# Allegheny County Sanitary Authority

## Financial Statements and Required Supplementary and Supplementary Information

Years Ended December 31, 2015 and 2014
with Independent Auditor's Report

MaherDuessel
Certified Public Accountants

Pittsburgh | Harrisburg | Butler

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# ALLEGHENY COUNTY SANITARY AUTHORITY

YEARS ENDED DECEMBER 31, 2015 AND 2014

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Independent Auditor's Report

Board of Directors
Allegheny County Sanitary Authority

We have audited the accompanying financial statements of Allegheny County Sanitary Authority (Authority), as of and for the years ended December 31, 2015 and 2014, and the related notes to the financial statements, as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

**Auditor's Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Authority's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

**Opinion**

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Authority as of December 31, 2015 and 2014, and the respective changes in financial position and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

***Change in Accounting Principle***

As described in Note 2 to the financial statements, the Authority adopted Governmental Accounting Standards Board (GASB) Statement No. 68, *"Accounting and Financial Reporting for Pensions"* and Statement No. 71, *"Pension Transition for Contributions Made Subsequent to the Measurement Date"* which requires the Authority to record its net pension liability and related items on the financial statements. Our opinion is not modified with respect to that matter.

**Other Matters**

*Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, the pension plans' schedules, and other post-employment benefits information on pages i through xiii, pages 32 through 33, and pages 34 through 35, respectively, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Other Information*

Our audits were conducted for the purpose of forming an opinion on the basic financial statements as a whole. The schedules of investments and other assets are presented for purposes of additional analysis and are not a required part of the financial statements.

The schedules of investments and other assets are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.

Maher Duessel

Pittsburgh, Pennsylvania
March 22, 2016

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### AUDIT ASSURANCE

The unmodified (i.e., clean) opinion of our independent auditors, Maher Duessel, Certified Public Accountants, is included in this report. You will note that the Allegheny County Sanitary Authority (Authority) has included for 2015 this Management Discussion and Analysis section, which is in compliance with Statement No. 34 of the Governmental Accounting Standards Board.

### FINANCIAL HIGHLIGHTS

Allegheny County (County) is located in Southwestern Pennsylvania and encompasses approximately 730 square miles of land. Founded in 1788, the County is the second most populated county in Pennsylvania, with over 1.2 million residents. Roughly 25% of the County's residents live within the City of Pittsburgh. The Allegheny and Monongahela Rivers flow through the County to form the Ohio River in downtown Pittsburgh.

#### Economy

The County is the location of six Fortune 500 corporate headquarters. The County's 2015 Fortune 500 companies include: U.S. Steel (176), PNC Financial Services Group (192), PPG Industries (198), H.J. Heinz (272), Wesco International, Inc. (360), and Dick's Sporting Goods (393). The County has experienced substantial growth in areas such as technology, tourism, and health care. The County is also a strong supporter of its manufacturing industries and has traditionally been one of the major industrial centers of the world with its access to major fields of coal and shipping access to 8,000 miles of navigable rivers. The Port of Pittsburgh is the second largest inland port in the nation. There is annual benefit to the region of over $800 million dollars for the shipping and receiving of over 35 million tons of cargo.

The County has undergone an economic transformation spanning more than three decades with a shift from the manufacturing industry to the service and trade industries. Specifically, the new focus industries have been healthcare and life sciences, advanced manufacturing, energy, information and communications technology, and financial and business services. This shift is attributed to the continuing diversification of the employment base.

The region's health services sector employs nearly 140,000 people and is a robust network that is cultivating lifesaving technologies, regenerative medicine, and pharmaceuticals. The University of Pittsburgh Medical Center is a $10 billion global healthcare enterprise and is the region's top employer, with more than 43,000 employees. Bayer HealthCare, United Healthcare and Allegheny Health Network are also part of this sector.

According to the Pittsburgh Regional Alliance, Pittsburgh is the third largest advance technology research and development center in the country. The Pittsburgh Technology Council has identified information technology, biomedical technology, environmental technology, and advanced manufacturing as the region's primary high-tech industries.

Pittsburgh is a major banking center. The PNC Financial Services Group has its headquarters in the County. Pittsburgh is also a branch office for the Cleveland District of the Federal Reserve System.

Adding to the County's diverse labor and business climate, some of the most prestigious health, educational, and cultural institutions in the country are located here. The County's colleges and universities include Carnegie Mellon University, Carlow University, Chatham University, Community College of Allegheny County, Duquesne University, La Roche College, Point Park University, Robert Morris University, the Art Institute of Pittsburgh, and the University of Pittsburgh. The County is also home to more than fifteen junior and technical colleges.

In 2015, non-manufacturing industries accounted for over 90% of the Pittsburgh metropolitan statistical area (MSA) employment base. The loss of once dominant, heavy water-use manufacturing such as steel and food processing has had a negative impact on the Authority's residential users. Decline in regional manufacturing over the years has shifted a significant portion of the Authority's cost burden to residential users, who have declined as well over the past decade. This decline in consumption base, combined with outside regulatory emphasis on reducing overflows, will have a dramatic impact on rates for years to come.

- Billed flow for 2015 of 21,981,350 tgal (thousands of gallons), increased by 458,012 tgal. This represents the first increase in billed consumption since 2012 in both commercial and non-commercial billings.

- In 2015, the Authority treated 70,035,400 tgal of which 21,981,350 tgal was billed. Stated differently, the Authority billed for 31.39% of the water it treated. During 2014, the Authority treated 70,015,700 tgal for which it billed 21,523,338 tgal, or 30.74% of what was treated was actually billed to customers. The difference between what is treated vs. that which is billed is attributed to direct inflow of storm water from combined sewer communities served and groundwater infiltration into the system from old and deteriorating sewer lines throughout the service area.

- The Authority maintained compliance with all debt covenants required by the governing Trust Indentures.

- Debt Service Coverage, when allowing for available Revenue funds on hand at the beginning of the year was 2.62, which exceeded the 1.10 Trust Requirements. In addition, stand-alone coverage without consideration to beginning balances was 1.57, which exceeded the required 1.00 Trust Requirement. Improved coverage ratios achieved in 2015 were the direct result of the 11% rate increase implemented effective January 1, 2015.

- On October 24, 2013, the Board of Directors (Board) adopted multi-year rate structure increasing customer service charges 17 percent in 2014, 11 percent in 2015, 11 percent in 2016, and 11 percent in 2017.

## REQUIRED FINANCIAL STATEMENTS

The financial statements of the Authority report information about the Authority's use of accounting methods that are similar to those used by private sector companies. These statements offer short-term and long-term financial information about its activities.

The balance sheet includes all of the Authority's assets and liabilities, and provides information about the nature and amounts of investments in resources (assets) and obligations to Authority creditors (liabilities). It also provides the basis for computing rate of return, evaluating the capital structure of the Authority, and assessing the liquidity and financial flexibility of the Authority.

All of the current year's revenue and expenses are accounted for in the statement of revenues, expenses, and changes in net position. This statement measures the success of the Authority's operations over the past year and can be used to determine whether the Authority has successfully recovered all its costs through its sewage disposal rates and other fees. As required under the Authority's Trust Indentures, the Consulting Engineer, Chester Engineers, has reviewed the rate structure and agrees that an 11 percent rate increase in 2016 is necessary to meet requirements of the Trust Indenture and financial obligations imposed under the federal consent decree rate model structure.

The final required financial statement is its statement of cash flows. The primary purpose of this statement is to provide information about the Authority's cash receipts and cash payments during the reporting period. The statement reports cash receipts, cash payments, and net changes in cash resulting from operations, investing, and financing activities, and the change in cash during the reporting period.

The notes to financial statements provide required disclosures and other information that are essential to a full understanding of material data provided in the statements. The notes present information about the Authority's accounting policies, significant account balances and activities, material risks, obligations, commitments, contingencies, and subsequent events, if any.

## SUMMARY OF ORGANIZATION AND BUSINESS

The Allegheny County Sanitary Authority was incorporated in May 1945 under the Commonwealth of Pennsylvania Municipality Authorities Act of 1945. Plant operations began on April 30, 1959. The Authority serves as the exclusive agency for the collection, transportation, and treatment of wastewater for the City of Pittsburgh and 82 neighboring municipalities. The Authority charges users for processing of wastewater at a flat rate per thousand gallons. Additional charges are levied for septage (solid waste removed from septic tanks), and industrial waste discharges into the system.

In addition to the main treatment site located on the City of Pittsburgh's Northside, the Authority operates and maintains over 85 miles of interceptor sewers, and seven pumping or ejector stations throughout the service area. The Authority's service area covers over 310 square miles and includes portions of Washington and Westmoreland Counties in addition to the County.

The Authority's Articles of Incorporation (Articles), as amended, provide that the Authority's Board shall consist of seven members serving staggered five-year terms. Pursuant to the Articles, three members of the Board are appointed by the County, three are appointed by the City of Pittsburgh, and one is jointly appointed by the County and the City of Pittsburgh. The day-to-day operation of the Authority is the responsibility of the Executive Director, who is appointed by the Board to carry out its policies.

## FINANCIAL ANALYSIS

The following comparative condensed financial statements and other selected information provides key financial data and indicators for management, monitoring, and planning.

**Condensed Statements of Net Position (Balance Sheet)**
**(In Millions of Dollars)**

| | 2015 | 2014 | $ Change | % Change |
|---|---|---|---|---|
| Current assets | $127.49 | $118.23 | $9.26 | 7.83% |
| Restricted assets | 140.67 | 65.14 | 75.53 | 115.95% |
| Unamortized prepaid bond costs | 8.13 | 7.59 | 0.54 | 7.11% |
| Plant and equipment, net | 586.25 | 585.11 | 1.14 | 0.19% |
| Capital fees receivable | 0.08 | 0.11 | -0.03 | -27.27% |
| Net pension assets | 4.70 | 0.92 | 3.78 | 410.87% |
| **Total Assets** | 867.32 | 777.10 | 86.44 | 11.12% |
| **Deferred Outflows of Resources** | 16.52 | 14.72 | 1.80 | 12.23% |
| Current liabilities | 39.85 | 39.66 | 0.19 | 0.48% |
| Long-term liabilities | 660.27 | 608.82 | 51.45 | 8.45% |
| **Total Liabilities** | 700.12 | 648.48 | 51.64 | 7.96% |
| **Deferred Inflows of Resources** | 5.42 | 0.00 | 5.42 | n/a |
| **Net Position** | $178.30 | $143.34 | $34.96 | 24.39% |

## Condensed Statements of Net Position (Balance Sheet)
## (In Millions of Dollars)

| | 2014 | 2013 | $ Change | % Change |
|---|---|---|---|---|
| Current assets | $118.23 | $103.17 | $15.06 | 14.60% |
| Restricted assets | 65.14 | 90.73 | -25.59 | -28.20% |
| Unamortized prepaid bond costs | 7.59 | 8.35 | -0.76 | -9.10% |
| Plant and equipment, net | 585.11 | 579.66 | 5.45 | 0.94% |
| Capital fees receivable | 0.11 | 0.15 | -0.04 | -26.67% |
| Net pension assets | 0.92 | 0.00 | 0.92 | 0.00% |
| **Total Assets** | 777.10 | 782.06 | -4.96 | -0.63% |
| **Deferred Outflows of Resources** | 14.72 | 11.53 | 3.19 | 27.67% |
| Current liabilities | 39.66 | 31.76 | 7.90 | 24.87% |
| Long-term liabilities | 608.82 | 636.84 | -28.02 | -4.40% |
| **Total Liabilities** | 648.48 | 668.60 | -20.12 | -3.01% |
| **Deferred Inflow of Resources** | 0.00 | 0.00 | 0.00 | n/a |
| **Net Position** | $143.34 | $124.99 | $18.35 | 14.68% |

## Condensed Statements of Revenues, Expenses and Changes in Net Position
## (In Millions of Dollars)

| | 2015 | 2014 | $ Change | % Change |
|---|---|---|---|---|
| Operating revenues | $142.83 | $126.63 | $16.20 | 12.79% |
| Non-operating revenue | 2.42 | 0.95 | 1.47 | 154.74% |
| Total revenues | 145.25 | 127.58 | 17.67 | 13.85% |
| Operating expenses | 63.56 | 61.48 | 2.08 | 3.38% |
| Non-operating expenses | 26.62 | 28.38 | -1.76 | -6.20% |
| Depreciation | 20.13 | 21.30 | -1.17 | -5.49% |
| Total expenses | 110.31 | 111.16 | -0.85 | -0.76% |
| Net income (loss) | 34.94 | 16.42 | 18.52 | 112.79% |
| **Net Position, Beginning of Year as Restated** | 143.35 | 126.93 | 16.42 | 12.94% |
| **Net Position, End of Year** | $178.29 | $143.35 | $34.94 | 24.37% |

## Condensed Statements of Revenues, Expenses and Changes in Net Position (In Millions of Dollars)

| | 2014 | 2013 | $ Change | % Change |
|---|---|---|---|---|
| Operating revenues | $126.63 | $109.65 | $16.98 | 15.49% |
| Non-operating revenue | 0.95 | 0.19 | 0.76 | 400.00% |
| Total revenues | 127.58 | 109.84 | 17.74 | 16.15% |
| Operating expenses | 61.48 | 59.10 | 2.38 | 4.03% |
| Non-operating expenses | 28.38 | 27.44 | 0.94 | 3.43% |
| Depreciation | 21.30 | 23.45 | -2.15 | -9.17% |
| Total expenses | 111.16 | 109.99 | 1.17 | 1.06% |
| Net income (loss) | 16.42 | -0.15 | 16.57 | 11046.67% |
| **Net Position, Beginning of Year** | 126.93 | 125.14 | 1.79 | 1.43% |
| **Net Position, End of Year** | $143.35 | $124.99 * | $18.36 | 14.69% |

* 2013 Net Position, End of Year does not reflect adjustment for implementation of GASB 68.

