

# **Our Water Future**

## **Southern Legislative Conference**

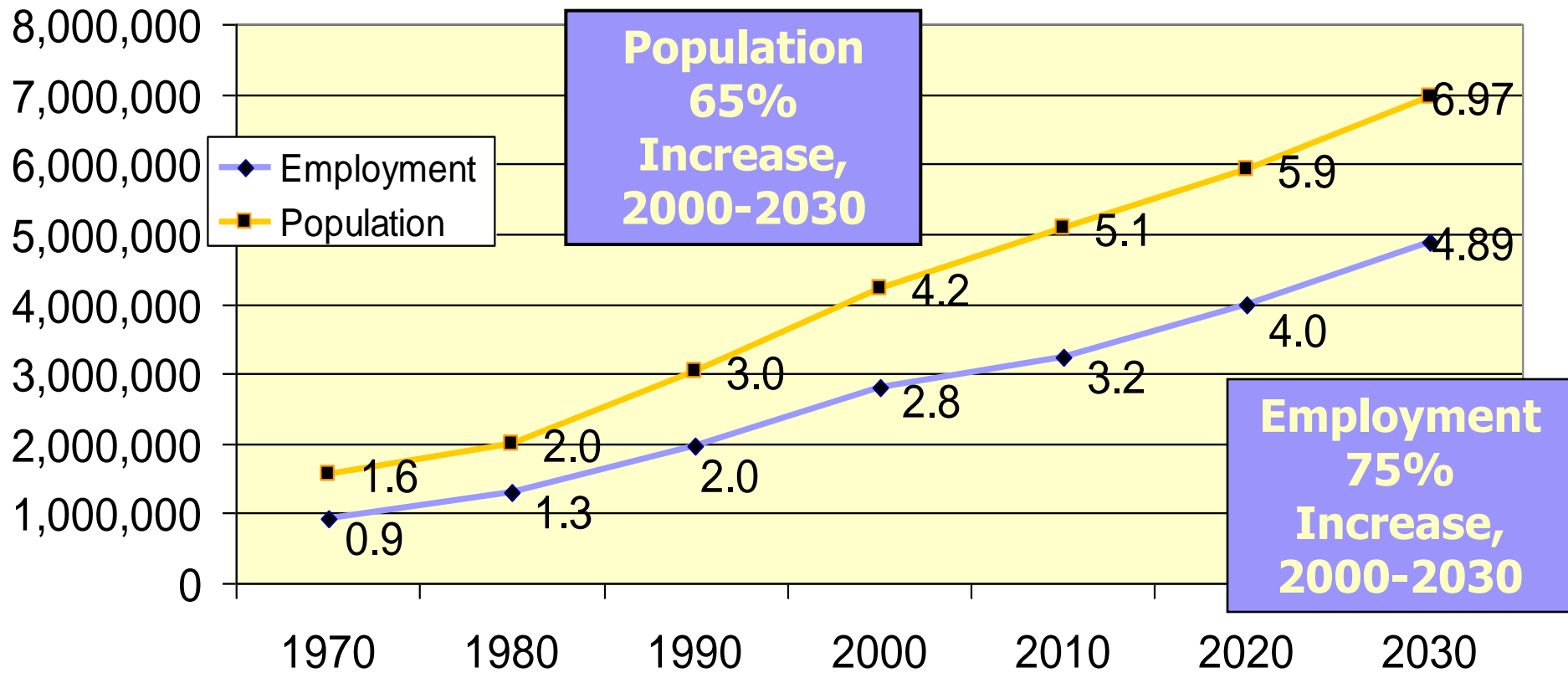
**August 1, 2010**

**Katie Kirkpatrick, P.E.  
Vice President, Environmental Affairs**

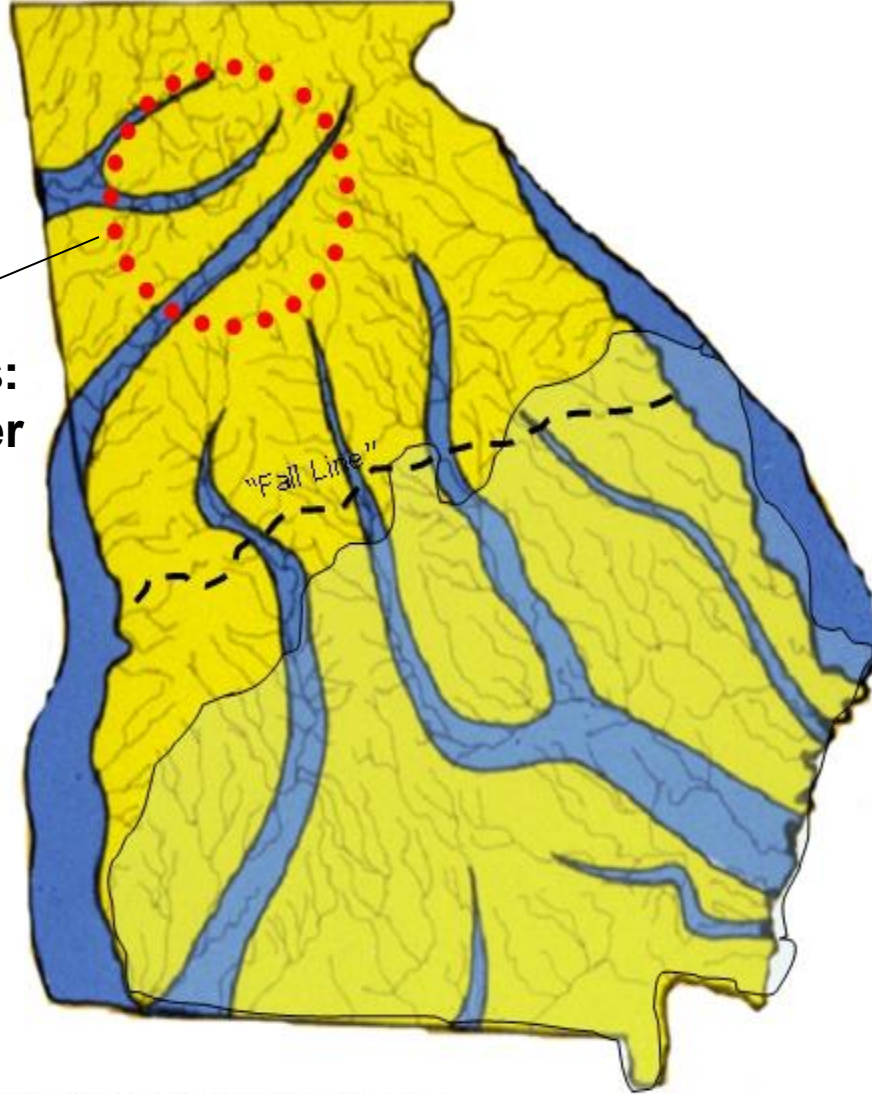


**Bringing the best together to help Atlanta thrive.**

# 20-County Forecasts



Over half of Georgia's population lives in Metro Atlanta...



