Allegheny County Sanitary Authority

Financial Statements and
Required Supplementary and
Supplementary Information

Years Ended December 31, 2021 and 2020
with Independent Auditor's Report

MaherDuessel

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ALLEGHENY COUNTY SANITARY AUTHORITY

YEARS ENDED DECEMBER 31, 2021 AND 2020

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Independent Auditor's Report

Board of Directors
Allegheny County Sanitary Authority

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying financial statements of the business-type activities and the aggregate remaining fund information of Allegheny County Sanitary Authority (Authority), as of and for the years ended December 31, 2021 and 2020, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities and the aggregate remaining fund information of the Authority, as of December 31, 2021 and 2020, and the respective changes in financial position and, where applicable, cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Authority and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the required supplementary information listed in the table of contents be presented to supplement the basic financial statements. Such information is the responsibility of management and, 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 audits 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.

Maher Duessel

Pittsburgh, Pennsylvania
March 22, 2022

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 2021 this Management's 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 ten Fortune 500 corporate headquarters. The County's 2021 Fortune 500 companies include: U.S. Steel (310), PNC Financial Services Group (120), PPG Industries (220), Kraft Heinz (110), Alcoa (330), Howmet Aerospace (226), Wesco International, Inc. (245), Viatris (254), Dick's Sporting Goods (362), and Westinghouse Air Brake - Wabtec (388). 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 busiest inland port in the nation. There is annual benefit to the region for the shipping and receiving of 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 focus industries have been healthcare and life sciences, advanced manufacturing, energy, information and communication 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 over 158,000 people and is a robust network that is cultivating lifesaving technologies, regenerative medicine, and pharmaceuticals. The University of Pittsburgh Medical Center is a multi-billion-dollar global healthcare enterprise and is the region's top employer, with more than 92,000 employees in 40 hospitals. Highmark Inc., UnitedHealth Care, Allegheny Health Network, and Mercy Health System are also part of this sector.

Top manufacturers such as ACUTRONIC, Alcoa, Covestro, Calgon Carbon, Drager Safety, Eaton Corp, HJ Heinz, Howmet Aerospace, PPG Industries, RTI International Metals, and U.S. Steel are either headquartered or have a presence in the greater County region. Smaller precision tooling and machining companies meet global demands for custom components.

The County and surrounding region has become a national leader in energy technology, innovation, and supply chain related to production, distribution, and efficient usage. The area is home to more than 800 companies in the global energy market, including Alpha Natural Resources, Aquatech, Chevron, Columbia Gas of PA, CONSOL Energy Inc., EQT, FirstEnergy Corp., Peoples National Gas, Range Resources, and Westinghouse.

Technology firms, including Google, Duolingo, Ansys, Apple, IBM, Uber, and Ariba, have a presence within the County and employ some 26,000 people. A tech-savvy talent pipeline flowing from many area colleges and universities, and a robust network of organizations supporting financial innovation, are helping the region's knowledge-based economy to thrive.

Global financial institutions with headquarters or major business units within the County include PNC Financial Services Group, The Bank of New York Mellon, Citizens Bank, Dollar Bank, Federated Hermes, First Commonwealth Bank, Huntington National Bank, S&T Bank, TriState Capital, and First Niagara.

Two global law firms, K&L Gates and Reed Smith, are based in the City of Pittsburgh, as is Buchanan, Ingersoll & Rooney, and Jones Day – Pittsburgh as well as major insurance companies, including Highmark, UPMC, UnitedHealthcare, and Cigna.

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, Penn State University, Point Park University, Robert Morris University, the Art Institute of Pittsburgh, and the University of Pittsburgh. The County is also home to various junior and technical colleges.

Uber has a tech center in Pittsburgh and a testing facility within the City of Pittsburgh. Also located in Pittsburgh is the recently formed American Robotics Manufacturing Institute. Amazon has expanded its footprint in the Pittsburgh region.

The Port Authority of Allegheny County (Port Authority) serves the metropolitan area by operating over 740 buses, over 80 light rail vehicles, and the Monongahela incline. The Port Authority also owns the Duquesne Incline, which it leases to the nonprofit Society for the Preservation of the Duquesne Heights Incline. The Port Authority is the largest operator of mass transit services in Western Pennsylvania and is among the nation's top 20 largest public transportation systems. The Port Authority's 2,600 employees serve approximately 200,000 riders, with a total of nearly 64 million passengers annually.

Pittsburgh International Airport (PIA), which offers more than 414 flights per day to 74 destinations on 17 airlines, is recognized for its state-of-the-art terminals and an Airmall for the approximately 9 million travelers that pass through PIA each year.

In 2019, non-manufacturing industries accounted for over 90% of the Pittsburgh 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 past two decades 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.

Additionally, during 2020 the impact of the restrictions imposed by the State of Pennsylvania in response to the coronavirus disease 2019 (COVID-19) on commercial industries such as retail, entertainment, and restaurants and bars amongst many others, had a direct impact on commercial consumption. This decrease in 2020 commercial consumption was partially offset by an increase in residential consumption, as much of the local workforce was able to work from their residences and limited travel. 2021 continued to see decreases in consumption, with a reversal of the gain in residential consumption experienced in 2020.

- Billed flow for 2021 of 18,774,707 tgal (thousands of gallons) decreased by 447,975 tgal. Residential consumption decreased in 2021 by 539,496 tgal, which was partially offset by an increase in commercial consumption by 91,522 tgal.

- In 2021, the Authority treated 69,898,600 tgal, of which 18,774,707 tgal was billed. Stated differently, the Authority billed for 26.86% of the water it treated. During 2020, the Authority treated 69,580,700 tgal, for which it billed 19,222,682 tgal, or 27.63% 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. 2021 estimated annual precipitation was 40.53 inches, which was slightly more than the 2020 estimated annual precipitation of 39.33 inches.

- 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 5.03, which greatly exceeded the 1.10 Trust Requirements. In addition, stand-alone coverage without consideration to beginning balances was 1.89, which exceeded the required 1.00 Trust Requirement.

- On October 28, 2021, the Board of Directors (Board) adopted multi-year rate structure increasing customer service charges 7 percent for in 2022, 7 percent in 2023, 7 percent in 2024, 7 percent in 2025, and 7 percent in 2026.

REQUIRED FINANCIAL STATEMENTS

The financial statements of the Authority report information on 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 Statement of Net Position includes all of the Authority's assets, deferred outflows of resources, liabilities, and deferred inflows of resources and provides information about the nature and amounts of investments in resources (assets) and obligations to Authority creditors (liabilities). The Statement of Net Position 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 Indenture, the Consulting Engineer, Hatch, has reviewed the rate structure and agrees that a 7 percent rate increase in 2022 is necessary to meet requirements of the Trust Indenture and financial obligations imposed under the federal consent decree rate model structure.

The third 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.

Also included as part of the financial statements are statements related specifically to the Authority's two defined benefit plans: the Statement of Plan Net Position – Pension Trust Funds and the Statement of Changes in Plan Net Position – Pension Trust Funds. These pension plans are described in detail in the notes to the financial statements.

