

**CITY OF LAGRANGE, GEORGIA  
UTILITY DEPARTMENT  
WATER CONSERVATION AND DROUGHT  
CONTINGENCY PLANS**



**Modified: May 2012**

## ***WATER CONSERVATION PLAN***

### **SYSTEM MANAGEMENT AND SALES**

Permit Information. The City of LaGrange presently owns and operates one surface water treatment facility permitted by the Georgia EPD to operate at 22 million gallons per day.

Withdrawal from West Point Lake is permitted at a maximum withdrawal of 22 million gallons per day with a monthly average not to exceed 20 million gallons per day.

Unaccounted For Water. An important component of any Water Conservation Plan is to manage and reduce Unaccounted for Water (UAW), which represents the difference between finished water pumped into the distribution system and metered volumes delivered to consumers plus an adjustment for unmetered volumes such as hydrant flushing. This difference is typically expressed as a loss percentage. The table below represents the UAW percentage for the City of LaGrange during calendar year 2011:

	Pumped	Sales	UAW	UAW
Month	Galx1000	Galx1000	Galx1000	%
01-2011	212,620	166,672	45,948	22%
02-2011	180,190	139,432	40,758	23%
03-2011	195,810	152,446	43,364	22%
04-2011	200,320	153,193	47,127	24%
05-2011	233,880	161,872	72,008	31%
06-2011	269,420	227,842	41,578	15%
07-2011	257,110	201,921	55,189	21%
08-2011	267,330	223,690	43,640	16%
09-2011	227,860	202,413	25,447	11%
10-2011	214,860	176,034	38,826	18%
11-2011	193,490	155,188	38,302	20%
12-2011	195,440	151,764	43,676	22%
Total	2,648,330	2,112,467	535,863	20%
			Flushing	-2%
			Net UAW	22%

Programs to reduce UAW:

- *Engineering Analysis of Pumped Finished Water.* The City has hired the engineering firm Atkins North America to review water plant metering and possible sources of unmetered water use for plant operations in an effort to reduce UAW.
- *Leak Repair.* The City employs full time maintenance crews that are responsible for making distribution system repairs as required. In addition, meter readers are responsible for reporting any potential line leaks or breaks found along their daily routes. The Fire and Police Departments also occasionally report leaks.
- *System Mapping.* The City is currently converting its water system from ACAD to GIS and updating all of the valve and main locations. This new mapping system will allow for quicker response in isolating leaking water mains and reducing water loss. All new installations are drawn up in detail and as-builts prepared. As-builts are also required on subdivision developments.

- *Meter Maintenance and Testing.* The City's policy for water meter maintenance includes annual checking and calibration of large meters and periodic change-out of small and residential meters.
- *Elevated Tank Overflows.* Water levels in elevated tanks are continuously monitored with SCADA equipment with alarms issued when levels approach overflow conditions.
- *Flushing Program.* Flushing of mains is coordinated with fire hydrant testing by the Fire Department to reduce the amount of water used and only performed during low consumption periods. Flushed water is not effectively accounted for in the City's UAW calculation.
- *Unauthorized Use Prevention.* Fire hydrant use by contractors is regulated through the issuance of hydrant meters with proper backflow devices to ensure that water volumes are properly accounted for.
- *Main and Service Replacement.* The City continues to replace galvanized mains and service taps as funds become available with ductile iron and copper to reduce leakage. Several miles of pipe are currently being replaced using CDBG block grant funding.
- *Unmetered Taps.* All service connections except fire hydrants are metered.
- *Construction Specifications.* The City requires ductile iron mains and copper service laterals for all new development due to the longer life and resistance to leaks of these materials.

Wholesale Interconnections. The City of LaGrange has wholesale contracts with several local municipalities for the sale of water volumes. The City also purchases a small volume of water

from Heard County needed to serve a handful of residential customers in the northwest quadrant of Troup County. The maximum contract volumes are as follows:

- *City of Greenville* 600,000 gallons per day
- *City of Hogansville* 350,000 gallons per day
- *City of West Point* 500,000 gallons per day

Basin Overflows. No basin overflows are known to occur at the treatment facility.

Backwash Recycling. The treatment facility is not equipped for the recycling of backwash water due to concerns that it would increase microbe concentrations. Filter and settling basin washwater is drained to a sludge retention pond.

