

Town of Apex Water Shortage Response Plan

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and



Table of Contents

Section 1 - Introduction.....	1-1
Section 2 - Water Supply Assessment.....	2-1
Section 3 - Water Shortage Response Plan.....	3-1
3.1 Authority of Plan.....	3-1
3.2 Plan Activation and Notification Protocol	3-2
3.3 Water Shortage Stages.....	3-2
3.4 Water Shortage Triggers	3-4
3.4.1 Jordan Lake Water Supply Storage Allocation	3-4
3.4.2 Other Factors.....	3-6
3.5 Enforcement.....	3-6
3.6 Variances	3-6
3.7 Plan Evaluation	3-7
3.8 Plan Revisions.....	3-7
3.9 Conservation Measures.....	3-8
3.10 Public Comment.....	3-8

List of Tables

Table 3-1 Water Shortage Response Stage Summary.....	3-4
Table 3-2 Water Shortage Response Triggers for Declining Days of Supply Remaining	3-5
Table 3-3 Water Shortage Response Triggers for Increasing Days of Supply Remaining	3-5
Table 3-4 Expected Water Use Reductions.....	3-7

Attachments

- Attachment 1 Town of Apex 2007 Water Usage
- Attachment 2 Town of Apex 2008 Water Usage

Appendix

- A Water Conservation Ordinance, Effective February 2, 1999,
Amended February 2010

SECTION 1

Introduction

The purpose of this Water Shortage Response Plan (WSRP) is to provide a framework for making water supply and conservation decisions during times when water supplies in the region may be low either due to drought conditions, water quality problems, or disruptions in facility operations. This Plan supplements the Town of Apex's *Water Conservation Ordinance* (Appendix A), which became effective February 2, 1999 and was amended in February 2010.

The Town of Apex has been required by the State to have a WSRP since 2001 by both our Jordan Lake Allocation water supply contract and our interbasin transfer certificate. More recently, as of July 1, 2009 all public and privately owned water systems subject to GS 143-355 (I) are required to have an approved WSRP as part of their Local Water Supply Plan (LWSP). Rules governing water use during droughts and water emergencies (15A NCAC 02E.0607) require specific items that must be included in those plans. This WSRP was developed in accordance with the *Water Shortage Response Plan Guidelines* provided by the Division of Water Resources (DWR) (January 2009).

SECTION 2

Water Supply Assessment

The Town of Apex and the Town of Cary have a joint allocation of the water supply storage volume in the Jordan Lake water supply pool. Only 61 percent of the Jordan Lake estimated 100 million gallons per day (MGD) safe yield has been allocated. The rest of the water supply pool is currently unallocated. Of the allocated 61 MGD, 32 MGD of the water supply pool (on an average annual basis), is allocated to the Towns of Apex and Cary. The Town of Apex portion of this allocation is 8.5 MGD.

Two graphs shown as Attachments 1 and 2 at the end of this document illustrate historical water usage for the Town of Apex by month for the calendar years 2007 and 2008.

The Towns of Apex and Cary currently share a raw water intake at Jordan Lake. The water is treated at the Cary/Apex Water Treatment Plant (WTP). The Town of Apex also has letter agreements with the Town of Holly Springs and Harnett County from which it could receive emergency water supplies of approximately 1 MGD of finished water.

Interconnections exist with the water distribution systems of Raleigh, Holly Springs, Harnett County, and Cary, which is also connected to Durham. These interconnections provide the Town with access to several back-up supplies in the event of a failure that may require the repair of pipelines. Although formal emergency agreements are not in place with all of these communities, the interconnections do provide the Town with the flexibility to respond to drought periods and other water supply emergencies.

SECTION 3

Water Shortage Response Plan

The purpose of this Water Shortage Response Plan (WSRP) is to deal with short-term water shortage, which may be caused by drought, water quality problems, or disruptions in facility operations. The North Carolina Division of Water Resources (DWR) *Water Shortage Response Handbook for North Carolina Water Supply Systems* (2003) requires that municipalities develop a Water Shortage Response Plan/Program that includes the following components:

1. Adopt an ordinance to provide authority to enact system measures to reduce demand in the case of an emergency;
2. Develop a method to evaluate ability to meet demand;
3. Develop procedures for implementing appropriate water use restriction stages;
4. Identify person(s) responsible for implementing the water shortage response protocols;
5. Develop a method to notify system employees and the customers of the shortage;
6. Develop a method to measure the supply and demand and identify the conditions that trigger more or less restrictive measures;
7. Identify the levels of required response and actions to be taken;
8. Identify the enforcement and variances of the water shortage plan;
9. Develop a method for the Town to review and comment on the water shortage response protocols, revision of the protocols, and the evaluation of the effectiveness of the protocols.

Each of these components has been implemented by the Town of Apex and is described in the following sections.

