

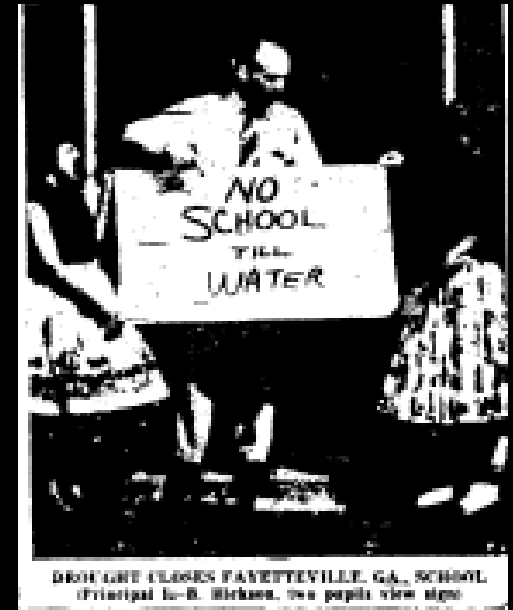


*Advancing a Sustainable
Chattahoochee River*

Chris Manganiello
Water Policy Director
February 4, 2020

Our Future Must Be Different

**Cut in Street Car Service
Saught by Power Company;
Power Conservation Urged**



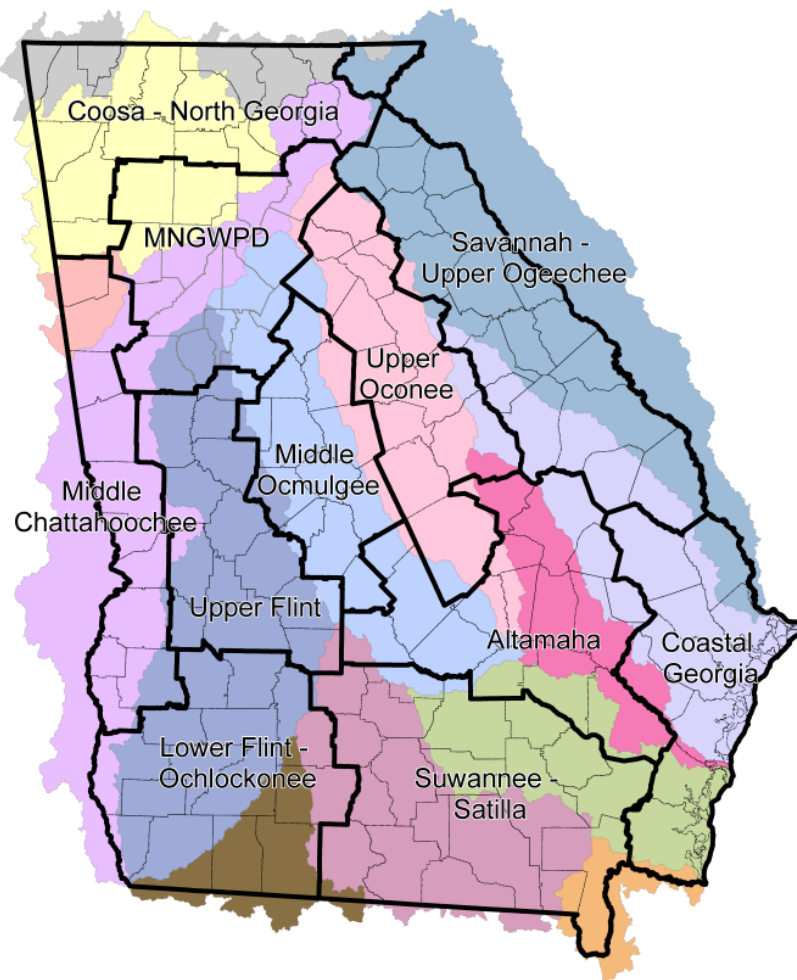
FD
224
G4
G4
C.4

WATER IN GEORGIA



Submitted by
