Implementation of Regional Water Planning

Implementation of the comprehensive statewide water management plan will be accomplished through regional water planning, which will produce resource-based plans that identify the management practices to be implemented in each water planning region. Selection and implementation of management practices on a local and regional level is the most effective way to ensure that current and future needs for water supply and assimilative capacity are met.

As described in the preceding chapter, regional water planning will require delineation of boundaries for resource assessment and boundaries for regional water planning; assessment of water supply capability and assimilative capacity; designation of water planning councils; forecasting of water and assimilative capacity needs; and preparation of water development and conservation plans. Each of these steps are outlined below. This section concludes with a brief discussion of information needs and timeframe for regional planning.

Boundaries for Resource Assessment and Regional Water Planning

Regional planning will require that two kinds of geographical boundaries be established. First, hydrologic boundaries will be required to divide river basins and aquifers into units that can be individually assessed for water supply capability (i.e., consumptive use assessment) and assimilative capacity.

For surface water sources, boundaries for water quantity assessment need to be of sufficient size to include major water sources, include the significant influences on the condition of those water sources, and provide flexibility in selection of water management practices to be employed by water users within the boundary. Delineation of boundaries for assessment of resources will also have to consider availability of data on current and historical flow patterns and/or nodes appropriate for estimation of historical flow patterns. For groundwater sources, delineation of boundaries may consider recharge areas, areas of heaviest use and major zones of influence, and discharge areas.

Boundaries for water quality assessments will most likely be nested within the larger boundaries used for the water quantity assessment. Water quality assessments will require delineation of sub-basins or watersheds of an appropriate size for water quality modeling. The sub-basins or watersheds will be based on significant hydrologic features such as dams. These hydrologic features will provide boundaries for water quality modeling purposes. Delineation of boundaries for water quality assessment will also consider the complexity and number of point source discharges in a watershed.

The second set of geographical boundaries will delineate county-based water planning regions that reflect hydrologic boundaries. Most water management practices will be implemented by cities, counties, and water/sewer authorities, so planning boundaries should be aligned with jurisdictional lines.

As described in Section 14, water planning regions will be coincident with the state service delivery regions defined by O.C.G.A §50-4-7 and, with the exception of counties that are part of the Metropolitan North Georgia Water Planning District, regional water planning will be conducted within the boundaries of the state service delivery regions. Water planning for those counties that are part of the Metropolitan North Georgia Water Planning District will continue as part of the District's planning processes, regardless of service delivery region. Future revisions of the District's plans, however, will be subject to the same guidance as regional water development and conservation plans, described below.

A water development and conservation plan will be developed for each planning region. Water planning regions may encompass several water sources, each with a distinct resource assessment. The WDCPs developed for these planning regions will address each of the water sources within the region's boundaries, starting from the water quantity and water quality assessments that EPD will conduct for individual water resources. As described in section 6 of the preceding chapter, these assessments will produce estimates of water supply capability, or consumptive use assessments, and assimilative capacity for each water resource.

ASSESSMENT OF RESOURCE CAPACITY

Water Quantity Resource Assessment

For each major water source, EPD will assess the quantity of water that source can yield, under current conditions of development, without causing negative impacts to the source or to opportunities for water use. This amount of water can be determined through a consumptive use assessment.

Development of consumptive use assessments for surface water sources will include assessments of historical flows and flow patterns, currently as well as pre-development. These determinations will consider the factors that influenced historical stream flows, such as the location, size and operational policies of water storage facilities, water withdrawals, and water returns.

EPD will develop, or contract with others to develop, hydrologic planning tools that can be used to calculate the impact of various water management practices on the consumptive use assessment for surface water sources. These hydrologic planning tools will be based on mathematical models. The variables used in the models, including the locations of nodes, desired flow regimes, and the consumptive use impacts of various management practices, will be developed by the EPD with appropriate input from technical professionals and in consultation with water-related interests from all sectors across the state.

To develop a consumptive use assessment for groundwater sources, EPD will consider the major factors that influence the quantity of water that can be sustainably pumped from an aquifer. Some of the major factors include aquifer recharge rates, inter-aquifer leakage, and aquifer/surface interactions. The EPD will give considerable attention to the effect of current withdrawals on aquifers and the streams that are fed by the aquifers, especially in areas where drops in groundwater levels have limited the availability of water for some users or have contributed to saltwater intrusion.