3.1 Authority of Plan

DWR recommends that every municipality adopt an ordinance to “provide for the declaration of a water shortage and specify voluntary and mandatory conservation measures to be imposed at each level of water shortage severity.”

The Town Manager has the authority to implement measures outlined in the water conservation ordinance to address potential water shortages, including Section 12-101, *Continuing Water Conservation Measures* which includes the odd/even outdoor irrigation schedule; and Section 12-102, *Stages of Conservation Measures in Response to Water Shortage*. In the Town Manager’s absence, the Assistant Town Manager has vested authority to implement such measures. The Town Manager and/or the Assistant Town Manager will initiate water shortage response Stages 1, 2, 3, and Emergency/Rationing according to various factors affecting water supply and demand. Bruce Radford, Town Manager, can be contacted at 249-3301 and Mike Wilson, Assistant Town Manager, can be contacted at 249-3302.

3.2 Plan Activation and Notification Protocol

Once the potential for a water shortage has been declared, the following plan implementation and communication steps are taken. Mandatory measures will remain in effect until declared otherwise by the Town Manager, and updates to the plan over the duration of the water shortage will be provided in the sequence outlined below.

1. The Town Manager (or designee) notifies the Mayor, Town Council, neighboring municipal contract water recipients (if any), and Town employees.
2. The Public Information Officer (PIO) will contact the media (if the PIO is unavailable, media contacts will be made by the Town Manager's designee). The media, including television, newspaper, and radio, will inform the public. The phone number of the Public Works & Utilities Department (919-249-3427) will be provided for additional information if needed by the public. Informational mailings will be distributed to residents via monthly utility bills. In addition, the Town's website, www.apexnc.org, will be updated with the latest information.
3. Public Works & Utilities staff will coordinate with Finance Department Customer Service so Town employees can help provide accurate information to the public and to get a list of major water customers.
4. Staff will call major water customers (both irrigation and water accounts) and inform them of the implemented measures.
5. Staff will contact the Fire Department and coordinate with bulk users.
6. Staff will supply fliers for distribution by field employees to place on customers' doors or provide to customers that need more information.

3.3 Water Shortage Stages

Apex's water shortage response consists of four stages as summarized in Table 3-1. The stages have been designed and are defined to represent an increasing level of severity of water shortage, subsequently triggering an increasing level of response to reduce the Town of Apex water demands. The Stages are triggered when the water supply and/or the demand changes. The Town's ability to meet demand is dependent on several components of the water supply system: the water source (Jordan Lake and/or purchase from others), raw water intake and pipeline, treatment plant, storage tanks, and distribution system. The Town continually monitors its water demand and supply, especially during times of drought conditions.

Stage 1

Spray irrigation using potable water is limited to one (1) day per week for all purposes except the maintenance of athletic fields. No new turf watering exemption permits will be issued and any existing permits for watering periods that begin later than 14 days after the effective date of Stage 1 will be rescinded. Hand watering, drip irrigation, and subsurface irrigation are still allowed. Other outdoor water uses such as pressure washing, car washing, and keeping swimming pools filled are allowed, although customers are strongly encouraged to minimize such uses.

Stage 2

Spray irrigation using potable water is not allowed for any purpose except the maintenance of athletic fields. No new turf watering exemption permits will be issued, and any previously issued exemption permits for watering periods that have not expired will be rescinded. Hand watering, drip irrigation, and subsurface irrigation are still allowed. Other outdoor water uses such as pressure washing, car washing, and keeping swimming pools filled are allowed, although customers are strongly encouraged to minimize such uses.

Stage 3

No outdoor water use with potable water is allowed, including but not limited to: spray irrigation, hand watering, drip irrigation, and subsurface irrigation, ornamental fountains, car washing, pressure washing, and keeping swimming pools filled. No new turf watering exemption permits will be issued and any previously issued permits for watering periods that have not expired will be rescinded. Firefighting and utility system maintenance are the only allowable outdoor water uses.

Emergency/Rationing

In this stage, the goal is to ensure there is drinking water available to protect public health (e.g., health care, drinking water, basic sanitation). Customers are encouraged to use the minimum amount of water needed for public health protection. No outdoor water use with potable water is allowed, including but not limited to: spray irrigation, hand watering, drip irrigation, and subsurface irrigation, ornamental fountains, car washing, pressure washing, and keeping swimming pools filled. As in Stage 3, no new turf watering exemption permits will be issued and any previously issued permits for watering periods that have not expired will be rescinded. Firefighting and utility system maintenance are the only allowable outdoor water uses.

