

September 2010, Number 212

## AN ANALYSIS OF WATER RELATED INFRASTRUCTURE SPENDING IN GEORGIA

Georgia's state and local water resources and infrastructure have been the subject of much discussion in the media as well as the subject of a recent federal court ruling. This brief examines the effects of past Georgia state and local government infrastructure investments and conservation policies on water quality and quantity and explores the necessary infrastructure investment to maintain future water quality and quantity. This is one of several briefs that explore Georgia's infrastructure needs and the likely cost of necessary investments in the infrastructure.

This brief provides comprehensive estimates for future water related infrastructure costs in Georgia, as well as an overview of the current state of water related infrastructure in the state. We rely primarily on existing sources, particular for the Atlanta metropolitan area. We use these data to show how the costs of water infrastructure will likely be distributed in the different counties in the Atlanta metropolitan area. We also use these data to estimate the cost of stormwater management for the Atlanta metropolitan area, which has not been done to date. In addition, this brief estimates costs for other urban counties throughout the state for water supply and wastewater infrastructure. Finally, we offer a total estimate for

water related infrastructure for the state for the years 2010-2030. We offer no policy prescriptions for how to deal with the high cost of future water related infrastructure. However, we do comment on events that may have an impact on future costs and issues not fully addressed by current sources.

The state has taken two major steps to develop plans to manage the state's water resources. The Metropolitan North Georgia Water Planning District (Metro Water District) was created by the Georgia General Assembly in 2001 in an effort to plan effectively for the Metropolitan Atlanta area future water needs. We rely on reports by the Metro Water District. In 2008, Georgia passed the Statewide Water Management Plan, comprehensive water planning legislation for the rest of the state.

The Metro Water District concluded that the Atlanta region would need to significantly upgrade its water infrastructure to accommodate future growth and evolving environmental standards. To meet this challenge state and local governments will have to spend considerable funds as well as engage in effective regional planning. These costs are not evenly distributed throughout the region. The costs of total

repairs and improvements to water supply and wastewater treatment infrastructure are likely to be higher for older urban areas such as Fulton and DeKalb counties and the three other core counties of Clayton Cobb, and Gwinnett, than the other counties in Metro Water District. However, the per capita costs are estimated to be higher for the exurban counties in the Metro Water District.

The Metro Water District completed its plan and created its cost estimates prior to the 2009 federal court decision in the Tri-State Water Rights Litigation. This ruling requires that Georgia, Florida, and Alabama negotiate and agree to a legal water allocation from Lake Lanier within three years. If no settlement or allocation decision is reached, the court will enforce the last legal allocation from 1975. This decision and the resulting new water allocation will likely cause the Metro Water District plans to be modified.

Governor Perdue created the Water Contingency Planning Task Force (Task Force) to analyze the potential water shortfall in Georgia in light of the Water Rights Litigation, and to develop a contingency plan. The Task Force made several recommendations. First, the Task Force recommended that increasing conservation should be a high-priority regardless of the outcome of the Lake Lanier reauthorization efforts. Second, even if the reports most stringent conservation measures were to be mandatorily implemented by 2012, the Metro Water District area would still face a significant water supply shortfall if the 2012 Water Rights Litigation ruling were to take effect. The Task Force found no acceptable water supply alternative to the authorization of Lake Lanier for water supply for the Metro Water District area prior to 2012. Third, the earliest that a potential alternative solution to using Lake Lanier for water supply would be viable is 2015, however this option is very expensive.

In 2008, Georgia passed comprehensive water planning legislation for the rest of the state. This legislation is similar to that which created the Metro Water District and requires similar plans to be developed by regions. As of now, there are no state estimates as to the cost of implementing future water system infrastructure improvements in the rest of the state. It is not feasible for us to estimate the cost of water supply and wastewater infrastructure required in the future for rural counties in Georgia. However, future expenses for the other urban counties in Georgia outside the Metropolitan Atlanta area are not likely to be trivial. Using similar methods as used by the Metro Water District, we estimate the cost for those urban counties not in the

Metropolitan Atlanta area for the necessary improvements to water treatment as well as water supply facilities.

We also examine the impact of required improvements to stormwater infrastructure for state and local governments. The Environmental Protection Agency (EPA) has encouraged the statewide management of stormwater runoff and nonpoint source pollutants since the 1987 amendments to the Clean Water Act. Here again, Georgia state and local governments have been slow to adopt best practices.

Here is a summary of our cost estimates for both Metro Water District and the rest of urban Georgia. To make comparisons across districts and time easier, we present only figures for the period 2010-2030 in Table 1. It is our goal to present the magnitude of the estimated future infrastructure and operation and maintenance costs for water supply, wastewater treatment and stormwater infrastructure. Our estimates rely on our own assumptions and the estimates of others, thus they are subject to uncertainty. To try to capture some of that uncertainty, we take the estimated costs for the Metro Water District and give them a range of plus or minus 20 percent. Our other estimates of stormwater and the urban area outside of Atlanta already factor in a similar level of uncertainty. For the Metro Water District, the estimated cost for water supply and wastewater treatment infrastructure including operation and maintenance from 2010 to 2030 is \$30.6 billion-\$46.0 billion. Stormwater infrastructure costs and operation and maintenance are estimated to be \$3.2 billion- \$5.5 billion from 2010-2030. Thus, total cost of water related infrastructure and operation and maintenance is \$33.8 billion-\$51.5 billion for the Metro Water District.