For some aquifers, however, future increases in withdrawals that can be reasonably expected are highly unlikely to have unacceptable adverse impacts on the aquifer, and it will not be possible to conduct a consumptive use assessment within reasonable time and cost constraints. Management of these aquifers will focus on targeted, recurrent monitoring of aquifer response to withdrawal to provide early warning of any adverse effects.

The EPD will develop a consumptive use assessment for aquifers using input from hydrogeologists, engineers, biologists, and experts from other related fields. The EPD will create advisory bodies for consultation with water-related interests in all sectors and enter into contractual arrangements as necessary to complement the expertise of EPD staff.

Water Quality Resource Assessment

Assessment of the capability of waters within a watershed to assimilate pollutants will require water quality modeling. The initial step will be the development of steady state tabletop water quality models using conservative assumptions and existing data and information. The second step in the process is to forecast the flows and location of proposed discharges in the water planning region. Water planning councils will compile this information, which should include flow projections and proposed discharge locations for wastewater treatment plants. EPD will use this information in the water quality models to determine permit conditions to assure compliance with water quality standards within a given water planning region.

In some watersheds, the assimilative capacity may not be adequate to support the projected needs and/or very stringent treatment levels may be predicted by the tabletop models. For these areas, it may be advisable to collect water quality data to calibrate the models. This step will require additional time and resources, but will result in more defensible water quality models. Similarly, modeling of some watersheds may be complicated by variable hydrologic features such as the release from a dam, multiple point sources, and/or requirements for very substantial investment in infrastructure. For these areas, steady state models may be inadequate and hydrodynamic water quality models will be needed. These models may initially be tabletop models; however, it is likely that the decisions to be made will warrant the collection of water quality data for use in calibrating the hydrodynamic models.

EPD will develop – or contract with others to develop – the water quality models to be used to determine permit conditions to assure compliance with water quality standards. A number of mathematical modeling assumptions and decisions are required in constructing water quality models, all of which shall be made under EPD's purview with input from technical professionals and in consultation with water-related interests in the planning region.

Review and Revision of Resource Assessments

Water quantity and water quality assessments may be reviewed and, potentially, revised as the statewide water management plan is revised pursuant to O.C.G.A §12-5-525(c). As described in the preceding chapter, monitoring will be enhanced to track the condition of water resources, including indicators of sustainable water use and physical, chemical, and biological integrity. Results of that monitoring will be used to refine the judgments and projections in the resource assessments. If new information indicates that desired flow regimes are not being met, for example, the EPD may need to revise the water quantity resource assessment. Likewise, if data indicates that waters violate water quality standards, effluent limitations may be revised.

WATER PLANNING COUNCILS

As set forth in section 6 of the preceding chapter, the principal goal of the resource assessments is to support the development of regional water development and conservation plans (WDCPs). These WDCPs will specify the most appropriate water management practices for each water planning region and include plans for the implementation of these practices. When adopted by the Director, WDCPs will guide EPD's water permitting and use of state grants and loans.

Through the process described in Section 14 of the preceding chapter, a water planning council will be designated for each planning region, which will be responsible for developing a recommended water development and conservation plans. Preparation of WDCPs provides an opportunity for regional leadership in identifying and selecting the water management practices that are most in keeping with local goals and capabilities. Water users will be able to participate in creating the plans that will guide their actions in the future. EPD's view is that the best plan is one developed by local governments and water-related interests in each water planning region; these plans can be more timely and reflect the region's unique characteristics, leading to more effective implementation.

Water planning councils will operate using procedures specified in memoranda of agreement with EPD. Water Planning Councils will have to draw on appropriate technical expertise, ensure that stakeholder perspectives and input are incorporated during plan development, and have explicit decision making processes. As described in section 14 of the preceding chapter, operating memoranda of agreement should specify procedures for decision making, public sector involvement in plan preparation, and stakeholder and public participation. Memoranda of agreement

may also be expected to address provisions for collaboration or partnerships with existing water-related organizations and institutions in the water planning region, provisions for consultation or coordination with adjoining WPCs, and conflict of interest provisions. Required elements will be specified in guidance from the Director.