## OTHER SELECTED INFORMATION

| Selected Data: | 2015 | 2014 | | Difference | % Change |
|---|---|---|---|---|---|
| Authorized employees | 431 | 413 | | 18 | 4.36% |
| Actual employees at year-end | 373 | 352 | | 21 | 5.97% |
| Wastewater treated (billons of gallons) | 70,035 | 70,016 | | 19 | 0.03% |
| Wastewater billed (billions of gallons) | 21,981 | 21,523 | | 458 | 2.13% |
| Percentage of billed /treated wastewater | 31.39% | 30.74% | | 0.65% | 2.10% |
| Rates: | | | | | |
| Charge per 1,000 gallons of water consumption | $5.61 | $5.05 | | $0.56 | 11.09% |
| Account service charge per bill rendered | $11.78 | $10.61 | | $1.17 | 11.03% |
| Average customer bill: | | | | | |
| Per year | $338.84 | $305.04 | * | 33.80 | 11.08% |
| Per quarter | 84.71 | 76.26 | * | 8.45 | 11.08% |
| Per month | 28.24 | 25.42 | * | 2.82 | 11.08% |

* Based on 13,000 gallons per quarter

| Selected Data: | 2014 | 2013 | | Difference | % Change |
|---|---|---|---|---|---|
| Authorized employees | 413 | 401 | | 12 | 2.99% |
| Actual employees at year-end | 352 | 346 | | 6 | 1.73% |
| Wastewater treated (billons of gallons) | 70,016 | 70,288 | | -272 | -0.39% |
| Wastewater billed (billions of gallons) | 21,523 | 22,017 | | -494 | -2.24% |
| Percentage of billed /treated wastewater | 30.74% | 31.32% | | -0.58% | -1.85% |
| Rates: | | | | | |
| Charge per 1,000 gallons of water consumption | $5.05 | $4.32 | | $0.73 | 16.90% |
| Account service charge per bill rendered | $10.61 | $9.07 | | $1.54 | 16.98% |
| Average customer bill: | | | | | |
| Per year | $305.04 | $260.92 | * | 44.12 | 16.91% |
| Per quarter | 76.26 | 65.23 | * | 11.03 | 16.91% |
| Per month | 25.42 | 21.74 | * | 3.68 | 16.91% |

* Based on 13,000 gallons per quarter

## GENERAL TRENDS AND SIGNIFICANT EVENTS

The Authority entered into a Consent Decree with the United States Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection, and the Allegheny County Health Department on January 23, 2008. The Consent Decree requires reduction of Combined Sewer Overflows and elimination of Sanitary Sewer Overflows by September 30, 2026. The Final Wet Weather Plan Control Plan (WWCP) was submitted for regulatory review and approval on January 23, 2013.

The Authority is proposing a phased course of wet weather controls. The $2 billion Balanced Plan detailed in Section 10 of the WWCP is recommended for implementation by September 30, 2026, per the Consent Decree. This would be followed with subsequent phased improvements based on adaptive management principles that respond to evolving environmental, regulatory, and economic conditions.

As originally submitted, the Authority's Recommended Plan is comprised of the following key Program Elements as summarized below.

1. ***Complementary and Early Action WWP Projects*** - Without waiting on WWP approval, the Authority has already started or will implement several major projects at the Woods

Run wastewater treatment plant in preparation for upgrading the wet weather treatment capacity.

2. ***Woods Run Waste Water Treatment Plant (WWTP) Expansion*** - The Woods Run wastewater treatment plant wet weather treatment capacity will be expanded to 480 million gallons per day and the secondary treatment capacity will be expanded to 295 million gallons per day from its currently permitted full treatment capacity of 250 million gallons per day.

3. ***Tunnel Dewatering Pump Station*** – A 120 million gallons per day tunnel dewatering pump station will be constructed at the wastewater treatment plant to pump captured wet weather flows into the wastewater treatment plant treatment process from a proposed regional tunnel.

4. ***Ohio River Tunnel and Facilities*** - A regional tunnel will be constructed along the Ohio River from near the West End Bridge to the tunnel dewatering pump station at the wastewater treatment plant. New consolidation sewers will convey excess wet weather flows from selected existing trunk sewers to the new tunnel via new drop shafts.

5. ***Allegheny River Tunnel and Facilities*** - A regional tunnel will be constructed along the Allegheny River from near Herr's Island to the upstream end of the Ohio River regional tunnel segment. New consolidation sewers will convey excess wet weather flows from selected existing trunk sewers to the new tunnel via new drop shafts.

6. ***Monongahela River Tunnel and Facilities*** - A regional tunnel will be constructed along the Monongahela River from near Four Mile Run / Panther Hollow to the upstream end of the Ohio River regional tunnel segment. New consolidation sewers will convey excess wet weather flows from selected existing trunk sewers to the new tunnel via new drop shafts.

7. ***Chartiers Creek Conveyance and Treatment*** - A relief interceptor will be constructed along Chartiers Creek, and an interim Combined Sewer Overflow (CSO) retention treatment basin will be constructed in Crafton to treat excess combined flows from the relief interceptor before discharging to Chartiers Creek.

The Authority's Recommended 2026 Plan will provide significant water quality improvements, including the control of CSO discharges to key sensitive areas, the increase in percent capture of CSO volumes to approximately 79% and the reduction in Sanitary Sewer Overflow (SSO) discharges by approximately 90%. If coupled with reductions in pollutant loadings from upstream sources, including stormwater runoff, the Balanced Plan will lead to receiving water quality fecal coliform levels below 200 colony forming units/100 milliliters more than 90% of the time during the recreational season on a system-wide average. This level is important in that it serves as the basis for water quality standards developed to protect the public health of water contact recreationists. The recommended 2026 Plan will be in conformance with the CSO Policy and provide the maximum pollution reduction benefits that are reasonably attainable by September 30, 2026.

Ongoing discussions with the Agencies have resulted in two additional programs for inclusion in the Interim Wet Weather Program. Sewer Regionalization and a Flow Reduction Program will be part of the final agreement. In addition, the adaptive management approach will allow for revisions which would permit the substitution of gray for green infrastructure in order to achieve the same or better performance as the unmodified Wet Weather Plan.

The Sewer Regionalization Implementation Committee (SRIC) was created through a partnership of 3 Rivers Wet Weather (3RWW) and the Congress of Neighboring Communities (CONNECT), with financial support from the Colcom Foundation, in order to implement a process for sewer regionalization in response to the charge of the Authority Sewer Regionalization Review Panel (Regionalization Review Panel), chaired by Carnegie Mellon University President Emeritus, Dr. Jared Cohon, and administered by the Allegheny Conference on Community Development (ACCD). Specifically, in the Regionalization Review Panel's formal findings, published in March 2013, it was recommended that the municipalities within the Authority's service area should transfer "Intermunicipal Conveyance Lines and Wet Weather Control Facilities to ALCOSAN", and charged those municipalities in its "Specific Action Steps" to "immediately initiate an expeditious process to determine how intermunicipal conveyance lines, other trunk lines, and upstream wet weather facilities will be conveyed to the Authority." The SRIC was convened as a response of the Authority, the County, and a number of municipalities and municipal authorities within the Authority's service area to the charge of the Regionalization Review Panel.

The SRIC effort has been driven by stakeholders from more than a dozen municipalities, the Authority, the County, Pittsburgh Water and Sewer Authority (PWSA), municipal engineers, municipal solicitors, non-profits, and private business. Since its inception, the SRIC has worked to facilitate the transfer of approximately 200 miles of intermunicipal pipes, other trunk sewers, and upstream wet weather facilities to the Authority. The intended outcome of this effort is a more integrated regional sewer system that will help the Authority to meet the standards of the Clean Water Act and will ultimately provide our region with a more equitable distribution of the costs to operate and maintain a regional sewer system.

In considering cost effective solutions to system overflows, the Authority and the Agencies recognize that keeping storm water and infiltration out of the system can be cost effective and create other economic and aesthetic benefits. As such, the Authority is proposing a Regional Flow Reduction Program which will provide funding assistance for municipal green infrastructure and Inflow and Infiltration reductions projects. The details of the program are in the design phase.

Implementation of the Balanced Plan will result in $1.5 billion in new capital expenditures for the Authority and an additional $0.5 billion in expenditures for the municipalities in current dollars. The municipal share may be reduced as a result of the transfer of intermunicipal conveyance lines under the Sewer Regionalization Program. Accounting for inflation, the Authority and the municipalities will face capital expenditures of approximately $2.8 billion. The Authority anticipates using combinations of pay-as-you-go funding utilizing accumulated reserve funds and revenue bond financing owing to the Authority's strength in the municipal bond market.

As of this writing, the Authority is still in negotiations with the U.S. EPA, Pennsylvania DEP, and the Allegheny County Health Department as to modification of the 2008 Consent Decree. There are strong indications that potential revisions will result from these discussions, including the extension of time allowed for implementation and a re-prioritization of projects as originally submitted.

## FINANCIAL CONDITION

Gross operating revenues increased over $16 million as a direct result of an 11% increase in customer rates. The 11% increase is the second of a four-year rate increase program, the excess revenue of which will be used for self-funding of capital assets and assisting our member municipalities in funding source control and green infrastructure projects. Operating expenditures increased by $2.1 million largely based on the cost of wage and healthcare costs pressure. In addition, the Authority continues to increase staffing levels in order to implement the Federal Consent Decree nearing final agreement.

The Authority achieved a debt service coverage ratio of 262 percent with consideration of amounts in the Revenue Fund at the beginning of the year in excess of one-fourth of the Current Operating Expenses.

Debt service coverage without consideration of beginning Revenue Balances was 157 percent. The relative strength of this and the prior year's coverage resulted in affirmation of the Standard & Poor's A/Stable bond rating on the Authority's existing and 2015 Bond Series. Moody's also affirmed its A1 rating and assigned a stable outlook to the existing debt.

## RESULTS OF OPERATIONS

### Operating Revenue:

As noted above, implementation of an 11% rate increase effective January 1, 2015 resulted in a $16 million increase in gross revenues. In addition, billed water consumption increased over 450,000 tgal from that of the previous year. The current year increase breaks the trend in consumption declines the Authority has seen over the past two decades. While the increase is modest in size, it is an encouraging sign that consumption has leveled out after decades of losses in heavy water use manufacturing and consumer product efficiencies.

All of the Authority's operating revenue was derived from customer billing for sewage treatment service; the Authority receives no subsidies. The Authority, the City of Pittsburgh and 82 other municipalities in and around Allegheny County have entered into agreements (Standard Municipal Agreements) under which the Authority is designated (within its service area) the exclusive agent of the respective municipality to furnish sewage treatment and disposal service. Each municipality contracting with the Authority is given two options with respect to billing, "Direct" or "Lump-sum." With the Direct method of billing, accounts not paid within 60 days become the responsibility of the community, thus the Authority insures no bad debt. Under the Direct Method, the Authority bills and collects for its services directly from the individual customer. Under the Lump-sum method, consumption for the entire community is compiled and billed to the municipality, who in turn bill its own residents. All but three municipalities utilize this method of billing in order to attach fees for local sewer infrastructure maintenance. Under both scenarios, the Authority is guaranteed full payment for services.

Operating Expenses:

Operating expenses in 2015 of $63.6 million were $2.1 million higher than 2014 operating expenses of $61.5 million. Increases in operating costs were primarily the result of increased wage and healthcare funding costs, in addition to additional hiring associated with implementation of the Wet Weather Program.

Depreciation and Non-operating Expenses:

Over the past decade, the Authority has placed into service almost $335 million in capital projects. Depreciation expense remains stable as plant expansion projects and improvement replace facilities that have been in service for almost 60 years.

Non-operating Revenues:

Interest earnings on the Authority's revenue and non-restricted capital facilities funds remain anemic, as interest rates on money market and treasury holdings continue to earn at record lows throughout the country. Implementation of Governmental Accounting Standards Board (GASB) Statement No. 68 relating to pension reporting for governmental agencies resulted in an additional $2.4 million increase in non-operating revenues.

Litigation Contingency:

As noted above, the Authority has finalized an agreement with U.S. EPA, Pennsylvania DEP, and the Allegheny County Health Department (Agencies) regarding wet weather overloads in the sanitary sewer system. The agreement called for the payment of civil penalties in the amount of $400,000 to each of the three noted agencies. As of January 8, 2009, all of the above-noted Agencies have been paid.