**Limited Water Resources:**  
99% of the Region's water supply comes from surface water

Source United States Geologic Survey

# U.S. Drought Monitor

## Georgia

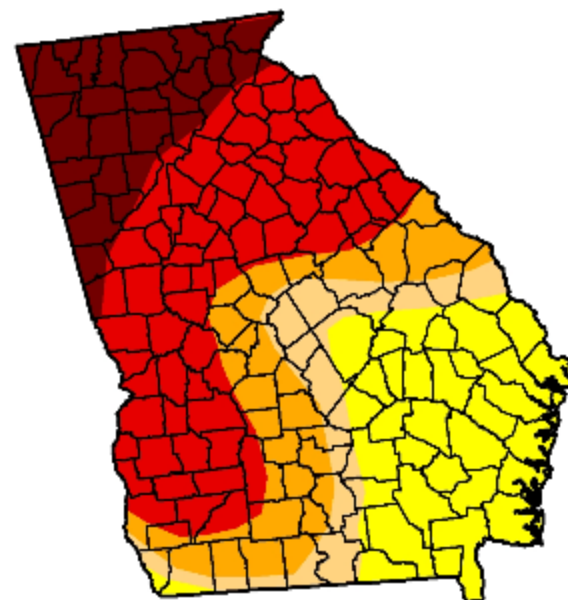
January 15, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.0	100.0	75.0	65.2	49.4	15.7
Last Week (01/08/2008 map)	2.0	98.0	75.0	65.2	49.4	15.7
3 Months Ago (10/23/2007 map)	18.7	81.3	67.0	56.4	43.0	32.2
Start of Calendar Year (01/01/2008 map)	2.0	98.0	75.0	65.2	49.4	15.7
Start of Water Year (10/02/2007 map)	24.2	75.8	64.2	52.6	39.4	27.0
One Year Ago (01/16/2007 map)	50.7	49.3	0.4	0.0	0.0	0.0

Intensity:



The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, January 17, 2008

Author: Rich Tinker, CPC/NOAA

# TRI-STATE LITIGATION

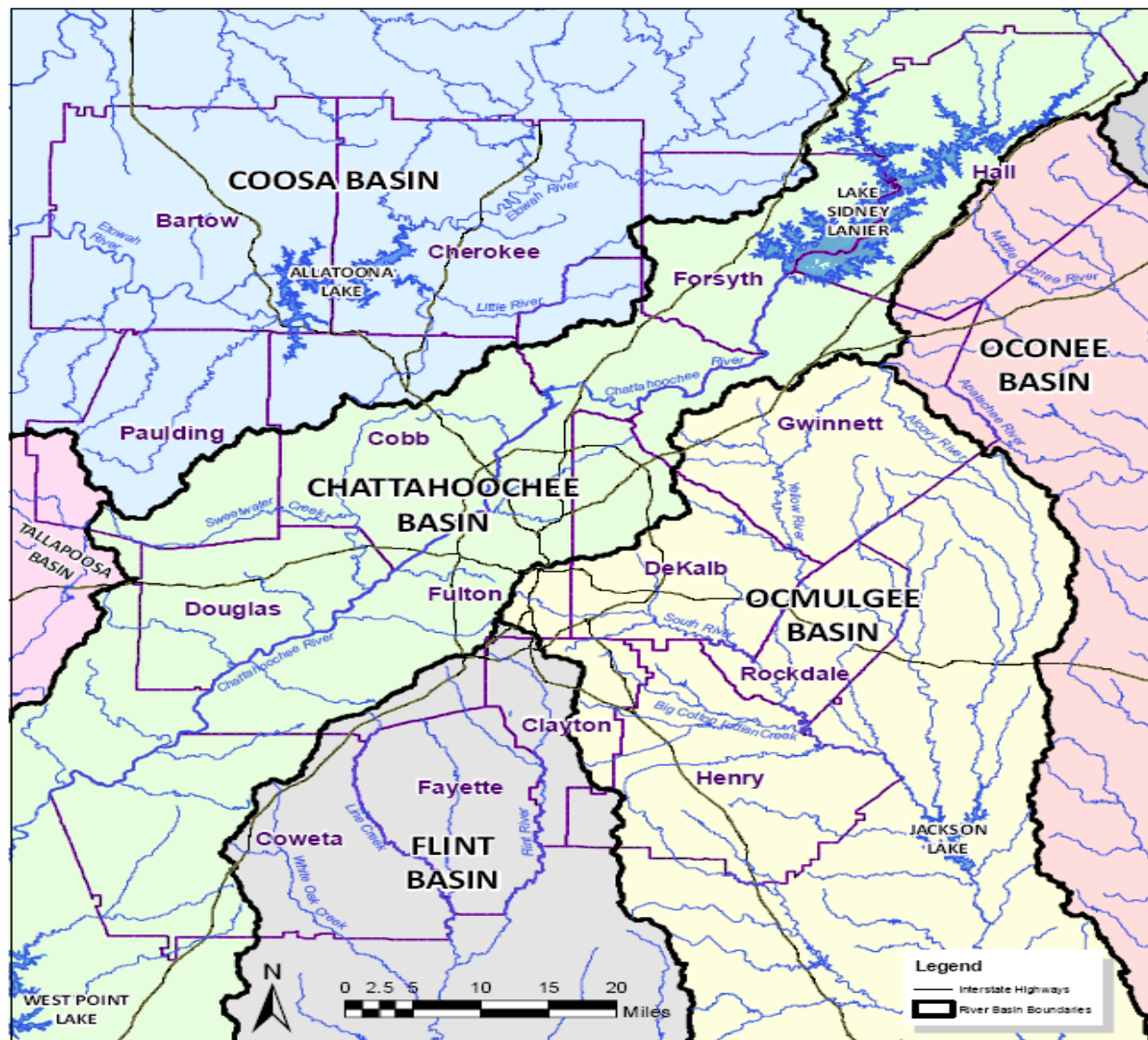
STANPS © 2001 THE DISSEMINATION NEWS  
WEST NEWS SERVICE



# Metropolitan North Georgia Water Planning District

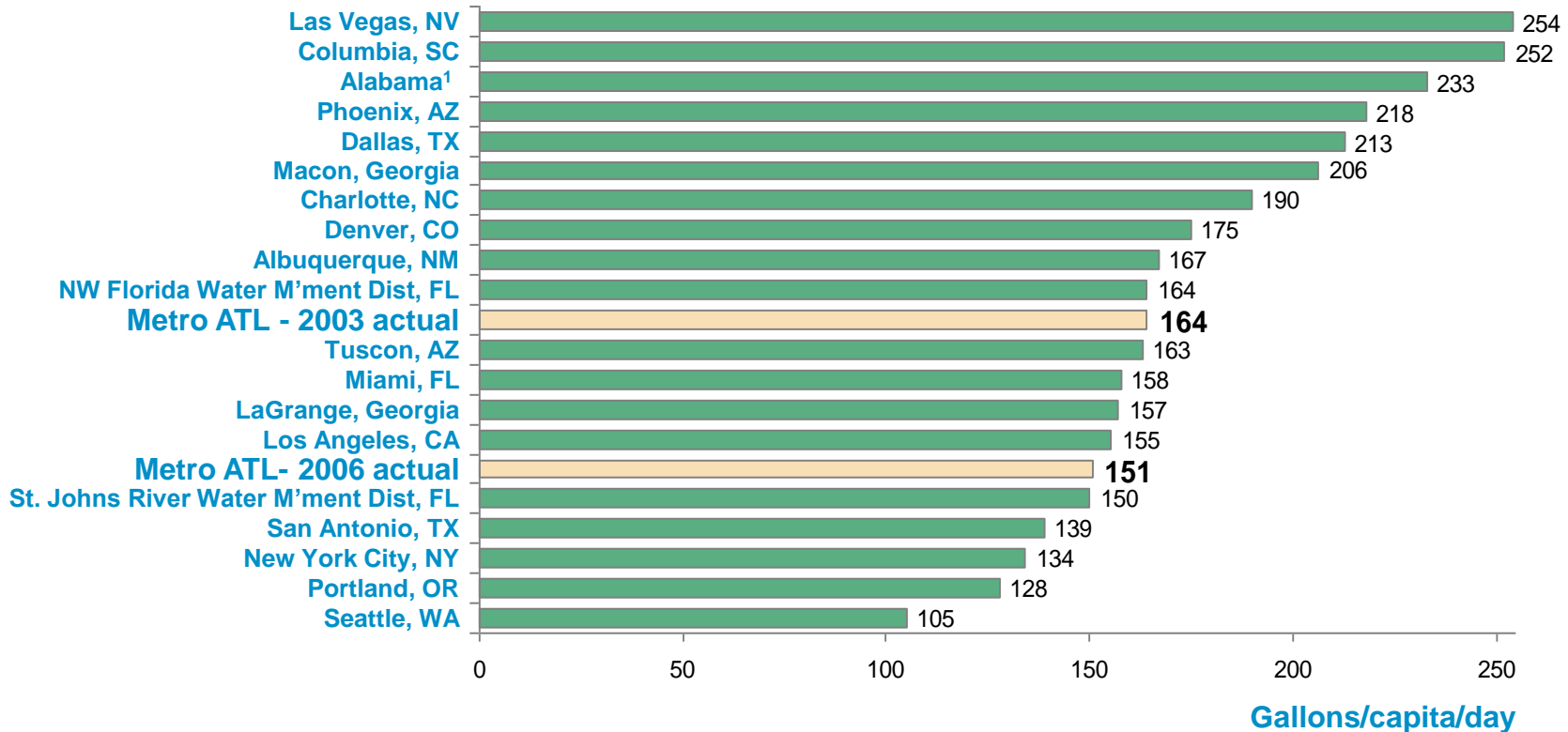
- Created in 2001 by the Georgia General Assembly
- Regional Perspective:
  - Establish policy
  - Create plans
  - Promote intergovernmental coordination
- 15 Counties
- Over 90 cities

# Metropolitan North Georgia Water Planning District



# Overall District water usage levels projected to be similar to those seen in low-usage metro areas

## Per capita public supply use, by metro areas— showing Metro ATL 2003 and 2006 actual usages



**Realization of this requires continuous improvement and ongoing education- fostering a "conserve first" mindset**

1. State average; data not available for individual cities in AL

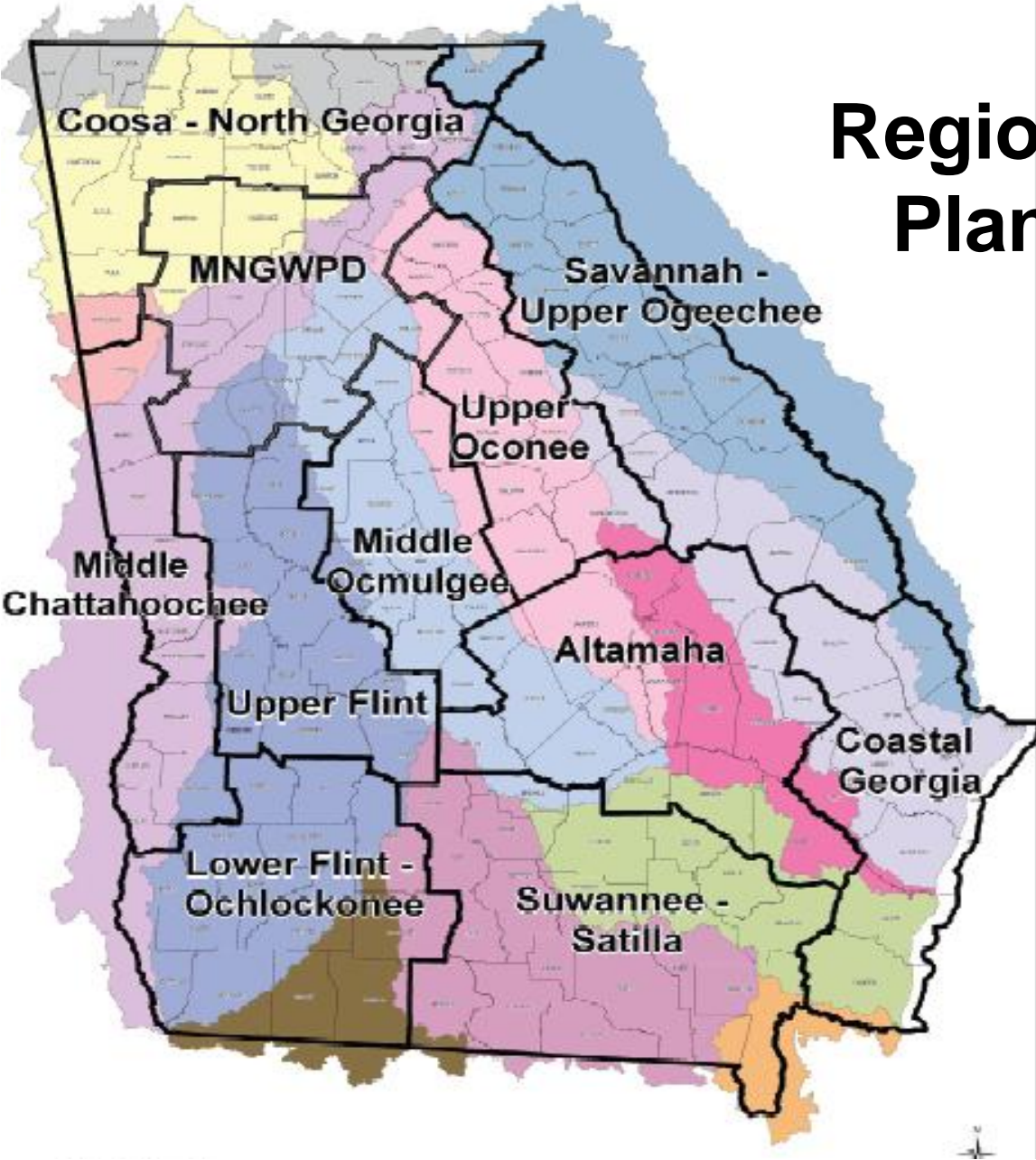
Note: Overall per capita is calculated by dividing total gallons of water produced by water provider by the population served, where total gallons of water produced includes use for residential, commercial, industrial, irrigation, and non-revenue water