It is expected that state funding will be provided for contractual services in support of preparation of regional water development and conservation plans. Fiscal responsibility for managing the contractual process will remain with the appropriate state agencies. Water planning councils will have an opportunity to participate in development of Requests for Proposals and will direct contractors' planning activities, including identification of management objectives and recommendation of appropriate management practices to meet those objectives.

EPD will work with each WPC to develop contracts and scopes of work for services in support of planning. EPD will prepare a generic request for proposals (RFP), which water planning councils may tailor to the water resources, water users, and planning issues in each water planning region. EPD will work with each water planning council to develop RFPs and scopes of work appropriate to the water planning region and will execute contracts for the agreed-upon services.

WATER DEVELOPMENT AND CONSERVATION PLANS

Forecasting Future Water and Assimilative Capacity Needs

As the first step in preparing water development and conservation plans, and in consultation with EPD, WPCs will be responsible for converting regional population, economic, and employment forecasts (provided by the state) into forecasts of water supply needs and assimilative capacity needs. Water planning councils will then be responsible for comparing their forecasts with the findings in EPD's water quantity and water quality assessments and identifying the management practices that can be implemented to meet the region's water resource needs.

EPD, in consultation with DCA, technical experts, local governments, and water-related interests, will develop a standard methodology and provide guidance for forecasting future water supply and wastewater discharge needs. This standard methodology will include consideration of regional population, economic, and employment forecasts. To support these regional forecasts, EPD will seek the oversight of the Department of Community Affairs and other appropriate state resources in the development of statewide population and economic forecasts. The State will begin developing this statewide forecast soon after the adoption of the statewide water management plan.

Once a standard methodology is established, water planning councils, with support from contractors, will develop regional forecasts of water supply needs, wastewater discharges, and stormflows for the hydrologic units within the water planning region. Water planning councils should work cooperatively with the Department of Community Affairs, regional development centers, local governments, and other entities that compile relevant data or have recently developed projections. WPCs should also allow the public to review the forecasts as they are developed. In consultation with DCA, EPD will review forecasts for consistency with guidelines and criteria before detailed planning of management practices is undertaken.

Preparation of Recommended Water Development and Conservation Plans

Once forecasts are finalized, the water planning councils, with contractor support, will be responsible for completing recommended Water Development and Conservation Plans (WDCPs), following EPD guidance, and submitting them to the Director for adoption. These management plans will specify the practices to be implemented by water users, including cities, counties, authorities, and others, to protect water quality and manage water supply, wastewater, and stormwater. Plans will also specify implementation responsibilities and funding mechanisms. When appropriate, WDCPs may specify that non-governmental entities and public-private partnerships will implement certain management practices.

Water conservation will be a priority for implementation in all water planning regions. Plans will specify the water conservation measures to be implemented in the water planning region, pursuant to section 8 of the preceding chapter and the water conservation implementation plan described there.

When communities within a water planning region utilize multiple water sources, whether surface water or groundwater sources, WDCPs will address the management of all sources. In coastal areas, plans should also address the protection of estuarine resources. When appropriate, WDCPs should build on or integrate existing management plans, such as local water and sewer plans and watershed protection plans. Plans should also draw on TMDL implementation plans and may prescribe additional monitoring and assessment to improve information on the sources of pollution that contribute to water quality impairment. Plans could also address other improvements in the information on cumulative water use and resource capacities (e.g., inventory of water withdrawals that fall below permitting thresholds and/or decentralized water and wastewater treatment systems).

The plans should also address the projected impact of water management practices on adjacent water planning regions. For areas contiguous to the Metropolitan North Georgia Water Planning District, updates of the District plans will ultimately be based on resource assessments and regional forecasts developed with the same methodology used in other planning regions. Future revisions of the District's plans will also be subject to the same regional planning guidance that as the water development and conservation plans. This consistency will allow coordinated planning for contiguous areas and evaluation of impacts on shared water resources.

EPD will prepare guidance on the preparation of Water Development and Conservation Plans (WDCPs) by Water Planning Councils (WPCs). The guidance will provide WPCs with the results of the EPD's water resource assessments for each water source in the water planning region, which will serve as a basis for water management decisions. The guidance will address specific water management practices and how they can affect overall water quality and water quantity. Guidance will also include a schedule for the preparation of plans, which will include specific tasks and milestones in the planning process. Guidance will also cover recommendations for estimating costs and benefits of options and alternatives for water management.