Additional penalties may be incurred if the Authority fails to meets specific project deadlines as detailed in the agreement.

Debt:

On September 3, 2015, the Authority issued $265,270,000 of Sewer Revenue Bonds at an all in interest cost of 3.42 %. Bond proceeds from the issue were used for current refinancing of all outstanding Series 2005 A Bonds and to fund the Capital Project Budget through 2016. Cash flow savings achieved by the refunding exceeded $33 million.

At year-end, the Authority had $676 million in long- and short-term debt.

More detailed information about the Authority's long-term debt is presented in the notes to financial statements.

## FINAL COMMENTS

The Authority expects to complete negotiation and finalize the Consent Decree with the U.S. EPA, Pennsylvania DEP, and the Allegheny County Health Department early in 2016. During 2015, much was accomplished in discussion with the Agencies, including recognition that Sewer Regionalization, implementation of a Flow Reduction Program, and the use of adaptive management to analyze the benefits of substituting grey for green infrastructure projects would have a positive impact not only on the cost, but quality of life in the region as well. Economies of scale resulting from the potential transfer of over 200 miles of intermunicipal trunk lines and implementation of a flow control program which assists our municipal members in implementing green solutions in order to keep extraneous water out of the system, has the potential to save millions of rate payer dollars while creating sustainable green jobs.

You have the opportunity to become an informed participant in this program. Become familiar with the consent decree by reviewing it on-line at *www.alcosan.org* or by contacting our Public Relations Department for a copy.

## CONTACTING THE AUTHORITY'S FINANCIAL MANAGER

This financial report is designed to provide our citizens, customers, and creditors with a general overview of the Authority's finances and to demonstrate the Authority's accountability for the money it receives. If you have any questions about this report or need additional financial information, contact the Allegheny County Sanitary Authority's Director of Finance and Administration at, 3300 Preble Avenue, Pittsburgh, PA 15233.

# ALLEGHENY COUNTY SANITARY AUTHORITY

STATEMENTS OF NET POSITION

DECEMBER 31, 2015 AND 2014

**Assets and Deferred Outflows of Resources**

| | 2015 | 2014 |
|---|---|---|
| Assets: | | |
| Current assets: | | |
| Cash and cash equivalents | $ 72,901,655 | $ 69,208,841 |
| Accounts receivable: | | |
| Billed sewer revenue | 14,434,379 | 13,390,180 |
| Unbilled sewer revenue | 34,210,168 | 30,175,474 |
| Other | 101,179 | 33,336 |
| Other current assets | 5,840,346 | 5,424,945 |
| Total current assets | 127,487,727 | 118,232,776 |
| Restricted/designated assets: | | |
| Cash and cash equivalents | 66,313,733 | 33,083,333 |
| Investments | 74,050,644 | 31,989,692 |
| Accrued interest receivable | 304,106 | 65,577 |
| Total restricted/designated assets | 140,668,483 | 65,138,602 |
| Prepaid bond costs | 8,131,898 | 7,588,900 |
| Nondepreciable capital assets: | | |
| Land | 5,305,562 | 5,140,679 |
| Construction in progress | 38,531,262 | 84,228,663 |
| Total nondepreciable capital assets | 43,836,824 | 89,369,342 |
| Depreciable capital assets - at cost, net of accumulated depreciation | 542,416,213 | 495,742,989 |
| Total | 586,253,037 | 585,112,331 |
| Capital fees receivable | 78,000 | 114,000 |
| Net pension asset | 4,698,359 | 922,838 |
| Total Assets | 867,317,504 | 777,109,447 |
| Deferred Outflows of Resources: | | |
| Related to pensions | 8,803,215 | 4,772,494 |
| Refunding adjustment | 7,712,231 | 9,945,513 |
| Total Deferred Outflows of Resources | 16,515,446 | 14,718,007 |
| **Total Assets and Deferred Outflows of Resources** | $ 883,832,950 | $ 791,827,454 |

**Liabilities and Net Position**

| | 2015 | 2014 |
|---|---|---|
| Liabilities: | | |
| Current liabilities: | | |
| Accounts payable | $ 7,166,004 | $ 5,832,895 |
| Accrued liabilities: | | |
| Compensated absences | 4,151,911 | 4,081,131 |
| Salaries and wages | 868,064 | 797,718 |
| Accrued interest on bonds | 2,547,877 | 2,448,129 |
| Reserve for litigation | 2,371,900 | 2,371,900 |
| Pretreatment advance payments | 64,200 | 61,225 |
| Current maturities of sewer revenue bonds | 22,676,251 | 24,064,183 |
| Total current liabilities | 39,846,207 | 39,657,181 |
| Long-term liabilities: | | |
| Other post-employment benefits | 4,456,371 | 3,725,837 |
| Net pension liability | 2,866,938 | 2,842,408 |
| Sewer revenue bonds - less current maturities | 604,270,000 | 581,906,568 |
| Unamortized bond premium | 48,676,841 | 20,341,856 |
| Net long-term debt | 652,946,841 | 602,248,424 |
| Total long-term liabilities | 660,270,150 | 608,816,669 |
| Total Liabilities | 700,116,357 | 648,473,850 |
| Deferred Inflows of Resources: | | |
| Related to pensions | 5,424,961 | - |
| Net Position: | | |
| Net investment in capital assets | 70,414,465 | 53,118,643 |
| Unrestricted | 107,877,167 | 90,234,961 |
| Total Net Position | 178,291,632 | 143,353,604 |
| **Total Liabilities and Net Position** | $ 883,832,950 | $ 791,827,454 |

The notes to financial statements are an integral part of this statement.

# ALLEGHENY COUNTY SANITARY AUTHORITY

## STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

YEARS ENDED DECEMBER 31, 2015 AND 2014

| | 2015 | 2014 |
|---|---|---|
| **Operating Revenues** | $ 142,826,497 | $ 126,629,840 |
| **Operating Expenses:** | | |
| Treatment | 42,409,653 | 41,883,592 |
| Intercepting sewer systems | 5,296,080 | 5,508,316 |
| Upper Allegheny system | 414,460 | 435,080 |
| Administrative and engineering | 8,947,742 | 7,515,959 |
| Billing and collecting | 3,313,389 | 3,084,603 |
| Management information systems | 3,178,302 | 3,052,694 |
| Total operating expenses before depreciation | 63,559,626 | 61,480,244 |
| **Operating Income Before Depreciation** | 79,266,871 | 65,149,596 |
| Depreciation | 20,127,859 | 21,295,052 |
| **Operating Income** | 59,139,012 | 43,854,544 |
| **Non-operating Revenues (Expenses):** | | |
| Interest income, net of amounts capitalized | 62,479 | 40,109 |
| Interest expense on bonds, net of amounts capitalized | (25,988,940) | (27,620,760) |
| Amortization of prepaid bond costs | (631,274) | (762,013) |
| Change in value of pension related items | 2,356,751 | 906,153 |
| Total non-operating revenues (expenses) | (24,200,984) | (27,436,511) |
| **Change in Net Position** | 34,938,028 | 16,418,033 |
| **Net Position:** | | |
| Beginning of year, as restated | 143,353,604 | 126,935,571 |
| End of year | $ 178,291,632 | $ 143,353,604 |

The notes to financial statements are an integral part of this statement.

# ALLEGHENY COUNTY SANITARY AUTHORITY

## STATEMENTS OF CASH FLOWS

### YEARS ENDED DECEMBER 31, 2015 AND 2014

| | 2015 | 2014 |
|---|---|---|
| **Cash Flows From Operating Activities:** | | |
| Cash received from customers | $ 137,682,736 | $ 118,922,888 |
| Cash paid to suppliers | (20,345,655) | (20,096,607) |
| Cash paid to employees | (42,757,804) | (39,738,705) |
| Net cash provided by (used in) operating activities | 74,579,277 | 59,087,576 |
| **Cash Flows From Capital and Related Financing Activities:** | | |
| Interest paid on bonds | (27,541,613) | (30,229,510) |
| Principal paid on bonds | (25,739,182) | (23,862,015) |
| Proceeds from debt issues | 301,141,620 | - |
| Payments to refund bonds | (224,398,416) | - |
| Prepaid bond costs | (2,612,127) | - |
| Acquisition and construction of capital assets | (16,614,016) | (23,525,165) |
| Net cash provided by (used in) capital and related financing activities | 4,236,266 | (77,616,690) |
| **Cash Flows From Investing Activities:** | | |
| Purchase of investment securities | (74,142,703) | (65,140,793) |
| Proceeds from sale and maturities of investment securities | 31,989,692 | 99,341,442 |
| Interest earnings | 260,682 | 160,195 |
| Net cash provided by (used in) investing activities | (41,892,329) | 34,360,844 |
| **Increase (Decrease) in Cash and Cash Equivalents** | 36,923,214 | 15,831,730 |
| **Cash and Cash Equivalents:** | | |
| Beginning of year, including $33,083,333 and $24,431,648, respectively, in restricted accounts | 102,292,174 | 86,460,444 |
| End of year, including $66,313,733 and $33,083,333, respectively, in restricted accounts | $ 139,215,388 | $ 102,292,174 |
| **Noncash Capital and Related Financing Activities:** | | |
| Property, plant, and equipment additions reflected in accounts payable | $ 1,333,201 | $ 1,294,123 |
| **Reconciliation of Operating Income to Net Cash Provided by (Used in) Operating Activities:** | | |
| Operating income | $ 59,139,012 | $ 43,854,544 |
| Adjustments to reconcile operating income to net cash provided by (used in) operating activities: | | |
| Depreciation | 20,127,859 | 21,295,052 |
| Change in operating assets and liabilities: | | |
| Accounts receivable | (5,146,736) | (7,700,477) |
| Other current assets | (415,401) | (187,364) |
| Accounts payable | (92) | 957,663 |
| Accrued liabilities | 141,126 | 197,850 |
| Other post employment benefits | 730,534 | 676,783 |
| Pretreatment advance payments | 2,975 | (6,475) |
| Net adjustments | 15,440,265 | 15,233,032 |
| Net cash provided by (used in) operating activities | $ 74,579,277 | $ 59,087,576 |

The notes to financial statements are an integral part of this statement.

## 1. Organization

The Allegheny County Sanitary Authority (Authority) was incorporated in May 1945 under the Commonwealth of Pennsylvania Municipality Authorities Act of 1945. The Authority serves as the exclusive agency for the collection, transportation, and treatment of wastewater for the City of Pittsburgh and 82 neighboring municipalities. The Authority charges users for processing of wastewater at applicable rates. Additional charges are levied for septage (solid waste removed from septic tanks) and industrial waste discharges into the system.

In evaluating the Authority as a primary government in accordance with Governmental Accounting Standards Board (GASB) Statement No. 61, *"The Financial Reporting Entity,"* management has addressed all potential component units. Consistent with this Statement, the criteria used by the Authority to evaluate possible inclusion of related entities within its reporting entity are financial accountability and the nature and significance of the relationship.

Upon review of the criteria above, the Authority determined that there were no potential component units that met the criteria for inclusion in the reporting entity.

The Authority operates as a stand-alone entity governed by a Board of Directors appointed by the City of Pittsburgh and County of Allegheny. Neither the City of Pittsburgh nor the County of Allegheny appoints a voting majority of the Authority's Board of Directors. The Authority's pension plans, the Management Employees Plan and Union Employees Plan (Plans), are excluded from the Authority's financial statements because the Plans are governed by independent boards composed primarily of participants in the Plans, and the Authority does not directly participate in the management of the Plans.

## 2. Summary of Significant Accounting Policies

### Measurement Focus

The Authority uses "income determination" as its measurement focus. Accordingly, all assets and liabilities are included on the balance sheet and net position reflects the economic net worth of the Authority. The operating statement reflects the change in total economic net worth for the period, presented through revenues and expenses of the Authority.

### Basis of Accounting

The financial statements of the Authority for the years ended December 31, 2015 and 2014 have been prepared on the accrual basis of accounting. Under the accrual basis of accounting, revenues are recognized when earned and expenses are recognized when incurred.

Cash and Cash Equivalents

For purposes of the statements of cash flows, the Authority considers all highly liquid investments with a maturity of three months or less when purchased to be cash and cash equivalents.

Investments

Investments are recorded at fair value at December 31, 2015 and 2014.

Accounts Receivable

Accounts receivable consist of amounts due from customers, lump-sum billings to municipalities (which in turn bill customers individually), and estimated unbilled services since the previous billing.

Under the terms of the respective servicing agreements, each local municipality is responsible for the payment to the Authority and subsequent collection of individual customer billings outstanding over 60 days. Accordingly, an allowance for doubtful accounts is currently not considered necessary by management.