The notes to the 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)

	2021	2020	$ Change	% Change
Current assets	$329.57	$280.56	$49.01	17.47%
Restricted/designated assets	205.16	272.81	-67.65	-24.80%
Prepaid bond costs	5.33	5.82	-0.49	-8.42%
Plant and equipment, net	708.60	643.50	65.10	10.12%
Net pension asset	1.68	0.00	1.68	0.00%
Total Assets	1,250.34	1,202.69	47.65	3.96%
Deferred Outflows of Resources	33.90	34.59	-0.69	-1.99%
Current liabilities	64.85	47.78	17.07	35.73%
Long-term liabilities	716.79	759.63	-42.84	-5.64%
Total Liabilities	781.64	807.41	-25.77	-3.19%
Deferred Inflow of Resources	32.04	28.30	3.74	13.22%
Net Position	$470.56	$401.57	$68.99	17.18%

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

	2020	2019	$ Change	% Change
Current assets	$280.56	$242.48	$38.08	15.70%
Restricted/designated assets	272.81	235.49	37.32	15.85%
Prepaid bond costs	5.82	6.59	-0.77	-11.68%
Plant and equipment, net	643.50	629.10	14.40	2.29%
Net pension asset	0.00	0.00	0.00	0.00%
Total Assets	1,202.69	1,113.66	89.03	7.99%
Deferred Outflows of Resources	34.59	42.81	-8.22	-19.20%
Current liabilities	47.78	46.74	1.04	2.23%
Long-term liabilities	759.63	741.84	17.79	2.40%
Total Liabilities	807.41	788.58	18.83	2.39%
Deferred Inflow of Resources	28.30	11.25	17.05	151.56%
Net Position	$401.57	$356.64	$44.93	12.60%

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

	2021	2020	$ Change	% Change
Operating revenues	$197.36	$186.80	$10.56	5.65%
Non-operating revenue	0.26	2.00	-1.74	-87.00%
Total revenues	197.62	188.80	8.82	4.67%
Operating expenses	84.27	84.28	-0.01	-0.01%
Non-operating expenses	22.63	37.22	-14.59	-39.20%
Depreciation	21.73	22.37	-0.64	-2.86%
Total expenses	128.63	143.87	-15.24	-10.59%
Net income (loss)	68.99	44.93	24.06	53.55%
Net Position, Beginning of Year	401.57	356.64	44.93	12.60%
Net Position, End of Year	$470.56	$401.57	$68.99	17.18%

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

	2020	2019	$ Change	% Change
Operating revenues	$186.80	$180.24	$6.56	3.64%
Non-operating revenue	2.00	8.97	-6.97	-77.70%
Total revenues	188.80	189.21	-0.41	-0.22%
Operating expenses	84.28	82.08	2.20	2.68%
Non-operating expenses	37.22	33.82	3.40	10.05%
Depreciation	22.37	22.77	-0.40	-1.76%
Total expenses	143.87	138.67	5.20	3.75%
Net income (loss)	44.93	50.54	-5.61	-11.10%
Net Position, Beginning of Year	356.64	306.10	50.54	16.51%
Net Position, End of Year	$401.57	$356.64	$44.93	12.60%

OTHER SELECTED INFORMATION

Selected Data:	2021	2020		Difference	%Change
Authorized employees	531	526		5	0.95%
Actual employees at year-end	410	425		-15	-3.53%
Wastewater treated (billons of gallons)	69,899	69,581		318	0.46%
Wastewater billed (billions of gallons)	18,775	19,223		-448	-2.33%
Percentage of billed/treated wastewater	26.86%	27.63%		-0.77%	-2.77%
Rates:					
Charge per 1,000 gallons of water consumption	$9.10	$8.50		$0.60	7.06%
Account service charge per bill rendered	$19.11	$17.86		$1.25	7.00%
Average customer bill:					
Per year	$513.24	$479.44	*	33.80	7.05%
Per quarter	128.31	119.86	*	8.45	7.05%
Per month	42.77	39.95	*	2.82	7.05%

* Based on 12,000 Gallons per quarter

GENERAL TRENDS AND SIGNIFICANT EVENTS

On September 19, 2019, the United States lodged with the Courts a Proposed Modified Consent Decree. On October 2, 2019, the Modified Consent Decree was published in the Federal Register for a 60-day public comment period. The Federal Government accepted comments from October 2, 2019 to December 2, 2019. The Federal Government considered each comment and responded to the public comments (39 written pages) and presented the response to the U.S. District Court.

After the courts reviewed the public comments, the Modified Consent Decree did not change, and as a result, the Modified Consent Decree was entered into the Courts on May 14, 2020. In consideration with the public comments and government responses, the agencies and the courts indicated that the Modified Consent Decree is fair, adequate, reasonable, and consistent with the purpose of the Clean Water Act and the Clean Streams Law.

The Modified Consent Decree replaces the consent decree that the Court entered on January 24, 2008. The Modified Consent Decree: (1) approves portions of the Wet Weather Plan that the Authority was required to develop pursuant to the 2008 Consent Decree; (2) extends the time frame in which the Authority must implement the Wet Weather Plan; and (3) allows the Authority to propose future amendments to the Wet Weather Plan, which might include replacing some proposed control technologies with source reduction measures such as green infrastructure controls.

Appendix Z to the Modified Consent Decree summarizes the construction projects and activities for the Interim Wet Weather Plan which are major components of the Wet Weather Plan. The Authority identifies the approved Wet Weather Plan as the Clean Water Plan.

Summary of Appendix Z

The Authority will complete the Interim Wet Weather Plan (IWWP) by December 31, 2036. Because uncertainties remain regarding the most optimal mix of source reduction measures, an adaptive management framework is necessary to provide for expeditious and affordable program implementation. This framework will provide opportunities to evaluate and integrate green infrastructure and other flow management practices, while prioritizing the regionalization of inter-municipal trunk sewers and key grey infrastructure projects where most cost-effective.

Because the identification of specific flow management project commitments requires on-going coordination with customer municipalities, the IWWP is premised on a phased implementation framework that supports early implementation of green projects, demonstration of effectiveness, and the substitution or reduction of grey infrastructure where flow management measures can be shown to provide equivalent system-wide overflow reduction performance. Accordingly, the framework includes adaptive management milestones where new information can be used to propose modifications to the projects and interim implementation schedules identified herein.

The IWWP is divided into three phases designed to support the adaptive management framework.

Phase 1 projects include highly effective treatment plant expansion projects, preliminary planning projects that will inform adaptive Phase 2 and 3 projects, and existing infrastructure inspection and rehabilitation. Additional detail is as follows:

- **Regional Flow Optimization Strategy and Preliminary Planning.**

  The Authority will work jointly with its customer municipalities to assess the effectiveness of green infrastructure, stream inflow removal, inflow/infiltration reduction, and existing system asset management through preliminary planning and demonstration projects. The resulting regional flow optimization strategy will identify flow management measures to be adaptively incorporated into Phases 2 and 3 and establish the basis of design for Phase 2 and Phase 3 tunnel projects, including any appropriate downsizing. The preliminary basis of design report will include refined tunnel and consolidation sewer construction schedules.

- **Woods Run Wastewater Treatment Plant Expansion.**

  The Authority will expand wet weather treatment capacity of the plant from 250 mgd to 480 mgd and wet weather headworks and disinfection capacity to 600 mgd. It is anticipated that these facilities will be complete and in operation between January 1, 2024 through December 30, 2025.

