

EXHIBIT Y

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

BOROUGH OF SHENANDOAH

**MUNICIPAL AUTHORITY OF
BOROUGH OF SHENANDOAH**

AQUA STATEMENT NO. 5

DOCKET NO. A-2022-3034143

**DIRECT TESTIMONY OF
LEO PIETKIEWICZ
MEMBER OF THE BOARD OF THE
MUNICIPAL AUTHORITY
AND BOROUGH COUNCIL
BOROUGH OF SHENANDOAH**

**With Regard To
A General Overview of the Transaction
Shenandoah's Water System and
Operations Benefits of the Proposed Transaction
Shenandoah's Rates**

October 2022

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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Leo Pietkiewicz. My business address is 404 West Cherry Street, Shenandoah,
4 Pennsylvania 17976.

5
6 **Q. In what capacity are you affiliated with the Borough of Shenandoah?**

7 A. I am a member of the Board of the Municipal Authority of the Borough of Shenandoah
8 (“MABS” or the “Authority”) and I have been a member of Borough Council for the Borough
9 of Shenandoah (the “Borough”) for the past 21 years. I have served on the Board of MABS
10 since May 17, 2017 in several capacities. I was elected as Chairman on January 30, 2019.

11
12 **Q. Please provide a brief description of your education and work experience.**

13 A. I hold an Associates degree in Accounting with a minor in Business. I am currently employed
14 by Jeld-Wen, Inc., which has over 500 employees, in Pottsville, Pennsylvania. I hold the
15 position of Shipping and Logistics manager, and previously held the positions of group
16 manager, coordinating group manager, and production manager. I have been with both
17 divisions of Jeld-Wen: I worked in their window division for 12 years and, for the last 15
18 years, I have worked in their door division.

19
20 **Q. Have you testified before the Pennsylvania Public Utility Commission (“PUC” or
21 “Commission”) before?**

22 A. No.

1 **Q. On whose behalf are you testifying in this proceeding?**

2 A. My testimony is on behalf of the Borough and the Authority and in support of Aqua
3 Pennsylvania, Inc. (“Aqua”) who seeks to purchase the MABS water System (the “System”).
4 The System provides water to residents and businesses in the Borough and services to various
5 customers in adjacent municipalities.

6

7 **Q. What is the purpose of your Direct Testimony?**

8 A. The purpose of my Direct Testimony is as follows: (1) to provide a description of the System
9 and why both the Borough and MABS decided to sell it, (2) to describe the anticipated benefits
10 of the sale of the System assets to Aqua pursuant to an Asset Purchase Agreement dated July
11 20, 2021 between the Authority, the Borough and Aqua (the “Proposed Transaction”), and (3)
12 to describe how the Authority sets its annual rates.

13 In particular, I will focus on the fact that MABS’ operating revenues were insufficient
14 to pay its operating expenses and to fund much needed capital improvements. MABS would
15 have had to raise rates so significantly in order to upgrade the infrastructure and operate the
16 System in a safe and reliable fashion that public ownership did not make sense any longer. I
17 will also focus on the numerous benefits of the Proposed Transaction, including the fact that
18 Aqua can spread the costs of capital improvements across a much larger rate base; that its
19 ownership will ensure a safe and reliable System with professional management for the
20 residents and businesses in the Borough; and how the Borough will be able to focus on, and
21 apply some of the sale proceeds to, much needed public improvements.

