

**RESOLUTION OF THE MAYOR AND BOROUGH COUNCIL  
OF THE BOROUGH OF MOUNT ARLINGTON, IN THE  
COUNTY OF MORRIS, NEW JERSEY, AUTHORIZING  
EXECUTION OF AN ASSET MANAGEMENT PLAN AGREEMENT  
FOR THE BOROUGH'S WATER SYSTEM**

**WHEREAS**, Borough Engineers CP Professional Services has submitted a Proposal for Asset Management Planning for the Borough's Water System, dated January 29, 2018, a copy of which is incorporated herein.

**NOW, THEREFORE BE IT RESOLVED**, by the Mayor and Borough Council of the Borough of Mount Arlington, County of Morris, State of New Jersey, that the Mayor and Borough Clerk are authorized to execute an Asset Management Plan Agreement for the Borough's Water System.

This Resolution shall take effect immediately.

I hereby certify this to be an accurate and true resolution as approved by the Mayor and Borough Council at a Meeting held on April 3, 2018.



Linda DeSantis, RMC  
Borough Clerk



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January 29, 2018

Carolyn Rinaldi  
Municipal Administrator  
Borough of Mount Arlington  
419 Howard Boulevard  
Mt. Arlington, New Jersey 07856

Re: Mt. Arlington Water System  
Asset Management Planning – Water System  
Mt. Arlington, Morris County, New Jersey

CP Proposal No: 17-218

Dear Ms. Rinaldi:

Pursuant to your request, CP Engineers, LLC, (CP) is pleased to submit this Proposal for Asset Management Planning (AMP) for the Borough's Water System. We greatly appreciate the opportunity to propose on this work and have endeavored to present a proposal that is responsive to the Borough's needs.

### **Project Description and Understanding**

The New Jersey Water Quality Accountability Act (WQAA) was enacted on July 21, 2017, and became effective On October 19, 2017. The legislation will be implemented by the New Jersey Department of Environmental Protection (NJDEP). The WQAA requires any water purveyor with more than 500 service connections to demonstrate and report upon sound fundamentals in the planning, operation, maintenance and reinvestment of its water system to assure a safe and reliable water supply to its customers.

Section C.58:31-7 of the WQAA states the following requirements shall be met regarding Asset Management Planning:

- a. Beginning no later than 18 months after the effective date of this act, every water purveyor shall implement an asset management plan designed to inspect, maintain, repair, and renew its infrastructure consistent with standards established by the American Water Works Association.

The asset management plan shall include:

a water main renewal program designed to achieve a 150 - year replacement cycle, or other appropriate replacement cycle as determined by a detailed engineering analysis of

the asset condition and estimated service lives of the water mains serving the public water system;

- (1) a water supply and treatment program designed to inspect, maintain, repair, renew, and upgrade wells, intakes, pumps, and treatment facilities in accordance with all federal and State regulations, standards established by the American Water Works Association, and any mitigation plan required pursuant to section 5 of this act; and
- (2) any other programs, plans, or provisions as may be required by the department (NJDEP) pursuant to rules and regulations adopted pursuant to the “Administrative Procedure Act,” PL.1968, c.410 (C.52:14B-1 et seq.). Each water purveyor shall dedicate funds on an annual basis to address and remediate the highest priority projects as determined by its asset management plan. All asset management plans and system condition reports shall be certified to by the licensed operator or professional engineer of the public water system and the responsible corporate officer of the public water system, if privately held, executive director, if an authority, or mayor or chief executive officer of the municipality, if municipally owned, as applicable. The replacement cycle shall be determined by dividing the miles of water main located in the public water system by 150 or other appropriate demonstration set forth in the certified asset management plan prepared pursuant to this section.

- b. At least once every three years, each water purveyor shall provide to the department and the board, if applicable, a report based on its asset management plan prepared pursuant to subsection a. of this section identifying the infrastructure improvements to be undertaken in the coming year and the cost of those improvements, as well as identifying the infrastructure improvements completed in the past year and the cost of those improvements.

A municipal water department or municipal water authority shall also submit the report required pursuant to this subsection to the Division of Local Government Services in the Department of Community Affairs.