Table 3-1: Water Shortage Response Stage Summary

	Year-round Water Conservation Program	Water Shortage Response Stages			
		Stage 1	Stage 2	Stage 3	Emergency/Rationing
Outdoor Spray Irrigation	Three days per week	One day per week	None	None	None
Hand watering, drip irrigation, subsurface irrigation, athletic field maintenance	Allowed	Allowed	Allowed	None	None
Other outdoor water use such as pressure washing, car washing, filling swimming pools	Allowed	Allowed	Allowed	None	None
New Turf Watering Exception Permits	Allowed	No new permits issued, permits beginning more than 14 days after Stage 1 date rescinded	None	None	None

3.4 Water Shortage Triggers

The goal of having staged trigger points is to provide the Town the ability to reduce their demands during times of water shortages and thereby extend the timeframe between reaching successive trigger points. Triggers are based on the ability to meet water demands and are influenced by several components of the Town’s water supply system: the water source, raw water intake and pipeline, treatment plant, storage tanks, and the distribution system. Town staff continually evaluates the status of these components to determine if a water shortage condition exists or is approaching. The primary trigger is the water supply storage in Jordan.

3.4.1 Jordan Lake Water Supply Storage Allocation

Apex and Cary have a joint allocation of the water supply storage volume in the Jordan Lake water supply pool. Apex Public Works & Utilities staff communicates regularly with the Cary Public Works & Utilities staff regarding available water supply, especially during drought conditions.

The Town of Cary is responsible for tracking the amount of water in storage for the Apex/Cary allocation on a daily basis using daily and monthly water demand estimates,

and daily lake inflows obtained from the U.S. Army Corps of Engineers (USACE). Cary staff uses these storage estimates to predict a worst case scenario of the number of days of water supply that remains. This worst case scenario does not take into account any inflow to Jordan Lake; in other words, it is assumed that there is zero inflow to the lake. The number of days of remaining water supply is calculated by dividing the storage volume in the jointly allocated water supply pool by the average water demand for the previous 30 days. From these values, Apex staff determines the number of days of storage available to the Town based on the Town’s percentage of the allocation and the recent demand profile.

DWR has recommended guidelines for monitoring the available water supply and when necessary, implementing a minimum of three stages of water shortage response: voluntary, mandatory, and emergency. As described previously, the Town of Apex has four water shortage stages: Stage 1, Stage 2, Stage 3, and Emergency/Rationing. Table 3-2 shows Apex’s four water shortage stages and the associated number of days of remaining storage which act as the triggers to implement each stage. Table 3-3 shows the water supply response triggers for increasing days of supply remaining; this table would be used when coming out of a drought situation.

Table 3-2: Water Shortage Response Triggers for Declining Days of Supply Remaining

Stage	Triggers When Days of Supply Remaining is Declining
(Water Shortage declared) Stage 1	Days of Supply Remaining 120 days or less
Stage 1 to Stage 2	Stage 1 has been in place for 28 continuous days AND Days of Supply Remaining 90 days or less
Stage 2 to Stage 3	Days of Supply Remaining 60 days or less
Stage 3 to Emergency/ Rationing	Days of Supply Remaining 30 days or less

Table 3-3: Water Shortage Response Triggers for Increasing Days of Supply Remaining

Stage	Triggers When Days of Supply Remaining is Increasing
Emergency/ Rationing to Stage 3	Days of Supply Remaining has been at least 60 days for at least 14 continuous days
Stage 3 to Stage 2	Days of Supply Remaining has been at least 90 days for at least 14 continuous days
Stage 2 to Stage 1	Days of Supply Remaining has been at least 120 days for at least 14 continuous days
Water Shortage ended	Jordan Lake Water Supply allocation is 100% full for at least 14 continuous days

The triggers shown in Tables 3-2 and 3-3 serve as guidelines and are used by the Town of Apex in combination with an assessment of the other factors that influence water supply and demand as described in this section to determine the timing of implementation of the appropriate water shortage stages during periods of water shortage.

3.4.2 Other Factors

The Town recognizes that there are several other factors to be considered when evaluating the potential for water shortage conditions. These factors include:

1. Jordan Lake Elevation. The lake elevation is influenced most by the amount of inflow to the lake from upstream and the amount of water released from the dam to the Cape Fear River downstream. Apex Public Works & Utilities staff communicates regularly with the Cary Public Works & Utilities staff regarding lake elevation, especially during drought conditions. The Town of Cary is responsible for monitoring the lake levels and how the elevation compares to the elevations of the raw water intakes in Jordan Lake. The elevation of the top pipe of the primary raw water intake is at 208.3 feet mean sea level, while the elevation of the top pipe of the lower intake is 204.25 feet mean sea level. Extension devices have been fabricated to allow adjustments to the elevation of either intake.
2. A sudden loss of supplemental water supplies during periods of high demand;
3. The occurrence of a major water transmission main break, fire, or any other emergency that would require high volumes of water, such that demand could exceed supply;
4. An indication of short or long-term water quality concerns regarding Jordan Lake or other sources;
5. An accidental or intentional contamination of the water system;
6. The level of interbasin transfers relative to Apex and Cary's interbasin transfer (IBT) certificate amount;
7. A drought advisory issued by the NC Drought Management Advisory Council;
8. A mechanical failure at the WTP or within the distribution system.