Prepaid Bond Costs

Certain prepaid bond issue and surety bond costs are deferred and amortized over the life of the related outstanding bonds. The original amortization periods are as follows:

| Description | Amortization Period |
|---|---|
| 1991 Bonds | 25 years, 10 months |
| 1993 Bonds | 23 years, 8 months |
| Surety Bond | 27 years, 6 months |
| 2005 Bonds | 25 years |
| 2007 Bonds | 30 years |
| 2010 Bonds | 30 years |
| 2011 Bonds | 9 years |
| 2013 Bonds | 31 years |
| 2015 Bonds | 30 years |

Refunding Adjustment

In accordance with GASB pronouncements, the excess of the reacquisition price over the net carrying amount of debt refunded with proceeds from Series 2015, Series 2011, Series 2010, Series 2005, and Series 2002 Bonds were recorded as refunding adjustments. The refunding adjustments are being amortized using the effective interest method over the originally scheduled life of the defeased issues, which extend to 2045, 2040, 2030, 2013, and 2019, respectively. The unamortized balances are reflected as deferred outflows of resources.

Capital Assets

Capital Assets are recorded at cost which includes, when appropriate, interest cost incurred on qualifying assets during the construction period.

Depreciation of fixed assets is provided for on the straight-line method based on the estimated useful lives of the various classes of assets. Maintenance and repairs are charged to expense as incurred. Estimated useful lives of major classes of assets are as follows:

| | |
|---|---|
| Land improvements | 40 years |
| Buildings and improvements | 50 years |
| Utility plant in service | 60 years |
| Machinery and equipment | 3-20 years |

The cost of the study for a potential capital project is capitalized in construction in progress. Upon commencement of the related capital project, the cost of the study is allocated to the project. Upon the Authority's final determination that a project is not viable, the cost of the study is expensed.

Deferred Outflows and Inflows of Resources

In addition to assets and liabilities, the statement of net position will sometimes report separate sections for deferred outflows and deferred inflows of resources. Deferred outflows of resources represents a consumption of net position that applies to a future period while deferred inflows of resources represents an acquisition of net position that applies to future periods.

Compensated Absences

Vested or accumulated vacation and sickness leave are recorded as a liability and expensed as the benefits accrue to employees.

Pension Plans

Substantially all full-time employees of the Authority are enrolled in one of two single-employer defined benefit pension plans. For purposes of measuring the net pension liability, deferred outflows of resources related to pensions, and pension expense, information about the fiduciary net position of the pension plans, as well as additions to and deductions from the pension plan fiduciary net position have been determined on the same basis as they are reported in the financial statements of the pension plans. Employer contributions are recognized when due and the employer has a legal requirement to provide the contributions. Investments are reported at fair value.

Post-retirement Benefits

The Authority provides certain health insurance benefits to retirees. The costs of these benefits are recognized in accordance with generally accepted accounting principles and are funded when paid.

Deferred Compensation Plan

The Authority offers its employees a deferred compensation plan (plan) created in accordance with Internal Revenue Code Section 457. The plan, available to all employees, permits them to defer a portion of their salaries until future years. Participation in the plan is optional. The deferred compensation is not available to the employee until termination, retirement, death, or unforeseeable emergency. At December 31, 2015 and 2014, all amounts of compensation deferred under the plan, all property and rights purchased with those amounts, and all income attributable to those amounts, are held in trust solely for the benefit of the participants. Investments are managed by the plan's trustee under several investment options selected by the participant. Under the provisions of GASB Statement No. 32, *"Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans,"* the plan is not required to be included in the Authority's financial statements.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Management makes significant estimates regarding the amount of unbilled accounts receivable, reserves for accrued litigation, actuarial pension liabilities, other post employment benefit liabilities and environmental contingencies.

Adopted Pronouncements

The requirements of the following GASB statements were adopted for the Authority's financial statements:

GASB Statement No. 68, *"Accounting and Financial Reporting for Pensions,"* and GASB Statement No. 71, *"Pension Transition for Contributions Made Subsequent to the Measurement Date*." These statements revise and establish reporting requirements for most governments that provide employees with pensions.

As a result of adopting GASB Statement No. 68 and GASB Statement No. 71, the Authority's net position as of January 1, 2014 and January 1, 2015 has been restated by $1,946,771 and $2,852,924, respectively, and comparative amounts for 2014 have been adjusted over amounts previously reported. Revenues over the amounts previously reported were increased in the amount of $906,153 for the year ended December 31, 2014. As permitted, beginning balances for deferred outflows of resources related to pensions, other than those related to contributions made subsequent to the measurement date, are not reported.

Pending Pronouncements

GASB has issued the following statements that will become effective in future years as shown below. Management has not yet determined the impact of these statements on the Authority's financial statements.

GASB Statement No. 72, *"Fair Value Measurement and Application*," effective for fiscal years beginning after June 15, 2015 (the Authority's financial statements for the year ending December 31, 2016). This statement addresses accounting and financial reporting issues related to fair value measurements.

GASB Statement No. 73, *"Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB 68, and Amendments to Certain Provisions of GASB Statements 67 and 68,"* effective for fiscal years beginning after June 15, 2015 (the Authority's financial statements for the year ending December 31, 2016) – except those provisions that address employers and governmental nonemployer contributing entities for pensions that are not within the scope of Statement No. 68, which are effective for financial statements for fiscal years beginning after June 15, 2016 (the Authority's financial statements for the year ending December 31, 2017). This statement establishes requirements for those pensions and pension plans that are not administered through a trust meeting specified criteria (those not covered by Statements No. 67 and 68).

GASB Statement No. 75, *"Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions,"* effective for fiscal years beginning after June 15, 2017 (the Authority's financial statements for the year ending December 31, 2018). This statement addresses reporting by governments that provide OPEB to their employees and for governments that finance OPEB for employees of other governments. This statement replaces the requirements of Statement No. 45.

GASB Statement No. 76, *"Hierarchy of Generally Accepted Accounting Principles for State and Local Governments,"* effective for fiscal years beginning after June 15, 2015 (the Authority's financial statements for the year ending December 31, 2016). This statement identifies the hierarchy of generally accepted accounting principles (GAAP), reduces this hierarchy to two categories of authoritative GAAP, and addresses the use of authoritative and nonauthoritative literature in the event that the accounting treatment for a transaction or other event is not specified within a source of authoritative GAAP. This statement supersedes Statement No. 55.

## 3. REVENUE BONDS

In February 1991, the Authority issued $13,802,180 principal value ($48,215,000 maturity value) of Compound Interest Bonds (1991 Bonds) intended to finance various construction projects.

An irrevocable trust was established in 1994 to defease $28,450,000 maturity value of the 1991 Bonds. Neither the trust, which has a sufficient amount on deposit to retire the $28,450,000 of 1991 Bonds at maturity, nor the obligation are included on the Authority's statements of net position. The maturity value of defeased bonds outstanding at December 31, 2015 and 2014 was $0 and $2,480,000, respectively, as these bonds matured during 2015.

The 1991 Bonds bear interest at rates ranging from 6.80% to 7.05%. Interest on each of the 1991 Bonds is compounded annually and paid only at maturity of such 1991 Bonds. The 1991 Bonds matured on December 1, 2015. The portion of the 1991 Bonds payable was $596,405 plus accumulated interest of $2,501,202 at December 31, 2014.

In September 1992, the Authority issued $101,185,000 of Current Interest Bonds (1992 Bonds) intended to finance a 1992 capital improvement program.

An irrevocable trust was established in 1994 to defease $34,160,000 of the 1992 Bonds. An irrevocable trust was established in 2001 to defease an additional $51,710,000 of the 1992 Bonds. An irrevocable trust was established in 2002 to defease the remaining 1992 Bonds. Neither the trusts, nor the defeased obligations are included on the Authority's statements of net position. The amount of defeased bonds outstanding at December 31, 2015 and 2014 was $11,295,000 and $11,295,000, respectively.

In March 1993, the Authority issued $9,608,540 principal value ($37,625,000 maturity value) of Compound Interest Bonds and $32,470,000 of Current Interest Bonds (1993 Bonds). The proceeds from the bond issuance were used to advance refund the 1991 C Bonds, which were called in 2001.

An irrevocable trust was established in 1994 to defease $3,580,000 maturity value of the 1993 Compound Interest Bonds. Neither the trust, which has a sufficient amount on deposit to retire the $3,580,000 of 1993 Bonds at maturity, nor the obligation are included on the Authority's statements of net position. The maturity value of defeased bonds outstanding at December 31, 2015 and 2014 was $3,580,000. During 2003, the 1993 Current Interest Bonds were refunded.

The 1993 Compound Interest Bonds bear interest at 6.10% compounded semiannually which is paid only at maturity of such 1993 Bonds. The 1993 Compound Interest Bonds have a final maturity on December 1, 2016.

At December 31, 2015 and 2014, the 1993 Bonds payable consisted of $3,937,446 and $6,269,547, respectively, plus accumulated interest of $11,403,805 and $16,733,597, respectively.

On April 7, 2005, the Authority issued $255,690,000 of Sewer Revenue Bonds Refunding Series A of 2005 and $4,625,000 of Sewer Revenue Bonds Refunding Series B of 2005, collectively called the 2005 Bonds. The proceeds of the 2005 Bonds, along with an upfront contribution of $7,071,701 by the Authority, were used to provide funds for the advance refunding of portions of the 1997 and 2000 Bond Series and for the current refunding of the 1994B Current Interest Bonds.

The 2005 Bonds were issued at a bond premium of $12,467,264, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method.

The 2005 Bonds bear interest at rates ranging from 3.25% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. Stated maturities for the 2005 Bonds are at various face amounts on December 1 of each year beginning December 1, 2007 through 2030. The 2005 Bonds were currently refunded during 2015 and no balances remained outstanding as of December 31, 2015. At December 31, 2014, the 2005 Bonds payable consisted of $219,450,000.

On July 12, 2007, the Authority issued $114,495,000 of Sewer Revenue Bonds Series of 2007, called the 2007 Bonds. The proceeds of the 2007 Bonds were used to provide funds for the financing of a portion of the Authority's capital budget for 2007 through 2009, and funding capitalized interest and a debt service reserve fund account.

The 2007 Bonds were issued at a bond premium of $3,014,408, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method.

The 2007 Bonds bear interest at rates ranging from 3.85% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. Stated maturities for the 2007 Bonds are at various face amounts on December 1 of each year beginning December 1, 2010 through 2037. The 2007 Bonds, which have a final maturity date of December 1, 2037, are subject to redemption prior to maturity. At December 31, 2015 and 2014, the 2007 Bonds payable consisted of $112,845,000 and $113,145,000, respectively.

On October 1, 2010, the Authority issued $121,660,000 of Sewer Revenue Bonds Series of 2010, called the 2010 Bonds. The proceeds of the 2010 Bonds were used to provide funds for the financing of a portion of the Authority's capital budget for 2011 through 2013, current refunding of the 1997 bonds, current refunding of the 2000 bonds, payment of a PennVest loan, and funding capitalized interest.

The 2010 Bonds were issued at a bond premium of $5,113,802, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2010 Bonds bear interest at rates ranging from 1.50% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. Stated maturities for the 2005 Bonds are at various face amounts on December 1 of each year beginning December 1, 2010 through 2012 and June 1, 2013 through 2040. The 2010 Bonds, which have a final maturity date of June 1, 2040, are subject to redemption prior to maturity. At December 31, 2015 and 2014, the 2010 Bonds payable consisted of $106,030,000 and $106,035,000, respectively.

On October 1, 2011, the Authority issued $92,250,000 of Sewer Revenue Bonds Refunding Series of 2011, called the 2011 Bonds. The proceeds of the bonds were used to currently refund all of the Authority's outstanding Sewer Revenue Bonds Refunding Series of 2001.

The 2011 Bonds were issued at a premium of $12,066,763, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2011 Bonds bear interest at rates ranging from 1.50% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. The 2011 Bonds, which have a final maturity date of December 1, 2019, are subject to redemption prior to maturity. At December 31, 2015 and 2014, the 2011 Bonds payable consisted of $69,485,000 and $76,485,000, respectively.

On December 19, 2013, the Authority issued $64,755,000 of Sewer Revenue Bonds Series of 2013, called the 2013 Bonds. The proceeds of the 2013 Bonds were used to provide additional funding for the Authority's capital projects in 2014 and 2015.

The 2013 Bonds were issued at a bond premium of $2,711,736, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2013 Bonds bear interest at rates ranging from 3.50% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. The 2013 Bonds, which have a final maturity date of December 1, 2044, are subject to redemption prior to maturity. At December 31, 2015 and 2014, the 2013 Bonds payable was $64,755,000.

On September 3, 2015, the Authority issued $265,270,000 of Sewer Revenue Bonds Series of 2015, called the 2015 Bonds. The proceeds of the bonds were used to currently refund all of the Authority's outstanding Sewer Revenue Bonds Refunding Series of 2005 and to provide additional funding for the Authority's capital projects.

The 2015 Bonds were issued at a premium of $36,708,408, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2015 Bonds bear interest at rates ranging from 2.00% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. The 2015 Bonds, which have a final maturity date of December 1, 2019, are subject to redemption prior to maturity. At December 31, 2015, the 2015 Bonds payable consisted of $258,490,000.

