought Monitoring Task Force or implementation of a local, regional or statewide burn ban.

Expected length of stage:

Up to six months.

Actions:

Extend voluntary conservation efforts.

Limit plant/lawn watering during daylight hours and encourage use of hand-watering. Limit pool filling, car washing, pressure washing and similar wholesale uses of water.

Involve commercial and industrial interests.

Notify largest water users that the Town is entering water concern stage, and ask for their help in reducing water consumption in non-critical business and industrial processes.

Communications & Public Education Efforts:

- Weekly media releases on conservation steps. Provide tips on measures necessary to save water, and explain potential consequences of an extended drought, including price increases and
- Town staff should make appearances on local media outlets to explain the water situation and offer suggestions for limiting water consumption.

End of Stage

This stage shall end after water levels return above implementation level for more than 30 days.

Stage 3: Water Shortage & Mandatory Conservation

Triggers: *Two or more of these events should be met for implementation.*

- River flow is 13.7 cubic feet per second (just over four times maximum draw), 8.9 MGD available and diminishing.
- Per capita water demand \geq 90% annual average
- Past six months' rainfall 50 percent or less of normal average for the same period
- National Weather Service's 30-day forecast indicates fewer than five days with possible precipitation and the 90-day forecast calls for continued below normal precipitation.
- Plant production outage or pump failure, or any additional concern.

Actions

Water Abuse Hotline

Implement a reporting system via both e-mail and phone to allow residents to report water abusers.

Notification

Print and mail mandatory conservation notice postcards to all town utility customers detailing prohibited activities, encouraging conservation and notifying them that water prices will increase without conservation. Notify Franklin County of the impending emergency to enlist available assistance and engage cooperative efforts to develop additional water resources.

Water Recyclers

Encourage use of water recyclers (rain barrels, gray water, etc.) through sponsorship of workshops, wholesale barrel re-sales and school events.

Prohibit bulk water use and sales

Encourage use of non-potable water sources for construction activities and other bulk water uses.

Bottled Water

Encourage use of bottled water for drinking. Prohibit water glasses at restaurants unless requested by the customer.

Local Emergency

Declaration of local emergency, forwarded with a request for a Governor's Declaration of Emergency to the Honorable Charles PoinDEXter, Virginia House of Delegates; the Honorable Robert Hurt, Senate of Virginia; and the Office of the Governor of Virginia, with a copy to Franklin County.

Industrial and Commercial Users

Issue notice industrial and commercial users to minimize the use of water in essential industrial and commercial processes.

Communications & Public Education Efforts

- Weekly media releases on conservation steps. Provide tips on measures necessary to save water, and explain potential consequences of an extended drought, including price increases and
- Town staff should make appearances on local media outlets to explain the water situation and offer suggestions for limiting water consumption.
- Workshops on water conservation, in concert with Franklin County, Franklin County Public Schools, Virginia Department of Health and other assistance agencies.
- Hire consultants to conduct conservation training for the public.

End of Stage

This stage ends after water levels return to next level for more than 30 days.

Stage 4: Water Emergency

Triggers: *The Town should immediately implement this stage upon any of these events.*

- River flow is 9.6 cubic feet per second, 6.2 MGD available water at the Blackwater Gauge near Rocky Mount (just over three times the maximum Water Treatment Plant draw) and diminishing.
 - Five percent above state-mandated implementation of water restrictions; accounts for the approximate difference between capacity at the Water Treatment Plant and the gauge location.
- Per capita water demand \neq 85 % or less of annual average
 - Water restrictions have failed to adequately curb per capita water use.
- Past six months' rainfall 40 percent or less of normal average for the same period.
 - Extreme drought means lower water tables and longer lead times for water replenishment.
- National Weather Service's 30-day forecast indicates fewer than 4 days with possible precipitation and the 90-day forecast calls for continued below normal precipitation.
- Plant production or pump failure of indeterminate duration.