22

23 **Q. Are you sponsoring any Exhibits with your Direct Testimony?**

24 A. Yes. I am sponsoring Appendix A, attached hereto, which contains an excerpt from the

1 Pennsylvania Economy League's ("PEL") Early Intervention Program ("EIP") review conducted for
2 the Borough.

3

4 **II. DESCRIPTION OF THE BOROUGH AND THE SYSTEM**

5 **Q. Please provide a general overview of the Borough of Shenandoah.**

6 A. The Borough was incorporated as a borough on January 16, 1866. With the discovery and
7 commercial mining of anthracite coal in the Southern coal fields from the early 1830s, land
8 speculators began to send surveyors into the northern regions in search of coal lands. The
9 tremendous need for coal at the outbreak of the civil war fueled the necessity of finding and
10 operating new coal deposits. Thus, in 1862, the first colliery in Shenandoah was opened.
11 Shenandoah grew rapidly with the influx of skilled miners and laborers to work the
12 surrounding coal fields. Situated in the Middle Western coal field, Shenandoah had the richest
13 deposit of Anthracite of all the known fields. Coal brought thousands of immigrants to
14 Shenandoah. First came the English mine owners and bosses, then the Welsh skilled miners.
15 These were quickly followed by the Germans and the Irish. Beginning in the late 1870s,
16 immigration into Shenandoah shifted from the Western European countries to the Eastern
17 European countries, primarily Lithuania, Poland, the Ukraine and Slovakia. As each new
18 wave of immigrants arrived in Shenandoah, they set about to establish their own church with
19 services in their native language and eventually to establish parochial schools where their
20 children could be taught both English and their own language and customs. In the 1930s,
21 Shenandoah boasted 22 nationalities, 22 churches and a large synagogue. In the 1920s, the
22 garment industry began to develop in the area. At its peak, there were approximately 15 large
23 garment factories operating in Shenandoah at one time. One out of every two households had
24 a woman in the International Ladies Garment Workers Union. This was particularly true in

1 the early 1950s when the mines were closing one after the other. The garment industry
2 sustained many families.

3 Years of lost jobs, outward migration and a sense of defeat have plagued the town.
4 Today, Shenandoah is on the rebound and things are starting to turn the corner on economic
5 development. People are returning to the region, some in retirement and many just seeking a
6 good place to raise their families. Houses are being restored, new businesses are opening and
7 Shenandoah is fast becoming the Ethnic Food Capital of Pennsylvania.

8
9 **Q. Please provide a description of the System.**

10 A. The Authority serves approximately 2,900 residential and business customers located in the
11 Borough and surrounding municipalities (West Mahanoy Township, Mahanoy Township,
12 Butler Township and Girardville Borough) located in Schuylkill County, PA. The water is
13 supplied by Authority-owned reservoirs.

14 The Authority owns and operates the Shenandoah Water Treatment plant, four public
15 water supply reservoirs, four water storage tanks, four booster stations, two pressure reducing
16 stations and approximately 48 miles of water mains for public water use.

17 The age and condition of System assets increases operational expenses and has
18 contributed to its financial challenges. Several years ago, non-revenue water was estimated
19 to be a majority of finished water production with unaccounted-for water estimated to be in
20 the range of 25 to 30% of water produced; this suggests that the water supply cost could be
21 reduced significantly, along with a reduction of variable costs such as power, chemicals,
22 personnel and maintenance services. Some of this non-revenue water was due to non-working
23 meters which have been replaced relatively recently.

1 **Q. Please provide an overview of any compliance issues with the System experienced by the**
2 **Borough.**

3 A. Since 1997, the Pennsylvania Department of Environmental Protection (“DEP”) has issued
4 four notices of violation following its inspection of the Shenandoah Water Treatment plant
5 related to violations of its National Pollutant Discharge Elimination System (“NPDES”)
6 permit. All of these violations have been corrected and abated, or otherwise closed, except
7 for the notice of violation which was most recently issued on August 2, 2022 for failing to
8 monitor pollutants as required by the NPDES permit.

9 DEP issued MABS a Water Allocation Permit (WA 54-44C) on November 21, 2017
10 (the “Water Permit”). One condition specified in the Water Permit required MABS to reduce
11 its unaccounted-for water loss to a level of twenty percent (20%) or less within five years.
12 MABS’s unaccounted-for water loss in 2021 was approximately fifty percent (50%), and
13 MABS does not anticipate that it will achieve the 20% Water Permit condition by November
14 21, 2022.

15

16 **Q. Why did MABS consider an acquisition?**

17 A. During the period of time I was Chairman, MABS was late in payments of debt service on its
18 Pennsylvania Infrastructure Investment Authority (“PennVest”) loan because it did not have
19 sufficient revenues to pay for payroll and debt service. As described later in my Direct
20 Testimony, the Authority sought, and obtained, an extension on its PennVest loans. The
21 balance of these loans was paid though a much more expensive refinancing and restructuring
22 that was used to defer payments so a modest amount of capital improvements could be made.
23 Given the delinquent payments and advice given by the PEL in an EIP review, MABS
24 committed to explore sustainable options to provide the citizens of the Borough safe and

1 affordable water. The options identified included exploring the sale of the System to a
2 municipal or investor-owned utility.

3
4 **III. SALE PROCESS**

5 **Q. Please describe the Borough's decision process in concluding that a sale of the water**
6 **system was in the best interest of the Borough.**

7 A. In a Five-Year Financial, Management, and Operational Review and Strategy for the Borough
8 issued in June of 2015, the PEL concluded that there was a crisis in the making relating to
9 both the sanitary sewer and the water systems in Shenandoah.