These are very large numbers. To put some perspective on the magnitudes, it may be helpful to compare them to the projected cost of the Task Force's recommendation for the 2015 contingency plan. The Task Force recommended a potable reuse water option which would require the pumping of water from some point downstream from Atlanta back to Lake Lanier. Due to the extremely high costs of this project, the Task Force only recommends it out of necessity. The cost of completing such a project by 2015 was estimated to be \$3 billion, if Georgia would start the project in 2011, it would cost roughly \$750 million per year.

However, the annual cost of the Task Force's last resort project is less than half the annual cost of the estimated needed improvements to the Metro Water District water related infrastructure including operations and maintenance. The estimated annual cost to the Metro Water district for necessary water related infrastructure is \$1.7 billion to \$2.6 billion. (That is the total estimated costs \$33.8 billion and \$51.5 billion divided

**TABLE 1. SUMMARY FOR 2010-2030**

<b>The Metro Water District</b>	<b>Low Cost Estimate*</b>	<b>High Cost Estimate*</b>
Wastewater and Water Supply Capital Spending, Operation and Maintenance	\$30.6	\$46.0
Storm Water Capital Spending and Operation and Maintenance	\$3.2	\$5.5
Total Metro Water District	\$33.8	\$51.5
Urban Georgia outside the Metro Water District	\$10.2	\$14.8
Total State Water Infrastructure Spending: Capital, Operation and Maintenance	\$44.0	\$65.8

\* in billions of 2008 dollars.

Source: Metropolitan North Georgia Water District (2003b,c), Metropolitan North Georgia Water District (2008c) and author's calculations

by 20 years.) For the urban areas in Georgia outside the Metro Water District, our estimates for water supply and wastewater treatment infrastructure and operation and maintenance are \$10.2 billion to \$14.8 billion, for the period 2010 to 2030.

By our estimates as well as those of the Metro Water District, the state of Georgia will incur \$44.0 billion-\$65.8 billion in water related infrastructure costs from 2010-2030. This is \$2.2 billion-\$3.3 billion annually for the next 20 years. These costs are likely to be borne primarily by local governments and water authorities and will vary in different parts of the state. Some local governments and water authorities will be able to use traditional bond financing to raise money for this necessary infrastructure. Others will have to look to Georgia Environmental Facility Authority and perhaps nontraditional infrastructure financing.

The largest share of the water related infrastructure spending in Georgia will be done in the Metro Water District. Given the In re Tri-State Water Rights Litigation decision and ongoing negotiations with Alabama and Florida, the allotment of water the Metro Water District can expect from Lake Lanier is uncertain. However, given the Task Force's recommendation that additional conservation measures be pursued regardless of the allotment, as well as Georgia's weakened bargaining position, it would seem that conservation will play a larger role in future Metro Water District plans.

## **ABOUT THE AUTHOR**

**Peter Bluestone** is a Senior Research Associate with the Fiscal Research Center. He is a Georgia State University Urban Fellows Recipient. His research interests include urban economics, environmental economics and state and local fiscal policy. He received his Ph.D. in Economics from Georgia State University.

## **ABOUT FRC**

The Fiscal Research Center provides nonpartisan research, technical assistance, and education in the evaluation and design the state and local fiscal and economic policy, including both tax and expenditure issues. The Center's mission is to promote development of sound public policy and public understanding of issues of concern to state and local governments.

The Fiscal Research Center (FRC) was established in 1995 in order to provide a stronger research foundation for setting fiscal policy for state and local governments and for better-informed decision making. The FRC, one of several prominent policy research centers and academic departments housed in the School of Policy Studies, has a full-time staff and affiliated faculty from throughout Georgia State University and elsewhere who lead the research efforts in many organized projects.

The FRC maintains a position of neutrality on public policy issues in order to safeguard the academic freedom of authors. Thus, interpretations or conclusions in FRC publications should be understood to be solely those of the author. For more information on the Fiscal Research Center, call 404-413-0249.

