

IMPLEMENTATION OF THE METROPOLITAN NORTH GEORGIA WATER PLANNING DISTRICT'S WATER CONSERVATION MEASURES

Cindy Daniel

AUTHOR: Principal Environmental Planner, Atlanta Regional Commission, 40 Courtland Street, NE, Atlanta, Georgia 30303.

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Abstract. Implementation of the Metropolitan North Georgia Water Planning District Water Supply and Water Conservation Management Plan water conservation measures involves integrated levels of conservation from State legislative measures to individual customer voluntary activities. The District's 2004 work program involved implementation support for several of the conservation measures and assessment of implementation.

INTRODUCTION

The purpose of this paper is to describe the District Water Conservation measures and the progress in implementing these measures. Water Conservation programs are more widespread than ever and the emphasis is no longer only during dry weather. As populations continue to grow faster than our water resources, water conservation has become essential to meeting water demands. The District's water conservation program implementation has provided the local utilities and the State with experience on how to carry out conservation programs at a regional scale.

BACKGROUND

With a finite water supply and a population of over four million and growing, the need to carefully and cooperatively manage and protect metropolitan Atlanta's rivers and streams has become a priority. The Metropolitan North Georgia Water Planning District was created by the Georgia General Assembly in 2001 to preserve and protect our most precious natural resource, water. The District is composed of local jurisdictions in an 16-county area including Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Paulding, Rockdale and Walton.

In September of 2003, the District adopted three long-term water management plans. Of these, the Water Supply and Water Conservation Management Plan (Plan), calls for a future of intensive water demand management and an aggressive water conservation program. With input from technical experts and stakeholders from all the

river basins in the District, the plan was developed to meet state laws, local needs and District goals. In its fourth year, the District has worked with local governments to begin implementing the plans.

PLAN CONSERVATION MEASURES

The Plan recommendations are based on a regional approach to shared water resources across the District that will preserve flexibility, supply and reuse opportunities beyond 2030 in the District's five river basins. The water conservation program as described in the Plan is essential to meeting future water demands in the District. The conservation program reduces average annual water demand by an additional 11 percent, beyond the 8 percent savings expected with existing plumbing codes and new water saving appliances for a total of almost 20 percent savings. If the District can achieve this level of water savings, existing and planned water supplies will be able to meet the needs of the District through 2030 with some reserves.

A well run conservation program should focus on 5 to 10 measures at a time (Maddaus). Initially, over 100 possible measures were considered for possible use. After these were screened, a detailed study was conducted to determine which measures had the most potential for water savings.

Table 1. Projected average water saving by conservation measure

Measure	Projected Average Water Saved (MGD)
Conservation Pricing	20.1
Reduce Water System Leakage	29.1
Rain Sensor Legislation	0.8
Retrofit on Resale Legislation	17.0
Low Flow Urinal Legislation	2.2
Sub-unit Meters	3.4
Residential Water Audits	0.7
Commercial Water Audits	2.2
Retrofit Kits	3.0
Education & Public Awareness	6.0

The final water conservation program consists of the following specific measures:

- Conservation pricing for all District water systems;
- Water system leak reduction and repair;
- Rain sensor shut-off switches on new irrigation systems;
- Plumbing retrofits on resale of homes;
- Low-flow urinals for new industrial, commercial, and institutional buildings;
- Sub-unit meters in new multi-family buildings;
- Residential water audits;
- Commercial water audits;
- Distribution of low-flow retrofit kits to residential customers;
- Education and public awareness.

PLAN IMPLEMENTATION

Implementation of the recommended program for water conservation will require new policies, new laws and new responsibilities for both utilities and for consumers.

Enacting Conservation Pricing

All District utilities are required to implement, at a minimum, uniform price structures by January 1, 2004 and at least three-tiered structures by 2006. Conservation pricing gives customers incentives to reduce excessive discretionary water use by making the cost of water increasingly more expensive.

The District conducted and published a survey of water and wastewater rates in the 16-county area. The survey included 63 retail water providers and 54 retail wastewater providers. The purpose of the survey was to inventory the area's use of water conserving rate structures. The survey found that most of the retail water providers had met the minimum criteria for 2004. Only six of the District's retail water providers had not yet met the minimum criteria. These six providers serve only approximately 3 percent of the population, making the District area 97 percent compliant. Additionally, several of the providers have already met the 2006 criteria.

The District hosted a Water Conservation Rates Workshop in mid-September to help utilities prepare to meet the new, three-tiered water conservation rate structures by the deadline established in the Plan.

Assessing and Reducing Water System Leakage

The average unbilled water in the 16-county District is 18% of the system water delivery. It is estimated that through aggressive water loss assessment and control methods, the District could save as much as 29 million gallons per day. The Plan requires water providers to conduct water loss assessments using the American Water Works Association / International Water Association

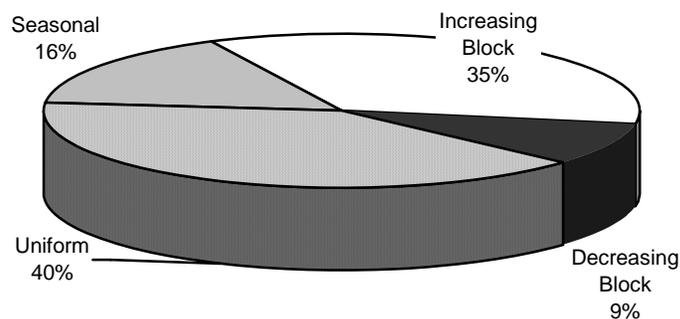


Figure 1. District rate structures.

methodology, begin to establish 'economic levels' of leakage and set benchmarks for standards. To help these providers in conducting system water audits and reduce leakage, the District held a seminar on leak detection technologies and methodologies. As the information becomes available the District will continue to provide the water utilities with information on water loss assessment and control methods and standards.