10 The five-year plan was developed pursuant to Pennsylvania's EIP. EIP is designed as
11 a preemptive step to identify critical issues and provide strategies that a municipality can
12 implement in order to avert a fiscal crisis that could threaten the health, safety and welfare of
13 the community's citizens and those of the Commonwealth at large. PEL concluded at that
14 time that:

15 Shenandoah currently faces a looming crisis in the form of its
16 municipal water and sewer authorities, neither of which possesses
17 adequate funds to operate and make the upgrades required to provide
18 citizens with these vital and necessary services. This situation has
19 placed the Borough's water and sewer infrastructure in jeopardy.
20 Ultimately, Shenandoah, which created the authorities and is
21 guarantor on their loans, bears the responsibility to its residents for
22 ensuring that the water and sewer infrastructure is maintained.¹

23
24 The sewer authority was able to access very significant grants and low interest loans
25 and eventually dug itself out of the financial distress identified by PEL.

26 The System, on the other hand, had more intractable problems. It lacked the necessary
27 revenues to both pay current expenses and fund upgrades that were needed for continued

¹ See Appendix A, at 3.

1 operation. The Authority's customer base was declining, and its delinquency list growing. A
2 high percentage of these delinquencies were related to past due bills on the abandoned
3 properties that dot the Borough. Shutting off water service to force payment from occupied
4 housing units is often difficult given that shut-off valves were, in many instances, serving
5 more than one property. In 2014, both pumps that carry water from the reservoir to the System
6 broke down, necessitating a costly replacement. The Authority sought and received a six-
7 month deferral on outstanding PennVest loans but was further plagued by expensive repairs
8 when numerous pipes ruptured over the winter of 2014-2015. As a result, the Authority
9 requested additional deferral of the PennVest payments, which totaled \$38,330 per month.
10 The Authority is being kept marginally afloat through annual revenue of in excess of \$100,000
11 that it receives from land leased to a windfarm. PEL also concluded that "[i]t also appears
12 that MABS lacks the managerial, technical and financial capacity necessary to ensure reliable
13 and sustainable service typically sought by regulatory agencies." See Appendix A, pages 4-4
14 and 4-5.

15 Four options were considered, including: (1) continued ownership and operation by
16 MABS, (2) contracting out for management of operations, (3) leasing the System, or (4)
17 selling the System to a regional municipal authority or investor-owned utility.

18 At that time (in 2015), PEL concluded that it was likely that a transfer of ownership to
19 a larger, established water utility, preferably one operating in close proximity to the System,
20 would be the best solution.

21 The Borough was advised to seek, and sought, additional EIP funding to undertake an
22 assessment of the pros and cons of a "monetization" of the System (including a sale). This
23 was referred to as the "Phase II Study." For the next several years, advice of professionals
24 was sought and obtained on numerous occasions, such as a consultant that ran a larger water

1 system in Pennsylvania and an advisor with expertise in restructuring and monetization of
2 municipal assets.

3 The Borough Council and Board of MABS met on several occasions with their
4 consultants. It was determined to ascertain whether there were entities that would be willing
5 to take over both the sewer system and the water system and whether the Borough would do
6 best by packaging the two systems together in one transaction. A Request for Expression of
7 Interest was authorized, prepared, and sent out to at least four prospective operators.

8 At that stage, the Borough and MABS wanted to have AUS Consultants prepare an
9 original cost study so that the Borough had a basic understanding of what the assets might be
10 worth (this was undertaken and completed in 2018). After receiving the AUS study, and
11 realizing that there were three parties interested in either the System or sewer system, or both,
12 the Borough and MABS determined to start the process of soliciting qualified operators to
13 acquire the System. A Phase III EIP Grant was applied for and awarded to the Borough which
14 was used to begin the process of seeking qualified bidders, including preparation of a Request
15 for Proposals (“RFP”) and a form of an asset purchase agreement. No decision was made to
16 sell at this point in time, as the Borough and MABS were advised that they should first see
17 what the offers are, negotiate the key provisions of the Proposed Transaction, and give the
18 public an opportunity to express their views, ask questions and discuss them with the elected
19 officials.