## RECENT PUBLICATIONS

*An Analysis of Water Related Infrastructure Spending in Georgia.* This report examines the effects of past Georgia state and local government infrastructure investments and conservation policies on water quality and quantity and explores the necessary infrastructure investment to maintain future water quality and quantity. (September 2010)

*Transit Infrastructure, Is Georgia Doing Enough?* This report is the first of a series on Georgia's public infrastructure and focuses on transit infrastructure in the Atlanta region. (September 2010)

*HB 480 – Eliminating the Motor Vehicle Property Tax: Estimating Procedure, Revenue Effects, and Distributional Implications.* This report reviews the revenue estimates and distributional consequences of HB 480 legislation to replace the motor vehicle sales and property tax with a title fee. (August 2010)

*Estimating Georgia's Structural Budget Deficit.* This report examines whether the state of Georgia faces a structural deficit and concludes that it does. The deficit will total approximately \$1.8 billion in fiscal year 2012, and the state will need to make systemic structural changes to bring its revenues and expenditures back into alignment over the long term. (July 2010)

*Revenue from a Regional Transportation Sales Tax.* This brief calculates the revenue for 2009 generated by a one percent sales tax for each of the 12 Regional Commission areas. (June 2010)

*The Magnitude and Distribution of Georgia's Low Income Tax Credit.* This brief presents the distribution by income level of the low income tax credit. (June 2010)

*Effect of Change in Apportionment Formula on Georgia Corporate Tax Liability.* This brief analyzes the effect of the change in the apportionment formula on firm's apportionment ratio and tax liability. (December 2009)

*An Analysis of the Relative Decline in Employment Income in Georgia.* This report explores the declining rate of per capita income and employment income per job in Georgia. (December 2009)

*Georgia Per Capita Income: Identifying the Factors Contributing to the Growing Income Gap.* This report analyzes the factors contributing to the slow growth of Georgia's per capita income, relative to the nation, since 1996. (December 2009)

*Historic Trends in the Level of Georgia's State and Local Taxes.* This report explores long term trends in Georgia's state and local taxation including taxes as a percentage of personal income, reliance on taxes (as compared to fees, grants, etc) for revenue, and the changing balance between income taxes, sales taxes, and other taxes, and other trends. (December 2009)

*Current Charges and Miscellaneous General Revenue: A Comparative Analysis of Georgia and Selected States.* This report examines Georgia's current charges and miscellaneous general revenue compared to the AAA bond rated states, the Southeastern neighbor states and the U.S. average for fiscal years 2007 and 1992. (December 2009)

*Comparing Georgia's Fiscal Policies to Regional and National Peers.* This report analyzes the major components of Georgia's state and local revenue and expenditure mixes relative to its peer states. (December 2009)

*Recent Changes in State and Local Funding for Education in Georgia.* This report examines how the 2001 recession affected K-12 education spending in Georgia school systems. (September 2009)

*Household Income Inequality in Georgia, 1980 – 2007.* This brief explores the change in the distribution of income. (September 2009)

*Household Tax Burden Effects from Replacing Ad Valorem Taxes with Additional Sales Tax Levies.* This brief estimates net tax effects across income classes from a sales tax for property tax swap; where Georgia property taxes are reduced and state sales taxes increased. (August 2009)

*An Examination of the Financial Health of Georgia's Start-Up Charter Schools.* This report examines the financial health of start-up charter schools in Georgia during the 2006-07 school year. (July 2009)

*Corporate Tax Revenue Buoyancy.* This brief analyzes the growth pattern of the Georgia corporate income tax over time and the factors that have influenced this growth. (July 2009)

*Forecasting the Recession and State Revenue Effects.* This brief presents information regarding the degree to which macroeconomic forecasters anticipated the timing and magnitude of the present recession and whether the significant decline in state revenues that has resulted might have been better anticipated. (June 2009)

*Georgia's Brain Gain.* This brief investigates trends in the interstate migration of young college graduates. (March 2009)

*The Value of Homestead Exemptions in Georgia.* This brief estimates the total property tax savings, state-wide, to homeowners arising from homestead exemptions: examples and descriptions are provided. (March 2009)

*Comparison of Georgia's Tobacco and Alcoholic Beverage Excise Tax Rates.* This brief provides a detailed comparison of excise tax rates across the United States. (March 2009)

*Buoyancy of Georgia's Sales and Use Tax.* This brief explores the growth in sales tax revenue relative to the growth of the state's economy. (March 2009)

*Buoyancy of Georgia's Personal Income Tax.* This brief analyzes the growth in Georgia's Income Tax and explores reasons for trends over time. (March 2009)

*Growth and Local Government Spending in Georgia.* This report is a technical analysis that estimates the effect of local government spending on economic growth at the county level in Georgia. (February 2009)

*Georgia Revenues and Expenditures: An Analysis of Their Geographic Distribution.* This report presents a geographic analysis of "who bears the burden" of state taxes and who benefits from state public expenditures. (February 2009)

*Trends in Georgia Highway Funding, Urban Congestion, and Transit Utilization.* This report examines transportation funding, as well as urban congestion and transit utilization in Georgia as well as six other states for fiscal years 2000 and 2005. (October 2008)

*Options for Funding Trauma Care in Georgia.* This report examines several options for funding trauma care in Georgia through dedicated revenue sources, with the objective of raising approximately \$100 million. (October 2008)

*Distribution of the Georgia Corporate and Net Worth Tax Liabilities, 1998 and 2005.* This brief illustrates the distribution of corporate and net worth income tax liabilities among Georgia corporations. (September 2008)

For a free copy of any of the publications listed, call the Fiscal Research Center at 404/413-0249, or fax us at 404/413-0248. All reports are available on our webpage at: [frc.gsu.edu](http://frc.gsu.edu).