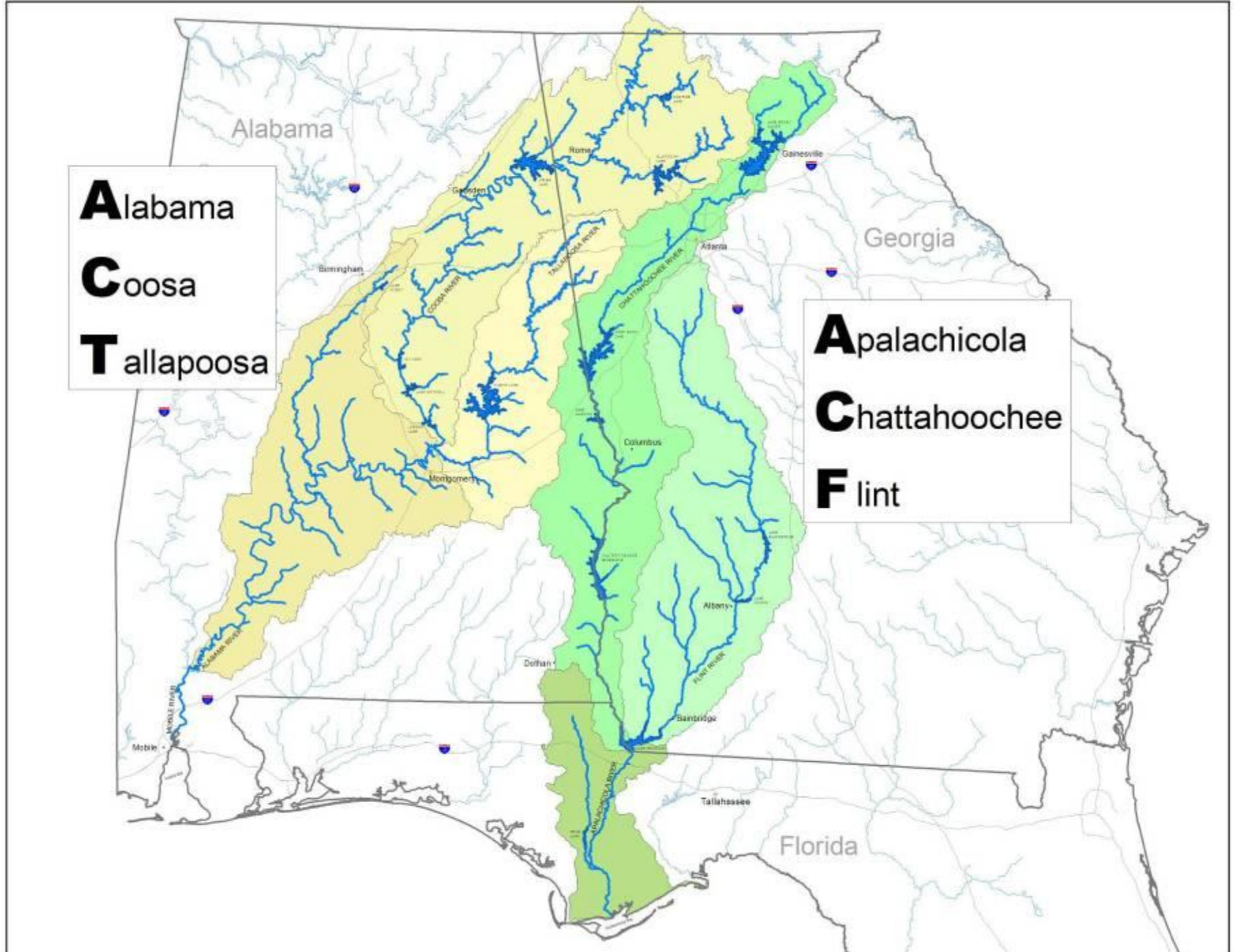
Source: Georgia EPD analysis with data collected from 2000 - 2008

# State Water Plan

- Signed into law on February 6, 2008
- Policies contained address:
  - Water Resource Assessments
  - Water Use Budgets
  - Water Management Decisions/Permitting
  - Regional Planning

# Regional Water Planning Councils





**A**labama  
**C**oosa  
**T**allapoosa

**A**palachicola  
**C**hattahoochee  
**F**lint

# Lake Lanier Litigation

## 6 cases consolidated in 2 Phases

- Plaintiffs include Alabama, Florida, Georgia, Alabama Power Co., the Water Supply Providers, Columbus, Lake Lanier Association, Apalachicola, SeFPC
- Issues to be litigated in 2 phases:
  - **Challenges to Corps' authority to operate for water supply and recreation (Phase I)**
  - Challenges to operating plans (endangered species issues) (Phase II)

# **MAGNUSON'S ORDER**

## **Lake Lanier not built for water supply**

- Water supply was not an originally authorized purpose of Lake Lanier.
  - Instead, Congress intended for water supply to be an “incidental” benefit
- Ruled that the Water Supply Act does not allow the Corps to reallocate storage that “seriously affects” other project purposes or causes “major operational changes”

# MAGNUSON'S ORDER

## 3 years to secure Congressional Approval

- Current water supply levels **exceed** the Corps' authority and thus, Congressional approval is needed for the Corps to meet current water supply levels.
- Ordered the litigation stayed for a period of **three years**, allowing for Congressional action approving the reallocation of storage in Lake Lanier

# **MAGNUSON'S REMEDY**

## **Water supply limited to 1975 levels**

- Absent Congressional authorization in three years, then water supply levels **revert to mid-1970s levels**
  - Buford Dam can release 600 cfs for incidental water supply downstream.
  - City of Buford and Gainesville can withdraw 2 and 8 MGD respectively from Lake Lanier.

# BUFORD DAM RELEASES

## Supply from River would be cut in half



**2009**

**710 MGD**

Permitted Withdrawals:  
497 MGD



**1975**

**387 MGD**

Permitted Withdrawals:  
230 MGD

# LAKE LANIER WITHDRAWALS

## Supply from Lake would drop by 95%



Gwinnett Co.  
is allowed  
150 MGD today.  
In 3 years, they  
would be allowed  
0 MGD.

