

PWSA Infrastructure Problems are Getting Worse

Summary: The Pittsburgh Water and Sewer Authority (PWSA) has a host of problems that will require large amounts of capital—both monetary and political—to solve. The century old system is in dire need of replacement but the PWSA is deeply in debt and will have great difficulty raising the revenue and capital necessary to complete such a large project.

The PWSA has been beset by problems this year continuing a trend dating back several years. This year alone the PWSA issued a boil water advisory, had a problem at a pumping station, and then a break in a water main that leaked 10,000 gallons a minute before it was diagnosed and stopped. Repairing the break will cost an estimated \$1.7 million. This break is very worrisome as it may just be the beginning for a water system with pipes dating to the early twentieth century.

Pittsburgh's Mayor has suggested looking to outside sources for help and has convened a panel to look into the issue. The plan would be for the City to retain ownership of the system and have an outside firm come in that would not only manage the system, but foot the bill for replacing it. In return this firm would be allowed to keep any revenues. However, there are four major obstacles to this plan being successful. First, the cost of replacing the entire system (water and sewers) has been estimated to be above \$2.5 billion. Second, the system is very old—well past its design life—and as such is subject to an unknowable failure rate (and unpredictable future year capital and repair costs). Third, the PWSA has a very heavy debt load—\$763 million according to their 2015 audited financial statements. Fourth, the PWSA has had negative net income with operating costs and debt service payments exceeding revenue in both 2015 and 2016. Not exactly a resume that will have suitors beating down the door. Who would contemplate pouring billions into an economic entity that is losing money and whose maintenance and repair costs could swell losses for years to come and long before the infrastructure replacement can be completed?

Bear in mind that the system's oldest reservoir, Highland Park #1, was constructed in 1879 and that the system's oldest pipes and valves date back to 1887. It has been estimated, by an engineering firm who completed a study of the system that most of the cast iron pipes are over 70 years old—about the life expectancy of such pipes. The water

system's inventory includes four in-ground reservoirs, twelve above ground storage tanks, the Aspinwall filtration plant, a membrane filtration plant (Highland Park # 1) and 1,012 miles of water lines ranging from one to 120 inches in diameter. There are also 25,330 valves and 7,558 hydrants. This inventory was compiled as part of the engineering firm report's 40-year plan released by the PWSA in 2012. The estimated cost to replace the entire water system (at 2011 prices) was \$1.25 billion.

The engineering firm recommended a timeline at which the work would be accomplished in eight, five year periods. Their report also recommended the PWSA embark on a program to spend \$14.8 million per year to rehabilitate and replace medium to high risk mains over the next 40 years. PWSA plans \$60 million in capital spending for 2017. To date however, the 40 year plan has not been implemented, with PWSA staff telling the City Controller that the 40 year plan was just a "wish list" and was not adopted as an actual plan.

While the PWSA does not process sewage, it does have conveyance lines to the ALCOSAN system. The sewage system comprises 1,211 miles of sewer lines, 29,084 manhole covers, 24,143 catch basins, 99 diversion structures, and four sewage pump stations. The cost of replacement for this system is another \$1.26 billion. The total bill for replacing the entire water and sewer system, as estimated in the 40-year plan, was pegged at about \$2.51 billion—again at 2011 prices.

The average age of the pipes and the recent pattern of large and expensive breaks cast doubt on the 2015 audit's \$583 million estimate of the value of PWSA's depreciated capital assets. To be blunt, with the rapidly deteriorating, very old pipe system, it is hard to believe that the PWSA's capital assets are worth \$583 million dollars and that the net negative balance sheet position is only \$36 million. The repair and replacement costs are likely to soar in the coming years making the system worth only what net income would justify and net income will likely be negative for a long time as spending rises sharply

Here is the key question: Would a water company (or any other firm) be interested in entering into an agreement to lease the PWSA with the requirement to replace the very old infrastructure in return for the right to operating revenues?

A prospective bidder would look at recent performance data as well as long term financial information. To wit, data from the PWSA's 2017 budget shows 2015 actual operating expense (\$122 million) and receipts (\$172 million) for net operating income of \$49.8 million. However, when debt service of \$52.6 million is included (principal and interest payments) it brings total expenses to \$174.8 million. Thus the net income for 2015 was a loss of \$2.8 million. The revised 2016 budget called for a decrease in operating costs (\$182.4 million, down from \$185.7 million) combined with a small revenue increase (\$184 million, up from \$180.8 million) that would reverse the loss and produce net income of \$1.65 million.

Even though small changes to costs and receipts made 2016 look better than 2015, the amount of debt service remains very high at \$53.7 million. The audited financial statements for 2015 show the PWSA with total debt (bonds and loans) of \$763.3 million.

