WATERSHED MANAGEMENT PLANNING FOR THE METROPOLITAN NORTH GEORGIA WATER PLANNING DISTRICT

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Abstract. The Metropolitan North Georgia Water Planning District (District) watershed management plan was developed in 2003 largely through a process that was defined by Senate Bill 130 that established the District. This process and the resulting recommendations provided a road map for local governments to address a number of stormwater and watershed management issues in one comprehensive program. The watershed management plan included recommendations for implementation of local government stormwater management activities that will address many of the primary issues associated with stormwater runoff including both hydrologic and water quality impacts. Additional recommendations were included for watersheds with impaired streams (those requiring Total Maximum Daily Loads {TMDLs}) and source water withdrawals to address the specific watershed improvement or protection needs in these sensitive areas. Recommendations to address existing impacted watersheds were also included in the plan.

One of the unique aspects of the District planning process was the integration of the watershed, wastewater, and water supply studies. Alternatives for meeting future water supply and wastewater needs were evaluated along with the watershed management alternatives to assure that the combination of activities would allow the region to maintain or improve water quality conditions. In addition, the overall process and resulting requirements for watershed management provided local governments with a mandate for implementation of a consistent program for nonpoint source controls that would have been difficult to facilitate without the regional planning process required by Senate Bill 130.

This paper provides a summary of the planning process used to development the watershed management plan, the key recommendations in the plan, and the implementation strategy.

INTRODUCTION

To address the pressing need for comprehensive water resources management in the 16-county area of metropolitan north Georgia, the Georgia legislature established the Metropolitan North Georgia Water Planning District (the District) in 2001. The District is a planning entity dedicated to developing comprehensive regional and watershed-specific plans to be implemented by the local governments in the District. It includes 16 counties located within the boundaries of 5 major river basins: Chattahoochee, Coosa, Flint, Ocmulgee, and Oconee (Figure 1). The legislation creating the District mandated the preparation of four plans:

- Short-Term Wastewater Capacity Plan
- District-wide Watershed Management Plan
- Long-Term Wastewater Management Plan
- Water Supply and Water Conservation Management Plan

In addition, the District was required by the enabling legislation to develop a series of model stormwater management ordinances within the first year to complement the watershed management plan and to provide some consistency for local governments in implementation of stormwater management.

The integration of all three elements–water supply, wastewater, and stormwater management–provides for consistency in how the District manages its inter-linked water resources. By adopting an integrated approach to planning, the District is looking comprehensively at water supply and water conservation, wastewater management and stormwater management, and watershed protection. This approach lets jurisdictions consider all requirements related to water resources management in a holistic way, helping to avoid duplication of effort and improve the effectiveness of the recommended management measures.

Goals for the District-wide watershed management plan (District-wide WMP) were to develop a comprehensive and integrated 30-year regional plan to help the 16-county region meet water quality standards and remove streams from the 303(d) list of impaired water bodies; to support total maximum daily load (TMDL) implementation; to provide water supply protection; to address storm water related hydrologic changes and reduce downstream flooding; to improve aquatic habitat and biotic integrity; and to help local governments meet the requirements for municipal separate storm sewer system (MS4) permitting.

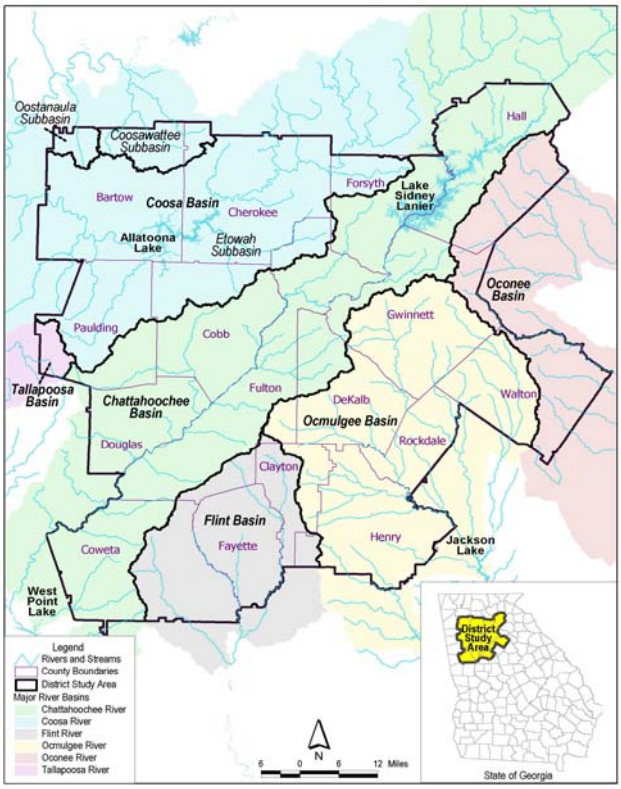

Figure 1. Location of Study Area

WATERSHED MANAGEMENT PLANNING PROCESS

The planning process used in development of the WMP was largely dictated by the Georgia legislation that established the District. This legislation called for the development of integrated long-term management plans for watershed, water supply, and wastewater management. The planning process was closely coordinated between the consultant teams preparing the three long-term plans. Key steps in the development of the WMP and the interaction between the water supply and wastewater plans are highlighted below:

- **Development of Policy Goals** – Goals for watershed management were developed in coordination with the wastewater and water supply management teams to assure consistency between water resource planning efforts.
- **Characterization of Existing Conditions** – Available data and studies were used to evaluate existing water quality conditions and to define the key issues to addressed in the District-wide WMP.
- **Development of BASINS Water Quality Model** –A District-wide water quality model was developed to assist in estimating the existing and future sources and loads of pollution.
- **Evaluation of Best Management Practices, Source Water Protection, and TMDL Implementation Strategies** – Potential BMPs were evaluated for inclusion In the plan. Source water protection and TMDL strategies were also evaluated to select the most effective strategies for meeting watershed management needs in the District.
- **Development and Evaluation of Watershed Management Alternatives** – Results of the BMP, TMDL, and source water protection evaluations were used to prepare recommended watershed management measures for inclusion in the District-wide WMP.
- **Preparation of the Recommended Watershed Management and Implementation Plan** – Based on feedback on the draft management alternatives, the preliminary recommended District-wide WMP and implementation steps were prepared.
- **Preparation of the Draft District-wide WMP** – The draft and final District-wide WMP was the culmination of the previous planning steps. The recommendations were evaluated against the District Policy Goals and the Georgia Environmental Protection Division Planning Standards to assure that the final District-wide WMP met the goals for regional watershed management. After extensive public review, the draft WMP was revised and a final WMP was adopted by the District Board in September 2003.

Public involvement played a key role in the watershed management planning process and included participation by a Technical Coordinating Committee (TCC) and Basin Advisory Councils (BAC).

SUMMARY OF WATERSHED MANAGEMENT RECOMMENDATIONS

The overall goal of the District-wide WMP was to move towards meeting and maintaining water quality standards and designated uses in streams and other water bodies within the District. A consistent and comprehensive approach to watershed management will enhance the ability to meet the overall goals for watershed management in the District, assist local governments with meeting local regulatory requirements for water quality protection or improvement, and ensure that watershed management can be implemented equitably by all the local governments in the District.

The District-wide WMP addresses multiple objectives and regulatory requirements and includes recommendations for the following watershed management strategies (CH2M HILL, 2003):

- **Programmatic Watershed Management Strategies** – Comprehensive watershed protection and storm water management program activities carried out primarily at the local level.
- **Total Maximum Daily Load (TMDL) Strategies** – Specific management actions to address TMDL-listed waterways.
- **Source Water Protection Strategies** – Actions for the protection of water supply watersheds.
- **Watershed Improvement Strategies** – Process for addressing substantially impacted watersheds through the development of a watershed improvement plan specifying necessary restorations and retrofits.
- **Land Use Strategies** – Land use and zoning approaches that can be used by local governments to meet watershed management and protection goals.
- **Basin-Specific Strategies** – Specific management issues for each major river basin within the District.

Specific elements of each of the major program components are summarized in Table 1.

Recommendations were focused to ensure consistency in watershed management programs by all local governments (including counties and cities) within the District. The model stormwater ordinances, developed by the Atlanta Regional Commission, were specifically designed to provide consistency in the basic stormwater management requirements within the District. The post-development stormwater ordinance, which requires new development projects with imprevious area greater than 5,000 square feet to implement best management practices, is particularly important. This ordinance will protect water quality and reduce hydrologic changes as development occurs across the District..

Implementation of the local stormwater management activities will address many of the key potential pollutant sources that are of concern for compliance with source water protection and TMDLs. Concerns over compliance with existing and future TMDLs provided the initiative for the establishment of the District by the Georgia legislature. Implementation of the proposed 30-year WMP will allow local governments to address existing TMDLs within the District and to be better prepared to prevent or address future TMDLs for impaired waterbodies (Baughman et al., 2003). The recommended comprehensive programs will address the required reductions in pollutant loadings and hydrologic changes needed to maintain water quality and biotic integrity.