3.5 Enforcement

If there is a violation of any provision of the water conservation ordinance including the mandatory water conservation measures, the violator is subject to a penalty of up to \$1,000.00 per violation per day. A warning is issued for a first offense. Subsequent violations will be subject to the penalty fee. The Town may also choose to discontinue water service if necessary due to continuing violations. Citizens are encouraged to report violators to the Town Public Works & Utilities Department.

3.6 Variances

The Town recognizes that the requirements for water use reduction in Table 3-1 may have significantly more impact on some customers than on others and in some cases could affect public health and safety. To be considered for a variance, customers may submit a letter requesting the variance to the Public Works & Utilities Director at PO Box 250, Apex, NC

27502. The letter must include an explanation of why the requirements in Table 3-1 are not appropriate, cause extreme hardship, or affect health and safety. If a variance from either the Stage 3 or Emergency/Rationing requirements is requested, the letter should include proposed water use reductions and an explanation of why they are more appropriate.

A decision by the Public Works & Utilities director or designee to approve or deny variance requests can be expected within two weeks and will be based upon consideration of criteria including but not limited to: impact on water demand, expected duration of water shortage, alternative source options, social and economic importance, purpose of water use (i.e., necessary use of drinking water) and the prevention of structural damage.

3.7 Plan Evaluation

The Town of Apex is committed to providing a safe and reliable water supply to its citizens. The Town understands that an effective WSRP is necessary to reduce system demands during a water shortage situation. After a plan implementation, the Town will evaluate the effectiveness of the trigger thresholds to prolong the Town's water supply and the efficiency of conservation to reduce water demands. The effectiveness of the protocols will be measured by the frequency of their activation, the number of violation citations, and if desired reductions were attained. Table 3-4 indicates the potential expected reduction from normal use for each stages, depending on the time of year.

Table 3-4: Expected Water Use Reductions*

Water Shortage Response Stage	Expected Approximate Reductions Relative to Normal Water Use	
	May through October	November through April
Stage 1	13%	6%
Stage 2	32%	10%
Stage 3	38%	17%
Emergency/Rationing	46%	29%

**Town of Cary staff developed these numbers based on 2007 customer billing records.*

3.8 Plan Revisions

Water Shortage Response Plans should be updated regularly in response to changing conditions within the community. Circumstances warranting an updated plan may include new development, water supply demands, or changes in the number or types of available water supplies. A work group of Town staff will review procedures after each emergency reduction stage and will recommend necessary improvements to the Town Manager.

This plan will also be subject for review following any water shortage declaration. If indicated by these reviews or at a minimum of every five years as required by the provisions of GS 143-355 (1) the WSRP will be updated and submitted to DWR for review. An opportunity for public comment will be provided for any update of the WSRP before presentation to the Town Council for approval. The Town of Apex Public Works & Utilities Director (or designee) is responsible for initiating all WSRP updates.

3.9 Conservation Measures

The Town of Apex has multiple conservation measures that apply year-round even when there is no water shortage. The measures are in place in an effort to responsibly manage the valuable resource and to extend the Town's water supply during times of approaching drought conditions. The measures are listed below and explained in detail in Apex's *Water Conservation Ordinance* (Appendix A):

1. Mandatory year-round odd/even outdoor watering,
2. Prohibited operating conduct for irrigations systems;
3. Requiring rain sensors;
4. Operation of the rain sensors;
5. Irrigation surcharge;
6. Avoiding improper connections;
7. Improper connections;
8. Prohibiting unauthorized use.