20
21 **Q. Did the Borough request public input on the sale?**

22 A. Yes. The deliberative process undertaken by the Borough in deciding to sell the System was
23 public. I cannot stress this enough. Every part of this process was transparent. Moreover,
24 the Borough conducted two separate public forums involving the Borough, PEL, financial

1 advisors, legal advisors and Aqua on October 19, 2020 and October 26, 2020 soliciting public
 2 comment and presenting the goals and benefits of the transaction. !!

3
 4 **Q. Please describe the process by which the Borough solicited bids for the System.**

5 A. On September 6, 2017, the Borough was still considering selling both the sewer system and
 6 System and sent out a Request for Expressions of Interest. Aqua, Pennsylvania-American
 7 Water Company (“PA American”) and SUEZ Water Pennsylvania Inc. (“Suez”) responded.
 8 The Schuylkill County Municipal Authority (“SCMA”) communicated to the Borough’s team
 9 that the significant investment in capital improvements could not be passed along to its other
 10 customers and therefore would need to be absorbed within the Borough, if SCMA were to
 11 entertain any arrangement for the System. SCMA was told that the customers in the Borough
 12 could not afford that outcome, and thus they were the first to drop out of the process.

13 As stated above, the sewer system problems began to resolve themselves after low
 14 interest loans and grants were obtained so, the focus was on the System. The Borough and
 15 MABS received a study from AUS in 2018 and applied for a Phase III EIP grant from the
 16 Commonwealth to pay the professionals to begin the RFP process for the System. In May
 17 2019, Borough Council authorized the issuance of a RFP.

18 On June 20, 2019, the Board of MABS unanimously authorized the issuance of a RFP.
 19 The RFP was distributed at the end of June 2019 and included the following terms as guidance
 20 for the bidders to make their offer, which priorities are listed below by order of importance:

- 21 1. Protection of the interests of MABS’ employees to the greatest extent possible.
- 22 2. Address significant capital investment needs to maintain the System in a state
 23 of good repair for all customers.
- 24 3. Mitigate rate increases that Borough customers will pay in the future in light

1 of such significant investments expected to be made in the System.

2 4. Stabilize finances.

3 5. Purchase Price.

4 Each of the three interested parties had an opportunity to take a site visit of the water treatment
5 facilities, the dams and the reservoirs. Several rounds of written questions were fielded by
6 the Borough's professionals and written answers went to each of the three remaining parties.
7 After receiving the bids, the Board was given a summary of the two proposals received (Suez
8 eventually determined not to submit a bid). Based upon the priorities set forth by MABS and
9 the Borough, it was determined that the Borough would begin to negotiate an asset purchase
10 agreement with Aqua. Negotiations continued through June 2021 and an Asset Purchase
11 Agreement was signed in July 2021.

12
13 **Q. Please describe the process that the Borough used to hire a Utility Valuation Expert**
14 **(“UVE”) for the transaction.**

15 A. The Borough authorized its financial advisor to seek proposals from multiple Utility Valuation
16 Experts. Bids were solicited from four different UVEs. On July 27, 2022 the Borough
17 awarded the contract to ScottMadden, Inc. pursuant to its proposal, dated July 15, 2022.

18
19 **IV. BENEFITS OF THE PROPOSED TRANSACTION**

20 **Q. Please describe the benefits of the Proposed Transaction for the Borough.**

21 A. MABS has been struggling for years to pay its debt, to pay for proper operations and to find
22 some money to pay for much needed capital improvements. MABS could not pay its loan to
23 PennVest and had to obtain multiple deferrals, and more recently restructured its debt in a
24 very expensive way just to be able to afford some basic meters and capital improvements.

1 Aqua will be able to use its financial wherewithal, purchasing power and experience to finally
2 make the improvements necessary for the Borough to enjoy safe, reliable water into the future.
3 Aqua can spread these costs over a much larger customer base than MABS could, and thus
4 we expect that while rates would have gone up either way, they will go up less with Aqua
5 owning the system than they would have with MABS. In addition, the professional
6 management that the System will enjoy should benefit the Borough in numerous ways.