The 2017 budget is even more optimistic about revenue thanks to an approved rate increase of 30 percent for water used and sewage conveyance. The flat rate charge for the first 1,000 gallons was raised only 15 percent to \$18.42 and the sewer flat rate was raised 34 percent to \$6.09. Significant further increases in both water and sewage conveyance rates are slated for 2018. Meanwhile, ALCOSAN has boosted its charge for sewage treatment by 11 percent in 2017, the fourth consecutive hike that has boosted the rate to \$6.90 per 1000 gallons of usage. A total monthly bill from PWSA for a residential customer using 3,000 gals of water per month and including Alcosan charges will exceed \$70, up about \$11 from 2016.

Total receipts are expected to increase to \$218.8 million in 2017 while expenses are scheduled to increase to \$151.4 million. Thus net operating income is forecast to be \$67.4 million. With debt service budgeted at \$53 million, net income will be about \$14.4 million. The PWSA plans to borrow \$60 million to spend on capital projects.

Projected net income at this level might be enough to entice bids to take over the PWSA, assuming the numbers come in close to budget projections and can be sustained in the face of greater expenditures in the future. Bear in mind however, that the company would pay taxes on any profits—the authority does not have to pay income taxes. And depending on the terms of the lease, the company might have to pay property taxes as well. Then too the new operator would have to pour in huge amounts of capital to rebuild the system and having already taken responsibility for nearly \$800 million in authority debt, might find borrowing more money difficult or expensive unless it has deep pockets and considerable income from other holdings.

Unless a firm is given the authority to enhance future revenue numbers substantially as needed and has the power to cut operating expenses through personnel and other changes, it is unlikely there will be serious bidders. Even a modest 20 year plan for completion will require outlays of \$125 million per year (not including inflation and/or major cost overruns) and no significant rise in other operating costs. If borrowed in tranches and paid for over 40 years, the full \$125 million per year would not have to be generated immediately but rates would have to rise sharply for several years to make the program viable wherein borrowing could occur and residential bills could double with comparable increases in commercial and industrial users' bills. And that is before the firm makes any profit.

The City Controller in his recent performance audit echoed the engineering firm's findings that the fix will be very costly and take many years. He also recommended the PWSA "establish a realistic and comprehensive line replacement plan of action for both the water and sewer lines."

In light of the severe problems and the probability of significant failures increasing with every passing year, dramatic actions are needed to keep Pittsburgh's crucial water and sewer systems capable of supplying the City's requirements.

One, the PWSA needs to complete interior inspection of all large pipes and then catalog the most likely to fail pipes and valves for immediate attention. They then need to create and implement a plan for replacement or upgrade for all system infrastructure and equipment older than 70 years (the average life span of cast iron pipes) or with a high probability of failure in the next 15 years.

Two, to fund these capital projects, the PWSA should put in place scheduled water and sewer rate increases to build sufficient capital reserves to complete the necessary upgrades. Once those rate hikes has been authorized, they should look for large water and sewer firm (or other suitable management firm) to take over the PWSA.

By way of comparison, for a residential customer the Pittsburgh monthly charge for water and sewer for 4,000 gallons per month will be \$90. In Philadelphia that volume will cost just over \$59—with an add-on \$14 storm water fee. Seattle, DC, San Francisco are \$100 per month or higher, while Cincinnati, Cleveland, Charlotte and many other cities are at \$70 or lower. In sum, PWSA is not the highest cost among the bigger cities but is moving closer to that group. And that means the needed push to raise prices and revenues will be exceedingly difficult politically.

Given the current multitude of problems at the PWSA, it is unlikely a buyer or potential partner can be found who would be willing to absorb the risks posed by the aging system and the high water and sewer charges already in place. A new management firm, without the authority to make substantial personnel and operational changes and with no ability to increase revenues significantly through rate hikes will be unable to correct the major infrastructure problems at the PWSA.

In the worst case scenario wherein a firm to take over cannot be found, the City might have to take back ownership of the water and sewer system and find new sources of revenue or divert existing city funds to supplement usage charge revenue in order to have the funds necessary to begin the badly needed replacement.

Frank Gamrat, Ph.D., Sr. Research Assoc.

Jake Haulk, Ph.D., President

*Policy Briefs may be reprinted as long as proper attribution is given.
For more information about this and other topics, please visit our website:*

www.alleghenyinstitute.org

<p>Allegheny Institute for Public Policy 305 Mt. Lebanon Blvd.* Suite 208* Pittsburgh PA 15234 Phone (412) 440-0079 * Fax (412) 440-0085 E-mail: aipp@alleghenyinstitute.org</p>