Actions:

Emergency Status

If emergency status has not been granted, request emergency declaration by the Governor pursuant to Virginia Code §44-146.19.

Emergency Pricing For Water

Increase rates by 200 percent to provide economic incentive to reduce water usage and cover costs of increased enforcement measures.

Increase Enforcement Measures

Pay overtime to police officers to enforce water use prohibitions and to catch abusers. Issue fines for repeated offenses.

Increase Meter Reading Frequency

Read meters weekly. Issue warning letters to excessive water users (those customers using 110 percent of the town's average per capita residential use for the past three years).

Continue measures implemented in first four stages.

As water scarcity increases, conservation efforts and public education measures become more critical to the Town's ability to provide safe drinking water to the community.

Communications & Public Education Efforts

- Paid advertising in local media outlets encouraging the conservation of water.
- Town staff should make frequent appearances on local media outlets to explain the water situation and offer suggestions for limiting water consumption.
- Workshops on water conservation, in concert with Franklin County, Franklin County Public Schools, Virginia Department of Health and other assistance agencies.

End of Stage

This stage shall end after water levels return above implementation level for more than 45 days.

Stage 5: Extreme Water Emergency

Triggers: *Immediately implement upon either one of these events, in combination with consideration for events built within Stage 4.*

- River flow is 6.7 cubic feet per second, 4.3 MGD available water at the Blackwater Gauge near Rocky Mount (just over twice the maximum Water Treatment Plant draw) and diminishing.
- Plant production or pump failure

Actions

Water Rationing

Cutoffs for excessive use.

New Taps

No activation of new water taps for the duration of the emergency.
Prohibit issuance of certificates of occupancy for new construction for duration of emergency.

Limit Fire Response

The Fire Department will limit its use of water during responses to situations where use of water is necessary to save lives. The department shall use foam in combination with water to minimize amount of water needed for fireground operations. The Fire Chief shall determine based on available water whether to limit operations to external protective suppression.

Emergency Water Pricing

Continue emergency water pricing. Consider additional premium above a set limit of water consumption.

Communications & Public Education Efforts

- Continue paid advertising in local media outlets encouraging the conservation of water.
- Town staff should make frequent appearances on local media outlets to explain the water situation and offer suggestions for limiting water consumption.

End of Stage

This stage shall end after water levels return to Stage 4 for more than 45 days, or when enough water on average for 30 days is in stream to return to Stage 3 or better.

EMERGENCY WATER PRICING

Rationale: During water emergencies, the Town will undertake more enforcement activities, will incur more capital costs to decrease leaks, and will require more capital to search for other water sources and connect those to the Water Treatment Plant.

Premium pricing gives users a strong incentive to decrease usage, repair fixtures, and maintain plumbing.

Therefore, Town Council has consented to the use of elevated water rates during the most extreme water emergencies in an effort to provide high-consumption customers adequate incentive to change water consumption, while protecting minimum-use customers and voluntary conservationists from large price increases.

Exhibit 4. Current Water Rates.

Water Rate Increase Only Service	Current Rates	
	Inside Town	Outside Town
Minimum (to 3,000 gallons)	\$11.25	\$22.50
3,001-10,000 gallons	\$3.35	\$6.70
10,001-50,000 gallons	\$3.25	\$6.50
50,001 + gallons	\$3.15	\$6.30

Stage 4 emergency water rates over minimum usage up to 10,000 gallons is 300 percent of typical billing, with larger services (industrial and commercial type) at 200 percent of typical billing, and will be instituted with one week's notice to consumers to give customers adequate time to change water use patterns and to allow meter readers to determine current readings.

Sewer rates are unaffected by emergency water pricing.

Within the proposed ordinance, the Finance Director or Town Manager may take measures to alleviate extreme hardships and to evaluate special cases, particularly when water is key to a business or industrial process, recommending when emergency status bills and civil penalties may be reduced due to health, safety or other such hardship factors.

Additional Recommendations

Water Accountability

Through force account or through external contractual services, cut town's water loss to or below 15 percent, the generally acceptable loss rate within a municipal system, which will require capital funds to replace any infrastructure found to be inadequate.