**2009**  
**214 MGD\***

**1975**  
**10 MGD\***

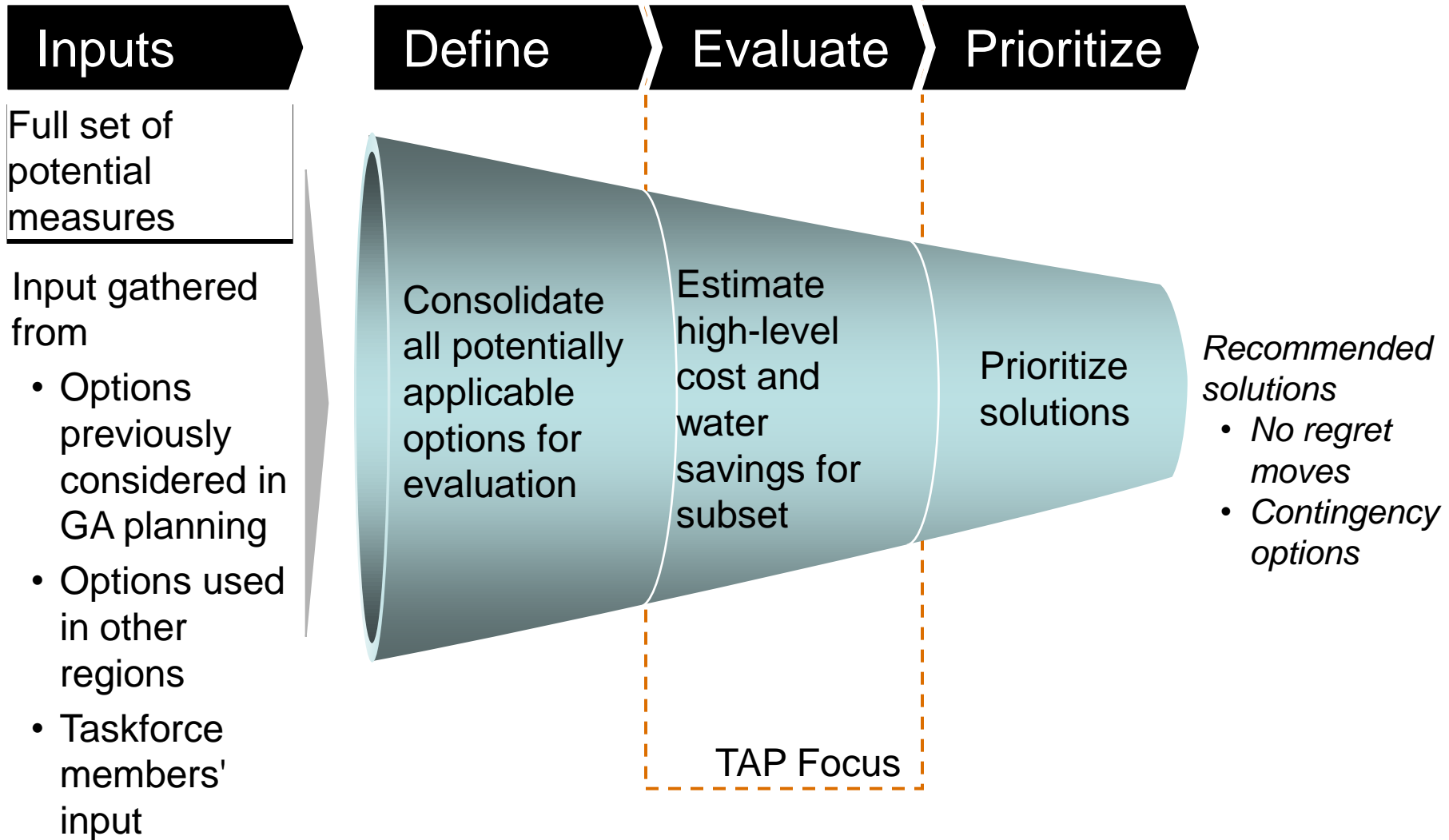
\*Permitted Withdrawals

# Georgia's Response to Ruling

## Governor pursues multi-prong strategy

- Multi-prong Strategy:
  - Appeal the decision
  - Negotiate with Alabama and Florida
  - Congressional Reauthorization, as directed by Judge
  - Contingency Planning to address gap in supply
- **Water Contingency Planning Task Force** convened by Governor to address gap. Task Force met from October to December 2009.
  - Directed members to analyze crisis as if it were a threat to their business
  - Develop a fact-base to educate leaders on Georgia's water situation and the implications of judge's ruling
  - Define a time-driven action plan prioritizing specific options for conservation, supply enhancement, and water policy

# Three-step process to gather input, evaluate potential options and prioritize solutions



# Important to understand, re-iterate the Contingency Plan operating assumptions

## Assume that re-authorization is not possible

- Hence, solutions involving Lanier storage or Dam operations are not in Task Force scope

## All potential solutions are on the table

- Both demand-side (Conserve) and supply-side (Capture and Control) options must be evaluated; we do not have the luxury of restricting analysis to just one lever
- Political considerations should not prevent evaluation of an option

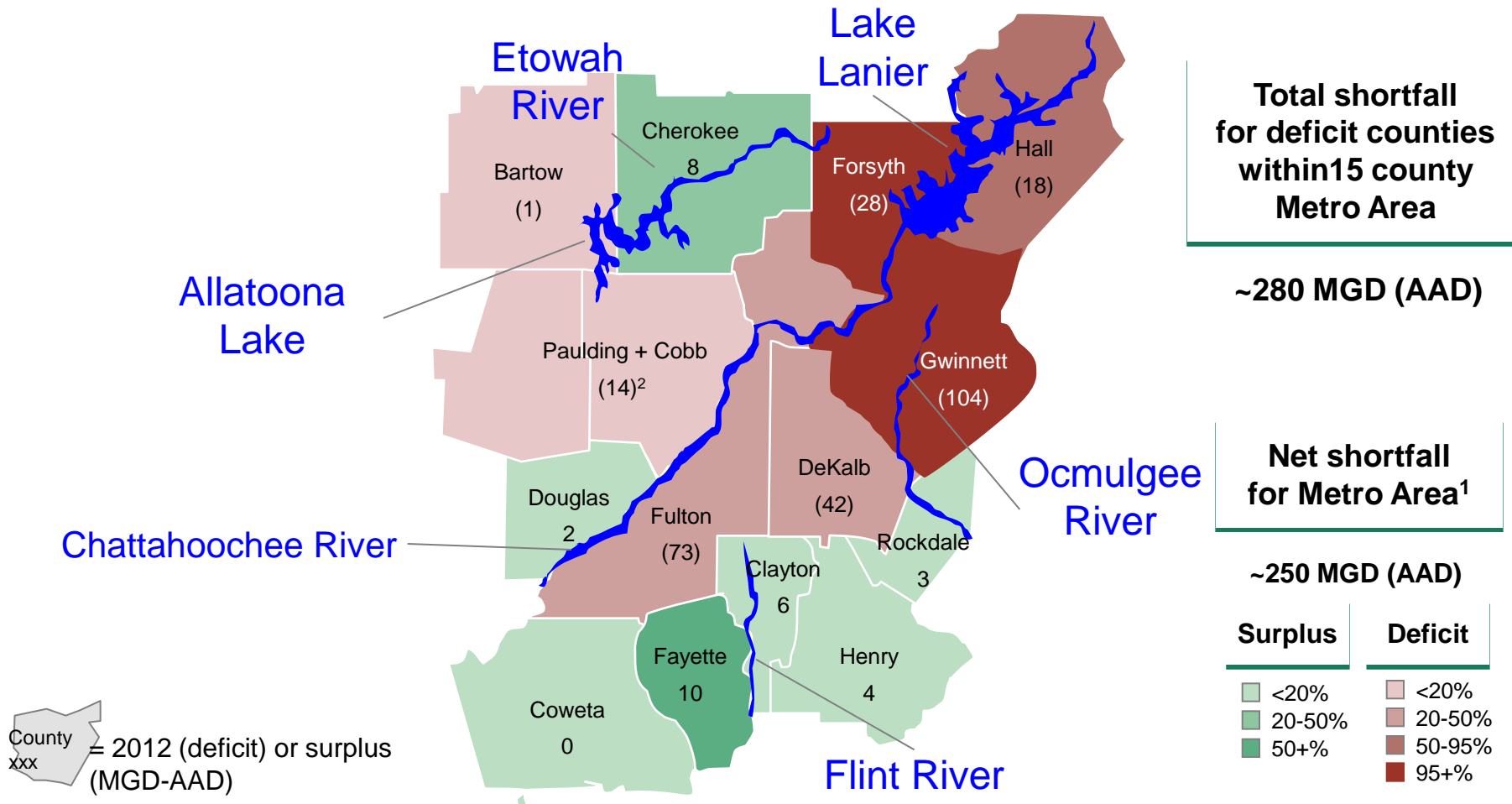
## Evaluation approach must stress option *prioritization*