7
8 **Q. Please describe any further benefits from the Proposed Transaction.**

9 A. The Borough expects to realize additional benefits from the sale of the System to Aqua. These
10 benefits include:

- 11 • The MABS customers will benefit from Aqua's capital improvement programs, and
12 its experience in improving and correcting systems with protracted operating issues.
- 13 • MABS customers will benefit from enhanced customer service and operational
14 functions through expanded customer service hours, additional payment options
15 (including by text), access to Aqua's newly approved low-income assistance program,
16 and Aqua's team of experienced water and wastewater professionals;
- 17 • Aqua's capability to make long-term investments in necessary capital improvements
18 to the aging System;
- 19 • Aqua's proven record of environmental stewardship for the operation of water systems;
20 and
- 21 • The Borough expects, after paying off MABS' debt, and reserving sufficient amounts
22 for MABS' post-employment benefits and accrued pension obligations, to have funds
23 available from the proceeds of the Proposed Transaction for capital improvements in the
24 Borough and for other benefits to its citizens as determined at a later date.

1 **Q. Do you believe that the Proposed Transaction provides affirmative public benefits and is**
2 **in the public interest?**

3 A. Yes. For the reasons set forth above, I believe that the Proposed Transaction provides
4 substantial affirmative public benefits and is in the public interest. I urge the Commission to
5 promptly approve the Proposed Transaction.

6

7 **V. RATES**

8 **Q. How does MABS set the rates it charges customers for water usage?**

9 A. Rates are governed by the Municipalities Authority Act. The applicable rates for MABS are
10 established by the Board, and may be amended as the Board deems appropriate.

11

12 **Q. How frequently does the Authority adjust rates?**

13 A. Rates have only been increased when absolutely necessary. For example, the rates were last
14 raised in 2020, which was four years after they had been previously raised, on October 1,
15 2016.

16

17 **VI. CONCLUSION**

18 **Q. Does this conclude your Direct Testimony?**

19 A. Yes, it does. However, I reserve the right to file additional or supplemental testimony at a
20 later date as may be necessary or appropriate.

**A FIVE-YEAR
FINANCIAL, MANAGEMENT, AND OPERATIONAL
REVIEW AND STRATEGY FOR
SHENANDOAH BOROUGH**



PENNSYLVANIA
ECONOMY LEAGUE
Information, Insight, Integrity.

Prepared under a Grant from the
Pennsylvania Department of Community and Economic Development
Early Intervention Program

Prepared by:

Pennsylvania Economy League, Central PA, LLC
W. Ronald Smeal
Civic Research Alliance

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CHAPTER 4 AUTHORITIES

Introduction

As recently codified in the amended Municipalities Financial Recovery Act, the Early Intervention Program (EIP) is designed as a preemptive step to identify critical issues and provide strategies that the municipality can implement in order to avert a fiscal crisis that could threaten the health, safety and welfare of the community's citizens and those of the Commonwealth at large. Shenandoah currently faces a looming crisis in the form of its municipal water and sewer authorities, neither of which possesses adequate funds to operate and make the upgrades required to provide citizens with these vital and necessary services. This situation has placed the Borough's water and sewer infrastructure in jeopardy. Ultimately, Shenandoah, which created the authorities and is guarantor on their loans, bears the responsibility to its residents for ensuring that the water and sewer infrastructure is maintained.

Municipal Authority of the Borough of Shenandoah (MABS)

The MABS, which supplies water to the Borough and the surrounding community, lacks the necessary revenues to both pay current expenses and fund upgrades that are needed for continued operation. The authority's customer base is declining, and its delinquency list totals almost 200 customers, owing approximately \$163,000. A high percentage of these delinquents are related to past due bills on the abandoned properties that dot the Borough. Shutting off water service to force payment from occupied housing units is often difficult given that shut-off valves often service more than one property. In 2014, both pumps that carry water from the reservoir to the system broke down, necessitating a costly replacement. The Authority sought and received a six-month deferral on outstanding PennVest loans but was further plagued by expensive repairs when numerous pipes ruptured over the winter of 2014-2015. As a result, the Authority requested additional deferral of the PennVest payments, which total \$38,330 per month. The Authority is being kept marginally afloat through annual revenue of approximately \$100,000 that it receives from land leased to a windfarm. The most recent Authority audit for the year ending Sept. 30, 2013 shows a net operating loss of \$108,974. Estimated revenues and expenditures for fiscal 2014-2015 indicate an \$110,382 deficit. As a result, the rates and expenditures of the Authority must be examined to ensure that adequate funds are being collected for the authority to

operate and that expenditures are necessary and justified. In reviewing adequate funding, the Authority must consider the cost of daily maintenance and operations, annual loan payments and the need for long-term capital improvements. (See Table 4-1.)