- **Existing Infrastructure Inspection/Rehabilitation.**

  The Authority will continue its operation and maintenance practices for existing infrastructure, including establishing re-inspection and priority rehabilitation schedules.

Phase 2 projects include high priority conveyance and treatment system improvements. These projects include:

- A wet weather pumping station,
- Expanded primary treatment,
- The Ohio River tunnel segment, including crossings to the existing Chartiers Creek and Saw Mill Run interceptor systems, and
- Cost-effective optimization of the Authority's existing tunnel network.

Phase 3 projects include projects that may be proposed for a modification based on the outcome of Phase 1 and Phase 2 evaluations and demonstration projects.

The IWWP currently includes an estimated $1.8 billion (in 2010 dollars) in identified Authority projects. It is expected that the regional flow optimization strategy, the regionalization of Intermunicipal Trunk Sewers and Associated Facilities, Municipal Source Reduction Studies, and Municipal Source Reduction Measures will identify additional Authority and municipal projects. The established adaptive management framework allows the Authority to submit a request to the Federal and State Government for revising the IWWP such that any alternate controls must achieve equivalent or better system-wide performance than the unaltered IWWP. The Authority will remain committed to close coordination with its customer municipalities in updating regional financial capability analyses so that proposed IWWP revisions do not result in a regional residential indicator greater than 2% of the median household income.

Regionalization

The Authority has committed to make a good faith effort to take responsibility of at least 200 miles of existing Intermunicipal Trunk Sewers and Associated Facilities, including responsibility for controlling associated overflows transferred to the Authority. The Authority has conducted closed-circuit television inspections of these sewers, determined what repairs and improvements are necessary, and is now in the process of working with municipalities to transfer ownership and make the necessary repairs.

Clean Water Plan Construction

The Authority is undergoing a major plant expansion in support of the Clean Water Plan, more than doubling our wet weather treatment capacity to meet the region's wastewater treatment needs. The expansion consists of nine design and construction packages with completion anticipated in 2029. Below is an update on two of the largest packages that recently broke ground – North End Plant Expansion and the East Headworks.

North End Plant Expansion includes adding two additional final clarifiers that will bring our total to 18 final clarifiers that provide secondary treatment to our plant flows. With the additional clarifiers, our secondary treatment capacity will increase to 295 million gallons per day (MGD). Also, a new final disinfection tank will disinfect plant flows prior to discharging into the Ohio River. Part of this project included construction of a 1,000-foot long river wall that was built in 2021.

The East Headworks package entered construction this summer (2021) with the purpose of increasing our preliminary treatment capacity to a maximum flows of 600 MGD. It is anticipated that the East Headworks facility, to be located in the heart of the current plant footprint, will be completed by the end of 2024.

Green Infrastructure

The Authority has committed $200 million towards this strategy, including support for municipal flow reduction partnerships. The Authority's Green Revitalization of Our Waterways Program (GROW) has awarded over $61.8 million so far in grants to our member municipalities dedicated to green infrastructure.

Clean Water Assistance Program

Recognizing that increasing rates will have a negative impact on our service areas most vulnerable ratepayers, the Authority implemented a customer assistance program in 2017. Qualified homeowners who meet family income limits set by the federal government will receive approximately the first 4,000 gallons of quarterly consumption free. In 2021, this resulted in approximately 2,300 Authority customers receiving an annual credit of $140.

For 2022, the quarterly assistance payment was increased to $40 per quarter, or an annual credit of $160. The program is being administered by the nationally recognized Dollar Energy Fund. The Authority expects participation in the program to grow as rates continue to increase in order to fund compliance with the consent decree.

FINANCIAL CONDITION

The Authority continued to achieve outstanding financial results in 2021 improving upon already solid debt service coverage ratios and days cash on hand. Debt service coverage increased to 188.98 percent in 2021 surpassing last year's coverage of 181.15 percent. When considering beginning cash balances available after reserving 25 percent, the Authority achieved a record 504.47 percent debt service coverage in 2021. In their May 2019 issue of OUTLOOK, Moody's Investor Services highlighted the Authority's strong liquidity position by noting its achievement of 684 days cash on hand in 2018. Liquidity improved even further in 2019 with days cash on hand increasing to 780 days, and again in 2020 with days cash on hand of 907 days. Cash on hand at the end of 2021 increased yet again to 1,110 days. While unrestricted for its use, a portion of this cash is anticipated to be used to fund the Authority's substantial capital program.

RESULTS OF OPERATIONS

Operating Revenue:

Operating revenues of $197.36 increased 5.65 percent over 2020, reflecting a 7 percent increase in customer rates implemented at the beginning of the year offset by a small decline in overall consumption. Overall billed consumption declined by 448,000 tgals for the year compared to 2020. Commercial consumption had a small increase of 92,000 tgals as businesses began the process of reopening as restrictions related to COVID-19 eased. The increase in residential consumption of 504,000 tgal in 2020 tgal reversed in 2021. Residential consumption declined by 539,000 tgals. The decrease in residential consumption was also impacted by COVID-19, as less time was spent in local residences than in the previous year.

All of the Authority's operating revenue was derived from customer billing for sewage treatment service, the Authority received no subsidies or grants. 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, 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, which in turn bills 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 2021 of $84.27 million were largely consistent with the 2020 operating expenses of $84.28 million. In 2020, outside Interceptor cleaning contracts added to the cost of maintaining the collection system; some of these costs did not reoccur in 2021. Also contributing to the decrease is that while the Authority hired approximately 25 employees in 2021, there were 34 employees who either retired or left the Authority; as such, there are fewer employees in 2021 as compared to 2020.

Depreciation and Non-operating Expenses:

Depreciation expense decreased slightly by $643,784 as a result of plant assets becoming fully depreciated. During 2020 the Authority recognized a $4.6 million loss on disposal of fixed assets related to a building that stored plant chemicals that had to be demolished for plant expansion purposes. There was no such loss on disposal of assets in 2021, as no plant assets were disposed of during the year. The Authority is in a period of growth to comply with the Clean Water Plan as described earlier in the General Trends and Significant Events section of this Management Discussion and Analysis. It is expected that construction in progress will continue to grow substantially through the completion of the Clean Water Plan anticipated to be completed in 2036.

More detailed information about the Authority's capital assets and the Clean Water Plan is presented in the notes to the financial statements.

Non-operating expenses also reflect changes to pension funding calculated under GASB Statement No. 68 and the 2018 implementation of GASB Statement No. 75 related to Other Post-Employment Benefits. Calculations with regard to both GASB Statement Nos. 68 and 75 are prepared by the Authority's Actuary. In addition, GASB Statement No. 89 implemented in 2019 resulted in the elimination of the capitalization of interest expense on capital projects. The result was an increase in recognized interest revenues and bond interest expense that would have been shown net and capitalized as part of capital assets under construction.

Non-operating Revenues:

Interest earnings on the Authority's revenue and non-restricted capital facilities funds decreased by over $1.9 million as interest rates on money market and treasury holdings are negligible.

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 meet specific project deadlines as detailed in the agreement.

Debt:

At year-end, the Authority had $732.63 million in long- and short-term debt.

During 2020, the Authority issued $153,995,000 in Sewer Revenue Bonds to current refund the existing Series 2010 Sewer Revenue Bonds and to provide additional funds for the Capital Improvement Program. The Authority recognized a cash flow savings of almost $39 million on the refunding.