This refunding resulted in an economic gain to the Authority of approximately $29.4 million and a decrease to the debt service payments of approximately $33.3 million. In connection with the 2015 debt refunding, the Authority recorded deferred refunding adjustments of $5.5 million, which are being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

A summary of long-term debt is as follows for the years ended December 31, 2015 and 2014, respectively:

| | Balance 1/1/2015 | Accretions/ New Issue | Retired | Balance 12/31/2015 | Unamortized Premium | Bonds Payable | Current Portion |
|---|---|---|---|---|---|---|---|
| 1991 Series | $ 3,097,606 | $ - | $ (3,097,606) | $ - | $ - | $ - | $ - |
| 1993 Series | 23,003,145 | 894,683 | (8,556,577) | 15,341,251 | - | 15,341,251 | 15,341,251 |
| 2005 Series | 219,450,000 | - | (219,450,000) | - | - | - | - |
| 2007 Series | 113,145,000 | - | (300,000) | 112,845,000 | 2,031,030 | 114,876,030 | 305,000 |
| 2010 Series | 106,035,000 | - | (5,000) | 106,030,000 | 3,973,177 | 110,003,177 | 200,000 |
| 2011 Series | 76,485,000 | - | (7,000,000) | 69,485,000 | 4,237,935 | 73,722,935 | 3,730,000 |
| 2013 Series | 64,755,000 | - | - | 64,755,000 | 2,456,739 | 67,211,739 | - |
| 2015 Series | - | 265,270,000 | (6,780,000) | 258,490,000 | 35,977,960 | 294,467,960 | 3,100,000 |
| Total | $ 605,970,751 | $ 266,164,683 | $ (245,189,183) | $ 626,946,251 | $ 48,676,841 | $ 675,623,092 | $ 22,676,251 |

| | Balance 1/1/2014 | Accretions/ New Issue | Retired | Balance 12/31/2014 | Unamortized Premium | Bonds Payable | Current Portion |
|---|---|---|---|---|---|---|---|
| 1991 Series | $ 2,890,253 | $ 207,353 | $ - | $ 3,097,606 | $ - | $ 3,097,606 | $ 3,097,606 |
| 1993 Series | 30,208,660 | 1,341,500 | (8,547,015) | 23,003,145 | - | 23,003,145 | 8,556,577 |
| 2005 Series | 227,730,000 | - | (8,280,000) | 219,450,000 | 5,490,067 | 224,940,067 | 5,105,000 |
| 2007 Series | 113,445,000 | - | (300,000) | 113,145,000 | 2,147,555 | 115,292,555 | 300,000 |
| 2010 Series | 106,065,000 | - | (30,000) | 106,035,000 | 4,190,849 | 110,225,849 | 5,000 |
| 2011 Series | 83,190,000 | - | (6,705,000) | 76,485,000 | 5,925,878 | 82,410,878 | 7,000,000 |
| 2013 Series | 64,755,000 | - | - | 64,755,000 | 2,587,507 | 67,342,507 | - |
| 2015 Series | - | - | - | - | - | - | - |
| Total | $ 628,283,913 | $ 1,548,853 | $ (23,862,015) | $ 605,970,751 | $ 20,341,856 | $ 626,312,607 | $ 24,064,183 |

The 1993 and 1991 Bonds (1985 Indenture Bonds) are collateralized by the net revenues of the Authority and by a Surety Bond purchased under the terms of the Financial Guaranty Agreement in 1994 to replace the debt service reserve funds previously held by The Bank of New York, the trustee. The 1985 Indenture Bonds are also collateralized by all amounts held in the Revenue Fund and all amounts held by The Bank of New York, in the funds created under the 1985 Trust Indenture.

The 2007, 2010, 2011, 2013, and 2015 Bonds are collateralized by the net revenues of the Authority, by Surety Bonds, in lieu of cash, as required by the trustee and all amounts held in the Revenue Fund and all amounts held by the trustees. The security position of the 2007, 2010, 2011, 2013, and 2015 Bonds is subject, junior, and subordinate to the lien on and security interest in, such moneys and net revenues of the Authority held by the 1985 Trustee pursuant to the provisions of the 1985 Indenture.

Schedule of Required Debt Service

In accordance with the provisions of the Trust Indentures for the bonds payable, the Authority has established categories of accounts (current, special, and debt service) with certain assets, principally short-term investments, restricted for specific purposes. Each account category is further segregated into specific accounts referred to as funds. All revenues are required by the Trust Indentures to be deposited in a Revenue Fund. These Trust Indentures also require that rates be sufficient to pay current expenses of the Authority, 110% of the debt service requirements for the current fiscal year, and all amounts owed to the Bond Issuer under the terms of the Financial Guaranty Agreement. Current expenses are defined, generally, as the costs of operating and maintaining the sewer system as determined under accounting principles generally accepted in the United States of America, except for depreciation and interest expense.

Funds created as a result of the governing Trust Indentures and by Board of Directors' resolutions are summarized as follows:

| | 2015 | 2014 |
|---|---|---|
| Current account: | | |
| Revenue Fund | $ 72,901,655 | $ 69,208,841 |
| Special accounts: | | |
| Capital Facilities Fund | $ 35,691,640 | $ 15,676,890 |
| Construction Fund - 2013 | 30,043,417 | 46,235,967 |
| Construction Fund - 2015 | 74,900,807 | - |
| Capital Interest Fund | 827 | 3,224,678 |
| | $ 140,636,691 | $ 65,137,535 |
| Debt service accounts: | | |
| Debt Service Fund | $ 31,792 | $ 1,067 |

Maturities of all outstanding bonds of the Authority, in the aggregate, are as follows:

| | Principal | Interest | Total Debt Service |
|---|---|---|---|
| 2016 | $ 22,676,251 | $ 31,038,502 | $ 53,714,753 |
| 2017 | 24,275,000 | 29,433,939 | 53,708,939 |
| 2018 | 25,475,000 | 28,243,131 | 53,718,131 |
| 2019 | 26,720,000 | 26,992,598 | 53,712,598 |
| 2020 | 27,735,000 | 25,979,039 | 53,714,039 |
| 2021-2025 | 152,115,000 | 108,055,612 | 260,170,612 |
| 2026-2030 | 103,750,000 | 74,598,713 | 178,348,713 |
| 2031-2035 | 90,460,000 | 52,261,332 | 142,721,332 |
| 2036-2040 | 102,005,000 | 27,108,564 | 129,113,564 |
| 2041-2045 | 51,735,000 | 7,163,125 | 58,898,125 |
| Total | $ 626,946,251 | $ 410,874,555 | $ 1,037,820,806 |

The total debt service schedule in Note 11 represents the total debt service requirements (principal, interest, and sinking fund requirements) of the Authority's bond issuances, by issue and in the aggregate.

## 4. Interest Cost

Interest cost, including amortization of prepaid bond costs, for the years ended December 31, 2015 and 2014 for bonds payable were as follows:

| | 2015 | 2014 |
|---|---|---|
| 1991 Bonds | $ 230,348 | $ 216,032 |
| 1992 Bonds | 621,225 | 621,225 |
| 1993 Bonds | 1,306,806 | 1,753,184 |
| 2005 Bonds | 7,405,600 | 11,647,040 |
| 2007 Bonds | 5,564,933 | 5,576,962 |
| 2010 Bonds | 5,154,942 | 5,155,247 |
| 2011 Bonds | 2,887,311 | 3,118,937 |
| 2013 Bonds | 3,149,935 | 3,019,306 |
| 2015 Bonds | 3,531,331 | - |
| | 29,852,431 | 31,107,933 |
| Bond surety | 35,726 | 35,726 |
| | $ 29,888,157 | $ 31,143,659 |

Interest earned on funds restricted for the purpose of construction of assets or payments of debt service and the interest cost of the related tax-exempt borrowings are deferred and allocated to the cost of capital assets. The Authority used tax-exempt interest earnings to offset capitalized interest costs.

## 5. Deposits and Investments with Financial Institutions

The investment and deposit policy of the Authority funds is governed by the Trust Indentures and the Municipal Authority Act. In accordance with these regulations, the Authority is authorized to invest in obligations of the U.S. Treasury, agencies and instrumentalities; certificates of deposits, time deposits or deposits in savings accounts, fully insured or collateralized; commercial paper of the highest rating; bonds or notes issued by the Commonwealth of Pennsylvania, political subdivision, or related school district; repurchase agreements; money market mutual funds; and investment agreements with any bank or insurance company. Throughout the years ended December 31, 2015 and 2014, the Authority invested in authorized investments that consisted of U.S. government obligations, short-term commercial paper, money market mutual funds, an external investment pool, and guaranteed investment contracts. There were no deposit or investment transactions during 2015 and 2014 that were in violation of either state statutes or the policies of the Authority. The Authority does not have a formal investment policy which addresses custodial credit risk, interest rate risk, credit risk, or concentration of credit risk.

GASB Statement No. 40, *"Deposit and Investment Risk Disclosures,"* requires disclosures related to the following deposit and investment risks: credit risk (including custodial credit risk and concentrations of credit risk), interest rate risk, and foreign currency risk. The following is a description of the Authority's deposit and investment risks:

Custodial Credit Risk - Custodial credit risk is the risk that in the event of a bank failure, the Authority's deposits may not be returned to it. As of December 31, 2015, $26,790,963 of the Authority's bank balance of $27,176,565 was exposed to custodial credit risk, which is collateralized in accordance with Act 72 of the Pennsylvania state legislature which requires the institution to pool collateral for all governmental deposits and have the collateral held by an approved custodian in the institution's name. These deposits have carrying amounts of $26,910,481 as of December 31, 2015.

Included in cash and cash equivalents on the statements of net position are short-term investments in money markets and PA INVEST.

At December 31, 2015, the Authority held the following investment balances:

| | | Maturity in Years | |
|---|---|---|---|
| | Carrying Value | Less Than 1 Year | 1-5 Years |
| U.S. Government Agencies | $ 74,050,644 | $ 41,895,473 | $ 32,155,171 |
| Money Market Funds | 110,234,503 | 110,234,503 | - |
| PA INVEST | 2,070,404 | 2,070,404 | - |
| Total | $ 186,355,551 | $ 154,200,380 | $ 32,155,171 |

The carrying value of the Authority's investments is the same as their fair market value amount. The fair value of the Authority's investments in the external investment pool (INVEST) is the same as the value of the pool shares. All investments in an external investment pool that is not SEC registered are subject to oversight by the Commonwealth.

Interest Rate Risk – Interest rate risk is the risk that changes in interest rates will adversely affect the fair market value of the Authority's investments.

Credit Risk – Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation. As of December 31, 2015, the Authority's investment in the state investment pool (INVEST) was rated AAAm by Standard & Poor's. 100% of the

Authority's investments in money market funds are rated AAA by Standard & Poor's, and Aaa by Moody's.

Concentration of Credit Risk – Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investments in a single issuer. As of December 31, 2014, the Authority held approximately 13.4% and 10.8% of the investments in Federal National Mortgage Association securities and Federal Home Loan Bank securities, respectively. As of December 31, 2015, the Authority held approximately 12.0%, 12.1%, 6.9%, and 5.2% of the investments in Federal National Mortgage Association securities, Federal Home Loan Bank securities, Federal Home Loan Mortgage Corporation, and Freddie Mac Discount Notes securities, respectively.

## 6. CAPITAL ASSETS

A summary of capital assets is as follows:

| | 2015 | 2014 |
|---|---|---|
| Nondepreciable assets: | | |
| Land | $ 5,305,562 | $ 5,140,679 |
| Construction in progress | 38,531,262 | 84,228,663 |
| Total nondepreciable assets | 43,836,824 | 89,369,342 |
| Depreciable assets: | | |
| Land improvements | 4,823,381 | 4,640,368 |
| Buildings and improvements | 455,437,283 | 452,158,656 |
| Utility plant in service | 233,202,361 | 173,034,076 |
| Machinery and equipment | 288,729,591 | 285,837,379 |
| Total depreciable assets | 982,192,616 | 915,670,479 |
| Less accumulated depreciation | 439,776,403 | 419,927,490 |
| Net depreciable assets | 542,416,213 | 495,742,989 |
| Total capital assets | $ 586,253,037 | $ 585,112,331 |

The Authority has spent $38,531,262 and $84,228,663 for construction in progress as of December 31, 2015 and 2014, respectively, with estimated remaining total expansion costs of approximately $207,575,000, which are anticipated to occur over the next five years. These expansion costs are primarily attributable to activities required by the Consent Decree further discussed in Note 10.

## 7. Pension Plans

*General Information About the Pension Plans*. The Authority has two single-employer defined benefit pension plans covering substantially all full-time employees: the Management Employees Plan (Management Plan) and the Union Employees Plan (Union Plan). The Union Plan is a contributory plan including all members of the utility workers' collective bargaining unit and the Management Plan is a contributory plan available to all Authority employees not participating in the Union Plan.