Table 4-1
Municipal Water Authority
Revenue, Expenditures, Surplus/(Deficit)
2014-2015

	Act	Act	Est	Est	
	2014	2015	2015	2015	2014-2015
REVENUE	Oct - Dec	Jan - Mar	Apr-Jun	Jul-Sept	FY Total
Billing Revenue	419,254	404,876	447,343	437,091	1,708,563
Lease Revenue	146	300	300	200	946
Miscellaneous Revenue	29,915	2,599	18,047	8,773	59,334
Windfarm Revenue & Tax Reimbursement	0	100,328	0	0	100,328
Total Revenue	449,314	508,103	465,690	446,064	1,869,171
EXPENSES					
Administrative	33,324	8,259	13,962	21,463	77,008
Depreciation	0	0	0	400,000	400,000
Distribution	24,144	99,772	116,312	11,622	251,850
Equipment and Maintenance	161,919	47,368	61,904	16,703	287,893
Interest	43,082	0	24,544	27,768	95,393
Miscellaneous Expense	1,989	683	353	78	3,103
Windfarm Expense	0	15,335	0	28,918	44,253
Payroll	91,477	117,913	89,490	104,638	403,518
Professional Services	119,679	62,756	69,396	65,275	317,107
Utilities	49,393	89,581	92,234	49,496	280,705
Vehicle	3,369	2,225	4,968	2,766	13,329
Total Expense	528,377	443,891	473,164	728,727	2,174,159
Net Income	-79,063	64,212	-7,474	-282,663	-304,988
Add Back:					
Depreciation	0	0	0	400,000	400,000
Interest Expense	43,082	0	24,544	27,768	95,393
EBITDA	-35,981	64,212	17,070	145,104	190,406
Less: Debt Service	27,284	27,284	103,945	142,275	300,788
Surplus/(Deficit)	-63,265	36,928	-86,874	2,829	-110,382
Note: RUS Loan \$27,284 per quarter					
Pennvest payments start again in May 2015. (\$38,330.37 per month)					

Summary: Independent Evaluation of the Municipal Authority of the Borough of Shenandoah
Prepared by Aurel M. Arndt, Consultant
See Appendix A for full report

The Municipal Authority of the Borough of Shenandoah (MABS) Water System (System) serves approximately 3,000 residential and business customers located in Shenandoah Borough and surrounding municipalities located in Schuylkill County, PA. The system is supplied by filtered surface water sources located in communities surrounding the Borough. As described more fully below, the system assets are aged and in need of significant improvement or replacement. The area and System have significant economic and demographic challenges.

The purpose of this report is to examine the condition of the System and recommend a course of action to provide sustainable and affordable water service to the customers of MABS.

Financial Conditions

In recent years MABS has experienced significant deteriorating financial conditions:

- Cash levels have dropped significantly to the point that there is essentially no reserve for unexpected operational costs or investment in capital improvements;
- Account receivable levels have risen dramatically reflecting significant problems with collection of customer billings on a timely basis to pay current operational and debt service obligations;
- Investment in capital improvements has been minimal despite aged infrastructure which drives heightened operational expenses to maintain service to customers; and
- Owing to increased operational costs, operating margins which would provide some funding for system improvements have diminished.

In recent years these financial challenges have been aggravated by use of borrowed funds to cover current operating expenses thus passing on past costs plus interest to future years.

System Assets/Conditions

The age and condition of System assets increases operational expenses and contributes to the financial challenges listed above.

Non-revenue water is estimated to be about 60% of finished water production with unaccounted for water estimated to be in the range of 25% to 30% of water produced; this

suggests that the water supply cost could be reduced significantly including reduction of variable costs such as power, chemicals, personnel and maintenance services.

The system includes approximately 56 miles of aged mains, which on average equates to about 105 feet of main per customer. Assuming a typical main replacement cost of approximately \$125 per foot, each customer would bear an average main replacement cost of \$11,000 or an additional annual cost of \$900 (assuming the replacement is financed over a 20 year time span). In addition, this cost and current operating expense are unnecessarily high because in some areas there are dual parallel mains which results in doubling current distribution operating costs.

The system meters are reaching the end of their useful life. Typically this means a replacement cost of \$200 to \$300 per customer for a residential use, with higher costs for commercial and industrial users. This suggests a \$1,000,000 +/- expenditure to update meters. If an automated meter reading capability is included the estimated cost will rise by 20% to 30%. Industry norms indicate that meter replacement will produce a 3% to 5% revenue boost. In the MABS case, this would produce a \$50,000 annual revenue boost, which would justify approximately 50% to 60% of the meter replacement cost.