The Authority did not issue any new debt in 2021 but continued to fund the long-term capital plan from bond proceeds from existing issues. However, the Authority anticipates entering the market sometime in the second half of 2022.

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

FINAL COMMENTS

In announcing the filing of the Modified Consent Decree on September 19, 2019, Executive Director Arletta Scott Williams publicly noted her pleasure at the positive results achieved over the course of negotiations with the Agencies. "We heard the public's input on the first plan, especially when it came to the price tag associated with making these required changes to our system. Being able to reduce the cost to ratepayers, extending the timetable to 2036, and having the ability to adapt the plan to include new advances in stormwater management are all key to reaching our goal of reducing overflows."

Recognizing that increasing rates to fund the Consent Decree will have a negative financial impact on many households in our service area, the Authority implemented a customer assistance program in 2017, providing, in effect, the first 4000 gallons of consumption per quarter free. In 2018, the Authority increased the quarterly assistance payment from $30 to $32, and has continued to increase the quarterly assistance payment each year. The Authority has announced that for 2022, the quarterly assistance payment will increase to $40.

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 at 3300 Preble Avenue, Pittsburgh, PA 15233.

ALLEGHENY COUNTY SANITARY AUTHORITY

STATEMENTS OF NET POSITION

DECEMBER 31, 2021 AND 2020

Assets and Deferred Outflows of Resources

	2021	2020
Assets:		
Current assets:		
Cash and cash equivalents	$ 256,262,201	$ 209,431,473
Accounts receivable:		
Billed sewer revenue	20,251,775	20,446,710
Unbilled sewer revenue	46,174,198	44,044,901
Other	145,244	4,734
Other current assets	6,736,857	6,634,434
Total current assets	329,570,275	280,562,252
Restricted/designated assets:		
Cash and cash equivalents	205,156,065	272,815,362
Total restricted/designated assets	205,156,065	272,815,362
Prepaid bond costs	5,333,878	5,815,062
Nondepreciable capital assets:		
Land	5,344,896	5,344,896
Construction in progress	170,406,333	94,302,298
Total nondepreciable capital assets	175,751,229	99,647,194
Depreciable capital assets - at cost, net of accumulated depreciation	532,844,107	543,854,942
Total	708,595,336	643,502,136
Net pension asset	1,680,266	-
Total Assets	1,250,335,820	1,202,694,812
Deferred Outflows of Resources:		
Related to pensions	26,830,110	27,581,534
Related to other post-retirement benefits	2,392,336	1,758,333
Refunding adjustment	4,682,815	5,247,763
Total Deferred Outflows of Resources	33,905,261	34,587,630
Total Assets and Deferred Outflows of Resources	$ 1,284,241,081	$ 1,237,282,442

Liabilities, Deferred Inflows of Resources, and Net Position

	2021	2020
Liabilities:		
Current liabilities:		
Accounts payable	$ 9,426,774	$ 2,927,005
Accounts payable - capital	11,618,234	3,165,967
Accrued liabilities:		
Compensated absences	5,640,410	5,950,167
Salaries and wages	2,064,530	1,985,019
Accrued interest on bonds	2,473,080	2,592,551
Reserve for litigation	2,371,900	2,371,900
Pretreatment advance payments	-	2,600
Current maturities of sewer revenue bonds	31,255,000	28,785,000
Total current liabilities	64,849,928	47,780,209
Long-term liabilities:		
Other post-employment benefits	14,074,940	13,901,968
Net pension liability	1,344,126	7,266,922
Sewer revenue bonds - less current maturities	639,240,000	670,495,000
Unamortized bond premium	62,134,271	67,960,993
Net long-term debt	701,374,271	738,455,993
Total long-term liabilities	716,793,337	759,624,883
Total Liabilities	781,643,265	807,405,092
Deferred Inflows of Resources:		
Related to pensions	28,103,085	25,133,372
Related to other post-retirement benefits	3,934,376	3,169,749
Total Deferred Inflows of Resources	32,037,461	28,303,121
Net Position:		
Net investment in capital assets	185,804,945	154,324,268
Unrestricted	283,075,144	247,249,961
Restricted - pension	1,680,266	-
Total Net Position	470,560,355	401,574,229
Total Liabilities, Deferred Inflows of Resources, and Net Position	$ 1,284,241,081	$ 1,237,282,442

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, 2021 AND 2020

	2021	2020
Operating Revenues	$ 197,355,657	$ 186,799,875
Operating Expenses:		
Treatment	50,925,066	50,981,608
Intercepting sewer systems	8,693,262	8,771,952
Upper Allegheny system	398,157	307,944
Administrative and engineering	16,108,332	15,682,596
Billing and collecting	4,052,673	4,461,391
Management information systems	4,088,595	4,071,959
Total operating expenses before depreciation	84,266,085	84,277,450
Operating Income Before Depreciation	113,089,572	102,522,425
Depreciation	21,731,168	22,374,952
Operating Income	91,358,404	80,147,473
Non-operating Revenues (Expenses):		
Interest income	100,243	2,002,687
Interest expense on bonds	(25,729,360)	(27,485,399)
Amortization of prepaid bond costs	(481,184)	(516,597)
Capital fees recognized	159,694	-
Loss on capital assets retired	-	(4,573,423)
Change in value of pension related items	3,881,925	(2,469,057)
Change in value of OPEB related items	(303,596)	(2,175,059)
Total non-operating revenues (expenses)	(22,372,278)	(35,216,848)
Change in Net Position	68,986,126	44,930,625
Net Position:		
Beginning of year	401,574,229	356,643,604
End of year	$ 470,560,355	$ 401,574,229

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

ALLEGHENY COUNTY SANITARY AUTHORITY

STATEMENTS OF CASH FLOWS

YEARS ENDED DECEMBER 31, 2021 AND 2020

	2021	2020
Cash Flows From Operating Activities:		
Cash received from customers	$ 195,278,186	$ 182,703,894
Cash paid to suppliers	(28,263,416)	(27,189,566)
Cash paid to employees	(58,287,837)	(56,940,161)
Net cash provided by (used in) operating activities	108,726,933	98,574,167
Cash Flows From Capital and Related Financing Activities:		
Interest paid on bonds	(31,110,606)	(31,791,811)
Principal paid on bonds	(28,785,000)	(27,635,000)
Proceeds from debt issues	-	153,995,000
Bond premium	-	25,034,803
Payments to refund bonds	-	(107,606,188)
Prepaid bond costs	-	(1,423,616)
Acquisition and construction of capital assets	(69,919,833)	(40,886,542)
Capital fees	159,694	-
Net cash provided by (used in) capital and related financing activities	(129,655,745)	(30,313,354)
Cash Flows From Investing Activities:		
Proceeds from sale and maturities of investment securities	-	85,722,220
Interest earnings	100,243	2,636,212
Net cash provided by (used in) investing activities	100,243	88,358,432
Increase (Decrease) in Cash and Cash Equivalents	(20,828,569)	156,619,245
Cash and Cash Equivalents:		
Beginning of year, including $272,815,362 and $150,150,904, respectively, in restricted/designated accounts	482,246,835	325,627,590
End of year, including $205,156,065 and $272,815,362, respectively, in restricted/designated accounts	$ 461,418,266	$ 482,246,835
Noncash Capital and Related Financing Activities:		
Property, plant, and equipment additions reflected in accounts payable	$ 11,618,234	$3,165,967
Reconciliation of Operating Income to Net Cash Provided by (Used in) Operating Activities:		
Operating income	$ 91,358,404	$ 80,147,473
Adjustments to reconcile operating income to net cash provided by (used in) operating activities:		
Depreciation	21,731,168	22,374,952
Change in operating assets and liabilities:		
Accounts receivable	(2,074,872)	(4,096,728)
Other current assets	(102,423)	(30,190)
Accounts payable	(1,952,498)	(1,011,417)
Accrued liabilities	(230,246)	1,189,327
Pretreatment advance payments	(2,600)	750
Net adjustments	17,368,529	18,426,694
Net cash provided by (used in) operating activities	$ 108,726,933	$ 98,574,167

