Exhibit A

Preliminary Project Scope

Asset Inventory and Assessment Grant (Water)

Town of Elkin North Carolina

A. PROJECT DESCRIPTION

- Data Acquisition, Assessment, and Database Design
- GPS Location of Water Infrastructure
- GIS Data Attribute Population of Water information in GIS
- Hydraulic Model
- Develop Asset Management Plan (AMP) with 10-Year Capital Improvement Plan (CIP)
- Rate Study
- Training

B. PROJECT SCOPE

Task 1 – Project Management

A. Evaluate available documentation of the distribution system including previously collected GIS data, assessment data, and previous studies to become familiar with the system.

B. Prepare maps and worksheets to facilitate the necessary fieldwork and data gathering related to the Project.

C. Schedule a meeting with Client to coordinate efforts, identify key Project team members.

D. Provide overall Project Management services to monitor the job progress, arrange resources for the Project, and communicate to the Client the status of the Project.

Task 2 – Data Acquisition, Assessment, and Database Design

A. Data Acquisition and Assessment: Assess currently available GPS data, equipment specifications, and collection workflows to assure accuracy of data that has been or continues to be collected. Review data, layer definitions and attribute requirements.

B. Database Design: Design and implement a file geodatabase using industry standards in database design. The database will house all the water GIS data. The intention is to use the industry standard ESRI Water Utilities Database to fit current needs and to allow for future growth.

Task 3 – System Mapping to include GPS Location and GIS Data Attribute Population

A. Survey Grade GPS Inventory of Water Utility Features including identification of lead, copper, and galvanized materials in the water system.

B. Attribute Population: Attributes will be collected by field crews and this information will be used to populate the GIS database and review as-built records.

C. Water System Connectivity, Network Topology: Utilize the GPS located utility features, field observations, record drawings, and staff input to connect the water line utility.

Task 4 – Hydraulic Model

The Consultant will reconcile GIS database updates from Task 3 with existing available modeling files and an operational data collection subtask. WaterGEMS is the preferred Consultant modeling software; final versions of the updated model will be provided to the client in the EPANET free software.

A. The Client will provide the consultant with all files related to any existing hydraulic model. This includes:

- All reports or technical documentation which detail original model development and calibration, and any subsequent updates.
- A copy of the model converted to the EPANET base software engine and documentation explaining the model scenarios exported.

B. The Consultant will review the existing modeling files and documentation and assess the scale and nature of which modeling information will be incorporated as part of a comprehensive model update.

C. The Consultant will review available mapping and review the areas in the field with the Client which would be suitable for operational data collection. This will be no more than three (3) site visits. Field data collection will include:

- Installation of hydrant pressure recorders (HPRs) in the system for up to three (3) weeks. The number of HPRs required will be determined with the actual project scope.
    - It is requested no hydrant flushing, tank overflows, or other temporary O&M procedures which contribute to planned non-revenue water be performed during this period.
- Completion of fire flow tests during the HPR monitoring period. The number of tests will be determined with actual project scope
- Download of any available system SCADA information overlapping the HPR monitoring period.
    - If required, the Consultant will assist with data acquisition from SCADA software, which may increase the number of site visits.

D. In addition to field data collection, the Client will need to provide additional data which impact system performance and operation. This will include:

- Plant production values, if not stored in SCADA
- Water customer information
    - Coordinates
    - Historical usage per customer
    - Usage which overlaps HPR collection period
    - If possible, hourly per customer or at minimum hourly for largest customers
- Other system information, which may include:
    - Existing fire flow test values
    - Work order history for water main breaks or leaks
    - Known or suspected valve closures
    - Anecdotal information from system operators or customers

E. The Consultant will perform a mid-task review of the collected information and present the Client documentation on remaining items required and any assumptions which will need to be made should they not become available within the project timeline. This will be referred as the "Gap Analysis."

F. The Consultant will combine information from the above subtasks to create a comprehensive model update, which will be calibrated based on collected operational data. This will be referred to as a "Hydraulic Characterization" and will present system hydraulics. Hydraulics will be assessed in the context of:

- System pressures
- Predicted pump flows
- Predicted tank operational ranges
- Predicted fire flow availability
- Calculated and modeled non-revenue water
- Predicted water age

G. Existing condition analysis, conclusions, and recommendations will be incorporated into the Asset Management Plan. Proposed alternatives for future consideration will fall into a future task.

Deliverables

(1) Model Development Presentation
(2) Hydraulic Characterization Report

Tasks 5 - 7 – Develop an Asset Management Plan, Rate Study, and Training

A. State of system inventory report to include information about pumps, wells, tanks, water treatment plant, mains, valves, fittings, hydrants, and any other relevant features.

B. Risk Analysis: Based on the information gathered through GPS/GIS collection, an analysis of predictive deterioration and failure will be completed.

C. Capital Improvement Needs and Prioritization: Assets identified as having high probability of failure will be identified and prioritized. Generalized and system-wide asset replacement cost will be developed. Prioritization will be based on the expectation of failure and the impact to the community due to failure.

D. Development of a 10-year Capital Improvement Plan (CIP) based on data analysis.

E. Lifecycle Modeling

F. Draft Asset Management Plan (AMP) to include data analysis for prioritization of projects and best management practice recommendations for operations and maintenance. This document will include a 10-Year Capital Improvement Plan (CIP).

G. Finalize AMP

H. Financial Analysis to include Utility Rate Study

I. Training

J. Develop Presentation and present to Council/Board.