

Exhibit A - Scope of Services – Project #55-F-1-08/09

Project Summary

The goal of this project is twofold. The first is to provide an analysis and estimate of water and wastewater availability and limitations. This information and analysis will provide the basis to evaluate options to address water supply and management, both quality and quantity. Options and alternatives will be evaluated for their feasibility in addressing the identified issues faced by the County and municipal water supply and wastewater systems. Costs, hurdles, and next steps will be identified.

The second is to develop holistic, countywide recommendations for strategies the County and its municipalities could use in the development of its WRE. Included in these recommendations will be strategies to address wastewater supply and how to address the water quality policies and constraints, such as Tributary Strategy caps, TMDLs, Tier II Waters, and other water quality and quantity policies and limitations. Recommendations would include steps to be taken to implement each alternative and associated cost estimates.

The study area covers the entire county, including all of the county's designated growth areas and associated systems, which incorporate the eight municipalities that are located within Carroll County.

Scope of Services

Development of the "Water & Wastewater Options & Strategies for the Carroll County Water Resources Element" will incorporate, but is not limited to, background information already assembled by County and municipal staff. Each 8-digit watershed will be assessed to evaluate the available water supply within that watershed as it relates to existing water demands and to assess the potential for existing resources to meet future water demands. Reports will be generated for each watershed. Options and alternatives will be evaluated to address water and wastewater supply, quality, and limitations. A discussion of the options evaluated, their feasibility, cost estimate, other relevant factors, and next steps will be incorporated into another report. Strategies outside these step-by-step procedures will be provided in a separate report for addressing the water and wastewater issues, policies, regulations, and other requirements, as well as any other issues relevant to the water and wastewater components of the WRE.

The expected product(s) is not to draft the actual WRE plan document. Rather, the expected products will be a series of reports that Carroll County and its municipalities can use as supporting data, discussion, and documentation for the strategies and information that the staff incorporate into the WRE plan document on which they are working. Completed reports should be provided to the County as the relevant task is completed, rather than providing a complete package at the end of the project timeframe.

Task 1: Review and update the 1988 Carroll County Water Resource Study.

Review and update the 1988 Carroll County Water Resource Study. Provide a synthesis of critical elements of the 1988 Study and prepare a review of the Study's recommendations and the jurisdictional accomplishments and status. The primary emphasis will be a review of the Study's work and findings related to groundwater and surface water resources. Provide a brief update on the study's recommendations and current water supply conditions, including limitations/changes to the original findings. The results of this task will be provided to the County in a report in the form of a technical memo, which, in addition to providing updated numbers, describes everything being updated and why it is needed to be updated.

The County will provide any appropriate and relevant data it has available, but the consultant will be responsible to obtain any additional data needed to complete this task.

Task 2: Complete a water balance assessment for each 8-digit watershed.

- A. Using information and background data provided by the County's Water Resource Element Work Group, compare existing and future water demands with the available water supply capacity and water sources. The County will provide any other appropriate and relevant data it has available, but the consultant will be responsible to obtain any additional data needed to complete this task.
 1. Review water supply data from capacity management plan worksheets to identify missing data or items to be clarified. Coordinate directly with the County or the municipality responsible for that system to obtain data needed for that system.
 2. In assessing available water supply, include both groundwater and surface water and consider all inputs and outputs to the system. Consider and discuss other factors and variables that could impact availability and water supply management, including preservation of environmental flows. Identify total estimated water availability for each watershed. The model for these watershed evaluations will be the report "An Evaluation of the Water Resources in the Catoclin Creek Watershed," which was produced by MDE in May 2006. The methodology used for the Catoclin model should be followed with the exception of the following minimum modifications: The recharge from septic systems as well as water put back into the system from wastewater discharge should be counted toward the available consumable water. Impact of agricultural water demand also should be considered.
- B. Identify any other technical, physical, administrative, and/or legal challenges that could be presented by water quantity policies and limitations that could impact availability and capacity for water availability in the county. The

impacts of future climate variability should be included in the evaluation of water supply systems.

- C. Prepare a report for each individual 8-digit watershed describing the data, methodology, analysis, and results, including a discussion of limitations for each individual watershed. One report, which includes separate chapters addressing each watershed, may be prepared. Separate and individual reports for each watershed are not necessary.
- D. Prepare a report that evaluates the situation countywide and discusses demand, availability, and limitations from a countywide perspective.

Task 3: Assess the overall limitations of wastewater.