The milestones will provide designated points for preliminary review by the EPD, so the Division can ensure that the plan development is proceeding consistent with guidance. The exact schedule for completing tasks and reaching milestones will vary among the WPCs, depending on the availability of information and the status of water resources in the water planning region. Schedules for WDCP development will also depend in part on State completion of resource assessments and statewide population and economic forecasts.

Plans shall include benchmarks for evaluation of plan effectiveness. EPD guidance will include an initial set of evaluation metrics and WPCs may adapt these metrics if supported by a specific rationale. Plans will be revised on a five year cycle.

WPCs should seek the involvement of those who will be affected by the plan set forth in the WDCPs, so that future conflict can be avoided as much as possible. Documentation of the WPC's deliberations and decisions shall be available to the public, and opportunities for public and stakeholder involvement shall be provided throughout preparation of the WDCP. WPCs should also cooperate with adjacent WPCs through joint work sessions, planning conferences, inclusion of representatives from adjacent WPCs, the creation of advisory committees composed of representatives from several water planning regions, or other collaborative methods.

EPD oversight of forecasts and plan development are also mechanisms to decrease the need for formal dispute resolution processes. In some cases, formal mediation or related approaches may be useful in resolving disputes during plan development or implementation. DCA provides information on alternate dispute resolution and mediation to assist in local and regional comprehensive planning, and this information is a resource potentially useful in regional water planning as well. In addition, EPD permitting processes will be a primary mechanism for implementation of WDCPs. These processes provide opportunities for public comment on specific permits as well as mechanisms for appealing a permit or other legal action.

EPD staff will work actively with the WPCs to support preparation of water development and conservation plans. EPD will provide the WPC with a complete inventory of permit holders (withdrawal, wastewater discharge, stormwater discharge, large and small drinking water systems). EPD may designate liaisons to each WPC, who could work to ensure the compatibility of plans for adjacent water planning regions, and who could also coordinate WPC interactions with Water Council agencies beyond EPD as needed. EPD will also work with other state agencies and partners to coordinate education, outreach and technical assistance in support of regional planning and implementation of WDCPs

Adoption of Water Development and Conservation Plans

Recommended WDCPs will be submitted to the Director by the water planning councils. Plans will be evaluated by the EPD according to procedures outlined in guidance for plan preparation. Each plan must meet three overarching criteria:

- Is consistent with the vision for water management established in Georgia law;
- Will ensure that long-term needs for water use and water protection in the water planning region will be met; and
- Will not cause undue adverse impacts on water users or water uses.

If a plan meets these criteria, is consistent with that guidance, and does not have significant incompatibilities with plans for adjacent or hydrologically-connected planning regions, it will be adopted as submitted. If a WDCP cannot be adopted as submitted, EPD will work with the WPC to identify the actions required to make the plan consistent with guidance and these criteria. Once those actions are taken, the plan will be adopted.

If a water planning council fails to take these steps within a specified timeframe, EPD will take the steps necessary to add the conditions required to make the plan consistent with guidance. EPD will then adopt the plan with conditions.

Given resource constraints, it is likely that WDCPs will be completed in some parts of the state before they are completed in others. If a submitted WDCP may have impacts in water planning regions for which WDCPs have not yet been adopted, EPD may adopt the plan on a contingent basis, or only adopt it in part, pending completion of WDCPs in adjacent regions.

INFORMATION NEEDS, TIMETABLE, AND BUDGET DEVELOPMENT

Regional planning will require completion of a number of tasks related to the assessment of water supply capability and assimilative capacity. Many of these tasks entail the analysis and evaluation of information on water quality and water quantity. Based on these evaluations, management practices (i.e., actions and activities) will be selected and implemented to ensure future reasonable uses of water resources in beneficial and sustainable ways. Implementing the management practices required to meet this goal may have significant cost and behavior implications for both direct and indirect users of Georgia's water resources.