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

ALLEGHENY COUNTY SANITARY AUTHORITY

STATEMENTS OF FIDUCIARY NET POSITION
PENSION TRUST FUNDS

DECEMBER 31, 2021 AND 2020

	2021	2020
Assets		
Dividends and interest receivable	$ 558,901	$ 497,672
Cash and cash equivalents	2,058,577	909,804
Investments at fair value:		
U.S. government securities	44,324,934	28,936,590
Corporate bonds	36,861,123	31,589,449
Equity securities	150,196,717	133,689,506
Municipal bonds	1,081,975	601,227
Foreign bonds	1,494,444	1,547,617
Mortgages	2,154,192	2,940,269
ETFs	8,451,188	9,815,510
Mutual funds	1,649,685	1,427,539
Asset backed securities	785,227	1,601,347
Noncorporate bonds	1,212,795	2,368,750
Total investments at fair value	248,212,280	214,517,804
Total Assets	$ 250,829,758	$ 215,925,280
Liabilities and Net Position		
Liabilities:		
Other payables	$ -	$ -
Net Position:		
Net position restricted for pension benefits	250,829,758	215,925,280
Total Liabilities and Net Position	$ 250,829,758	$ 215,925,280

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

ALLEGHENY COUNTY SANITARY AUTHORITY

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
PENSION TRUST FUNDS

YEARS ENDED DECEMBER 31, 2021 AND 2020

	2021	2020
Additions:		
Contributions:		
Employer	$ 6,975,495	$ 6,932,261
Employee	567,841	585,144
Total contributions	7,543,336	7,517,405
Investment income:		
Net appreciation (depreciation) in fair value of investments	7,680,760	14,723,749
Realized gain (loss)	25,835,489	6,348,927
Interest and dividends	3,897,815	4,240,645
Total investment income	37,414,064	25,313,321
Other income	70,315	19,020
Total additions	45,027,715	32,849,746
Deductions:		
Benefits	9,612,785	8,774,093
Distribution expenses	125,192	143,775
Administrative expense	385,260	427,767
Total deductions	10,123,237	9,345,635
Change in Plan Net Position	34,904,478	23,504,111
Net Position:		
Beginning of year	215,925,280	192,421,169
End of year	$ 250,829,758	$ 215,925,280

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) guidance, management has addressed all potential component units. 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.

2. Summary of Significant Accounting Policies

Measurement Focus

The Authority uses "income determination" as its measurement focus. Accordingly, all assets, liabilities, deferred inflows, and deferred outflows 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.

Fiduciary Funds

Fiduciary funds are used to account for assets held in a trustee capacity. The Authority reports the following fiduciary funds:

The *Pension Trust Funds* are used to account for employee retirement systems.

- The Management Pension Fund accounts for assets of the Authority management employees' retirement pension plan.

- The Union Pension Fund accounts for assets of the Authority union employees' retirement pension plan.

Basis of Accounting

The financial statements of the Authority for the years ended December 31, 2021 and 2020 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, 2021 and 2020.

The Authority categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

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
2010 Bonds	30 years
2013 Bonds	31 years
2015 Bonds	30 years
2016 Bonds	21 years
2018 Bonds	30 years
2020 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 2020, Series 2016, Series 2015, and Series 2010 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 2051, 2037, 2045, and 2040, respectively. The unamortized balances are reflected as deferred outflows of resources.

Capital Assets

Capital assets are recorded at cost. Depreciation of capital 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 represent 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 using the economic resources measurement focus and accrual basis of accounting. 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 accounting principles generally accepted in the United States of America 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, 2021 and 2020, 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 applicable GASB pronouncements, the plan is not required to be included in the Authority's financial statements.

Net Position

The Authority is required to report three components of net position:

Net Investment in Capital Assets – This component of net position consists of capital assets net of accumulated depreciation and is reduced by the outstanding balances of any bonds, mortgages, notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets.

Restricted – This component of net position consists of constraints placed on net position use through external restrictions. The Authority has restricted net position related to its debt service reserves, as required by the bond indenture, as well as restricted net position related to pension benefits for the Authority's pension plan.

Unrestricted – This component of net position consists of net position that does not meet the definition of "restricted" or "net investment in capital assets."

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, estimated useful lives of assets, depreciation, reserves for accrued litigation, actuarial valuations of the pension plans and other post-employment benefits liabilities, and environmental contingencies.

Pending Pronouncements

GASB has issued statements that will become effective in future years, including Statement Nos. 87 (Leases), 91 (Conduit Debt Obligations), 92 (Omnibus 2020), 94 (Public-Private and

Public-Public Partnerships), 96 (Information Technology Arrangements), and 97 (Deferred Compensation Plans). Management has not yet determined the impact of these statements on the financial statements.

Reclassifications

Certain amounts presented in the prior year have been reclassified in order to be consistent with the current year's presentation.

3. Revenue Bonds

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. The 2010 bonds were refunded as part of the issuance of the 2020 Bonds.

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, 2021 and 2020, the 2013 Bonds payable consisted of $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, 2045, are subject to redemption prior to maturity. At December 31, 2021 and 2020, the 2015 Bonds payable consisted of $190,060,000 and $218,845,000, respectively.

On September 8, 2016, the Authority issued $106,205,000 of Sewer Revenue Bonds Refunding Series of 2016, called the 2016 Bonds. The proceeds of the bonds were used to advance refund all of the Authority's outstanding Sewer Revenue Bonds Refunding Series of 2007 and to provide additional funding for the Authority's capital projects. The defeased bonds were repaid in full during 2017.

The 2016 Bonds were issued at a premium of $13,012,378, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2016 Bonds bear interest at rates ranging from 0.90% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. The 2016 Bonds, which have a final maturity date of December 1, 2037, are subject to redemption prior to maturity. At December 31, 2021 and 2020, the 2016 Bonds payable consisted of $104,455,000.

On September 6, 2018, the Authority issued $157,230,000 of Sewer Revenue Bonds Series of 2018, called the 2018 Bonds. The proceeds of the bonds were to finance a portion of the Authority's capital budget for the years 2018 to 2020.

The 2018 Bonds were issued at a premium of $12,092,896, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2018 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. The 2018 Bonds, which have a final maturity date of June 1, 2048, are subject to redemption prior to maturity. At December 31, 2021 and 2020, the 2018 Bonds payable consisted of $157,230,000.