New Service

Whenever new service is put in place, use new meters to ensure accuracy for the longest possible time. When new developments go into place, put in as many meters as practical at one time to ensure water accountability accuracy throughout new neighborhoods.

Regional Effort

As the potential cheapest and most effective alternative source, negotiate with the Western Virginia Water Authority and Franklin County to extend the 12-inch line from Plateau Plaza to the Town's principal distribution point. Further, negotiate purchase of water at cost in line with current production costs.

Storage & Additional Capacity

In the event the Town chooses not to pursue purchase from Western Virginia Water, the Town Council should include funds within its annual Capital Improvements Plan to increase storage and/or purchase capacity for both raw water and treated water, including:

- *Near-term (next 3 budget cycles)*: Develop water well capacity within reasonable proximity of the existing Water Treatment Plant.
- *Medium term (subsequent 3-5 budget cycles)*: Add at least one million gallons new treated water capacity by building a secondary water tower at Grassy Hill, which has the additional benefit of extra fire protection and water pressure protection for the Grassy Hill, North Main Street and Industrial Park areas in case of pump failure to Grassy Hill.
- *Long-term (within 15 years)*: Develop 90-120 days' raw water surface storage capacity and the capacity to pump raw surface water to the Water Treatment Plant by entering a regional agreement with Franklin County and applying for a low-interest loan for Water Supply Development through the Virginia Resources Authority.

Water Loss

State grant funds may be available to assist in locating and mitigating water loss. Staff has already initiated contact with the grant administrator, and the Town should fund any required match.

Use of Town Personnel

The Town Manager may use and direct, at his discretion, any town employee to act as enforcement officers to ensure the continued safety and security of the Town Water System.

Plan Renewal

This plan shall be renewed every three years by staff to include consideration of the most recent hydrologic and climate data, development within the town or boundary adjustments. The plan's first renewal date is February 2011.

Relevant sections from the Code of Virginia

"Local emergency" means the condition declared by the local governing body when in its judgment the threat or actual occurrence of an emergency or disaster is or threatens to be of sufficient severity and magnitude to warrant coordinated local government action to prevent or alleviate the damage, loss, hardship or suffering threatened or caused thereby; provided, however, that a local emergency arising wholly or substantially out of a resource shortage may be declared only by the Governor, upon petition of the local governing body, when he deems the threat or actual occurrence of such an emergency or disaster to be of sufficient severity and magnitude to warrant coordinated local government action to prevent or alleviate the damage, loss, hardship or suffering threatened or caused thereby; provided, however, nothing in this chapter shall be construed as prohibiting a local governing body from the prudent management of its water supply to prevent or manage a water shortage...

§ [44-146.21](#). Declaration of local emergency.

(a) A local emergency may be declared by the local director of emergency management with the consent of the governing body of the political subdivision. In the event the governing body cannot convene due to the disaster or other exigent circumstances, the director, or in his absence, the deputy director, or in the absence of both the director and deputy director, any member of the governing body may declare the existence of a local emergency, subject to confirmation by the governing body at its next regularly scheduled meeting or at a special meeting within fourteen days of the declaration, whichever occurs first. The governing body, when in its judgment all emergency actions have been taken, shall take appropriate action to end the declared emergency.

(b) A declaration of a local emergency as defined in § [44-146.16](#) shall activate the local Emergency Operations Plan and authorize the furnishing of aid and assistance thereunder.