## **TREATMENT PLANT MANAGEMENT**

Plant Metering. The City maintains differential pressure metering at its two raw water pumping stations and two finished water pumping stations. These meters provide continuous flow readouts and are recorded by the plant SCADA system. These meters provide detailed information which is used to evaluate plant and system losses. Due to concern about high UAW, an engineering firm has been contracted to review plant metering and connectivity to look for inaccuracies in the reporting of finished water pumped into the distribution system.

Reservoir. Water that is pumped from the City's raw water pumping stations on West Point Lake is stored in a 12 million gallon reservoir at the treatment plant. No basin overflows are known to occur at the reservoir.

Backwash Recycling. The treatment facility was built with equipment for the recycling of backwash water but this process is not utilized due to concerns that it would increase microbe concentrations in finished water. Filter and settling basins are drained to a sludge retention pond.

Filter Backwashing. The City maintains Loss of Head metering to ensure the most efficient timing of filter backwashing.

The Table below represents water losses associated with plant production:

Month	Treated Galx1000	Pumped Galx1000	Plant Loss Galx1000	Plant Loss %
01-2011	220,180	212,620	7,560	3%
02-2011	188,190	180,190	8,000	4%
03-2011	202,050	195,810	6,240	3%
04-2011	203,680	200,320	3,360	2%
05-2011	236,620	233,880	2,740	1%
06-2011	272,770	269,420	3,350	1%
07-2011	263,720	257,110	6,610	3%
08-2011	278,340	267,330	11,010	4%
09-2011	239,680	227,860	11,820	5%
10-2011	225,460	214,860	10,600	5%
11-2011	199,040	193,490	5,550	3%
12-2011	207,070	195,440	11,630	6%
Total	2,736,800	2,648,330	88,470	3%

## **RATE MAKING POLICIES**

Metering. All known service connections are metered and billed, including City connections.

The distribution of meters and sales among categories for calendar year 2011 is as follows:

<i>Residential</i>	16,486 meters	47% of sales
<i>Commercial</i>	1,843 meters	19% of sales

<i>Governmental (and wholesale)</i>	2,704 meters	12% of sales
<i>Industrial</i>	1,472 meters	22% of sales

Surcharges and Discounts. Customers located outside the corporate limits of LaGrange or in a special investment district are charged a 50% surcharge to recover the additional cost associated with providing service in these areas. The City offers a \$1.40 per month water discount to low-income senior citizens.

Financial Condition. Rates are established to ensure the proper recovery of all overhead, maintenance, and debt service expenses of the system. The Water and Sewer Fund is self sufficient and is not subsidized from any other sources of revenue. Annual debt service requirements recently declined by over \$4 million due to the retirement of bonds originally issued in the early 1990s for water and sewer treatment plant expansions. The City implements an automatic rate adjustment to water and sewer sales, including wholesale contracts, which ensures budgeted revenues are collected.

Irrigation Metering. The City allows customers to purchase a second meter for irrigation with usage through these meters exempted from sewer charges. Separate sewer meters are allowed in special circumstances where process water loss is significant. The rate for metered sewer is 10% higher than the standard rate to recognize that all customers experience some consumptive loss.

## **PLUMBING ORDINANCES AND CODES**

Code. The City of LaGrange presently operates under the Southern Standard Building Code as adopted by the State of Georgia. The City enforces compliance with Georgia water conservation laws requiring ultra-low flow plumbing fixtures.

Inspections. New buildings are inspected to ensure that proper materials, methods, and required conservation devices are installed.

## **RECYCLE/REUSE**

Condensate and Storm Water. Capture and re-use of cooling system condensate or storm water is encouraged. Re-use of gray water in compliance with local ordinances is accepted.

Consumptive Use. The City emphasizes water returns to the Chattahoochee basin and encourages the extension of sewer service whenever possible.

## **EDUCATION PROGRAMS**

The City informs and educates the public regarding water conservation through the following methods:

*Local Government Television Station – TV 19*

*Annual Consumer Confidence Report*

*Website Links*

*Occasional Billstuffers*

## **PROGRESS REPORTS**

Five year progress reports will be submitted as required following renewal of the City's Surface Water Withdrawal Permit

## **WATER USE DATA REPORTING**

Annual water use data reports will be submitted to the Director as required. This information is also submitted as required under the Georgia Water Stewardship Act.