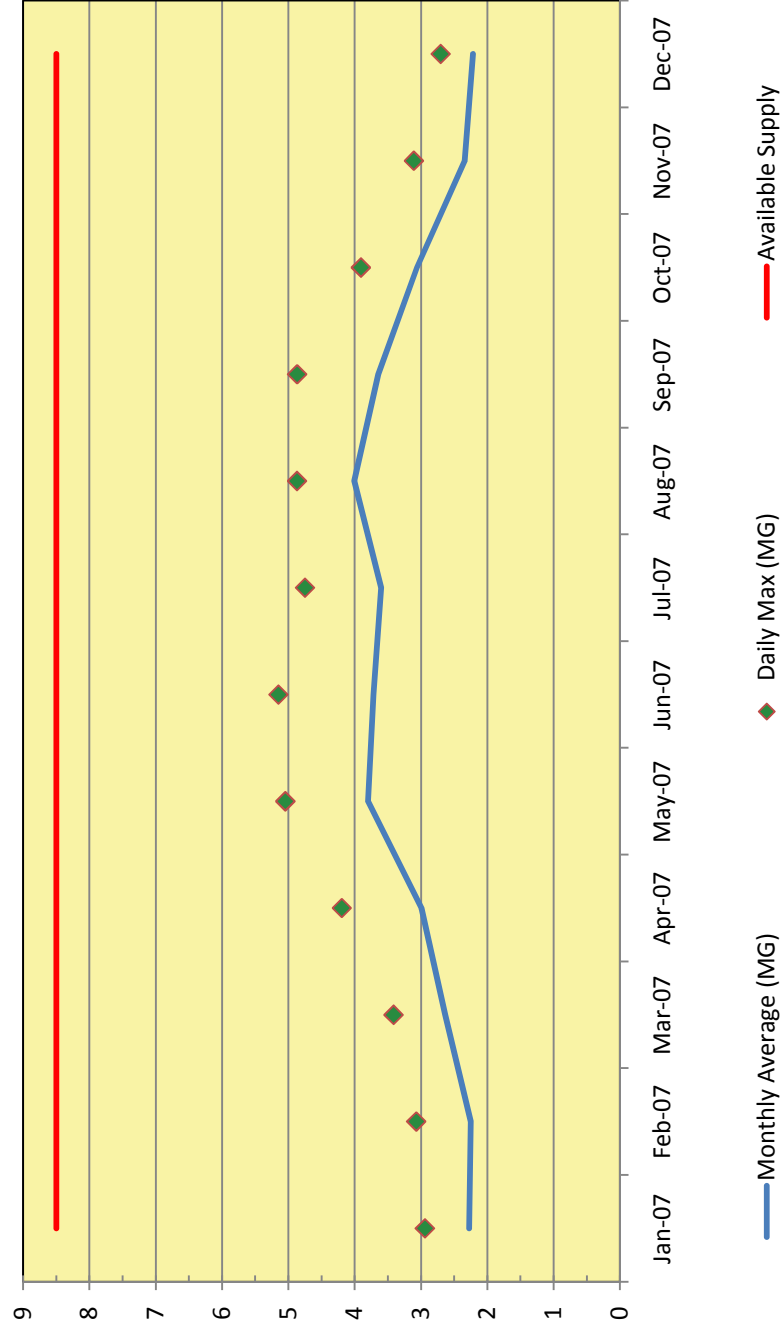
In addition to the year-round measures outlined in the water conservation ordinance, the Town also has water conservation education and incentive based measures that assist the Town's goal of responsible resource management. These education and incentive based year-round conservation components are as follows:

1. Water Conservation webpage – The Town's website contains information on household water conservation tips, an educational outline on the year-round irrigation restrictions, and frequently asked questions related to the water conservation ordinance.
2. Water Conservation pamphlet – The pamphlet is provided to all citizens on an as needed basis and details water conservation information including the schedule for the odd/even irrigation schedule requirements, ways to save water, current water restrictions, as well as contact information to call for questions on water conservation or on concerns in reference to significant water losses at a residence or from public water infrastructure.
3. Rain barrels – The Town provides citizens the ability to purchase rain barrels at cost at the Public Work & Utilities Department. The ability to conveniently purchase rain barrels provides citizens with an incentive for water conservation by using the rain barrels for landscape watering and is an educational opportunity for the community.