(c1) Whenever a local emergency has been declared, the director of emergency management of each political subdivision or any member of the governing body in the absence of the director, if so authorized by the governing body, may control, restrict, allocate or regulate the use, sale, production and distribution of food, fuel, clothing and other commodities, materials, goods, services and resource systems which fall only within the boundaries of that jurisdiction and which do not impact systems affecting adjoining or other political subdivisions, enter into contracts and incur obligations necessary to combat such threatened or actual disaster, protect the health and safety of persons and property and provide emergency assistance to the victims of such disaster, and proceed without regard to time-consuming procedures and formalities prescribed by law (except mandatory constitutional requirements) pertaining to the performance of public work, entering into contracts, incurring of obligations, employment of temporary workers, rental of equipment, purchase of supplies and materials, and other expenditures of public funds, provided such funds in excess of appropriations in the current approved budget, unobligated, are available. Whenever the Governor has declared a state of emergency, each political subdivision affected may, under the supervision and control of the Governor or his designated representative, enter into contracts and incur obligations necessary to combat such threatened or actual disaster beyond the capabilities of local government, protect the health and safety of persons and property and provide emergency assistance to the victims of such disaster. In exercising the powers vested under this section, under the supervision and control of the Governor, the political subdivision may proceed without regard to time-consuming procedures and formalities prescribed by law pertaining to public work, entering into contracts, incurring of obligations, employment of temporary workers, rental of equipment, purchase of supplies and materials, levying of taxes, and appropriation and expenditure of public funds.

Exhibit 5. Suggested Rocky Mount town ordinance implementing this plan and water restrictions at the onset of Stage 2.

AN ORDINANCE OF THE TOWN OF ROCKY MOUNT

Section 1. Finding of an Emergency.

The Town Manager hereby declares pursuant to Section 15.2-924 and Section 44-146.21 of the Code of Virginia, 1950, as amended and Section 58-291 of the Town of Rocky Mount Code as amended that a water supply emergency exists, due to extreme drought conditions in the Town and the surrounding area and throughout the Commonwealth, and due to the current water levels of the Town's water supply source for its public water system and the anticipated demand in the immediate future, and that there is a need to control and restrict the use of water within the Town and the Town water supply system during this emergency.

Section 2. Emergency Restrictions.

A) The following mandatory water restrictions shall apply immediately and shall remain in effect until modified or changed under the provisions set forth herein or by further action of the Town Manager:

Lawns, flowers, trees, shrubs and gardens. Watering shrubbery, trees, lawns, grass, flower gardens, and other vegetation is prohibited, except (a) indoor plantings may be watered; (b) greenhouse or nursery stock may be watered; (c) new plants may be watered at the time of planting and once a week for five weeks afterwards; (d) plants and shrubs may be watered as needed to sustain plant life utilizing watering cans or similar containers that have a capacity of five or fewer gallons; and (e) vegetable gardens may be watered once a week, prior to 10:00 a.m. in order to avoid evaporation.

Fountains: Operation of or introduction of water into any ornamental fountain, pool or pond, or other structure making a similar use of water, except as needed to maintain aquatic life, is prohibited.

Paved areas and buildings. The washing of outside areas such as streets, driveways, parking lots, or service station aprons, and the washing of the exterior of office buildings, houses, apartments or similar outdoor structures is prohibited except where required for health and safety. Washing exterior surfaces of a building for the purpose of preparing for painting by hand washing or by licensed commercial pressure washers is permitted.

Vehicle Washing. The washing of automobiles, trucks, trailers, boats, airplanes, or any other type of mobile equipment is prohibited, except for commercial washing facilities approved by the Town Manager which operate with high pressure, low consumption equipment or with a recycling system. The Town Manager may curtail the hours of operation of commercial enterprises offering such services or washing their own equipment.

Swimming pools. Filling of swimming pools is prohibited at all times, with the exception of pools used by health care facilities for patient care and rehabilitation, which are permitted to operate under normal conditions. New or repaired pools may be filled as needed to maintain the structural integrity of the pool. Indoor pools may be filled as necessary to ensure swimmer health and safety.

Fire hydrants. The use of water from fire hydrants for any purpose other than fire suppression or other public emergencies is prohibited.

Restaurants. Drinking water shall not be served in restaurants, cafeterias or any other food establishment unless requested by the patron.