## **LONG RANGE PLANNING**

Water conservation will be an integral part of the City's long range planning process when reviewing water demand and supply requirements. Demand projections will reflect the impact of existing and new conservation programs.

## ***DROUGHT CONTINGENCY PLAN***

### **DROUGHT CONDITION INDICATORS AND RAW WATER AVAILABILITY**

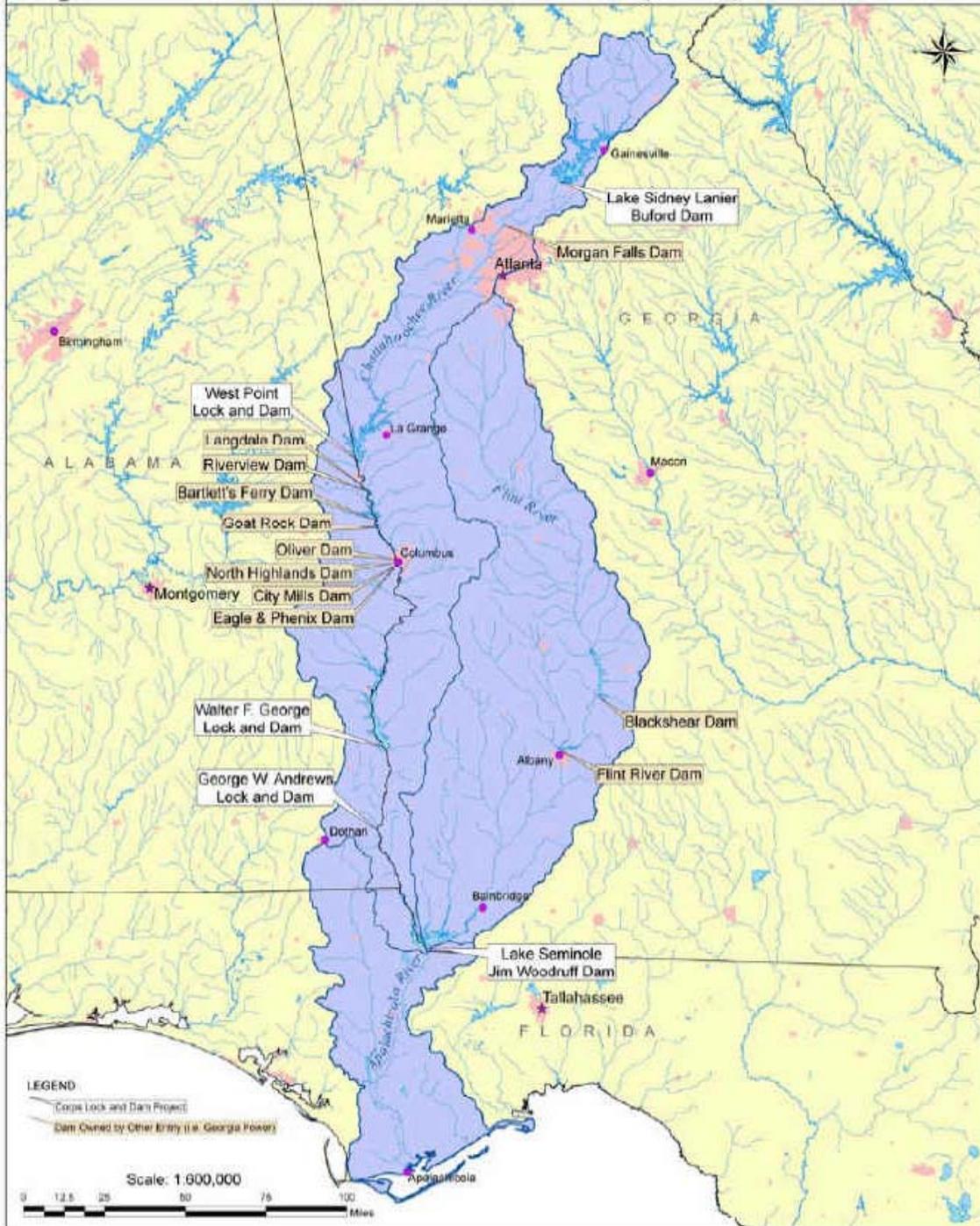
The City of LaGrange draws raw water from the West Point Reservoir and has not experienced any difficulties meeting water demands even during the most severe drought conditions. Prior to the impoundment of the reservoir, the City pulled water directly from the Chattahoochee River (see ACF river basin map below). West Point Reservoir contains 605,000 acre-feet of storage with a conservation pool of 306,100. The City's average pumped volume of 7.3 million gallons represents 0.007% of this volume.