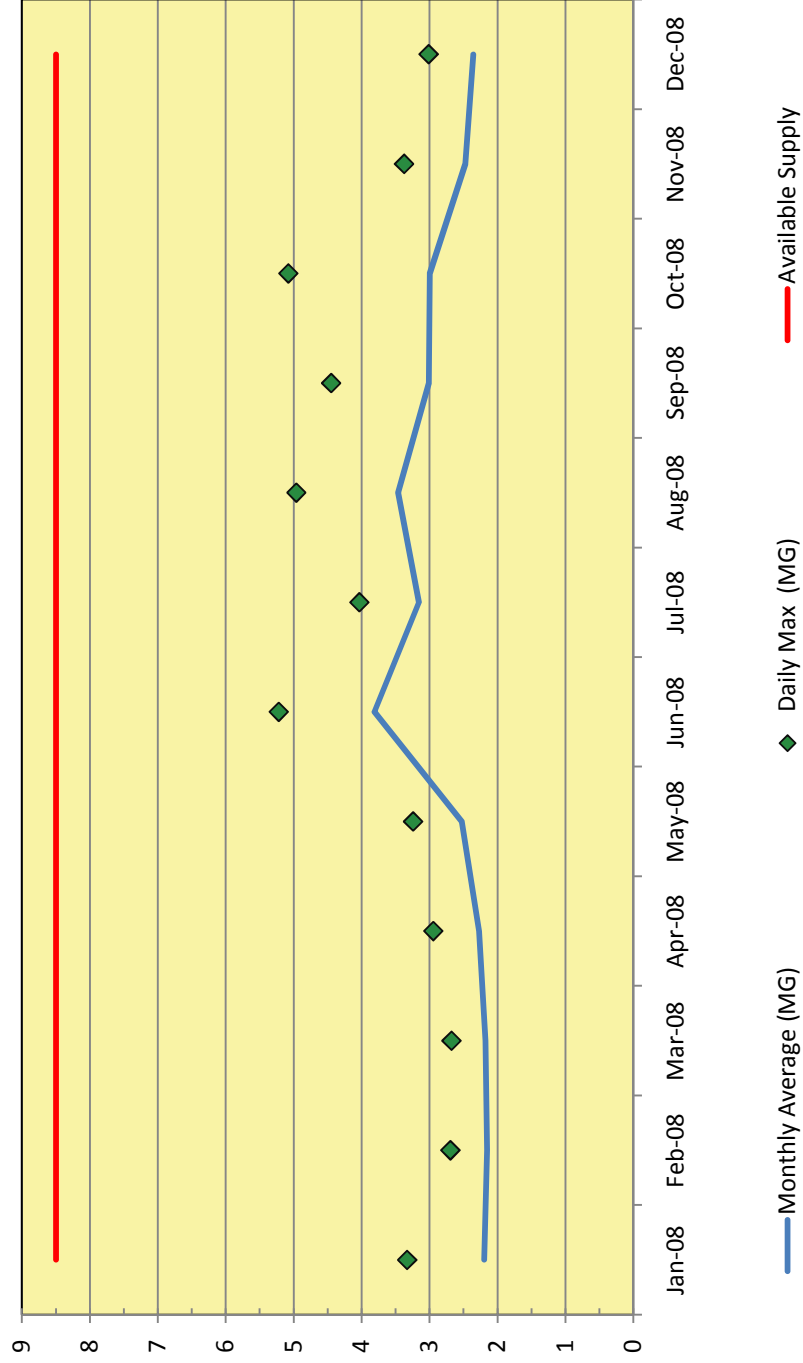
3.10 Public Comment

The public will be given several opportunities for plan review and comment. A draft plan will be posted on the Town's website at www.apexnc.org at least 30 days prior to the adoption vote by Town Council. A public meeting will be held at Apex Town Hall prior to this adoption vote in order to document verbal comments on the plan. Notices for these opportunities will be sent out in customer utility bill mailings.

Town of Apex 2007 Water Usage



Town of Apex 2008 Water Usage



APPENDIX A

**Water Conservation Ordinance, Effective February
2, 1999, Amended (Draft) April 2009**

TOWN OF APEX CODE OF ORDINANCES
Chapter 12 MUNICIPAL UTILITIES AND SERVICES*
ARTICLE III. WATER AND SEWERS
DIVISION 5. WATER CONSERVATION*

***Editor's note:** An Ordinance adopted Feb. 2, 1999, deleted §§ 12-100--12-104 in their entirety and replaced them with similar provisions to read as herein set out. Former §§ 12-100--12-104 derived from the 1973 Code and an Ord. of July 24, 1986.

Sec. 12-100. Definitions.

Customer means any person in whose name the Town maintains an account for water use, or who is responsible for payment of water passing through a particular meter. All customers are responsible for any use of water that passes through the meter for which they have an account or are otherwise responsible and are deemed to be users hereunder.

Hand watering means any form of irrigation that is connected to the Town's public water supply system and held in hand during irrigation use.

Impervious surface means any surface which cannot be penetrated by water or which causes water to run off the surface, including streets, driveways, and sidewalks.

Irrigation means the act of applying water to the outdoor landscape through means such as moveable sprinklers, installed watering systems, hoses, or other devices.

Irrigation system means a device or combination of devices that transmit or apply Town water or any mixture containing Town water to residential or commercial lawns, landscapes or green space.

Person means any individual, corporation, company, association, partnership, or other entity.

Public Works and Utilities Director means the Town department head in charge of the Public Works & Utilities department.

Rain sensor means a device that measures rainfall and overrides the irrigation cycle of an irrigation system, thus turning it off, when a predetermined amount of rain has fallen. To meet the requirements of this division, a rain sensor shall be adjusted to shut off irrigation systems when one-fourth inch (1/4") of rain has fallen.

Town Manager means the Town Manager or his designee.

Town water means all water available to the Town for treatment and any treated water introduced by the Town into its potable water distribution system. Not included in this definition is any treated wastewater effluent reclaimed for reuse in irrigation or other approved uses.

Trigger means conditions defined in the Water Shortage Response Plan (WSRP) which will cause a water shortage to be declared or ended, or cause water shortage response stages to be increased or decreased in severity.

Water shortage exists when the Town cannot satisfy the ordinary demands and requirements of water consumers served by the Town without depleting the water supply to a level that jeopardizes the continued availability of water for human consumption, sanitation, and fire protection.

Water system means the system of pipes, valves, meters, tanks, pumps, and treatment facilities owned and operated by the Town of Apex for the purpose of collecting, treating, and distributing Town water.

(Ord. of 2-2-99, § 1; Ord. No. 07-0807-09, § 1, 8-7-07)

Cross references: Definitions and rules of construction generally, § 1-3.