In addition, the service line configuration often does not facilitate collection of past due accounts receivable because multiple units are served by a single service lines. These circumstances include both multiple tenants and multiple owners served by a common line.

Finally, the filtration plant constructed in response to Pennsylvania's Surface Water Treatment Rule is reaching the end of its life expectancy. As an example, spare parts for some of the plant components are no longer available which results in cannibalizing some units to maintain operations of others.

Authority Management

This review included observations that MABS is lacking key elements necessary to effectively and efficiently manage its facilities and responsibilities. These include a lack of a long range plan to guide and address the future System challenges and needs in a thoughtful and workable way. As a consequence, matters are sometimes addressed in a crisis mode which leads to costly and wasteful measures that could otherwise be avoided or better executed. It also appears that MABS lacks the managerial, technical and financial (MTF) capacity necessary to

ensure reliable and sustainable service typically sought by regulatory agencies. Finally, it appears that there is no clear definition of expectations, responsibility and authority to guide the Board and the staff in performing their duties in a constructive and cohesive fashion.

Customer Base Affordability

Based on US Census data, 30.7% of households in Shenandoah are below the poverty level. Under criteria used by EPA and others, 2% of median household income on a communitywide level is considered to be the threshold at which the annual cost of water service becomes unaffordable. Data for Shenandoah indicates a median household income of approximately \$28,071 per year, which produces an affordability limit of \$561 per year. For the average water customer who uses 9000 gallons per quarter the annual charge would equal \$530 per year which is barely within the affordability limit. If rates were increased to the full affordability limit, a rate increase of approximately 6% would result. Assuming that rates are increased 6% for all customers, approximately \$108,000 of additional annual revenue would be realized, which could be utilized to fund System capital improvements. Assuming this additional revenue is dedicated to paying interest and principal for 30 years at 5% on funds borrowed to finance capital improvements, borrowing approximately \$1.65 million could be justified. While that would be a good first step to fund needed capital improvements, it would cover only a small portion of the needed investment.

It is also important to note that 43% of households in Shenandoah have incomes below \$20,000 per year, which means that those households have already exceeded the 2% affordability limit (\$400 per year or less for customers at that income level or below). The consequence of this affordability constraint is likely reflected in the increasing level of accounts receivables (A/R) outstanding and any increase in rates will likely expand the number of customers above the affordability limit and drive past due A/R even higher.

Ownership and Operations Options

Four options were considered to address System ownership and operations (O/O) at a sustainable and affordable level:

- Continued O/O by MABS;
- Continued ownership by MABS and with operations performed by a contract operator;

- Leasing the System to another system who would be responsible for all capital improvements and operations for an extended period of time (sometimes called a concession); and
- Transferring O/O to another system.

In evaluating these options, the following criteria were given significant weight:

- Any significant opportunity to reduce operational costs and improve the quality of service including reducing unaccounted water loss is primarily dependent on making significant capital improvements to the System;
- There is no capability given the current MABS financial condition to fund needed capital improvements or procure the funds for such improvements;
- Given the income and demographic circumstances in the service area, increasing rates to a level sufficient to fund the necessary capital improvements is unworkable.¹
- An entity with a strong credit rating and financial base, a larger customer base and proven operational capability will be able to procure the necessary capital at better rates and absorb the incremental cost by spreading it across a larger rate base.

In evaluating the options, one public and two investor-owned water utilities were contacted to explore their perspective on the above options. Their preferred approach in all cases was to pursue ownership and full operational responsibility. Feedback also indicated that the small system size would make an operations contract and the lease arrangement uneconomical. Further, under an operations contract or lease the full cost of service would fall exclusively on the existing MABS customer base and preclude any opportunity to spread costs over a larger rate base.

Given these criteria, transfer of ownership to a larger, established water utility, preferably one operating in close proximity to the System could reap the most benefits. If Shenandoah decides to pursue this plan, a Statement of Qualifications (SoQ) should be solicited from established utilities operating in north central Pennsylvania. Utilities submitting a SoQ meeting

¹ In theory, Shenandoah Borough could subsidize the System to cover any revenue shortfall resulting from needed capital costs or operational expenses. However, given the community economy and demographics, it appears unlikely that the Borough could bear that obligation. A more detailed analysis of the Borough's ability and willingness to provide that a subsidy of that nature is beyond the scope of this Report.