On October 1, 2020, the Authority issued $153,995,000 of Sewer Revenue Bonds Series of 2020, called the 2020 Bonds. The proceeds of the bonds were used to advance refund all of the Authority's outstanding Sewer Revenue Bonds Series of 2010 and to provide additional funding for the Authority's capital projects. The refunded Series 2010 bonds were paid in full in 2020.

The 2020 Bonds were issued at a premium of $25,034,803, which is being amortized as an adjustment to interest expense over the life of the bonds, using the effective interest method.

The 2020 Bonds bear interest at rates ranging from 2.13% to 5.00%. Interest is payable in semiannual installments on June 1 and December 1 until maturity. The 2020 Bonds, which have a final maturity date of June 1, 2050, are subject to redemption prior to maturity. At December 31, 2021, the 2020 Bonds payable consisted of $153,995,000.

This refunding resulted in an economic gain to the Authority of approximately $32.6 million and a decrease to the debt service payments of approximately $38.8 million. In connection with the 2020 debt refunding, the Authority recorded deferred refunding adjustments of approximately $110,000, 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, 2021 and 2020, respectively:

	Balance 1/1/2021	New Issue	Retired	Balance 12/31/2021	Unamortized Premium	Bonds Payable, net	Current Portion
2013 Series	$ 64,755,000	$ -	$ -	$ 64,755,000	$ 1,672,135	$ 66,427,135	$ -
2015 Series	218,845,000	-	(28,785,000)	190,060,000	18,339,132	208,399,132	30,210,000
2016 Series	104,455,000	-	-	104,455,000	8,859,838	113,314,838	-
2018 Series	157,230,000	-	-	157,230,000	10,214,515	167,444,515	-
2020 Series	153,995,000	-	-	153,995,000	23,048,651	177,043,651	1,045,000
Total	$ 699,280,000	$ -	$ (28,785,000)	$ 670,495,000	$ 62,134,271	$ 732,629,271	$ 31,255,000

	Balance 1/1/2020	New Issue	Retired	Balance 12/31/2020	Unamortized Premium	Bonds Payable, net	Current Portion
2010 Series	$ 105,195,000	$ -	$ (105,195,000)	$ -	$ -	$ -	$ -
2013 Series	64,755,000	-	-	64,755,000	1,802,902	66,557,902	-
2015 Series	246,300,000	-	(27,455,000)	218,845,000	20,959,097	239,804,097	28,785,000
2016 Series	104,455,000	-	-	104,455,000	9,652,968	114,107,968	-
2018 Series	157,230,000	-	-	157,230,000	10,794,959	168,024,959	-
2020 Series	-	153,995,000	-	153,995,000	24,751,067	178,746,067	-
Total	$ 677,935,000	$ 153,995,000	$ (132,650,000)	$ 699,280,000	$ 67,960,993	$ 767,240,993	$ 28,785,000

The 2013, 2015, 2016, 2018, and 2020 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.

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:

	2021	2020
Current account:		
Revenue Fund	$ 256,262,201	$ 209,431,473
Special accounts:		
Capital Facilities Fund	$ 84,064,768	$ 81,936,033
Construction Fund - 2018	51,065,579	120,873,880
Construction Fund - 2020	70,019,606	69,999,530
	$ 205,149,953	$ 272,809,443
Debt service accounts:		
Debt Service Fund	$ 6,112	$ 5,919

Schedule of Required Debt Service

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

	Principal	Interest	Total Debt Service
2022	$ 31,255,000	$ 29,661,281	$ 60,916,281
2023	32,830,000	28,124,956	60,954,956
2024	31,490,000	26,450,981	57,940,981
2025	30,975,000	24,968,856	55,943,856
2026	27,370,000	23,182,288	50,552,288
2027-2031	123,575,000	97,693,556	221,268,556
2032-2036	125,400,000	71,419,366	196,819,366
2037-2041	133,295,000	45,249,413	178,544,413
2042-2046	97,940,000	18,842,563	116,782,563
2047-2050	36,365,000	2,004,300	38,369,300
Total	$ 670,495,000	$ 367,597,560	$ 1,038,092,560

The total debt service schedule in Note 14 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 refunding adjustments, bond discounts/premiums, and prepaid bond costs, for the years ended December 31, 2021 and 2020 were as follows:

	2021	2020
2010 Bonds	$ -	$ 3,847,532
2013 Bonds	3,149,935	3,149,935
2015 Bonds	8,524,680	9,606,809
2016 Bonds	3,640,978	3,640,978
2018 Bonds	6,533,093	6,533,094
2020 Bonds	4,361,858	1,223,648
	$ 26,210,544	$ 28,001,996

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, 2021 and 2020, 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 2021 and 2020 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. The Authority can withdraw funds from the external investment pools without limitations or fees.

GASB 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, 2021, $21,647,124 of the Authority's bank balance of $22,084,734 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 $26,081,182 as of December 31, 2021. As of December 31, 2020, $25,580,631 of the Authority's bank balance of $26,017,875 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 $28,296,819 as of December 31, 2020.

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, 2021, the Authority held the following investment balances:

	Carrying Value	Maturity in Years Less Than 1 Year	1-5 Years
Money Market Funds	$ 433,134,869	$ 433,134,869	$ -
PA INVEST	2,202,215	2,202,215	-
Total	$ 435,337,084	$ 435,337,084	$ -

At December 31, 2020, the Authority held the following investment balances:

	Carrying Value	Maturity in Years Less Than 1 Year	1-5 Years
Money Market Funds	$ 451,748,312	$ 451,748,312	$ -
PA INVEST	2,201,704	2,201,704	-
Total	$ 453,950,016	$ 453,950,016	$ -

The carrying value of the Authority’s investments is the same as their fair value amount. Money markets are valued using quoted market prices (Level 1 inputs). The fair values of U.S. government agency securities are priced using the spread above the risk-free yield curve. As the yields for the risk-free yield curve and the spreads for these securities are observable market inputs, the fair values of U.S. government agency securities are included in the Level 2 fair value hierarchy.

The Authority’s investments in the external investment pool (INVEST) is the same as the value of the pool shares and is reported at amortized cost which approximates market. All investments in an external investment pool that is not SEC registered are subject to oversight by the Commonwealth. The Authority can withdraw funds from INVEST without limitations or fees.

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, 2021 and 2020, the Authority’s investment in the state investment pool (INVEST) was rated AAA 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, 2021 and 2020, the Authority did not have a high concentration of investments in any one issuer.

Pension Trust Funds

The pension trust funds are used to account for assets held by the Authority in a trustee capacity for future payment of retirement benefits to employees or former employees.

The pension trust funds' investments in money markets, equity, and fixed-income funds, and guaranteed interest accounts are not exposed to custodial credit risk because they are not evidenced by securities that exist in physical or book-entry form. Investments in common stock are not subject to the disclosure requirements of GASB Statement No. 40.

The following is a description of the pension trust funds' investment risks:

Credit risk. The risk that an issuer or other counterparty to an investment will not fulfill its obligations is called credit risk. As of December 31, 2021 and 2020, the pension trust funds' investments in fixed income investments for the Management Plan and Union Plan were rated as follows:

Fiduciary Fund		
Bond ratings	2021 Market Value	2020 Market Value
Moody's Aaa	$ 46,971,758	$ 33,988,279
Moody's Aa1	139,456	723,232
Moody's Aa2	767,084	999,509
Moody's A1	4,109,130	2,392,849
Other	35,927,262	31,481,380
Total	$ 87,914,690	$ 69,585,249

The remaining mutual funds, stocks, mortgages, common/collective trusts, and ETFs were not rated by nationally recognized statistical rating organizations.