Sec. 12-101. Continuing water conservation measures.

The water conservation measures enumerated in this section shall apply to all Town water customers, Town water users, and other persons at all times whether or not a water shortage exists.

(1) Mandatory year-round odd/even watering schedule. Properties with odd-numbered addresses may water lawns and/or landscapes only on Tuesday, Thursday, and Saturday. Properties with even numbered addresses may water lawns and/or landscapes only on Wednesday, Friday, and Sunday. No lawns and/or landscapes shall be watered on Monday. Watering with a hand-held hose is permitted every day.

Exemption: Property owners may obtain a 45 day New Landscape Permit from the Public Works Department for the purpose of establishing new plantings. New plantings for the purpose of this permit are defined as large commercial plantings or the installation of new sod or seed to a bare area of more than 50% of the grassed or proposed grassed area of a residential yard. Such a permit may not be granted for over-seeding of established grass. The permit will become effective at the requested start date and expire 45 days later.

(2) Prohibited conduct in operating irrigation systems. No person shall operate or maintain an irrigation system in a manner that:

a. Allows water from emitting devices to fall on impervious surfaces to the extent that water runs off the property being irrigated onto public streets or property; or

b. Allows water from emitting devices to fall on any surface such that water accumulates to the extent that it runs off the property being irrigated onto public streets or property.

(3) Rain sensors required. Rain sensors are required on all automatic irrigation systems. The sensors shall be installed in appropriate locations in order to prevent irrigation during periods of rainfall.

(4) Operation of rain sensors. Rain sensors shall be adjusted and set so that for each rainfall event, the sensors shut off the irrigation system after one-fourth inch (1/4") of rainfall has occurred. Rain sensors shall be installed according to the manufacturer's instructions and in a location that provides full exposure to rainfall. Rain sensors shall be maintained in proper working condition.

(5) Irrigation surcharge. The charges for water used for irrigation shall be computed by multiplying the customer's otherwise applicable water rate by a multiplier established by the Town Council and revised from time to time.

(6) Damage to system. No person shall damage, cut, break, obstruct, alter, interfere with, or tamper with any water pipe, water main, hydrant sewer pipe, water tank, water meter, water meter box, or any other part of the water system without the express written permission of the Town.

(7) Improper connections. No person shall make a connection to any portion of the water system in a manner that violates the North Carolina State Building Code or the Rules Governing Public Water Systems promulgated by the State of North Carolina or any agency thereof.

(8) Unauthorized use. No person shall consume, use, or otherwise take water from the water system without first obtaining permission from the Town and making arrangements to pay the applicable fees for the water.

(Ord. of 2-2-99, § 1; Ord. No. 07-0807-09, § 2, 8-7-07)

Sec. 12-102. Stages of conservation measures in response to water shortage.

The mandatory odd/ even watering schedule shall be enforced year-round. To avoid or lessen the impact of a water shortage, the Town Manager will institute Stages 1, 2, 3 and Emergency/Rationing by written declaration, which shall be effective upon being signed and posted on the Town bulletin board and a copy placed with the Town clerk.

The Town Manager shall base his action upon a review of all factors that affect the Town's water supply including, but not limited to, current water supply, stream flow, lake level, seasonal effect on water supply, and current consumption rates. The water shortage response triggers for declining days of supply as well as increasing days of supply will be followed as outlined in the Town's Water Shortage Response Plan (WSRP). The following table illustrates the irrigation restrictions associated with each stage of mandatory water conservation.

	STAGE 1	STAGE 2	STAGE 3	EMERGENCY/ RATIONING
SPRAY IRRIGATION	1 DAY/WEEK	NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
HAND WATERING	ALLOWED	ALLOWED	NOT ALLOWED	NOT ALLOWED
DRIP IRRIGATION ¹	ALLOWED	ALLOWED	NOT ALLOWED	NOT ALLOWED
SUBSURFACE IRRIGATION ²	ALLOWED	ALLOWED	NOT ALLOWED	NOT ALLOWED
ATHLETIC FIELD IRRIGATION	ALLOWED	ALLOWED	NOT ALLOWED	NOT ALLOWED
NEW TURF WATERING EXEMPTION ³	NO NEW PERMITS	NO NEW PERMITS	NO NEW PERMITS	NO NEW PERMITS

1. Drip irrigation is the slow, even application of low-pressure water to soil and plants using plastic tubing placed directly at the root zone.
2. Subsurface irrigation is irrigation that occurs underground, down as far as 9-12" to effectively irrigate the root zone with much less potential for evaporation than traditional spray irrigation systems.
3. Exemptions granted prior to the declaration of a water shortage would continue to be honored until the 45-day period has expired.

(1) *Stage 1.* In Stage 1, the Town shall publicize and request the public to comply with the following conservation measures:

- a. Spray irrigation is limited to once per week. Hand watering is permitted every day. Athletic field irrigation is permitted.