Per the WQAA, the Borough must have an AMP in place and submitted for certification by April 19, 2019.

Irrespective of the statutory requirements of the WQAA, the Borough had already recognized the importance of sound utility facilities planning and management, and had already intended to begin the development of an AMP in 2018, assisted by funding through the New Jersey Environmental Infrastructure Funding Program (NJEIFP). A potential benefit of NJEIFP funding is that the Borough may receive 100% loan forgiveness for cost of AMP development up to \$100,000, provided that, within three 3 years of acceptance of the loan, a water infrastructure improvement project is bid for construction.

#### **Base Scope of Services**

CP is herein proposing to provide the following scope of services in relation to AMP.

**Task 1: NJEIFP Application and Coordination**

CP will assist the Borough with the preparation of the necessary application documents and supporting materials, in coordination with the Borough's Bond Counsel, in order to receive the necessary funding for the AMP. Throughout the project, CP will provide all necessary project coordination and updates to NJDEP and NJEIT staff, and process all payment applications for reimbursement.

**Task 2: Asset Management Planning Development**

Upon initiation of the AMP, CP will review available software to complete the AMP. There are sophisticated commercially available software programs and no-frills free USEPA software available. The USEPA "Check Up Program for Small Systems" (CUPSS) program is designed for water system populations with fewer than 3,300 people. The Borough's water systems serve a total population of 3,031. While CUPSS software will achieve the minimum regulatory requirements, it is not user friendly and its output is rather cryptic. It is not ideal for use in maintaining the system once the AMP is complete. Software available will be evaluated and determined which is best for the Boroughs use upon initiation of work. A separate cost estimate for purchase of a commercially available software has been provided under supplemental services description.

Sub-tasks a through f below will be performed in development of the AMP and include the following:

- a. **Asset Inventory and Condition Assessment –**
  - i. **Asset Inventory** - In order to account for the complete system, an inventory must be taken of the individual components. CP will review all available historical mapping provided by Borough as well as meet with the Borough's DPW Supervisor to review all of the water system assets so they can be accounted for in the AMP. All above and below ground water system infrastructure (pipes, pumps, treatment facilities, storage facilities, electrical components) and other related "hard" infrastructure shall be identified. While developing the inventory, the location, age, composition, size, design life, and remaining life will be documented.
  - ii. **Asset Registry** – In order to support the Asset Inventory above, an asset registry with asset ID numbering will be developed. Upon completion, assets will be easily identifiable based upon an ID tag. The Asset Registry will be developed in a spreadsheet format. CP will utilize the input provided by the Borough to implement an ID system in conformance with the Borough's specifications.
  - iii. **GIS Mapping** – A key component of the AMP during the inventory phase is physically locating each asset and uploading that information into a GIS

mapping system. Connecting an asset inventory to detailed mapping system allows the Borough to quickly and easily locate assets for inspection, maintenance, and protection. It is understood that the Borough currently has GIS mapping files of the water system containing water main locations, valve locations, hydrant locations, meters, pump stations, and water storage tanks. At this time these files have not been validated regarding their accuracy. As part of the AMP, CP will review the existing GIS mapping files provided by the Borough and verify to their accuracy and suitability for future usage. It is anticipated that certain asset locations will need to be field verified with handheld GPS. All GIS mapping will be prepared in accordance with the NJDEP GIS “Mapping and Digital Data Standards”. If elements of the existing GIS mapping require updating, we will address that. For the purpose of this proposal, it is assumed that re-creation of the entire water system in GIS will not be required.

As part of this task we have also included a limited hydraulic modeling budget to review hydraulic flows within the water system. The inventory and mapping may pose further questions regarding the overall system operations and hydraulic modeling may prove beneficial to determine and prove the assumptions.

**b. Level of Service**

- i. Per the NJDEP Asset Management Technical Guidance. “Level of Service” (LOS) refers to the intended goals of the utility, with consideration for the role and function of a utility’s infrastructure assets and how they are expected to perform”. Goals developed for the LOS can focus on customer service/accountability, energy/water efficiency and conservation, or social and environmental considerations, system quality control and service quality. CP will assist the Borough in developing their own LOS goals for the AMP. These goals can be updated regularly as necessary.