MABS criteria should be invited to submit a proposal outlining the basis under which the utility proposes to take ownership and operate the System. To facilitate the proposal process MABS should prepare a Request for Proposals (RFP) outlining the process and critical service requirements.

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Municipal Sewer Authority

The Authority has received numerous violation notices from the state Department of Environmental protection for deficiencies, with more than half of the violations issued since 2011 occurring in the last year. At a recent meeting between DEP, the Borough and the Authority, DEP officials cited a number of issues with the sewer collection system and the 1970s era plant, which is believed to have outlived its lifespan. The Authority is experiencing these issues despite the best efforts of the plant manager and staff to patch the existing problems. The system is overloaded both organically and hydraulically, and it is unclear if the Authority is meeting the Combined Sewer Overflow (CSO) Nine Minimum Controls. The situation is expected to require institution of a pretreatment program or supplemental charges for industrial users through the U.S. Environmental Protection Agency (EPA) that will necessitate a review and potential amendment of current Borough sewer ordinances. In addition, the Authority must prepare a new application for its permit, which expires in 2016. The Borough obtained a USDA planning grant as a precursor to applying for additional funds to make the necessary capital improvements, which ultimately will require significant rehabilitation or replacement of the plant. It is imperative that the Authority take proactive steps to correct the situation before it escalates to the point that the EPA is forced to take action. In that regard, DEP issued the following suggested improvements for the wastewater treatment plant:

1. Concrete repairs are desperately needed for the Head works, Primary and Secondary Clarifiers, and Aeration Tanks.
2. The effluent flow meter requires laminar flow for correct measurement. A stilling well is highly recommended if the transducer is to remain in the same location.
3. The hydraulic loading to the final clarifiers is not even. They should receive the same hydraulic flow to prevent short-circuiting. The splitter box valve should be replaced.
4. Currently, positive sludge withdrawal from the final clarifiers does not appear to be happening, and the piping may need to be reworked.
5. Weir replacement in all three clarifiers (one primary and two finals) is needed.
6. Due to the old age of the blowers (over 40 years), they should be replaced, and the air delivery to the aeration tanks should ideally be controlled by DO concentrations. This will reduce the plant's electricity costs. If fine bubble diffusion is chosen, the blower size can be reduced.

7. The gas chlorine system should be replaced with liquid sodium hypochlorite and should be tied into the effluent flow meter for flow pacing.
8. The forward flow into the chlorine contact tanks should be checked to make sure that each side is receiving the same volume of flow.
9. The chain in the grit collector needs immediate replacement.
10. The bar screen needs to be replaced.
11. The digester thickener scum box and arm need to be replaced.
12. All influent pumps are leaking, and should be rebuilt. These are very old.
13. There are numerous safety-related concerns around the plant, such as confined space entry and slip, trip, and fall hazards. It is recommended that a safety inspection be conducted.
14. There is no back-up for the influent VFDs. A manual override should be incorporated into the design.
15. The digester roof is leaking into the plant lab. This should be corrected immediately.
16. There should be one dedicated pump for RAS, and one dedicated pump for WAS.
17. The air diffuser system in the plant head works needs to be replaced.
18. There are various valves in the pump house that should be replaced.
19. The six-inch telescoping valve on the primary clarifier sludge line is leaking. This should be replaced ASAP.
20. The sludge thickener overload alarm should be replaced, along with the weir.
21. The sludge thickener skimmer arm and scum hopper should be replaced.
22. Fine bubble aeration should be provided to aeration tank #2, along with the capability to provide for air adjustment.
23. The two telescoping valves for the final clarifiers need to be replaced.
24. The return sludge seal for the secondary clarifiers needs to be replaced.
25. The chlorine building scale needs to be calibrated.

26. The chlorine building doors and roof need to be completely replaced.

27. In general, all inner-workings of all three clarifiers need to be replaced.

Source: Pennsylvania Department of Environmental Protection

Conclusion

Shenandoah's critical infrastructure is in jeopardy. In the case of the Municipal Water Authority, the main problem is that current rates cannot sustain operational costs, while issues at the Municipal Sewer Authority center on compliance and regulatory issues. It is the Borough's responsibility to ensure that vital and necessary services like water and sewer are provided to its citizens. In order to maintain the provision of these services in a manner that is safe and efficient for citizens and the environment, the Borough should obtain legal guidance and further state financial assistance to explore its existing possibilities for these assets. The analysis should study potential monetization as well as the various options outlined in the independent Aurel Arndt report that is included in this chapter.