(B) The provisions of this declaration shall apply to all users and customers of water supplied and distributed by the Town of Rocky Mount. The restrictions also shall apply to all other users of surface and ground water in the Town of Rocky Mount, including water drawn from wells on private property.

(C) The provisions of this Declaration shall not apply to any governmental activity, institution, business, or industry which shall be declared by the Town Manager, upon a proper showing, to be necessary for the public health, safety and welfare or for the prevention of severe economic hardship or the substantial loss of employment. Any activity, institution, business or industry aggrieved by the finding of the Town Manager may appeal his decision to the Town Council.

Section 3. Violations, penalties and enforcement.

A) It shall be a violation of this Declaration for any individual, corporation, partnership, association, company, business, trust, joint venture or other legal entity to use water or to allow or to cause the use of water in violation of the provisions of this Declaration. The provisions herein for conservation, restriction upon use, allocations and penalties may be imposed on any water user or customer in whose name the water service is listed and in appropriate circumstances on the person or entity in control of the property in question.

B) The provisions of this Declaration shall be enforced by members of the police department. The Town Manager may also designate such specified employees of the Department of Community Development and of the Town Public Works Department as water conservation officers as may be necessary for patrolling, issuing warnings and notices to water users who are in violation of restrictions and conditions set forth in this Declaration.

C) For the first offense, violators within the Town of Rocky Mount, or connected to the Rocky Mount Municipal Water System, shall receive a written warning delivered in person or posted at the front door of the residence. A civil fine of \$250 per violation is hereby imposed for second and subsequent violations of this Declaration after delivery or posting of the written warning. Each violation by a person, including a second or subsequent violation on the same day following an earlier notification of the same violation, shall constitute a separate violation.

D) Civil penalties shall be assessed by delivering or mailing to the water customer or user a Notice of Violation, which Notice shall provide an opportunity for the water customer or user to appeal the civil penalty. All appeals shall be delivered in writing to the Director of Finance within five days of the date of service of the Notice of Violation. The Director shall determine whether the penalty was properly assessed and within five days of the appeal, notify the complaining person in writing of his determination. The customer or user may appeal the decision of the Director by delivering a written appeal to the Town Manager within five business days of the decision of the Director. The Town Manager shall review any appeal and shall render a final decision within five days of receipt of the appeal to him. The decision of the Town Manager shall be final, but the Town Manager may waive the penalty if he determines that the violation occurred due to no fault of the person assessed with the penalty.

E) All civil penalties imposed hereunder shall be due and payable within ten days of delivery of the Notice of Violation or within ten days of the conclusion of appeals set forth herein above; unpaid fines shall be billed and collected as additional water charges on the violator's next water bill.

F) Failure to pay any civil penalty after thirty (30) days or multiple (more than one) violations of this Declaration may subject the user to immediate cut off of water service and that service will not be resumed until all bills and civil penalties, plus, a \$50 turn-on fee, are paid.

Section 4. Notification of End of Water Emergency.

When the Town Manager has made a determination that there has been significant rainfall resulting in an increase in the water levels of the streams supplying the Town Water System and, in his opinion, the water emergency no longer exists, he shall rescind the declaration of an emergency. When this occurs, the information shall be conveyed to the general public through the news media and the Town website.

Section 6. Severability.

The provisions of this Declaration are severable, and the unenforceability of any provision in this Declaration, as determined by a Court of competent jurisdiction, shall not affect the enforceability of any other provisions in this Declaration.

Section 7. Effective Date.

The Town Manager declares that an emergency exists, that this Declaration shall take effect without publication or posting pursuant to Section 58-291 of the Town Code, and this Declaration shall be in full force an effect after its adoption, except the provisions authorizing enforcement by civil penalties shall not be affected until one week has elapsed after the Declaration has been published pursuant to the requirements of the Town Charter.

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Exhibit 6. Example of use of water emergency resolutions.

Date: 11/21/2007

Source: Virginia Associated Press Wire

Dungannon, Va. - The Scott County Board of Supervisors has declared a state of emergency in Dungannon following the town's loss of public water.