Under each of the plans, employees' eligibility for normal benefits begins at age 65, at which time the individual is entitled to an annual retirement benefit, payable monthly for life. For the Management Plan, this benefit is equal to 2.5% of the first $4,200 of average compensation for each year of Credited Service, plus 2.5% of 3-year compensation in excess of $4,200 for each year of Contributory Service (for participant contributing at the rate of 3% of compensation) and 2.0% of 5-year average compensation in excess of $4,200 for each year of Contributory Service (for participant contributing at the rate of 1.25% of compensation in excess of $4,200). If a participant transfers from the Union Plan, the normal retirement benefit is based on all years of employment with the Authority and is offset by the Union Plan benefit. In addition, the portion of the benefit for those contributing 1.25% of compensation in excess of $4,200 will be determined using 2.50% of 3-year average compensation in excess of $4,200 for any Union years of Contributory Service. For the Union Plan, this benefit is equal to 2.5% of the first $4,200 of average compensation for each year of credited service plus 2.5% of average compensation in excess of $4,200 for each year of Contributory Service. The benefit above is limited to 100% of average compensation. For both plans, in no event will a participant's benefit exceed the limits set forth in Section 415(b) of the Internal Revenue Code.

Early retirement is available to all participants who have reached the age of 55 and have at least 10 years of service. For the Management Plan, a participant who is contributing 3% of compensation may retire at age 60 with 10 years of service with no early retirement reduction. If such participant elects to retire prior to age 60, benefits will be reduced by one-half of 1% for each month prior to age 60 in which retirement occurs. For a participant who elected to contribute 1.25% of compensation in excess of $4,200, the monthly benefit will be reduced by one-half of 1% for each month prior to Normal Retirement Date (that is, prior to age 65). For the Union Plan, If the participant has attained age 60 with 25 years of Credited Service and is actively employed immediately prior to retirement, the benefit is unreduced. Otherwise, the benefit is reduced actuarially if it commences prior to age 62 or by 5% per year if it commences between age 62 and Normal Retirement Date.

In both plans, for those retiring after age 65, the benefit is the greater of (1) the actuarial equivalent of the benefit that would have been payable at the Normal Retirement Date and (2) the benefit based on service and earnings as of the actual retirement date.

*Employees Covered by Benefit Terms*. As of the most recent actuarial valuations, the following employees were covered by the benefit terms:

| | Management | Union | Total |
|---|---|---|---|
| Inactive plan members or beneficiaries currently receiving benefits | 64 | 167 | 231 |
| Inactive plan members entitled to but not yet receiving benefits | 27 | 47 | 74 |
| Active plan members | 105 | 255 | 360 |
| Total plan members | 196 | 469 | 665 |

*Contributions*. Participants in the Management Plan contribute 3.0% and participants in the Union Plan contribute 1.25% of earnings to their respective plans. The Authority's contributions to the plans are based on actuarially determined rates.

*Net Pension Liability (Asset)*. The Authority's net pension liability (asset) for 2014 and 2015 was measured as of December 31, 2013 and 2014, respectively. The total pension liability used to calculate the net pension liability (asset) was determined by actuarial valuations as of those respective measurement dates.

*Actuarial Assumptions*. The total pension liability in the December 31, 2014 and 2013 actuarial valuations were determined using the following actuarial assumptions, applied to all periods included in the measurement:

| | |
|---|---|
| Actuarial cost method | Entry age normal |
| Actuarial assumptions: | |
| Investment rate of return | 7.45% |
| Underlying inflation rate | 2.50% |
| Salary projection | 4.50% |

Management Plan - For healthy lives, mortality is in accordance with the RP-2000 Combined Mortality Table adjusted for white-collar employees with using separate rates for employees and annuitants, and with fully generational projected mortality improvement under Scale BB2D. Previously, combined mortality rates were used for all participants and mortality improvement was projected under Scale AA. For disabled lives, mortality is in accordance with the disabled mortality table specified in IRS Revenue Ruling 96-7 for disabilities occurring prior to 1995.

Union Plan - For healthy lives, mortality is in accordance with the RP-2000 Combined Mortality Table adjusted for blue-collar employees with using separate rates for employees and annuitants, and with fully generational projected mortality improvement under Scale BB2D. Previously, combined mortality rates were used for all participants and mortality improvement was projected under Scale AA. For disabled lives, mortality is in accordance with the disabled mortality table specified in IRS Revenue Ruling 96-7 for disabilities occurring prior to 1995.

Effective for the valuations as of December 31, 2014, the assumption for projected mortality improvement was updated.

Actuarial assumptions used in the respective valuations were based on actuarial experience studies for the period January 1, 2013 to December 31, 2013 and January 1, 2014 to December 31, 2014.

*Long-Term Expected Rate of Return.* The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The following were the asset allocation policy and best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation:

| | Management Plan | | Union Plan | |
|---|---|---|---|---|
| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return | Target Allocation | Long-Term Expected Real Rate of Return |
| US equity | 70.0% | 6.10% | 70.0% | 6.10% |
| Fixed income | 30.0% | 0.75% | 30.0% | 0.75% |
| | 100.0% | | 100.0% | |

*Discount Rate*. The discount rate used to measure the total pension liability was 7.45%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that the Authority's contributions will be made based on the actuarially determined contribution. Based on those assumptions, the fiduciary net position of each plan was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

*Changes in Net Pension Liability (Asset)*. Changes in the Authority's net pension liability (asset) are as follows:

| | Management Plan | | |
|---|---|---|---|
| | Total Pension Liability | Plan Net Position | Net Pension Liability (Asset) |
| Balances at 12/31/14 | $ 34,657,446 | $ 31,815,038 | $ 2,842,408 |
| Changes for the year: | | | |
| Service cost | 1,012,344 | - | 1,012,344 |
| Interest | 2,597,036 | - | 2,597,036 |
| Differences between expected and actual experience | 163,825 | - | 163,825 |
| Changes of benefit terms | - | - | - |
| Changes of assumptions | 1,178,962 | - | 1,178,962 |
| Employer contributions | - | 1,647,664 | (1,647,664) |
| Member contributions | - | 217,014 | (217,014) |
| Net investment income | - | 3,062,959 | (3,062,959) |
| Benefit payments, including refunds of employee contributions | (1,495,819) | (1,495,819) | - |
| Balances at 12/31/15 | $ 38,113,794 | $ 35,246,856 | $ 2,866,938 |
| Plan fiduciary net position as a percentage of total pension liability | | | 92.48% |

Net investment income includes $143,382 of trustee and other investment related expenses.

| | Union Plan | | |
|---|---|---|---|
| | Total Pension Liability | Plan Net Position | Net Pension Liability (Asset) |
| Balances at 12/31/14 | $ 94,277,423 | $ 95,200,261 | $ (922,838) |
| Changes for the year: | | | |
| Service cost | 2,293,999 | - | 2,293,999 |
| Interest | 7,030,443 | - | 7,030,443 |
| Differences between expected and actual experience | (415,816) | - | (415,816) |
| Changes of benefit terms | - | - | - |
| Changes of assumptions | 3,319,486 | - | 3,319,486 |
| Employer contributions | - | 3,124,830 | (3,124,830) |
| Member contributions | - | 179,401 | (179,401) |
| Net investment income | - | 12,699,402 | (12,699,402) |
| Benefit payments, including refunds of employee contributions | (4,067,193) | (4,067,193) | - |
| Balances at 12/31/15 | $ 102,438,342 | $ 107,136,701 | $ (4,698,359) |
| Plan fiduciary net position as a percentage of the total pension liability | | | 104.59% |

Net investment income includes $292,384 of trustee and other investment related expenses.

Pennsylvania Act 205 (Act 205) is the authority by which benefit provisions are established and may be amended. Stand-alone financial reports were not issued for either of the Plans, as they are not required under the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974.

*Sensitivity of the Net Pension Liability to Changes in Discount Rate.* The following presents the net pension liability (asset) of the Authority, calculated using the discount rate of 7.45%, as well as what the Authority's net pension liability (asset) would be if it were calculated using a discount rate that is 1% lower (6.45%) or 1% higher (8.45%) than the current rate:

| | 1% Decrease (6.45%) | Current Discount Rate (7.45%) | 1% Increase (8.45%) |
|---|---|---|---|
| Management | $ 7,724,332 | $ 2,866,938 | $ (1,213,096) |
| Union | 8,498,661 | (4,698,359) | (15,805,977) |
| | $ 16,222,993 | $ (1,831,421) | $ (17,019,073) |

*Pension Expense and Deferred Inflows/Outflows of Resources Related to Pensions*. For the year ended December 31, 2015, the Authority recognized pension expense of $2,456,568. At December 31, 2015, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

| | 2015 | |
|---|---|---|
| | Deferred Outflows of Resources | Deferred Inflows of Resources |
| Differences between expected and actual experience | $ 136,521 | $ 359,625 |
| Changes of assumptions | 3,853,375 | - |
| Net difference between projected and actual earnings on pension plan investments | - | 5,065,336 |
| Contributions made subsequent to the measurement date | 4,813,319 | - |
| | $ 8,803,215 | $ 5,424,961 |

| | 2014 | |
|---|---|---|
| | Deferred Outflows of Resources | Deferred Inflows of Resources |
| Contributions made subsequent to the measurement date | $ 4,772,494 | $ - |

Deferred outflows of resources related to Authority pension contributions subsequent to the measurement date of $4,813,319 will be recognized as a reduction of the net pension liability in the year ending December 31, 2016. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pension will be recognized in pension expense as follows:

| Year Ended June 30: | Deferred Outflows | Deferred Inflows |
|---|---|---|
| 2016 | $ 672,377 | $ 1,322,525 |
| 2017 | 672,377 | 1,322,525 |
| 2018 | 672,377 | 1,322,525 |
| 2019 | 672,377 | 1,322,525 |
| 2020 | 672,377 | 56,191 |
| 2021 | 448,579 | 56,191 |
| 2022 | 179,432 | 22,479 |
| | $ 3,989,896 | $ 5,424,961 |

## 8. Post-Retirement Benefits

In addition to the pension benefits described in Note 7, the Authority provides certain post-retirement healthcare benefits to management and union retirees until age 65.

In accordance with the Authority's Policy and Procedures Manual for Management Employees, these benefits are provided to all management employees who retire on or after attaining age 55 with at least ten years of credited service. Seven retirees in 2015 and eight retirees in 2014 met these eligibility requirements for which the Authority paid 100% of the medical insurance premiums. These premium expenditures amounted to $102,409 and $97,112 for 2015 and 2014, respectively.

Additionally, in accordance with the current labor agreement between the Authority and the Utility Workers Union of America AFL-CIO Local 433, certain healthcare benefits are provided to all union employees who retire at age 60 through age 65 with 25 years of credited service. In addition to the healthcare benefits, the Authority provides full hospitalization for retirees between the ages of 62 and 65 with 15 to 24 years of credited service and 25% of the life insurance coverage that was provided while employed with the Authority will be carried into retirement. Fourteen retirees in 2015 and twelve retirees in 2014 met these eligibility requirements for which the Authority pays 100% of the medical insurance premiums. These premium expenditures amounted to $198,793 and $152,669 for 2015 and 2014, respectively.

In addition to these post-retirement healthcare benefits, the Authority also provides to both management and union retirees, the Vision Program, the Prescription Drug Program, and the Dental Program. For these programs; however, the retiree shall be responsible to pay the entire prevailing premium being paid by the Authority for its employees. Usually, these premiums are taken directly out of the retirees' pension payments.

During fiscal year 2015, the annual future other post-retirement benefits cost was determined based on the assumptions used in the actuarial valuation performed in 2015. This resulted in the Authority accruing a liability of $4,456,371 for future other post-retirement benefits.

The Authority's annual OPEB cost is calculated based on the annual required contribution of the employer (ARC), an amount actuarially determined in accordance with the parameters of GASB Statement No. 45. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover the normal cost each year and to amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed thirty years. The following table shows the component of the Authority's annual OPEB cost for the year, the amount actually contributed, and changes in the Authority's net OPEB obligation:

| | |
|---|---|
| Annual required contribution | $ 1,203,733 |
| Interest on net OPEB obligation | 149,033 |
| Adjustment to annual required contribution | (215,466) |
| Annual OPEB cost | 1,137,300 |
| Contributions made (includes implicit rate subsidy) | (406,766) |
| Increase in net OPEB obligation | 730,534 |
| Net OPEB obligation - beginning of year | 3,725,837 |
| Net OPEB obligation - end of year | $ 4,456,371 |

The Authority's annual OPEB cost, the percentage of annual OPEB cost contributed and the OPEB obligation were as follows:

| Year Ending | Annual OPEB Cost | Employer Contributions | % of AOC Contributed | Net OPEB Obligation |
|---|---|---|---|---|
| 12/31/2013 | $ 1,060,870 | $ 371,802 | 35.05% | $ 3,049,054 |
| 12/31/2014 | 1,048,585 | 371,802 | 35.46% | 3,725,837 |
| 12/31/2015 | 1,137,300 | 406,766 | 35.77% | 4,456,371 |

The ARC for the current year was computed as of the latest actuarial valuation using the following actuarial assumptions:

| | |
|---|---|
| Actuarial valuation date | 1/1/15 |
| Actuarial cost method | Projected Unit Credit |
| Amortization method | Level Dollar Open |
| Asset valuation method | n/a |
| Amortization period | 30 years |
| Actuarial assumptions: | |
| Investment rate of return | 4.0% |
| Projected salary increases | 4.5% |
| Inflation rate | 2.3% |
| Cost-of-living adjustments | n/a |

Several actuarial assumption changes were made for the January 1, 2015 actuarial report. The aging table was updated to reflect factors developed in the 2013 Society of Actuaries "Health Care Costs – From Birth to Death" independent report. The trend rate assumption was revised to reflect a) lower expected short-term healthcare cost increases and b) a shortening of the period of time to reach the ultimate trend rate. Finally, the mortality assumption was revised to reflect updated factors for future mortality improvement. Assumed mortality for non-disabled participants is now based on the RP-2000 Mortality Table, adjusted for blue-collar (Bargaining) or white-collar (Management) employees, using separate tables for employees and retirees, and with fully generational mortality improvement projected under Scale BB2D.