- Not just a "worst case scenario" exercise; prioritization approach should reveal which options would be preferred even in less severe scenarios, as well as which options would be purely "contingency" measures

**This does not change fundamental view that Lanier is most environmentally and economically sensible water source**

# What would the ruling mean? Where is shortfall?

The shortfall is not evenly distributed across the Region.



**This is a static analysis only. Exact future impact by county is not known at present.**

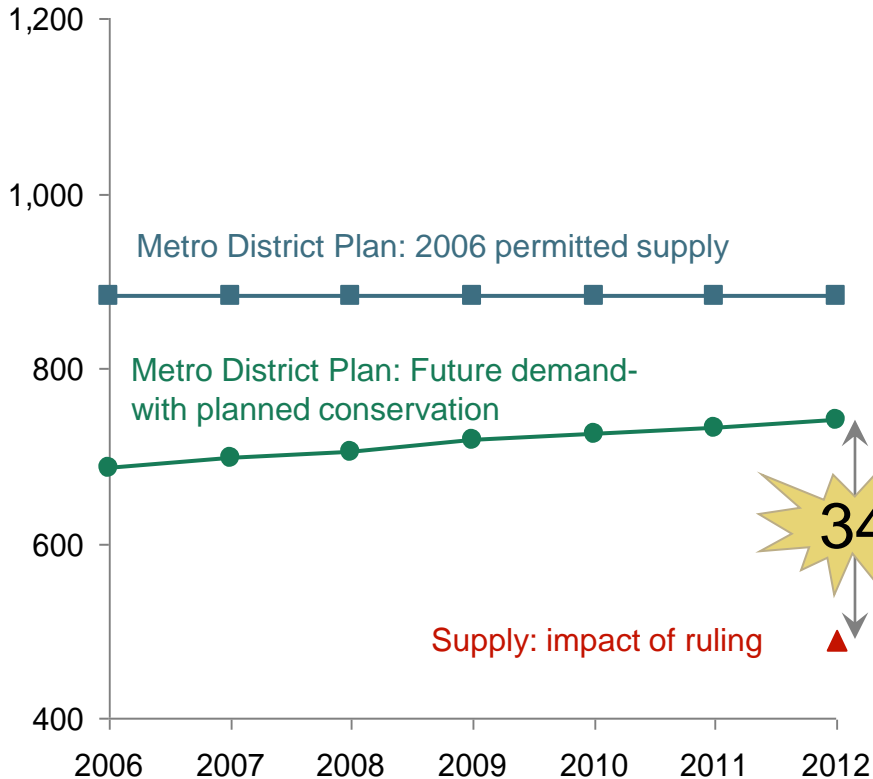
1. 250 MGD is net figure- this assumes surplus counties could offset deficit counties- which would require possible infrastructure upgrades and water quality verification.  
 2. Paulding currently buys all water from Cobb; shortfall shown as a result of combined supply / demand for the two counties  
 Source: Metro North Georgia Water Planning District "Water Supply and Water Conservation Management Plan" (May2009); EPD data

# Closing the Gap

## Conserve, Capture & Control are strategies to address shortfall

250 MGD (34%) gap between supply and demand by 2012

Supply/Demand (AAD - MGD)



- 1** Conserve
  - Reduce water demand
- 2** Capture
  - ID new sources and expand existing sources, including reservoirs, etc.
- 3** Control
  - Change policies and procedures to optimize how water is managed

# What is cost of inaction? 2012 water shortfall could reduce Metro Region economic output by >10% (\$26B+/yr)

Types of costs	Approach	Result
<div style="background-color: #006633; color: white; padding: 10px; text-align: center;">                     Lower economic output of existing businesses                 </div>	<ul style="list-style-type: none"> <li>• Referred to studies documenting impact of water supply shortfalls<sup>1</sup> on business output</li> <li>• Tailored assumptions to suit local situation- consulted local economists</li> </ul>	<ul style="list-style-type: none"> <li>• Implies a potential 10-15% reduction in output</li> </ul> <p style="text-align: center;">↓</p> <p style="text-align: center;">Translates into roughly <b>\$26-\$39B per year</b></p>

- Reduced investment for future growth
- Reduced quality of life
- Property value decline

*Costs are significant– but not explicitly quantified by Task Force*

Shortfall costs begin accruing now, as businesses evaluate metro ATL suitability... we need to **ACT!**

1. Measures to Reduce the Economic Impacts of a Drought-Induced Water Shortage in the SF Bay Area, SFPUC (2007) ; Estimating business and residential water supply interruption losses from catastrophic events, Brozovic (2006) ; Economic Loss Estimation of Water Supply Shortage Based on Questionnaire Survey in Industrial Sectors, Jiang (2005)  
 Note: Assessed impact to Metro Atlanta GDP from potential water shortfall of ~35%, Assumed shortfall borne equally by all sectors (ie, did not re-allocate supply)

# Summary: Task Force Findings (I of II)

- **Do not see ability to meet gap by 2012- even with extremely aggressive conservation scenarios**
- **Conservation playing a major role for Metro district- low impact, cost-effective**
  - Only conservation contributes by 2012. Conservation is a necessary, but not sufficient, part of solution
  - Metro ATL per capita usage, after considering existing plans combined with TF options reach levels comparable to leading metro areas
- **There is a potential 2015 contingency solution- though it is very expensive and difficult to implement**
  - Solution largely defined by large Indirect Potable Reuse option; there is not a broad set of sizable, cost-effective alternatives potentially available by 2015
  - Solution capital intensive (\$3B) and overall twice as costly (long term \$/MG) than 2020 solution
    - 2015 average cost efficiency (\$/MG) level of **\$~890/MG**, with capital expense **\$~3.0B**
    - Total 50-yr cost of portfolio is **\$~5.0B** which is significantly higher than 2020 cost optimal portfolio (**\$~480/MG** difference which equates to **\$~2.4B** over 50 yrs)
    - Funding this portfolio could increase overall retail water rates by ~\$2.70/kgall or **~55%**<sup>1</sup>
  - Additionally, the Indirect Reuse option poses a number of feasibility questions (timing, funding, environmental impact)

1. Ga Association of Water Professions; assumes incremental portfolio costs borne by utilities (directly or indirectly). Analysis assumes ~\$5/kgall weighted average retail rate baseline.