**c. Critical / Vulnerable Asset Evaluation**

- i. Water system assets will be evaluated for both their critical importance to provide reliable operation as well as their vulnerability to potential threats (weather events, sabotage, terrorism, etc.). This evaluation will determine whether mitigation measures need to be implemented to reduce any determined vulnerabilities in order to maintain reliable operation.
- ii. A Probability of Failure (PoF) and Consequence of Failure (CoF) evaluation will be performed for each asset. Factors to consider will be age/condition, installation/environmental characteristics, repair/service history. Each asset will be ranked to prioritize level of importance to maintain operations in the system.

- d. Life Cycle Costing
  - i. In order to prioritize system improvements and cash reserve needs, a determination of the original life span as well as the remaining life of the asset (life cycle) will be performed. This determination will then be utilized to decide how much it will cost to rehabilitate each asset or replace them as they deteriorate, as well as help develop a schedule for maintenance, repair, and replacement.
  
- e. Long Term Funding Strategy
  - i. Based on the previously performed level of service, asset evaluation, and life cycle costing, an overall funding strategy can then be discussed and prepared to determine sufficient sources of funding to ensure the long-term sustainability of the system. CP will assist the Borough with development of the long-term funding strategy which can be updated as needed and as projects are identified or completed.
  
- f. Certification and Submission of AMP
  - i. Per the WQAA, once the AMP is completed it needs to be submitted to NJDEP and certified by the licensed operator or professional engineer and mayor or chief executive officer of the Borough. At this time NJDEP is developing a portal to submit this certification and CP will assist the Borough with the necessary requirements for submission.

### **Supplemental Services**

The following additional services denoted below are supplementary to the base scope of services and can be authorized separately by the Borough at the costs outlined below:

1. Detailed Hydraulic Modeling of the water system and purchase of modeling software.  
Detailed hydraulic modeling of the water system will allow an analysis of the characteristics of the system under various conditions. Component (e.g. water storage tanks, pumping stations, pressure zones) are entered into the simulation during setup, and then modified to see how the system performs as changes are made. This service also includes the purchase a commercially available hydraulic modeling software to perform the analysis.
  
2. GIS Software setup and training to the Borough.  
The Borough may elect to expand their internal capabilities by using GIS to manage and maintain the water system. CP can assist with setup of the Borough's GIS Software, and train staff on how to utilize the software for the water system.
  
3. Maintenance and Management of GIS System.  
The GIS System may require maintenance and management to ensure reliable operation. This may include software updates, coordination with the Borough's



Maintenance Management System, or implementation to a future Borough mobile mapping system. CP will assist the Borough with maintenance and management of their GIS system to ensure efficient operation.

**Cost**

We propose to perform these services on an hourly basis in accordance with our current agreement with the Borough. We have established not-to-exceed budgets for the tasks outlined in the scope of services.

Task 1 – NJEIFP Application and Coordination	\$14,975
Task 2 – Asset Management Plan Development Base Scope	\$135,785

**Supplemental Services**

1. Detailed Hydraulic Modeling (including software)	\$31,700
2. Purchase of commercially available AMP software	\$54,625
3. GIS Software Setup and Training	\$7,320
4. Maintenance and Management of GIS System	\$5,880

Subtotal of All Tasks:	\$250,285
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**Schedule**

CP is prepared to begin this work immediately upon your authorization to proceed. We propose that the AMP will be completed and certified in accordance with the April 19, 2019 regulatory deadline. As we develop elements of the plan over the course of 2018, we anticipate meeting with the Borough DPW manager and the Borough Administrator to summarize progress and resolve open issues.

Please do not hesitate to contact us should you have any questions.

Very Truly Yours,

**CP ENGINEERS, LLC**

Stanley G. Puszcz, P.E.  
Managing Member

Sean Sauder  
Water Resources Department Leader

CC: Stephen Donati, P.E., CP  
Thomas Lemanowicz, P.E., CP

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