- A. Using information and background data provided by the County's Water Resource Element Work Group, discuss the water quality policies and constraints, such as Tributary Strategy caps, TMDLs, Tier II Waters.
- B. Using information and background data provided by the County's Water Resource Element Work Group, discuss the implications for individual municipal wastewater systems and countywide wastewater data, including data from wastewater capacity management plans.
- C. Identify any other technical, physical, administrative, and/or legal challenges that could be presented by water quality policies and limitations that could impact availability and capacity for wastewater systems in the county. Evaluate and discuss whether the limitations can be overcome and what might be needed to do so.
- D. Prepare a report describing the current situation and summarizing the limitations.

The County will provide any appropriate and relevant data it has available, but the consultant will be responsible to obtain any additional data needed to complete this task.

Task 4: Evaluate options/alternatives for individual water and wastewater systems as well as countywide.

The County recognizes that the alternatives/options developed in Task 4 go beyond the actual requirements of what needs to be included in the WRE. The County will use these to include general strategies in the WRE plan document, but the next steps will provide guidance to the County for implementing these alternatives.

- A. Based on the results of Tasks 1, 2, and 3, evaluate countywide impacts of water demand and availability in each individual watershed. Discuss

relationship of water balance to wastewater limitations and cumulative, holistic impacts of water and wastewater conditions combined.

- B. Discuss and evaluate holistic, sustainable options and alternatives for addressing water availability across watershed boundaries. Identify the specific steps that would need to be taken to pursue each option evaluated, what the limitations or barriers might be, and if and how those limitations or barriers could be overcome. The potential impacts of climate variability on water supply systems will be considered and discussed in the evaluation of each option. Options evaluated will include, but are not limited to:
 - 1. a new water supply reservoir project(s) to be successfully permitted, designed, and constructed, included but not limited to:
 - reviewing existing reports and data, prepared previously,
 - establishing objectives and requirements for the projects,
 - assessing tasks necessary to satisfy all Federal, State, and Local regulatory requirements relevant to new water supply projects, including 33 CFR 325, and appendices, and
 - 2. water reuse options.
- C. Evaluate the impacts to wastewater of crossing watershed boundaries for each of the water options evaluated.
- D. Evaluate alternatives based on feasibility, cost, and other relevant factors, and estimate costs and timeframe for proceeding through steps identified for each alternative in Task 4B above. All alternatives evaluated should be discussed. The County, municipalities, and consultant will coordinate to determine for which alternative a set of 'next steps' will be identified that the County would take to pursue and implement that option. Meet with MDE, DNR, and/or MDP staff, as necessary, to clarify barriers and possible limitations. Include appropriate Carroll County Planning staff in meetings.
- E. Prepare a report that discusses the activities in Task 4 and their results.

Task 5: Develop recommended strategies for addressing water and wastewater issues beyond those directly related to demand and availability.

- A. Identify other possible strategies for addressing water and wastewater issues relevant to the Water Resources Element (WRE). Discuss feasibility and limitations. Recommend strategies that the County and its municipalities could choose to incorporate into the WRE. Collaborate directly with Carroll County Planning staff on strategies that could overlap with, complement, or conflict with nonpoint source strategies to ensure that a coordinated approach to the strategies is incorporated. Carroll County Planning staff will provide preliminary nutrient loading analysis information to consider while developing wastewater strategies.

- B. Prepare a report that describes the evaluation used to identify strategies and describes the actual strategies recommended.

Carroll County Planning staff must be notified of and given the opportunity to attend and participate in all meetings with State and Federal agencies that are related to this project (including, but not limited to, MDE, DNR, MDP, USACE, etc.).

Where a task involves a report, the County reserves the right to require modifications to the draft report(s) for purposes of clarification, additional information, or to meet other needs associated with the scope of work outlined above.

Project Digital Data, Software, and Software Licenses

All project data used or generated as part of the project, and all final products, shall be delivered to the County in digital form acceptable to the County. All existing County data to be used and additional data developed by the consultant and their subconsultants for this project is the sole property of Carroll County, Maryland. The consultant and their subconsultants shall not have the right of ownership to any of the data resulting from this project, including text files, mapping data, databases, spreadsheets, etc. The County shall have full rights for use and transfer of any and all data. Any transfer, sale, distribution, loan, or offering for use of existing data or data developed by the consultant or their subconsultants for this project, in whole or in part, to any person or entity outside of Carroll County Government is prohibited without prior written consent by Carroll County Government.

The consultant will provide digital copies as well as ten (10) paper copies of all final reports and technical memos associated with the *Water & Wastewater Options & Strategies for the Carroll County Water Resources Element* project, including maps.

Status Reports

The consultant shall submit a detailed monthly report indicating project completion status.