The City's raw water intakes are located at 628', 623', 618', and 600' with the bottom of the suction well at 582'. West Point Lake's full pool is 636' with a historic low of 621.75' (see Corp of Engineer chart below from 2007). Severe drought conditions may require conservation to assist with statewide efforts to reduce water demand and protect the State's water resources. The conditions below may necessitate the implementation of mandatory conservation measures. An onsite 12 million gallon raw water pond provides approximately 1 ½ average days of storage in the event of a pump or main failure.

- a. High water demand
- b. Downstream water uses and/or flow requirements
- c. Drought or excessive heat conditions
- d. Pump Failures

- e. Power failures
- f. Water main breaks
- g. Orders by the State of Georgia

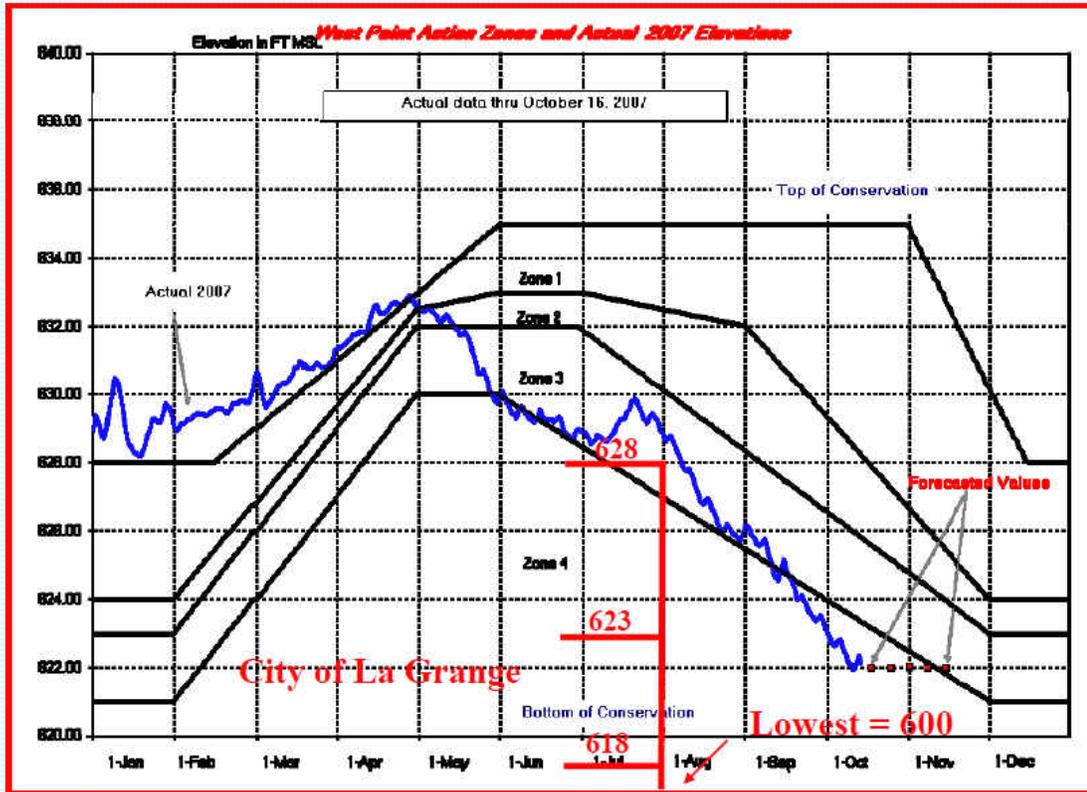
# Apalachicola-Chattahoochee-Flint (ACF) River Basin



# West Point Intakes



**RELEVANT  
READY  
RESPONSIVE  
RELIABLE**  
*Proudly serving the Armed Forces and  
the Nation now and in the future.*



## ESTABLISHMENT OF WATER USE PRIORITIES

Emergency Condition. Any situation that causes a reduction in water pumping capacity, significant reduction in water pressure, concern about water supply, or demand exceeding permitted production or withdrawal limits may require water allocation by priority of use and will be considered an emergency condition.