Protection of water resources, and the cost and characteristics of management practices selected in different regions, are dependent on the quality of the information available for management decisions. Given this dependence, it is imperative

that we regularly collect the range of water quality and water quantity information needed to make informed water management decisions. Some information on the condition and use of Georgia's water resources is currently available through programs operated by EPD or by the United States Geological Survey (USGS) under contract with EPD. Programs that provide information that can support resource assessments and regional water planning include the following:

- Georgia Water-Use Program, which captures periodic water withdrawal data reported to EPD by holders of non-agricultural withdrawal permits;
- HydroWatch Monitoring Network, which records streamflows and rainfall at intervals for stations throughout the state;
- Stream Water Quality Ambient Monitoring Network, which provides stream water quality data from monitoring stations statewide; and
- Groundwater Monitoring Network, which measures and displays water levels and water quality data from wells across the state.

Water resource assessments, to be initiated in 2008, will provide an opportunity to build on and improve the available information. These assessments will also require periodic updates, allowing incorporation of additional data and information for areas where the current information base has gaps or weaknesses. Additional information will be needed to refine four types of analysis: forecasts of water and wastewater needs, water quantity resource assessments for surface water sources, water quantity resource assessments for groundwater sources, and water quality resource assessments.

A comprehensive monitoring plan will be needed to address generally acknowledged weaknesses in the information base available for these analyses. One weakness is the paucity of information on the quality of waters throughout Georgia. Assessing the future assimilative capacities of the state's streams, and designing management practices that will allow sustainable use of those capacities, will depend largely upon collecting the data needed to characterize stream conditions. A second weakness is a lack of information on surface water flows, groundwater levels, and the water use that these can support in a sustainable manner. These weaknesses can be partially addressed by establishing a more comprehensive statewide network of surface water and groundwater monitoring stations. More monitoring sites are needed to ensure the data are available to assess the capabilities of water resources, and to assess the impact that increased use in some areas might have on those who share the resource.

Periodic updates of water resource assessments will provide an understanding of changes in the condition and status of water resources, an opportunity to measure and report on progress, and information to ensure that water use and environmental objectives are met.

Accomplishing all of this will require a comprehensive water monitoring plan that defines what information is needed; where, when, and how such information is to be collected; and what entities shall assume responsibilities for collection, management, and use of this information. This monitoring plan, and the cost of implementing it, will be closely related to the contents of the comprehensive statewide water management plan to be submitted to the Legislature in January 2008.

As the Water Council refines the draft comprehensive statewide water management plan in the months approaching December 2007, EPD will establish a scientific advisory board, and coordinate with the Georgia Water Resources Institute at the Georgia Institute of Technology, to assist in design and review of a comprehensive assessment and monitoring plan, with associated budget. The comprehensive assessment and monitoring plan will be designed to support resource assessments, regional planning, and implementation of the comprehensive statewide water management plan.

State investment to support resource assessments and preparation of regional water development and conservation plans is essential to meet the goals of the comprehensive statewide water management plan. The Water Council recommends that funding for work by EPD, other agencies, and contractors be part of the state's FY09 through FY11 budgets. It should be noted that, under current statutes, it is not possible for EPD to charge fees for water withdrawal, drinking water, or treated wastewater permits to support water plan implementation.

The following figure shows the proposed timetable for resource assessments and regional planning, with water resource assessment activities shown in blue, and preparation of regional water development and conservation plans shown in yellow. The timetable includes the development and application of protocols and methodologies for resource assessments, population, economic and employment forecasts, and regional planning. Preparatory work in FY08 would include delineation of water planning regions, designation of water planning councils, and development of initial RFPs and scopes of work for services in support of preparation of WDCPs.

The plan also calls for consideration of rulemaking by the Board of Natural Resources. The anticipated timetable for rulemaking is subject to coordination with the Board's schedule and depends on the proposed content of the rule package. Rules regarding regional water planning are critical to implementation of the statewide planning and, therefore, the first priority for action by the Board of Natural Resources. Other packages of proposed rules will require completion of the water conservation implementation plan or resource assessments, or will provide guidance on the use of specific water management practices.

As the timetable for resource assessments and regional planning is considered, it should be noted that, as described in the Purpose section that opens this plan, water management decisions during plan implementation will continue to be based on the best information available and on the laws, rules, plans, and administrative procedures in place at the time.

Phased Implementation of Water Plan