County emergency management coordinator Jeff Brickey said several leaks in the town's water tank have been filled, but the source of a major leak has not been found.

Brickey said the storage tank holds 39 feet of water when filled and is dropping a foot a day.

The supervisors passed a resolution Monday to allow use of money set aside for emergencies.

Assistant County Administrator Kathie Noe said bottled water and a tanker of non-potable water have been sent to the town, and portable washing machines and showers have been set up in a church.

Notes: Going through the Franklin County Board of Supervisors would not be necessary for the Town of Rocky Mount. The Town of Dungannon has a population of 317, without a police force, its own emergency manager, or the financial resources to deal with such a major repair.

Exhibit 7. Premium pricing as a method to enforce conservation measures.

Monroe, North Carolina increases price of water to encourage conservation.

NBC's North Carolina affiliate WCNC-TV (12/6/2007, Roldan) reports in a story on its website that residents in Monroe, N.C., will begin paying 15 percent more for municipal water on Monday "to encourage further conservation." The city has "only about 100 days worth of water supply left" in Lake Twitty, so City Manager Craig Meadows said Monroe has "one shot to get this right as far as restricting water." The increase "will only cost the average family an extra \$1.64 a month," but surpassing "the average use of 6,000 gallons" will create a bill roughly "five-fold" higher. During the Southeast drought, the city "is purchasing as much as \$45,000 worth of water each month from Union County" to enhance its supplies.

Exhibit 8. Monroe, NC press release.

News Release
December 5, 2007

For Immediate Release

City Issues Stage 3 Water Shortage Alert Effective December 10, 2007
Customers Asked to Increase Conservation Efforts

MONROE, NC - Record setting drought conditions have prompted City of Monroe officials to issue a Stage 3 Water Shortage Alert effective Monday, December 10, 2007. The City's Water Shortage Ordinance calls for Stage 3 restrictions when the remaining water supply reaches 100 days.

Throughout North Carolina and the Piedmont region, many water supply systems have been under mandatory water restrictions for some time. North Carolina Governor Mike Easley has repeatedly requested all water systems in the State to reduce water use until substantial rainfall is received.

The Stage 3 mandatory restrictions are shown in the attached table. Penalties for violations of these restrictions are as follows:

	Residential Penalties	Non-Residential Penalties
1st Offense:	Warning	Warning
2nd Offense:	\$100	\$200
Subsequent Offenses:	\$200	\$500
Subsequent Offenses:	\$1,000	

Additionally, water rates are set to increase 15% on Monday, December 10, 2007. Stage 3 also requires that each customer restrict his/her water usage to an allowable use quantity. The allowable use quantity is 6,000 gallons per month for residential customers and 90% of the previous 12 month average water use for commercial and industrial customers. Water use exceeding the allowable use quantities is surcharged at five times the prevailing water rate.

The City has prepared extensive information to assist customers with reducing water usage to meet the allowable limits. This information is available at City Hall and the City's Operations Center (2401 Walkup Avenue). The City also is offering free showerhead restrictors at the above locations. Water shortage and conservation information is available at www.monroenc.org.

The City is asking all customers to limit water use to essential purposes.

Conservation now will help avoid moving to Stage 4 restrictions, which could be necessary in approximately four weeks if significant rainfall is not received.

The City continues to offer non-potable water service at a bulk water fill station located at the end of Quarry Road, approximately a half mile east of Sutherland Avenue. The station is supplied by high quality, non-potable water from a nearby rock quarry and can be used by tanker trucks that haul water for construction purposes and for landscape irrigation. Hours of operation are Monday through Friday, 7:30 a.m. until 3:00 p.m.

The Union County Public Works Water System is a separate utility system from the City of Monroe. Therefore, customers of this system should call Union County for information on current restrictions.

For questions or concerns, please contact the Water Resources Department at 704.282.4600 or visit www.monroenc.org.

Exhibit 9. Example of state response to local water emergency.
(Town of Goshen water leak state response)