ERIE COUNTY WATER AUTHORITY

INTEROFFICE MEMORANDUM

June 5, 2019

To: Jerome D. Schad, Chairman
Mark S. Carney, Vice Chairman
E. Thomas Jones, Treasurer

From: Karen A. Prendergast, Chief Financial Officer
Russell J. Stoll, Executive Engineer

Subject: Goals Considerations – Comprehensive Infrastructure Strategic Planning

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We have reviewed your memo dated May 9, 2019 regarding Comprehensive Infrastructure Strategic Planning. The comments below offer comments and considerations on the goals portion of the memo.

We agree with the list of goals and are offering an alternative priority order. The following provides the alternative order considering the goal of redundancy in the plants and transmission/distribution system. Without these basic facilities the other goals may be more difficult to reach. Below are discussions and comments on the four goals with some examples of steps that are currently being taken to address and set a path forward toward these goals.

I. Redundancy in ECWA Plants and Distribution System:

Identifying single point-of-failure situations is critical to ensuring continued uninterrupted operation of ECWA facilities. Current examples of existing redundancies include multiple pump arrangements so that a standby pump is available should an operating one fail, and interconnections with adjacent water systems including Tonawanda and City of Buffalo to help support water supply needs in case of urgent demand or water shortage due to critical failure. Other types of failure points exist, including chemical feed systems, that should be investigated and mitigated as necessary. Transmission mains containing finished water leaving the plants must be investigated to evaluate the potential for failure and the presence of redundant facilities to continue the ample flow of water supply.

ECWA currently has several projects for study and design of redundant facilities, including:

1. **Contract OBG-013**
    a. Hydraulic Integrity – Reliability of Water Supply & Alternate Sources.
    b. Identification of reliable sources of water from existing systems with routing to both northern and southern areas of the ECWA service area.
    c. Identification of series of alternatives in 2019-2020.

2. **Contract NC-40**
   a. Design of additional parallel raw water line from Van-De-Water raw water pump station to the treatment plant. (Tonawanda).
   b. Involves the design of a 5,000 linear feet parallel line to provide redundancy for getting the source water from the pump station to the treatment plant.
   c. Design will begin in 2019 with construction anticipated for 2020.

3. **Redundant Transmission main from Van De Water Treatment Plant to the Ball Pump Station and Tanks**
   a. This project begins with a routing study that identifies a viable route between the plant and Ball station through urban areas and power utility rights-of-way (Tonawanda, Amherst). There is now only one continuous transmission main between the two locations. Portions of a second line exist but significant portions must still be designed and constructed.
   b. A redundant transmission main will not only provide additional capacity, but also provide a critical backup to the existing transmission main should the existing main experience a failure. Depending on the actual route available for the additional transmission main, a total length of 7 miles of new main is planned.

II. Cyber Security and Automation of Production and Distribution System:

ECWA began upgrading its automation by installing new SCADA software for control of the pump stations and tanks. This has been in service now for about 9-months. The two water treatment plants have an older version of the same software which must be upgraded with revised graphic and HMI to be consistent with the current version of the distribution system SCADA software.

In-house staff are currently performing the optimization procedures and developing a plan for upgrading the plant SCADA. The upgraded SCADA will also integrate more of the plant operation with the distribution system. This integration will lead to a more efficient and safe operation. Remote operation is currently possible however these upgrades and optimizations will enhance our ability for this type of operation of the facilities

III. Increase Annual Investment in Replacement of Transmission and Distribution Mains:

ECWA must increase the annual investment in the replacement of the transmission and large distribution systems mains in the direct service areas due to the continual aging of the distribution system and the failure of the large transmission mains prior to reaching their normal service life. Failure of transmission mains can have a far-reaching impact to ECWA customers as well as a negative impact to retail and commercial customers, elderly and health care facilities.

Consistently failing smaller distribution mains must also be replaced as they continue to put customers out of water service which is a critical part of day-to-day living.

Increasing the replacement of water main infrastructure by two or three-fold will place a large demand and stress on current staff that are already fully utilized. Staffing levels will have to be evaluated as the infrastructure investment rises.

Contracts W-27 and W-30 are currently being designed to replace critical infrastructure that has a history of failure. These projects are transmission mains carrying water from the Ball stations to areas east and southeast in ECWA service. Other projects are slated for design and construction in 2019 and 2020 that are more in keeping with transmission main replacement. Annual distribution main replacements are currently in place. The length of these water main replacements would most likely double.

IV. Expansion of Bulk Sale in to new service areas:

Consolidation and expansion of the ECWA service area can lead to additional income for ECWA. Consolidations allow ECWA to control, operate and maintain the system and perform replacements according to a consistent and overall system priority.

ECWA already have several municipal consolidations including Town of Aurora, Town of Eden and Village of Hamburg.

In addition to consolidations, ECWA is working with municipalities to support current or possible future demands, including:

Genesee County Water Supply

a. Provide supply of water to Genesee County in the range of 3-4 million gallons per day. Genesee County has a future need for additional supply of water to be able to meet their current as well as possible future needs.
b. Genesee County is planning a multi-year project that involves Monroe County Water Authority, Niagara County and Erie County Water Authority. The planning and environmental (SEQRA) studies include planning for the design and construction of water infrastructure to support their needs. This infrastructure will be in the form of transmission mains, water storage tanks and pump stations.

Village of Alden

a. ECWA has provided a temporary connection for use by the Village when a dry season threatens the amount of water available from their current system. The Village is developing a plan for a permanent connection should needs in the future arise.

North Tonawanda

a. The City of North Tonawanda has approached ECWA to investigate the possibility of a connection should they have an urgent or emergency need for water. They currently have no emergency interconnection with an adjacent municipal source.

As ECWA ramps up their infrastructure replacement program, as well as the other initiative discussed above we must also develop and provide staffing levels to meet these goals and initiatives. Support staff in the following departments will be required:

- Engineering
- Production
- Maintenance

It should be noted that some of the potential failures in ECWA facilities can be avoided by developing a robust maintenance program. Proper preventative maintenance will help to avoid equipment and process failures potentially reducing the need for some redundant facilities. The program should be supported with an off the shelf work order and asset management system.

KAP:RJS:jmf
cc: T.McCracken
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