Funding Status and Funding Progress

The schedule of funding progress as of January 1, 2015 for the postemployment medical and life insurance benefits is as follows:

| | |
|---|---|
| Actuarial value of plan assets | $ - |
| Actuarial accrued liability (AAL) | 10,609,274 |
| Unfunded actuarial accrued liability (UAAL) | $ (10,609,274) |
| Funded ratio (actuarial value of plan assets/AAL) | 0.00% |
| Covered payroll (active plan members) | $ 24,487,838 |
| UAAL as a percentage of covered payroll | -43.32% |

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far in the future. Examples include assumptions about future employment and mortality. Amounts determined regarding the future status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made in the future. The schedule of funding progress, presented as required supplementary information following the notes to the financial statements will show multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

Projections and calculations of plan benefits for financial reporting purposes are based on the substantive plan (the plans as understood by the employer and the plan members) and include the types of benefits provided at the time of each valuation and historical pattern of sharing benefit cost between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

## 9. CONTINGENCIES

The Authority is exposed to various risks of loss related to torts; alleged negligence; acts of discrimination; breach of contract; disagreements arising from the interpretation of laws or regulations; theft of, damage to and destruction of assets; errors and omissions; injuries to employees and natural disasters, for which the Authority carries commercial insurance. While some of these claims may be for substantial amounts, they are not unusual in the ordinary course of providing collection, transportation and treatment of wastewater services for applicable municipalities. The Authority does not participate in any public entity risk pool, and does not retain risk related to any aforementioned exposure except for those amounts incurred relative to policy deductibles, which are not significant. Additionally, the Authority has not significantly reduced any of its insurance coverage from the prior years.

Settled claims have not exceeded the Authority's commercial coverage in any of the past three years. Except as noted below, the Authority's management does not expect that the resolution of any outstanding claims and litigation will have a material adverse effect on the accompanying financial statements.

## 10. Environmental Permit Requirements

The Authority is currently engaged in a major capital program to provide additional treatment capacity as required by Pennsylvania Law. This program is the first phase of a multi-phased program designed to reduce or eliminate wet-weather discharges from the Authority's conveyance and treatment system. As required by the Clean Water Act, the Authority concluded negotiations with the U.S. Environmental Protection Agency, Pennsylvania Department of Environmental Protection, and the Allegheny County Health Department (collectively the Agencies) in May of 2007. A Consent Decree resulting from these negotiations was entered by the United States District Court for the Western District of Pennsylvania on January 23, 2008. The Consent Decree requires the Authority to further develop, refine and submit a Long Term Wet Weather Control Plan (Plan) to the Agencies by January 30, 2013. A draft of the Plan was released for public comment at the end of July, 2012, and subsequently provided to the Agencies for review January 30, 2013. In response to public comment, the Authority requested additional time to finalize the Plan to incorporate an evaluation of green technology. The Agencies are reviewing the Authority's submissions, and continue to meet with the Authority to discuss implementing the Plan in phases that will accommodate cost and green alternatives.

The final Plan will include provisions for significant capital improvements to the Authority's conveyance and treatment system, to capture and treat a defined flow from its customer municipalities, and to achieve applicable receiving stream water quality standards. Upon approval by the Agencies, the Plan activities must be completed by September 30, 2026.

## 11. TOTAL DEBT SERVICE SCHEDULE

| | Series of 1992 | Series of 1993 | Series of 2007 | Series of 2010 | Subtotal |
|---|---|---|---|---|---|
| June 1, 2016 | $ 310,613 | $ 4,470,000 | $ 2,807,625 | $ 2,805,378 | $ 10,393,616 |
| December 1, 2016 | - | 11,685,000 | 3,112,622 | 2,603,128 | 17,400,750 |
| June 1, 2017 | - | - | 2,801,295 | 2,803,128 | 5,604,423 |
| December 1, 2017 | - | - | 3,121,295 | 2,600,503 | 5,721,798 |
| June 1, 2018 | - | - | 2,794,575 | 2,815,503 | 5,610,078 |
| December 1, 2018 | - | - | 3,124,575 | 2,597,413 | 5,721,988 |
| June 1, 2019 | - | - | 2,787,480 | 2,817,413 | 5,604,893 |
| December 1, 2019 | - | - | 3,127,480 | 2,594,113 | 5,721,593 |
| June 1, 2020 | - | - | 2,780,000 | 2,774,113 | 5,554,113 |
| December 1, 2020 | - | - | 2,880,000 | 2,591,188 | 5,471,188 |
| June 1, 2021 | - | - | 2,777,875 | 2,781,188 | 5,559,063 |
| December 1, 2021 | - | - | 2,877,875 | 2,586,438 | 5,464,313 |
| June 1, 2022 | - | - | 2,775,625 | 2,791,438 | 5,567,063 |
| December 1, 2022 | - | - | 2,875,624 | 2,581,310 | 5,456,934 |
| June 1, 2023 | - | - | 2,773,438 | 2,806,313 | 5,579,751 |
| December 1, 2023 | - | - | 2,873,437 | 2,575,688 | 5,449,125 |
| June 1, 2024 | - | - | 2,771,250 | 5,980,688 | 8,751,938 |
| December 1, 2024 | - | - | 9,771,250 | 2,490,563 | 12,261,813 |
| June 1, 2025 | - | - | 2,596,250 | 6,030,563 | 8,626,813 |
| December 1, 2025 | - | - | 11,596,250 | 2,402,063 | 13,998,313 |
| June 1, 2026 | - | - | 2,378,750 | 15,257,063 | 17,635,813 |
| December 1, 2026 | - | - | 2,728,750 | 2,080,688 | 4,809,438 |
| June 1, 2027 | - | - | 2,370,000 | 5,805,688 | 8,175,688 |
| December 1, 2027 | - | - | 3,065,000 | 1,987,563 | 5,052,563 |
| June 1, 2028 | - | - | 2,352,620 | 5,907,563 | 8,260,183 |
| December 1, 2028 | - | - | 3,082,625 | 1,889,563 | 4,972,188 |
| June 1, 2029 | - | - | 2,334,375 | 6,004,563 | 8,338,938 |
| December 1, 2029 | - | - | 3,099,375 | 1,786,686 | 4,886,061 |
| June 1, 2030 | - | - | 2,315,250 | 6,116,688 | 8,431,938 |
| December 1, 2030 | - | - | 3,115,250 | 1,678,434 | 4,793,684 |
| June 1, 2031 | - | - | 2,295,250 | 4,238,438 | 6,533,688 |
| December 1, 2031 | - | - | 13,570,250 | 1,622,438 | 15,192,688 |
| June 1, 2032 | - | - | 2,013,375 | 4,297,438 | 6,310,813 |
| December 1, 2032 | - | - | 13,853,373 | 1,563,922 | 15,417,295 |
| June 1, 2033 | - | - | 1,717,375 | 4,353,922 | 6,071,297 |
| December 1, 2033 | - | - | 14,152,375 | 1,502,891 | 15,655,266 |
| June 1, 2034 | - | - | 1,406,500 | 4,417,891 | 5,824,391 |
| December 1, 2034 | - | - | 14,461,501 | 1,439,125 | 15,900,626 |
| June 1, 2035 | - | - | 1,080,125 | 4,499,125 | 5,579,250 |
| December 1, 2035 | - | - | 14,785,125 | 1,362,625 | 16,147,750 |
| June 1, 2036 | - | - | 737,500 | 4,582,625 | 5,320,125 |
| December 1, 2036 | - | - | 15,127,500 | 1,282,125 | 16,409,625 |
| June 1, 2037 | - | - | 377,750 | 4,662,125 | 5,039,875 |
| December 1, 2037 | - | - | 15,487,756 | 1,197,620 | 16,685,376 |
| June 1, 2038 | - | - | - | 16,372,625 | 16,372,625 |
| December 1, 2038 | - | - | - | 818,250 | 818,250 |
| June 1, 2039 | - | - | - | 16,773,250 | 16,773,250 |
| December 1, 2039 | - | - | - | 419,375 | 419,375 |
| June 1, 2040 | - | - | - | 17,194,375 | 17,194,375 |
| December 1, 2040 | - | - | - | - | - |
| June 1, 2041 | - | - | - | - | - |
| December 1, 2041 | - | - | - | - | - |
| June 1, 2042 | - | - | - | - | - |
| December 1, 2042 | - | - | - | - | - |
| June 1, 2043 | - | - | - | - | - |
| December 1, 2043 | - | - | - | - | - |
| June 1, 2044 | - | - | - | - | - |
| December 1, 2044 | - | - | - | - | - |
| June 1, 2045 | - | - | - | - | - |
| December 1, 2045 | - | - | - | - | - |
| | $ 310,613 | $ 16,155,000 | $ 210,933,571 | $ 201,142,816 | $ 428,542,000 |

(Continued)

## 11. TOTAL DEBT SERVICE SCHEDULE (continued)

| | Series of 2011 | Series of 2013 | Series of 2015 | Combined Debt Service | Annual Debt Service |
|---|---|---|---|---|---|
| June 1, 2016 | $ 3,563,475 | $ 1,612,057 | $ 6,233,113 | $ 21,802,261 | |
| December 1, 2016 | 3,566,574 | 1,612,056 | 9,333,112 | 31,912,492 | 53,714,753 |
| June 1, 2017 | 11,938,875 | 1,612,057 | 6,186,613 | 25,341,968 | |
| December 1, 2017 | 11,936,505 | 1,612,056 | 9,096,612 | 28,366,971 | 53,708,939 |
| June 1, 2018 | 11,937,750 | 1,612,059 | 6,128,413 | 25,288,300 | |
| December 1, 2018 | 11,937,375 | 1,612,056 | 9,158,412 | 28,429,831 | 53,718,131 |
| June 1, 2019 | 11,940,250 | 1,612,056 | 6,067,813 | 25,225,012 | |
| December 1, 2019 | 11,936,126 | 1,612,055 | 9,217,812 | 28,487,586 | 53,712,598 |
| June 1, 2020 | - | 1,612,056 | 6,004,813 | 13,170,982 | |
| December 1, 2020 | - | 1,612,057 | 33,459,812 | 40,543,057 | 53,714,039 |
| June 1, 2021 | - | 1,612,056 | 5,341,638 | 12,512,757 | |
| December 1, 2021 | - | 1,612,057 | 34,126,637 | 41,203,007 | 53,715,764 |
| June 1, 2022 | - | 1,612,056 | 4,624,813 | 11,803,932 | |
| December 1, 2022 | - | 1,612,057 | 34,834,812 | 41,903,803 | 53,707,735 |
| June 1, 2023 | - | 1,612,056 | 3,872,813 | 11,064,620 | |
| December 1, 2023 | - | 1,612,056 | 35,592,812 | 42,653,993 | 53,718,613 |
| June 1, 2024 | - | 1,612,056 | 3,090,213 | 13,454,207 | |
| December 1, 2024 | - | 7,112,054 | 17,820,212 | 37,194,079 | 50,648,286 |
| June 1, 2025 | - | 1,489,894 | 2,735,150 | 12,851,857 | |
| December 1, 2025 | - | 8,989,894 | 12,540,150 | 35,528,357 | 48,380,214 |
| June 1, 2026 | - | 1,312,019 | 2,509,203 | 21,457,035 | |
| December 1, 2026 | - | 8,812,019 | 4,649,203 | 18,270,660 | 39,727,695 |
| June 1, 2027 | - | 1,124,519 | 2,478,441 | 11,778,648 | |
| December 1, 2027 | - | 8,624,518 | 13,263,440 | 26,940,521 | 38,719,169 |
| June 1, 2028 | - | 938,519 | 2,208,816 | 11,407,518 | |
| December 1, 2028 | - | 6,438,519 | 13,528,815 | 24,939,522 | 36,347,040 |
| June 1, 2029 | - | 807,319 | 1,962,666 | 11,108,923 | |
| December 1, 2029 | - | 3,307,319 | 13,777,665 | 21,971,045 | 33,079,968 |
| June 1, 2030 | - | 754,819 | 1,667,291 | 10,854,048 | |
| December 1, 2030 | - | 754,818 | 14,072,291 | 19,620,793 | 30,474,841 |
| June 1, 2031 | - | 754,819 | 1,357,166 | 8,645,673 | |
| December 1, 2031 | - | 754,816 | 3,952,166 | 19,899,670 | 28,545,343 |
| June 1, 2032 | - | 754,819 | 1,313,375 | 8,379,007 | |
| December 1, 2032 | - | 754,819 | 3,993,375 | 20,165,489 | 28,544,496 |
| June 1, 2033 | - | 754,819 | 1,246,375 | 8,072,491 | |
| December 1, 2033 | - | 754,819 | 4,061,375 | 20,471,460 | 28,543,951 |
| June 1, 2034 | - | 754,819 | 1,176,000 | 7,755,210 | |
| December 1, 2034 | - | 754,819 | 4,131,000 | 20,786,445 | 28,541,655 |
| June 1, 2035 | - | 754,819 | 1,102,125 | 7,436,194 | |
| December 1, 2035 | - | 754,818 | 4,207,125 | 21,109,693 | 28,545,887 |
| June 1, 2036 | - | 754,819 | 1,024,500 | 7,099,444 | |
| December 1, 2036 | - | 754,818 | 4,284,500 | 21,448,943 | 28,548,387 |
| June 1, 2037 | - | 754,819 | 943,000 | 6,737,694 | |
| December 1, 2037 | - | 754,818 | 4,363,000 | 21,803,194 | 28,540,888 |
| June 1, 2038 | - | 754,819 | 857,500 | 17,984,944 | |
| December 1, 2038 | - | 754,819 | 4,447,500 | 6,020,569 | 24,005,513 |
| June 1, 2039 | - | 754,819 | 767,750 | 18,295,819 | |
| December 1, 2039 | - | 754,819 | 4,537,750 | 5,711,944 | 24,007,763 |
| June 1, 2040 | - | 754,819 | 673,500 | 18,622,694 | |
| December 1, 2040 | - | 754,819 | 4,633,500 | 5,388,319 | 24,011,013 |
| June 1, 2041 | - | 754,819 | 574,500 | 1,329,319 | |
| December 1, 2041 | - | 9,789,818 | 4,734,500 | 14,524,318 | 15,853,637 |
| June 1, 2042 | - | 517,650 | 470,500 | 988,150 | |
| December 1, 2042 | - | 6,897,650 | 4,835,500 | 11,733,150 | 12,721,300 |
| June 1, 2043 | - | 350,175 | 361,375 | 711,550 | |
| December 1, 2043 | - | 6,855,174 | 4,946,375 | 11,801,549 | 12,513,099 |
| June 1, 2044 | - | 179,419 | 246,750 | 426,169 | |
| December 1, 2044 | - | 7,014,420 | 5,061,750 | 12,076,170 | 12,502,339 |
| June 1, 2045 | - | - | 126,375 | 126,375 | |
| December 1, 2045 | - | - | 5,181,375 | 5,181,375 | 5,307,750 |
| | $ 78,756,930 | $ 125,326,688 | $ 405,195,188 | $ 1,037,820,806 | $ 1,037,820,806 |