Interest Rate Risk. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of the pension trust funds' investments. The pension trust funds do not have a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates. The following table shows investment maturities in years for pension trust fund investments with maturities:

		Investment Maturities (In Years) from December 31, 2021				
Investment Type	Fair Value	Less than 1 Year	1-5 Years	6-10 Years	11-15 Years	16 or more Years
Corporate and utility bonds	$ 36,861,123	$ 868,259	$ 10,266,619	$ 13,304,175	$ 2,206,639	$ 10,215,431
US treasury and agency	44,324,934	502,840	26,890,969	5,205,657	14,100	11,711,368
Municipal	1,081,975	-	613,590	264,916	148,202	55,267
Mortgages & Asset Backed Securities	2,939,419	281,770	915,320	211,029	-	1,531,300
Foreign Bonds	1,494,444	543,912	424,159	254,937	-	271,436
Noncorporate Bonds	1,212,795	-	677,851	240,674	-	294,270
Total securities with maturities	$ 87,914,690	$ 2,196,781	$ 39,788,508	$ 19,481,388	$ 2,368,941	$ 24,079,072

		Investment Maturities (In Years) from December 31, 2020				
Investment Type	Fair Value	Less than 1 Year	1-5 Years	6-10 Years	11-15 Years	16 or more Years
Corporate and utility bonds	$ 31,589,449	$ 1,122,759	$ 9,526,514	$ 11,985,027	$ 3,748,499	$ 5,206,650
US treasury and agency	28,936,590	573,057	15,012,759	4,004,366	1,763,862	7,582,546
Municipal	601,227	-	239,109	303,741	58,377	-
Mortgages & Asset Backed Securities	4,541,616	1,014,383	2,813,064	691,538	-	22,631
Foreign Bonds	1,547,617	-	1,216,560	264,297	-	66,760
Noncorporate Bonds	2,368,750	191,771	1,431,764	655,808	89,407	-
Total securities with maturities	$ 69,585,249	$ 2,901,970	$ 30,239,770	$ 17,904,777	$ 5,660,145	$ 12,878,587

Financial instruments potentially expose the pension trust funds to various risks such as concentrations of credit risk and market risks. Concentration of credit risk for investments in marketable securities is mitigated by the overall diversification of managed investment portfolios. Due to the level of risk associated with certain investments, it is at least reasonably possible that changes in values of investments will occur in the near term and that such change could materially affect the amount reported on the combined statement of fiduciary net position.

The composition of the pension trust funds is noted below, along with the fair value measurements as of December 31, 2021 and 2020, respectively:

Investments by Fair Value Level:	December 31, 2021	December 31, 2020
Fixed Income:		
US Treasury Bonds	$ 11,941,506	$ 9,656,105
US Agency Bonds	32,383,428	19,280,485
Asset Backed Securities	785,227	1,601,347
Corporate Bonds	34,329,203	29,424,062
Utility Bonds	2,531,920	2,165,387
Municipal Bonds	1,081,975	601,227
Foreign Bonds	1,494,444	1,547,617
Noncorporate Bonds	1,212,795	2,368,750
Mortgages and mortgaged backed securities	2,154,192	2,940,269
ETFs - Fixed Income	231,696	1,196,556
Total Fixed Income	88,146,386	70,781,805
Equities:		
Mutual Funds	1,649,685	1,427,539
Common Stocks:		
Capital Goods	6,475,615	4,478,132
Industrials	3,377,858	2,512,561
Consumer Discretionary	6,023,538	4,087,424
Consumer Staples	2,322,881	3,095,454
Commercial & Professional Services	522,681	700,372
Energy	4,114,362	3,056,446
Food, Bev, Tobacco, & Personal Products	5,960,308	6,615,774
Financials	11,587,742	11,152,804
Materials	3,552,474	3,048,883
Transportation	4,656,394	2,677,448
Retail	9,124,735	10,037,097
Pharm/Biotech	7,600,497	7,471,849
Insurance	3,609,163	3,654,194
Information Technology	28,387,160	22,754,824
Software & Services	14,318,828	14,311,836
Media	12,439,705	10,512,613
Real Estate	3,982,582	3,769,444
Utilities	4,034,681	3,615,520
Health Care	12,364,290	10,923,691
Telecommunications	5,741,223	5,213,140
ETFs - Growth	8,219,492	8,618,954
Total Equities	160,065,894	143,735,999
Total investments by fair value level	$ 248,212,280	$ 214,517,804

US Treasury bonds, asset backed securities, utility bonds, noncorporate bonds, mutual funds, preferred stock, common stock, and exchange traded funds are valued using quoted marked prices (Level 1 inputs). Corporate, municipal, and foreign bonds as well as mortgages are valued using a matrix pricing model (Level 2 inputs). The fair values of U.S. government agency securities are priced using the spread above the risk-free yield curve. As the yields for the risk-free yield curve and the spreads for these securities are observable market inputs, the fair values of U.S. government agency securities are included in the Level 2 fair value hierarchy.

6. Capital Assets

A summary of capital assets is as follows:

	2021	2020
Nondepreciable assets:		
Land	$ 5,344,896	$ 5,344,896
Construction in progress	170,406,333	94,302,298
Total nondepreciable assets	175,751,229	99,647,194
Depreciable assets:		
Land improvements	4,805,250	4,805,250
Buildings and improvements	467,675,226	466,753,712
Utility plant in service	260,246,541	256,379,473
Machinery and equipment	340,622,094	340,138,570
Clean Water Program	20,713,833	17,603,803
GROW Program	6,773,298	4,812,861
Total depreciable assets	1,100,836,242	1,090,493,669
Less: accumulated depreciation	567,992,135	546,638,727
Net depreciable assets	532,844,107	543,854,942
Total capital assets	$ 708,595,336	$ 643,502,136

The Authority has spent $170,406,333 and $94,302,298 for construction in progress as of December 31, 2021 and 2020, respectively, with estimated remaining total expansion costs of approximately $1,464,524,566, which are anticipated to occur over the next five years. These costs are associated with improvements and plant expansion to allow the Authority to increase to maximum flows of 600 MGD. 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. The Authority's pension plans, the Management Employees Plan and Union Employees Plan (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.

Management and Union Plans - Summary of Significant Accounting Policies

Financial information is presented on the accrual basis of accounting. Employer contributions to the Plans are recognized when earned. Benefits and refunds are recognized when incurred, in accordance with the terms of each Plan.

Each Plan's assets are reported at fair value. Neither Plan had any investment transactions with related parties during the year.