Pursuing Legislative Measures

In 2004, the District secured the passage of HB 1277 which will require rain sensor shut-off switches on new landscape irrigation systems. Beginning January 1, 2005, all new in-ground landscape irrigation systems in the District must have rain sensor shut-off switches installed. Rain sensors will help reduce unnecessary watering during rainfall events. This measure includes both residential and commercial landscape irrigation systems. The District also pursued the passage of new state legislation regarding retrofitting buildings, upon their sale, with efficient plumbing fixtures. The District proposed this new legislation to require that water-saving plumbing fixtures be installed and that a certification be completed to show the plumbing meets current codes for new buildings. This measure would impact homes built before 1993. This measure was met with opposition from the real estate community, mortgage brokers and title attorneys. The District will work with these groups to understand and hopefully address their concerns before resubmitting the measure to another legislative session.

Requiring Sub-unit Meters in New Multi-family Buildings

The Plan requires all new multi-family buildings be built with individual water meters that bill for water service, base on volume of use. Sub-unit metering bills customers for their actual water use. A recent study (Mayer, 2004) concluded that directly charging for water consumption increases water conservation.

In 2004, the District conducted a phone survey of more than 30 new multi-family housing offices. From this survey, it was determined that these multi-family buildings were being built with individual water meters

and that this practice is being used by the housing industry.

The District's policy encourages local jurisdictions to require sub-unit meters in all new multi-family buildings.

Residential Water Audits

On average, metro Atlanta single-family households lose 11 percent of their billed water to leaks. The District is developing a brochure to help individuals easily conduct a household audit on their own. This information will lead homeowners on a step-by-step process of locating major household leaks and addresses inefficient water use behaviors.

The Plan recommends that each utility target the largest 25 percent of residential water users and distribute information to those users as an educational tool to encourage water conservation. It can also be made available to customers who voice concerns about high water bills as a device for determining ways to reduce water usage.

Commercial Water Audits

Commercial customers are significant consumers of water and as such are a target audience for water conservation efforts. The District staff in coordination with the Georgia Pollution Prevention Assistance Division will begin to provide the utilities information on programs and training to reach large water users and provide them with water savings techniques.

Education and Public Awareness

The District's education and public awareness program has used mass media to reach a large percentage of residents in the 16-county area. The District has partnered with the Georgia Department of Natural Resources in the Water-Use It Wisely mass media campaign. The District has promoted water-wise landscaping through the popular Xeriscaping workshops in partnership with the University of Georgia Cooperative Extension Service, waterSmart and Pike Family Nurseries. Education and public awareness, as guided in the plan, includes the support and encouragement of water conservation curriculum in schools through the Water Source Book. The Water Source Book provides water conservation curriculum for grade levels ranging from kindergarten to the twelfth grade. In addition, the District partnered with waterSmart to conduct the annual essay contest reaching thousands of middle school students throughout the 16-counties. Many schools have used the essay contest as a project for students to practice conserving water (and preventing water pollution) at home.

The local governments are also providing water conservation education. At the end of 2004, 73% of the jurisdictions within the District have water conservation

education programs or materials available to their customers.

Oversight and Review

The Plan recommends that these actions be monitored and reported to the District by the local jurisdictions. The District will be able to assess whether the water supply plan is accomplishing its intended goals by tracking key performance measures as identified in the plan. The District has formed a Technical Sub-Committee of the Water Supply utility managers to evaluate the Plan and the conservation measures.

CONCLUSION

Plan implementation is in its early stages. The District will continue to work with and support implementation of the water conservation measures. The District will also continue to seek technical knowledge and ideas from its Technical Coordinating Committees, Board and Basin Advisory Councils. Measures that are not as effective as projected or that cannot be accomplished will be reassessed. New measures will be researched and considered as the technology becomes available.

Some of the important lessons learned at this point in the implementation of the Plan include the timing of the implementation phases, the influence of changing technology and the evaluation of measures. It is important to realize this is a thirty year time frame and that there are phases of the Plan. For example to achieve the projected results of the measures it may take 30 years. It may also be necessary to adjust or modify the measures as new legislation, products, and practices occur. It should be noted that the single most useful tool in evaluating the measures was the detailed cost/benefits analysis. This study provided the Technical Committee with savings information as well as the benefits to the utilities.

REFERENCES

- Maddaus, William. Maddaus Water Management.
- Mayer, Peter M., E. Towler, W.B. DeOreo, E. Caldwell, T. Miller, E.R. Osann, E. Brown, P.J. Bickel, and S.B. Fisher, 2004. *National multiple family submetering and allocation billing program study*. Aquacraft, inc. <http://www.aquacraft.com/>
- Metropolitan North Georgia Water Planning District, 2003. Water Supply and Water Conservation Management Plan, pp. 204.