(Concluded)

# Required Supplementary Information

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

YEAR DECEMBER 31, 2015

| | Management Employees Plan | Union Employees Plan |
|---|---|---|
| **Total Pension Liability:** | | |
| Service cost | $ 1,012,344 | $ 2,293,999 |
| Interest | 2,597,036 | 7,030,443 |
| Differences between expected and actual experience | 163,825 | (415,816) |
| Changes of benefit terms | - | - |
| Changes of assumptions | 1,178,962 | 3,319,486 |
| Benefit payments, including refunds of member contributions | (1,495,819) | (4,067,193) |
| **Net Changes in Total Pension Liability** | 3,456,348 | 8,160,919 |
| **Total Pension Liability - Beginning** | 34,657,446 | 94,277,423 |
| **Total Pension Liability - Ending (a)** | $ 38,113,794 | $ 102,438,342 |
| **Plan Fiduciary Net Position:** | | |
| Plan member contributions | $ 217,014 | $ 179,401 |
| Employer actuarially recommended contributions | 1,647,664 | 3,124,830 |
| Net investment income | 3,062,959 | 12,699,402 |
| Benefit payments, including refunds of member contributions | (1,495,819) | (4,067,193) |
| **Net Change in Plan Fiduciary Net Position** | 3,431,818 | 11,936,440 |
| **Plan Fiduciary Net Position - Beginning** | 31,815,038 | 95,200,261 |
| **Plan Fiduciary Net Position - Ending (b)** | $ 35,246,856 | $ 107,136,701 |
| **Net Pension Liability (Asset) - Ending (a-b)** | $ 2,866,938 | $ (4,698,359) |
| **Plan Fiduciary Net Position as a Percentage of the Total Pension Liability** | 92.48% | 104.59% |
| **Covered Employee Payroll** | $ 6,455,960 | $ 16,613,080 |
| **Net Pension Liability as a Percentage of Covered Employee Payroll** | 44.41% | -28.28% |

See accompanying notes to required supplementary pension schedules.

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF AUTHORITY CONTRIBUTIONS - PENSIONS

YEAR ENDED DECEMBER 31, 2015

| | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|
| Actuarially determined contribution: | | | | | | | | | | |
| Management | $ 1,642,817 | $ 1,647,664 | $ 1,606,029 | $ 1,529,224 | $ 1,358,351 | $ 1,328,190 | $ 934,784 | $ 850,919 | $ 781,829 | $ 749,971 |
| Union | 3,170,502 | 3,124,830 | 2,260,312 | 2,199,113 | 1,804,689 | 1,765,668 | 667,181 | 624,065 | - | - |
| | 4,813,319 | 4,772,494 | 3,866,341 | 3,728,337 | 3,163,040 | 3,093,858 | 1,601,965 | 1,474,984 | 781,829 | 749,971 |
| Contributions in relation to the actuarially determined contribution: | | | | | | | | | | |
| Management | 1,642,817 | 1,647,664 | 1,606,104 | 1,529,224 | 1,358,400 | 1,328,190 | 934,800 | 850,919 | 781,900 | 750,000 |
| Union | 3,170,502 | 3,124,830 | 2,260,313 | 2,199,952 | 1,804,700 | 1,765,668 | 667,181 | 624,065 | - | - |
| | 4,813,319 | 4,772,494 | 3,866,417 | 3,729,176 | 3,163,100 | 3,093,858 | 1,601,981 | 1,474,984 | 781,900 | 750,000 |
| Contribution deficiency (excess) | $ - | $ - | $ (76) | $ (839) | $ (60) | $ - | $ (16) | $ - | $ (71) | $ (29) |
| Covered employee payroll: | | | | | | | | | | |
| Management | $ 7,340,502 | $ 6,455,960 | $ 7,066,389 | $ 6,957,730 | $ 6,554,237 | $ 6,198,835 | $ 5,783,644 | $ 5,259,790 | $ 4,894,885 | $ 4,541,409 |
| Union | 17,147,336 | 16,613,080 | 16,193,768 | 15,871,099 | 15,750,647 | 15,233,174 | 14,618,183 | 13,899,054 | 13,042,910 | 12,050,192 |
| | $ 24,487,838 | $ 23,069,040 | $ 23,260,157 | $ 22,828,829 | $ 22,304,884 | $ 21,432,009 | $ 20,401,827 | $ 19,158,844 | $ 17,937,795 | $ 16,591,601 |
| Contributions as a percentage of covered employee payroll | 19.66% | 20.69% | 16.62% | 16.33% | 14.18% | 14.44% | 7.85% | 7.70% | 4.36% | 4.52% |

**Notes to Required Supplementary Pension Schedules:**

Valuation date: Actuarial calculations are performed each year as of January 1. Contributions noted above are as of each pension plan's calendar year ending December 31 using actuarially determined contribution rates calculated as of January 1, one year prior to the end of the calendar year in which contributions are reported.

Methods and assumptions used to determine the contribution rates:

| | |
|---|---|
| Actuarial cost method | Entry Age Normal - Union Plan<br>Entry Age Normal - Management Plan |
| Amortization method | Level-dollar monthly payments - Union Plan<br>Level-dollar monthly payments - Management Plan |
| Remaining amortization period | 16 years Union Plan<br>15 years Management Plan |
| Asset valuation method | Smoothed market value (without phase-in) - Union Plan<br>Smoothed market value (with phase-in) - Management Plan |
| Inflation | 2.50% Union Plan<br>2.50% Management Plan |
| Salary increases | 4.50% Union Plan<br>4.50% Management Plan |
| Investment rate of return (gross return assumption) | 7.75% Union Plan<br>7.75% Management Plan |
| Mortality - Union Plan | For healthy lives, mortality is in accordance with the RP-2000 Combined Mortality Table adjusted for blue-collar employees with using separate rates for employees and annuitants, and with fully generational projected mortality improvement under Scale BB2D.<br>Previously, combined mortality rates were used for all participants and mortality improvement was projected under Scale AA.<br>For disabled lives, mortality is in accordance with the disabled mortality table specified in IRS Revenue Ruling 96-7 for disabilities occurring prior to 1995. |
| Mortality - Management Plan | For healthy lives, mortality is in accordance with the RP-2000 Combined Mortality Table adjusted for white-collar employees with using separate rates for employees and annuitants, and with fully generational projected mortality improvement under Scale BB2D.<br>Previously, combined mortality rates were used for all participants and mortality improvement was projected under Scale AA.<br>For disabled lives, mortality is in accordance with the disabled mortality table specified in IRS Revenue Ruling 96-7 for disabilities occurring prior to 1995. |

Note: the mortality improvement assumptions were updated as of the December 31, 2006, 2010, 2012, 2014 valuations.

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF FUNDING PROGRESS - OPEB PLAN

| Actuarial Valuation Date | Actuarial Value of Assets | Actuarial Accrued Liability (AAL) | Unfunded Actuarial Accrued Liability (UAAL) | Funded Ratio | Covered Payroll | Excess (Deficiency) as a Percentage of Covered Payroll |
|---|---|---|---|---|---|---|
| 1/1/2009 | $ - | $ 5,571,496 | $ (5,571,496) | 0.00% | $ 19,879,619 | (28.03%) |
| 1/1/2010 | - | 6,460,601 | (6,460,601) | 0.00% | 21,432,009 | (30.14%) |
| 1/1/2011 | - | 7,945,721 | (7,945,721) | 0.00% | 22,304,884 | (35.62%) |
| 1/1/2013 | - | 9,851,054 | (9,851,054) | 0.00% | 23,260,157 | (42.35%) |
| 1/1/2015 | - | 10,609,274 | (10,609,274) | 0.00% | 24,487,838 | (43.32%) |

See accompanying notes to supplementary schedules.

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF CONTRIBUTIONS - OPEB PLAN

| Calendar Year | Annual OPEB Cost | Employer Contributions | Percentage Contributed |
|---|---|---|---|
| 2010 | $ 760,516 | $ 218,196 | 28.69% |
| 2011 | 932,010 | 347,147 | 37.25% |
| 2012 | 921,581 | 347,147 | 37.67% |
| 2013 | 1,060,870 | 371,802 | 35.05% |
| 2014 | 1,048,585 | 371,802 | 35.46% |
| 2015 | 1,137,300 | 406,766 | 35.77% |

See accompanying notes to supplementary schedules.

# Supplementary Information

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF INVESTMENTS AND OTHER ASSETS

YEAR ENDED DECEMBER 31, 2015

| | Cash and Cash Equivalents | Investments | Accrued Interest Receivable | Total |
|---|---|---|---|---|
| **Current Account:** | | | | |
| Revenue Fund | $ 72,901,655 | $ - | $ - | $ 72,901,655 |
| **Special Accounts:** | | | | |
| Capital Facilities Fund | 35,691,640 | - | - | 35,691,640 |
| Construction Fund 2015 | 546,057 | 74,050,644 | 304,106 | 74,900,807 |
| Construction Fund 2013 | 30,043,417 | - | - | 30,043,417 |
| Capital Interest Fund | 827 | - | - | 827 |
| | 66,281,941 | 74,050,644 | 304,106 | 140,636,691 |
| **Debt Service Accounts:** | | | | |
| Debt Service Fund | 31,792 | - | - | 31,792 |
| Total | $ 139,215,388 | $ 74,050,644 | $ 304,106 | $ 213,570,138 |

# ALLEGHENY COUNTY SANITARY AUTHORITY

## SCHEDULE OF INVESTMENTS AND OTHER ASSETS

### YEAR ENDED DECEMBER 31, 2014

| | Cash and Cash Equivalents | Investments | Accrued Interest Receivable | Total |
|---|---|---|---|---|
| **Current Account:** | | | | |
| Revenue Fund | $ 69,208,841 | $ - | $ - | $ 69,208,841 |
| **Special Accounts:** | | | | |
| Capital Facilities Fund | 15,676,890 | - | - | 15,676,890 |
| Construction Fund 2010 | - | - | - | - |
| Construction Fund 2013 | 14,180,698 | 31,989,692 | 65,577 | 46,235,967 |
| Capital Interest Fund | 3,224,678 | - | - | 3,224,678 |
| | 33,082,266 | 31,989,692 | 65,577 | 65,137,535 |
| **Debt Service Accounts:** | | | | |
| Debt Service Fund | 1,067 | - | - | 1,067 |
| Total | $ 102,292,174 | $ 31,989,692 | $ 65,577 | $ 134,347,443 |