Water Use Priorities. The City ranks water use priorities in decreasing order of importance as follows:

1. Emergency facilities for essential life support measures
2. Household and domestic uses such as drinking, cooking, washing, and sanitation
3. Farming and livestock needs
4. Industrial and commercial process use
5. Nurseries and landscape companies
6. Construction
7. Irrigation of lawns
8. Swimming pools
9. Car washing
10. Street cleaning, line flushing, hydrant testing, etc.

The City has established this Emergency Conservation Implementation Plan to place restrictions on lower priority uses of water when one of the above conditions dictates. The plan is divided into four stages of emergency conditions. The four stages vary from the Georgia EPD Outdoor Water Use Response levels, which are also referenced, but deal only with drought and not

necessarily all possible emergency conditions. The stages are briefly described in order of increasing urgency as *Minor*, *Moderate*, *Severe*, and *Critical*. The City's conservation efforts will in all cases as a minimum follow the recommendations and requirements of any State of Georgia Conservation order or plan.

**Stage #1 (Minor Emergency Condition – 10% use Reduction)**

When minor problems occur, public service announcements will be made on local radio stations and in the newspaper requesting that customers curtail the use of any unnecessary water, particularly outdoor water use. This effort will be aimed primarily at limiting the practice of watering lawns, gardens, washing cars, and other practices that are deemed “nonessential.” The City will implement “odd/even” water restrictions, and City crews and in some cases public safety officials will be asked to field monitor water usage. In addition fire departments and water crews will be asked to curtail water main flushing, dust control, and other non-essential use of water. This request shall be on a voluntary basis. This Stage is compatible with EPD Drought Response Level Two.

**Stage #2 (Moderate Water Emergency – 15% to 20% Use Reduction)**

If conditions degenerate from what was considered a minor condition into a moderate emergency, the following additional steps will be taken. First, the intensity and frequency of media announcements will be increased explaining the degree of severity of the problem. Second, all outdoor water use will be curtailed except for personal food gardens, irrigation of new landscaping, and commercial exemptions essential to daily business and approved by the city. This Stage is compatible with EPD Drought Response Level Four.

### **Stage #3 (Severe Water Emergency – 25% to 30% Use Reduction)**

In cases where there is a severe water emergency, stronger appeals will be made to customers through the local media. In addition, individual correspondence will be sent to large commercial users outlining the problem and calling for voluntary reductions in water usage. All water usage not required for health, safety, or essential business purposes approved by the city will be prohibited. Businesses such as car washes and laundromats will be required to curtail operations for limited periods.

### **Stage #4 (Critical Water Emergency – 50% or more use Reduction)**

When the water emergency becomes so problematic that it is considered critical, such as when pressure in the entire system is threatened, prohibitions will be imposed on the use of any water not required for health and safety. Any commercial business or industry that uses process water will be required to curtail operations for limited periods until the water emergency has subsided. The City may also issue a request that individual residents conserve in other specific ways. City personnel, including the Police Department, will patrol for unnecessary uses of water. If system pressures are lost, service will be restored according to proper flushing and testing procedures.

## **ADDITIONAL ACTIVITIES CONTRIBUTING TO WATER CONSERVATION**

In addition to the actions previously discussed, the measures listed below are used to enhance conservation and reduce water loss that would increase the severity of an emergency condition. Many of these items are also found in the *Water Conservation Plan* outlined above.

1. Evaluate lost and unaccounted for water monthly.
2. Public education about the value of water conservation.
3. Promote drought tolerant landscaping (“zeroscaping”).
4. Encourage heavy mulching where new grass is planted.
5. Encourage the fire department to make fire hydrant flow tests during low consumption periods and in coordination with Water Division system flushing.