# Summary: Task Force Findings (II of II)

## By 2020 a broader set of potential solutions exist, and there are more cost-effective potential solution portfolios

- The theoretical "least cost" 2020 portfolio has cost efficiency of **\$~410/MG avg**, with capital expense **\$~2.3B**; equates to **~\$2.6B** over 50 years
- Based on Task Force feedback, Primary and Alternate 2020 portfolios were defined- balancing cost efficiency with concern for environmental impacts and implementation feasibility
  - While there is not consensus, there is general agreement on core set of conservation and capture options. These alternatives differ primarily on the mode of conservation (ie, desired extent of mandates) and the mix of reservoir expansions vs. new builds
  - No Interbasin transfer options are contained in the 2020 alternate portfolios under evaluation. This is based primarily on relative cost effectiveness, as well as on Task Force input and on implementation feasibility

## Task Force members endorsed the "Alternate 2020" portfolio by a narrow margin

- While almost all recognize the need for, and are willing to endorse mandates in a "dire" situation, significant proportion feels strongly that initial implementation be incentive-based
- TF primarily divided over willingness to accept conservation mandates as the "norm"
- Many membersw suggest a balanced mix of incentives *and* mandates as optimal approach

# Summary: Task Force Recommendations (I of II)

## 1. Continue to pursue reauthorization of Lake Lanier

- Aggressively pursue other three prongs of Governor's 4 prong-plan (negotiations, appeal, Congressional action)

## 2. Pursue aggressive conservation program- in support of current plans and incremental Task Force options. While the Task Force is evaluating the degree of mandates recommended, the specific areas of focus include, at a minimum

- ***Expanded efficiency programs (fixture retrofits, sub-metering, cooling tower standards, etc):*** Georgia Assembly to pass statute that requires local government to create incentive or mandated efficiency programs, AND appropriate funding to help support these programs
- ***More aggressive conservation pricing:*** Enact policies on minimum rate differentials across usage tiers and usage information levels to be provided on bills
- ***More aggressive utility leak abatement programs:*** Pass statute that requires annual water loss audits, loss data reporting to EPD, and leak abatement programs
- ***Funding for conservation education program:*** Appropriate funding for holistic conservation education program
- Evaluate incorporation of conservation plan and efficiency criteria in permitting applications
- Evaluate conservation efficiency criteria in GEFA low-interest loan qualification, and to consider prioritization of State Revolving Fund Green project reserve funds for these projects

## Summary: Task Force Recommendations (II of II)

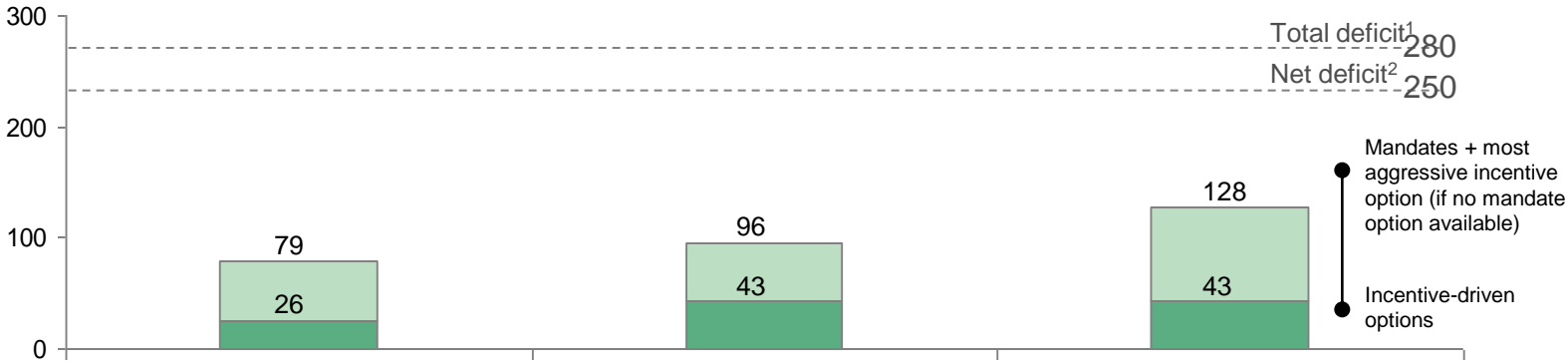
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- 3. Only devote resources towards the 2015 Contingency Solution if outlook on negotiations and reauthorization demands. Metro ATL should only pursue this if required**
  - If 2015 Contingency Solution is deemed necessary, the State must ensure a funding mechanism exists to address joint liability issues.
    - Indirect Potable Reuse project would be so costly and involve so many counties, resolving funding liability issues would be a key challenge
  - Smaller groundwater options included in the 2015 plan should be evaluated by local governments
  
- 4. If we must pursue a contingency plan, but we are able to pursue a 2020 solution, we recommend initiating feasibility studies and permitting on capture options in the recommended 2020 Portfolio**
  - Confirm yield, cost, and timing estimates. Specifically, incorporate outputs from forthcoming state water plan and EPD hydrology modeling to ensure the portfolio incorporates best available information

# Do not see ability to close supply gap in 2012

Even drought-level outdoor watering restriction not enough

## Potential water savings in 2012<sup>3</sup> (MGD)



Scenario

**Options considered by TF incremental to district plan**

- Retrofit of 1.28 gpf toilets
- Efficient showerheads, faucet aerators, clothes washers
- Sub-metering of all existing multi-family buildings
- One day per week watering schedule

**Further increase water rates (city of ATL levels on 14k GPM +)**

- Metro district utilities raise their marginal price at a consumption of 14K GPM, to match that of city of Atlanta
- Under this scenario, implied wtd. avg. price increase is ~152%