THE WATER USE AND CONSERVATION COMMITTEE
 to
THE GOVERNOR, THE GENERAL ASSEMBLY
AND THE PEOPLE OF GEORGIA

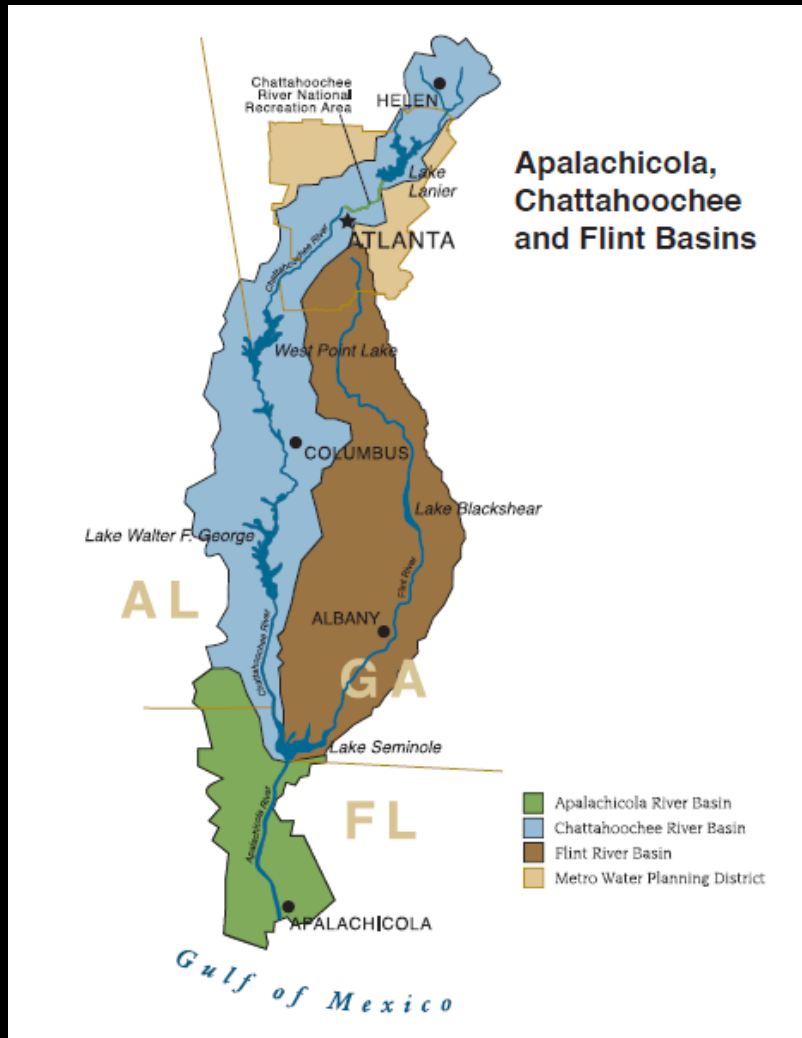
Water Planning Regions



0 5 10 20 30 40 Miles

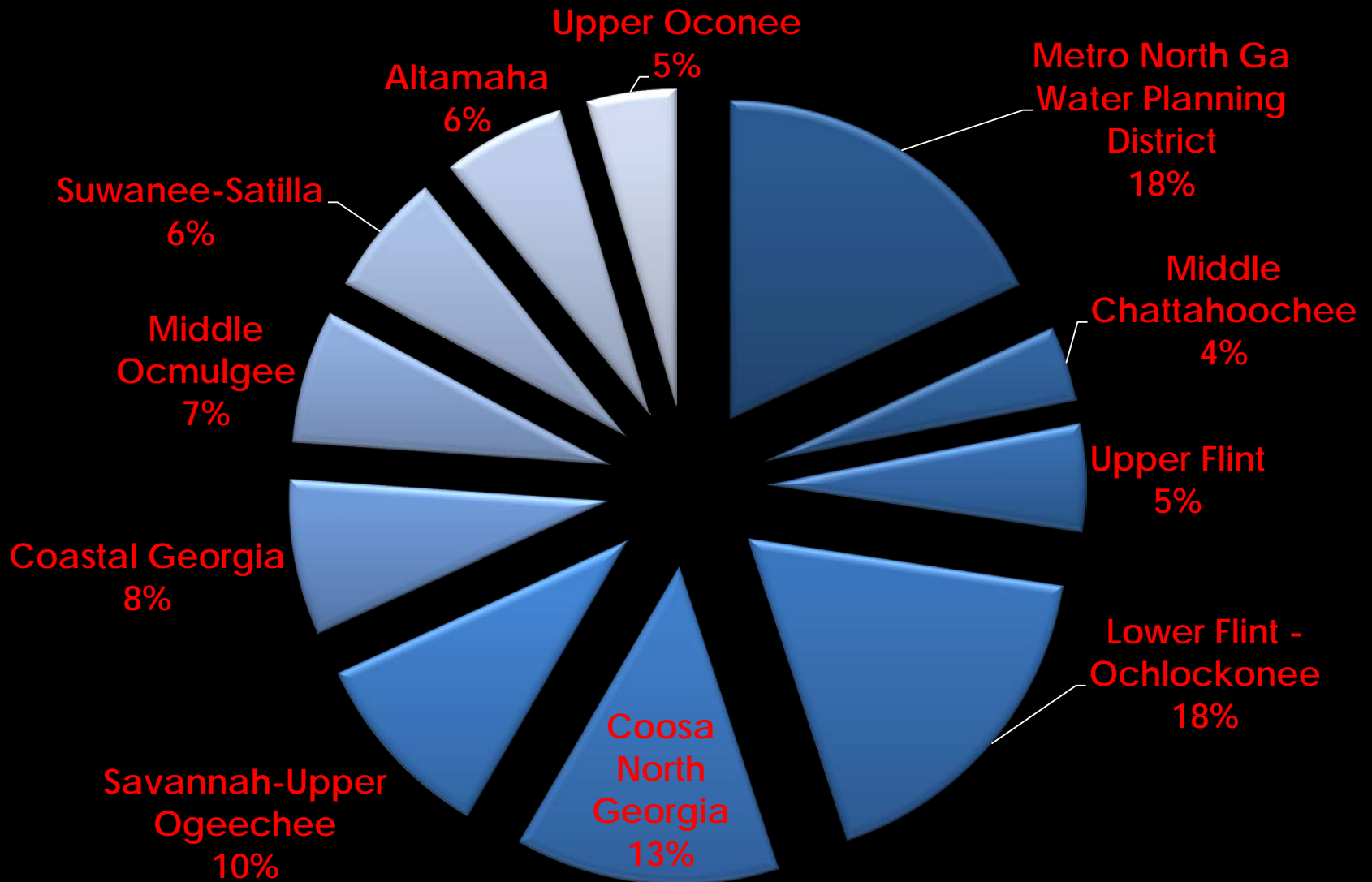
March 2009

...For the Chattahoochee River's Sustainability.



- ✓ Supports over 5 million of people
- ✓ 100 waste water plants
- ✓ 11 dams...10 produce electricity
- ✓ 3 natural gas power plants
- ✓ 1 coal power plant
- ✓ 1 nuclear power plant
- ✓ Agriculture
- ✓ Recreation
- ✓ Cold water trout, shoal bass

**Total Water Demand Forecast for 2050 by
Regional Water Council
4,975,000 (billion gallons per day)**



Total Water Demand Forecast for 2050 by
Regional Water Council
4,975,000 (billion gallons per day)