- b. No new 45-day landscape permits shall be issued. Permits already issued during a Stage 1 declaration would continue to be honored until the 45-day period has expired.
- c. Reuse household water when possible, (within State gray water laws).
- d. Limit vehicle washing to the minimum.
- e. Refrain from washing down outside areas such as sidewalks, patios, etc.
- f. Use shower for bathing rather than bathtub, and limit shower to no more than four minutes.
- g. Limit flushing of toilets by multiple usages.
- h. Refrain from leaving faucets running while shaving or while rinsing dishes.
- i. Limit the use of clothes washers and dishwashers and when used, to operate fully loaded.
- j. Install water-flow restrictive devices in showerheads.
- k. Use disposable and biodegradable dishes.
- l. Install water-saving devices such as bricks, plastics, bottles or commercial units in toilet tanks.
- m. Limit hours of operation of water-cooled air conditioners.

(2) Stage 2. In Stage 2, the Town shall continue all recommendations of Stage 1 and the following measures shall be mandatory:

- a. Spray irrigation is not allowed. Hand watering is permitted.
- b. Filling of newly constructed or drained swimming or wading pools shall require the approval of the Public Works & Utilities director. Makeup water is allowed for maintaining the operation of swimming or wading pools.
- c. No introducing water into any ornamental fountain, pool or pond or other structure making similar use of water.
- d. No using water from public or private fire hydrants for any purposes other than fire suppression or other public emergency.
- e. Watering for dust control or compaction shall require the approval of the Public Works & Utilities director.
- f. No using water for any unnecessary purpose or intentionally wasting water.

(3) Stage 3. In Stage 3, all the provisions of Stages 1 and 2 apply and, in addition, the following measures shall be mandatory:

- a. Spray irrigation is not allowed. Hand watering is not allowed. The irrigation of athletic fields is not allowed.
- b. No nonessential use of water for commercial or public use, and the use of single service plates and utensils is encouraged and recommended in restaurants.
- c. No washing down outside areas such as streets, driveways, service station aprons, parking lots, office buildings, exterior of existing or newly constructed homes or apartments, sidewalks, or patios, or use of water for other similar purposes.
- d. Washing of vehicles is not permitted.

(4) Emergency/Rationing Stage. In this stage, all the provisions of Stages 1 through 3 apply and, in addition, the following measures are mandatory:

- a. No using water outside of structures for any use other than emergencies involving fire. Fire protection will be maintained, but where possible, tank trucks shall use raw water.
- b. All industrial uses of water are prohibited.

c. All other uses of water will be limited to those uses necessary to meet essential health and safety needs of customers.

d. No introducing water into swimming pools.

(Ord. of 2-2-99, § 1; Ord. of 3-20-00, § 1; Ord. No. 07-0807-09, § 3, 8-7-07)

Sec. 12-103. Violation, enforcement, and penalties.

(a) *Violations*. It shall be unlawful for any person to violate any provision of this division including any mandatory water conservation measure.

(b) *Criminal penalties*. Violations of this section shall not be a crime under G.S. 14-4, or other law.

(c) *Civil penalties*. Any person who violates this division is subject to a civil penalty of up to \$1,000.00 per violation per day for so long as the violation exists. Violations and penalties shall be determined by the Public Works & Utilities director. In determining the amount of a civil penalty, the Public Works & Utilities director shall take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration of the violation, efforts to correct the violation, the compliance history of the parties against whom the violation is assessed, the cost of enforcement to the Town, whether the violation was willful or intentional and any other factor as justice requires. The Town shall serve a written citation on the violator, and the customer if different, by personal delivery or by certified or registered mail, return receipt requested. The citation shall describe the violation and shall specify the amount of the civil penalty levied. If a person fails to pay a civil penalty within ten days after receiving written notice of violation, then the Town may recover the penalty through a civil action in the nature of debt, including all further accruing penalties for continuing violations.

(d) *Continuing violation*. Each day that a violation continues shall constitute an additional and separate violation.

(e) *Discontinuance of service*. The Town may discontinue service to a customer upon a determination by the Public Works & Utilities director that the customer violated a provision of this division. Prior to discontinuance, the Public Works & Utilities director shall give the customer written notice of the violation and an opportunity to contest the discontinuance within 48 hours.

(f) *Multiple remedies*. The Town may seek to enforce this division through any appropriate equitable or legal action or through any combination of these or the foregoing remedies.

(g) *Appeal*. A person who is assessed civil penalties or whose service is discontinued may appeal to the board of adjustment by serving written notice to the Town clerk within ten days of the service of citation or notice of discontinuance. An order of discontinuance is not stayed pending appeal to the board of adjustment.

(Ord. of 2-2-99, § 1; Ord. No. 07-0807-09, § 4, 8-7-07)

Sec. 12-104. Reserved.