**Enact residential watering ban**

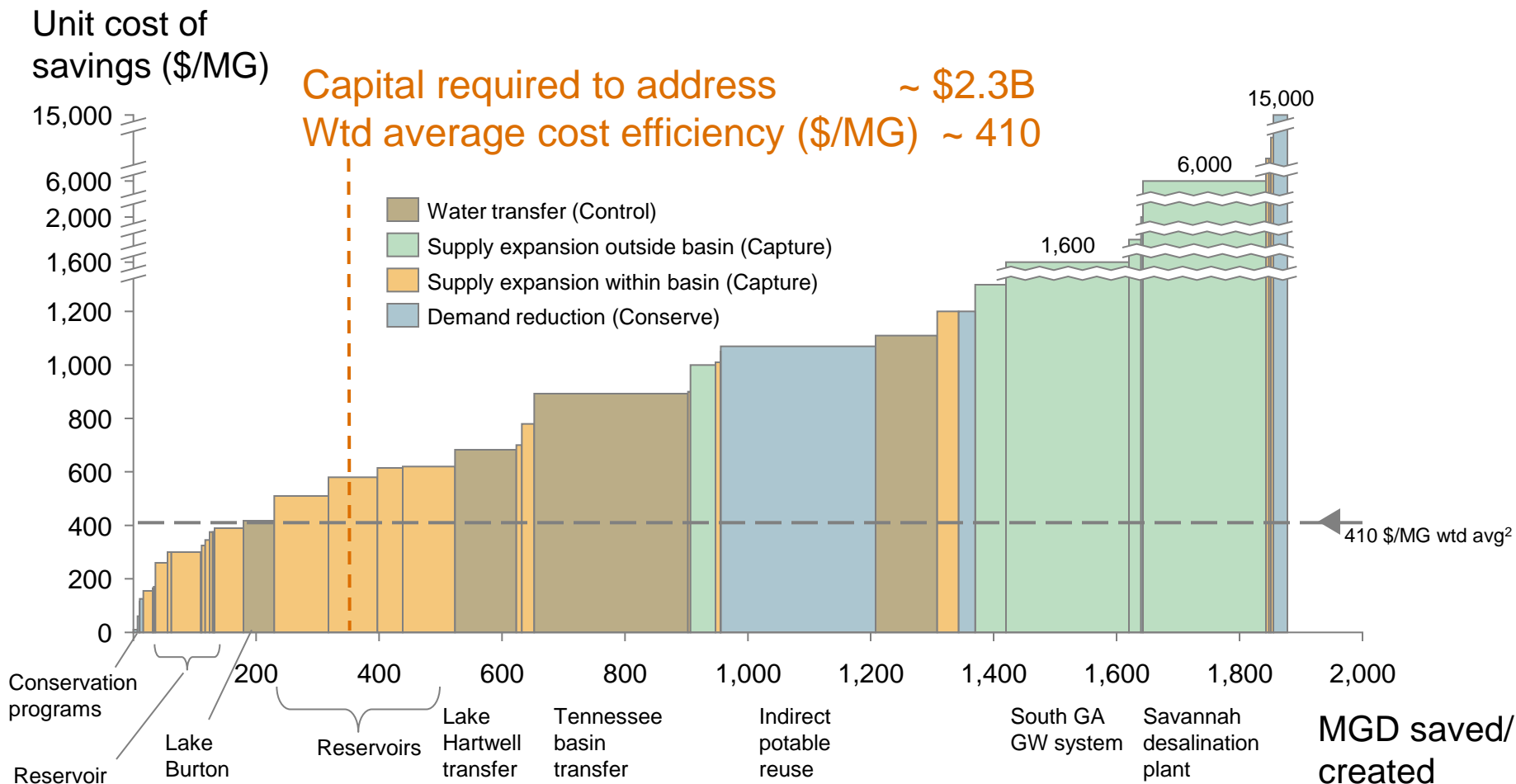
- Ban on all outdoor residential water usage, as seen during Level IV drought response in 2007 and 2008

**Aggressive conservation critical element of any plan – but not sufficient to close gap**

1. Total deficit = total shortfall in 15 county Metro Area per EPD analysis, deficits already assume realization of 21MGD water savings per current district plan (May 09) 2. Net deficit = net shortfall for 15 county Metro Area per EPD analysis, deficits already assume realization of 21MGD water savings per current district plan (May 09) 3. Savings do not include projected savings assumed in the District Plan, solely additional savings considered by TF Source: Metro North Georgia Water Planning District- May 09 Plan, GA EPD; Technical Advisory Panel analysis

# 2020 options, ranked by cost efficiency

Once supply options come online, they offer long-term cost efficiency (for \$~2.3B Capital cost)



This is one view— there are more ways to prioritize than by long-term cost efficiency

Source: Technical Advisor Panel preliminary estimates

# Costs of funding contingency portfolios were defined in terms of capex, long-run efficiency, and total cash costs

	2015 portfolio	"Lowest cost" 2020 portfolio	"Primary" 2020 portfolio	"Alternate" 2020 portfolio
Yield (MGD)	~340 MGD	~400 MGD	~370 MGD	~360 MGD
Capital expenditure (\$B)	~ \$3.1 B	~ \$2.3 B	~ \$2.0 B	~ \$1.7 B
Cost efficiency (\$/MG)	~\$890 / MG	~\$410 / MG	~\$470 / MG	~\$460 / MG
50-year cost (\$B)	~ \$5.0 B	~ \$2.6 B	~ \$3.0 B	~ \$2.9 B

# Water Stewardship Act of 2010



## *Legislative Intent: To create a Culture of Conservation*

- **Directs agencies to examine their practices to identify enhanced programming and incentives for voluntary water conservation and enhanced water supply by local water providers**
  - **Submit 1<sup>st</sup> report to Governor, Lt. Governor and Speaker by July 1, 2010**
    - **Annually through 2015**
  
- **Gives EPD authority to establish minimum standards and best practices for public water systems to address leakage, water loss audits, and leak detection**
  - **Applies to water systems that serve more than 3300 customers**

# Water Stewardship Act of 2010



- **Gives EPD authority to revoke, suspend, or modify a local government authority's water withdrawal or waste treatment permit for violations of outdoor water restriction guidelines**
  - May irrigate outdoors daily between the hours of 4 pm and 10 am (Commercial agriculture, others excluded)
  - Right to hearing provided
  
- **Farm use surface water/groundwater withdrawal permits**
  - Active, inactive and unused

# Water Stewardship Act of 2010



- **Multi-tenant sub-metering beginning July 1, 2012**
- **High efficiency fixtures required in new construction beginning July 1, 2012**
- **High efficiency cooling devices in new industrial buildings beginning July 1, 2012**
- **Creates Joint Committee on Water Supply**
  - **Report due by December 31, 2010**

# Looking Forward

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- Draft Regional Water Management Plans are due to GEPD by January 30, 2011. Final plans will be issued by June 30, 2011.
- Metro Water District finalized its second set of regional plans in May 2009. These plans assume that Lake Lanier and Allatoona will be a source of water for the region.
- Governor Perdue will continue to pursue negotiations with Alabama and Florida to determine water allocation between the three states. The state will also continue with the legal appeal of Judge Magnuson's ruling and working with our Congressional delegation towards reauthorization of Lake Lanier.
- The Task Force has delivered to Governor Perdue a clear set of findings and recommendations for closing the water supply gap created by the ruling.
- The Georgia General Assembly passed conservation measures based on Task Force recommendations (Water Stewardship Act).
- Capture and Control must be addressed.