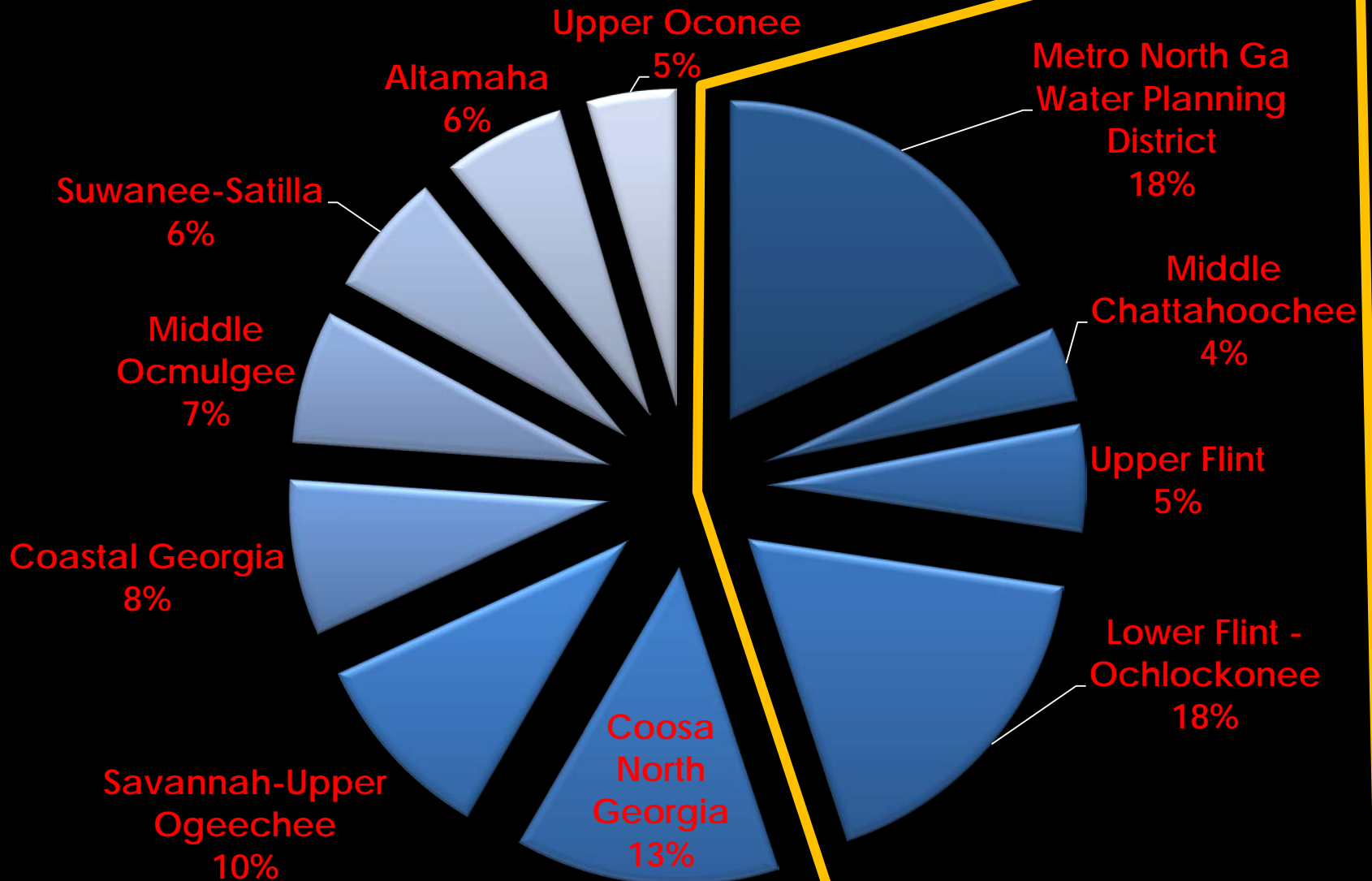






Table of Contents

1. Introduction	4
2. Water Planning in Georgia	8
3. The Metropolitan North Georgia Water Planning District	11
How is the District's Plan Implemented?	
Should the District's Surveys Be Mandatory?	12
4. Water Use, Costs and Efficiency	13
5. Georgia Water Loss and Control Audits	15
What Do Audits Tell Us?	
Water Loss	
General Observations	16
6. Where Can We Find More Water?	20
Toilets	20
State Plumbing Code Revisions Can Generate "More" Water	22
Commercial Water Use	22
Cooling Towers	24
Outdoor Water Use	25