The District-wide WMP also includes specific recommendations for continuing and long-term monitoring to assess the effectiveness of the recommended management programs. In addition, the monitoring plan was designed to address the Phase I and II municipal separate storm sewer system (MS4) requirements. The goal was to provide a consistent monitoring approach that would allow future comparisons of data collected by multiple entities across multiple watersheds within the District. Each of the 16-counties are required to submit monitoring data annually for review

Table 1 – District-wide WMP Recommendations

Watershed Management Recommendations
Local Storm Water Management Program Activities
Model Storm Water Ordinances
Post-Development Storm Water Management
Flood Plain Management
Conservation Subdivision/Open Space Development
Illicit Discharge and Illegal Connection
Litter Control
Stream Buffer
Implement Storm Water Management Technical Standards and Design Criteria Manual
Improved Enforcement of Laws/Regulations
Establish Judicial Process
Erosion and Sediment Control
Training/Certification Programs
Inspection Programs
Implement Additional Management Measures
Storm Water Operation and Maintenance (O&M)
Drainage System Maintenance
Structures Maintenance and Tracking
Street Sweeping
System Inventory and Mapping
Industrial Permit Monitoring
Compliance Tracking
Septic Systems
Animal Control
Pet Waste
Livestock/Agriculture
Pollution Prevention and Recycling
Household Hazardous Waste Collection
Recycling
Requirements for Commercial BMPs
Municipal Good Housekeeping BMPs
Commercial/industrial Inspection Program
Transportation Infrastructure Improvements
Construction Erosion and Sediment Control
Post-Construction Storm Water Management
Roadway and Right-of-Way Maintenance for Pollution Prevention
Capital Improvement Program for Retrofits
Education and Public Awareness Activities
Water Quality Monitoring
Total Maximum Daily Load Strategies
District-wide Implementation Strategies
Watershed/Water Body Specific Implementation Strategies
Source Water Protection Strategies
Geographic Information System Planning Maps
Part V Planning Criteria
Greenspace Acquisition
Pollution Prevention Education
Integration with TMDL Plans
Watershed Improvement Strategies
Land Use Based Strategies
Local Comprehensive Plan Updates
Department of Community Affairs Part V Planning Criteria
Land use Zoning Maps
Adoption of Overlay Districts
Low-impact Development/Better Storm Water Site Design Practices
Environmentally Sensitive Large Lot Subdivisions Conservation Design
Land Acquisition/Greenspace Protection
Transfer of Development Rights

and assessment by District. Based on these data, the District, the cooperating jurisdictions and the Georgia Environmental Protection Division (GA EPD) will determine whether additions or modifications of the District-wide WMP are needed.

Enforcement of the District-wide WMP recommendations is largely the responsibility of GA EPD. Requirements for implementation of the WMP will be included in permits (both wastewater and stormwater National Pollutant Discharge and Elimination System permits). Local governments that do not implement the recommendations may have permits withheld and/or not be eligible for state grants or loans.

Initially, the consultant teams had assumed that management of future pollutant loadings could be facilitated by balancing nonpoint source and point source loadings. However, the modeling results demonstrated that due to the level of existing and anticipated future development and the associated wastewater discharges, aggressive management of both sources would be required to improve or maintain water quality conditions. While the balancing of pollutant sources may be possible in some watersheds (12-digit HUC level), overall the implementation of aggressive storm water controls and watershed management as well as implementation of highly advanced wastewater treatment will be needed by 2030 (CH2M HILL, 2003; JJG, 2003a).

IMPLEMENTATION OF RECOMMENDATIONS

Implementation of the WMP recommendations is primarily the responsibility of local governments and will be phased over several years. Senate Bill 130, which established the District, requires the plans to be updated every five years and for annual reports to be prepared to document progress on implementation of the recommendations by local governments. For the initial five years of implementation, local governments are suppose to focus on getting the basic stormwater programs in place, implementing the model ordinances, initiating the floodplain mapping activities, and completing the watershed improvement plan studies in the watersheds that are already impacted.

CONCLUSIONS

Creation of the Metropolitan North Georgia Water Planning District in 2001 provided a unique opportunity for development of integrated water resource plans in a rapidly urbanizing area. At a minimum, this legislatively mandated regional planning process provided local governments and the GA EPD with the rationale for coordination of water supply, wastewater, and watershed management issues that had not existed. Developing the WMP in parallel with the water supply and wastewater plans allowed local governments to better understand the linkages between water resources and the need for a more comprehensive approach to regional planning.

Implementation of the recommendations in the District-wide WMP will result in significant improvements in water quality, hydrology, and biotic integrity over time (CH2M HILL, 2003; Baughman et al., 2003). Most importantly, the plan provides local governments with a consistent approach that, when fully implemented, will allow them to maintain water quality as the area continues to grow and to improve watersheds impacted by previous land use changes.

The success of the recommended District-wide WMP is dependent upon consistent implementation of the watershed improvement recommendations across all jurisdictions within the District. Continued monitoring to assess the effectiveness of the recommendations as well as effective enforcement will be needed to ensure the long-term success of the District plans

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