Filling the Water Gap:

Conservation Successes and Opportunities for Communities that Depend on the Chattahoochee River



Forsyth County Water & Sewer	38
Fulton County Department of Public Works	39
City of Gainesville	40
Gwinnett County Department of Water Resources	41
City of Roswell	42
Columbus Water Works	43
City of LaGrange	44
Endnotes	45

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apparent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

Performance Dashboard ⁷⁷

County/System: Columbus Water Works
Primary Water Source: Lake Oliver (Chattahoochee River)

Population		
	2011	2017
Population (US Census)	195,244	193,766
Population served (EPD)	229,000	260,00
Number of active and inactive service connections	74,380	77,075

Precipitation & Water Use							
	2010	2011	2012	2013	2014	2015	2016
Total annual rainfall (inches)	37.26	39.74	35.21	62.65	52.13	63.1	35.14
Annual monthly average withdrawal (MGD)	34.9	36.1	35	34.3	34.7	34.9	35.8
Monthly peak average withdrawal (MGD)	46.07 (Aug)	44.39 (Aug)	43.59 (Jun)	40.55 (May)	39.88 (Aug)	43.91 (Jul)	44.59 (Jul)

Water Loss and Control Audit Results							
	2011	2012	2013	2014	2015	2016	2017
Audit validity score	75	77	77	73	80	85	82
Apprent water losses as % of water supplied	2.3%	2.8%	2.7%	3.5%	2.9%	2.5%	2.4%
Real water losses as % of water supplied	9.5%	8.8%	12.9%	14.4%	14.0%	14.3%	14.6%
Real losses per connection per day (gallons per day)	38.7	34.2	47.4	55.8	52.5	57.3	53.2

Conservation Pricing	
Residential rate structure	2 Increasing Blocks
First block maximum (monthly gallons)	11,220
Monthly water bill/water & sewer per 5,000 gallons	\$16.98/ \$41.90
Conservation signal: water price/ 1,000 gallons after 10,000 gallons	\$2.24
Residential irrigation rate structure different from residential?	No

The path to water security, resilience, and sustainability is not impossible. Georgia must continue to build a strong culture of water conservation and an equitable water ethic. The following recommendations will make Georgia a leader in water conservation and efficiency, and enhance the Chattahoochee River's communities and environment in the process:

💧 Recommendation #1:

The Georgia General Assembly should empower Georgia's Regional Water Councils with statutory implementation authority and financial support.

💧 Recommendation #2:

The District should require completion of Implementation Surveys that focus on implementation of the Water Stewardship Act.

💧 Recommendation #3:

The District and the State should investigate the effectiveness of tiered conservation rate structures to determine if they are sending the appropriate "conservation signal."

💧 Recommendation #4:

The Georgia Environmental Protection Division and the District should do more to ensure water providers are in compliance with the Georgia Water Stewardship Act.

💧 Recommendation #5:

The District should clarify the toilet stock in need of replacement and determine a timeline for natural replacement. And if that timeline is lengthy, then the District should determine how to speed the process along.

💧 Recommendation #6:

The Department of Community Affairs should revise the state plumbing code without further delay to make sure Georgia remains a leader when it comes to water conservation and efficiency.

💧 Recommendation #7:

Water providers should expand commercial water auditing programs, beginning with high use customers.

💧 Recommendation #8:

The District should invest in research, a pilot program, and data collection (e.g. cooling tower census) to determine what water and energy savings are possible as a result of new cooling tower operations.

💧 Recommendation #9:

The General Assembly should consider offering individual homeowners tax incentives and rebates to encourage the installation of water efficient landscaping.

💧 Recommendation #10:

The Georgia General Assembly should update the Georgia Water Stewardship Act to continue building an equitable culture of conservation.

💧 Recommendation #11:

The Georgia Environmental Protection Division should develop and implement a robust, transparent, and statewide data collection system to improve public engagement and water related decision making.

Questions?

Dr. Chris Manganiello

cmanganiello@chattahoochee.org