Statements of Plan Net Position – Management and Union Plans

COMBINING STATEMENT OF PLAN NET POSITION
PENSION TRUST FUNDS

YEAR ENDED DECEMBER 31,

	Management 2021	Management 2020	Union 2021	Union 2020
Assets				
Dividends and interest receivable	$ 145,629	$ 147,870	$ 413,272	$ 349,802
Cash and cash equivalents	-	-	2,058,577	909,804
Investments at fair value:				
U.S. government securities	13,389,645	10,656,447	30,935,289	18,280,142
Corporate bonds	10,330,023	9,256,193	26,531,100	22,333,257
Equity securities	37,571,634	30,215,290	112,625,083	103,474,216
Municipal bonds	230,701	239,109	851,274	362,118
Foreign bonds	-	-	1,494,444	1,547,617
Mortgages	11,980	22,631	2,142,212	2,917,638
ETFs	8,451,188	9,815,510	-	-
Mutual funds	1,649,685	1,427,539	-	-
Asset backed securities	-	-	785,227	1,601,347
Noncorporate bonds	-	-	1,212,795	2,368,750
Total investments at fair value	71,634,856	61,632,719	176,577,424	152,885,085
Total Assets	$ 71,780,485	$ 61,780,589	$ 179,049,273	$ 154,144,691
Liabilities and Net Position				
Liabilities:				
Other payables	$ -	$ -	$ -	$ -
Net Position:				
Net position restricted for pension benefits	71,780,485	61,780,589	179,049,273	154,144,691
Total Liabilities and Net Position	$ 71,780,485	$ 61,780,589	$ 179,049,273	$ 154,144,691

Statements of Changes in Plan Net Position – Management and Union Plans

COMBINING STATEMENT OF CHANGES IN PLAN NET POSITION
PENSION TRUST FUNDS

YEAR ENDED DECEMBER 31,

	Management 2021	Management 2020	Union 2021	Union 2020
Additions:				
Contributions:				
Employer	$ 2,955,679	$ 2,822,303	$ 4,019,816	$ 4,109,958
Employee	315,252	314,238	252,589	270,906
Total contributions	3,270,931	3,136,541	4,272,405	4,380,864
Investment income:				
Net appreciation (depreciation) in fair value of investments	3,657,647	3,526,335	4,023,113	11,197,414
Realized gain (loss)	4,757,220	3,633,214	21,078,269	2,715,713
Interest and dividends	1,131,905	1,186,424	2,765,910	3,054,221
Total investment income	9,546,772	8,345,973	27,867,292	16,967,348
Other income	116	2,542	70,199	16,478
Total additions	12,817,819	11,485,056	32,209,896	21,364,690
Deductions:				
Benefits	2,639,744	2,280,017	6,973,041	6,494,076
Distribution expenses	125,192	143,775	-	-
Administrative expense	52,987	45,293	332,273	382,474
Total deductions	2,817,923	2,469,085	7,305,314	6,876,550
Change in Plan Net Position	9,999,896	9,015,971	24,904,582	14,488,140
Net Position:				
Beginning of year	61,780,589	52,764,618	154,144,691	139,656,551
End of year	$ 71,780,485	$ 61,780,589	$ 179,049,273	$ 154,144,691

Plan Benefits

Normal Retirement. 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. 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, and 55 and have at least 15 years of service for the Union plan. 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.

Late Retirement. 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.

Disability Retirement. For both plans, disability retirement is available upon evidence of total and permanent disability and after 10 years of Credit Service. The disability benefit is based on average compensation and service at the time of disability. The disability benefit is limited to the amount which, when added to worker's compensation, equals 100% of base pay. The disability benefit is payable immediately, with no reduction for commencement before Normal Retirement Date.

Termination Benefits. For both plans, a participant is fully vested in his accrued benefit after 15 years of Credited Service or upon attainment of Normal Retirement age. Partial vesting occurs after five years of Credited Service, in accordance with the following schedule:

Credited Service	Vested Percentage	Credited Service	Vested Percentage
Less than 5 years	0%	10 years	50%
5 years	25%	11 years	60%
6 years	30%	12 years	70%
7 years	35%	13 years	80%
8 years	40%	14 years	90%
9 years	45%	15 or more years	100%

The vested accrued benefit will be payable in full at Normal Retirement Date. Reduced payment can begin as early as age 55 if the participant had 15 years (Union Plan) or 10 years (Management Plan) of Credited Service upon termination of employment. For the Union Plan, the benefit reduction for early commencement is the same as the reduction described for Early Retirement. For the Management Plan, the benefit reduction for early commencement is one-half of 1% for each month prior to normal retirement date, and a participant who satisfies the eligibility requirements for Early Retirement upon termination of employment is deemed to be fully vested. Employee contribution balances are always 100% vested. A participant who terminates employment with less than five years of Credited Service will be entitled to the return of his contributions with interest. A participant who terminates employment with partial vesting may elect a return of his contributions with interest. Such participant will have a residual benefit equal to the vested percentage of his accrued benefit based on Credited Service only (that is, the portion of the benefit based on the first $4,200 of compensation). A participant who withdrew contributions upon termination of employment and who is reemployed by the Authority will have the opportunity to repay his withdrawn contributions, with interest, for the purpose of restoring previously earned Contributory Service.

Pre-Retirement Spouse's Benefit. Upon the death of an active participant before retirement but after five years of Credited Service, the surviving spouse will receive 100% of the accrued benefit, determined without regard to the participant's vested percentage. If the spouse is under age 50, the 100% is reduced by 0.5% for each year and a fraction under age 50. For deaths occurring prior to January 1, 2004 (Union Plan) or 2006 (Management Plan), the surviving spouse received 100% of the vested accrued benefit. Upon the death of a terminated vested participant prior to the commencement of any benefits, the beneficiary shall receive an amount equal to the participant's personal contributions, if any, plus interest at the rate of 3% per year.

Post-Retirement Medical Benefit Payment. For the Management Plan, when a retired participant who was contributing at the rate of 3% attains age 65, such retired participant will receive an additional monthly benefit equal to two times the Medicare Part B premium in effect at that time, payable for the remainder of the participant's life.

Post-Retirement Lump Sum Death Benefit. For the Management Plan, participants retiring under either the Normal or Early Retirement provisions who were contributing at the rate of 3% will be eligible for a post-retirement death benefit of $2,000. Such benefit will be paid to the designated beneficiary.

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	77	198	275
Inactive plan members entitled to but not yet receiving benefits	21	32	53
Active plan members	139	286	425
Total plan members	237	516	753

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 2020 and 2021 was measured as of December 31, 2019 and 2020, 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 January 1, 2021 and 2020 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	7.00%
Underlying inflation rate	2.40%
Salary projection	4.00%

For both plans - Base mortality tables are applied to participant categories as follows:

- Active participants and terminated participants with deferred benefits: PubG-2010(A) Employee Table
- Non-disabled participants in payment status: PubG-2010(A) Retiree Table
- Disabled participants: PubNS-2010 Disabled Retiree Table
- Surviving beneficiaries: Pub-2010(A) Contingent Survivor Table

For the January 1, 2021 valuation, fully-generational mortality improvement for all participant categories is projected under Scale MP-2020. For the January 1, 2020 valuation, fully-generational mortality improvement for all participant categories was projected under Scale MP-2019. The MP scale is updated annually by the Society of Actuaries. Annual updates to the MP scale will be applied to each future actuarial valuation. The MP scale update is treated as an actuarial experience gain or loss, rather than as an assumption change.

Actuarial assumptions used in the respective valuations were based on actuarial experience studies for the period January 1, 2019 to December 31, 2019 and January 1, 2020 to December 31, 2020.

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%	4.20%	70.0%	4.20%
Fixed income	30.0%	1.00%	30.0%	1.00%
	100.0%		100.0%	

Discount Rate. The discount rate used to measure the total pension liability was 6.75%. 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.

Concentrations – The Management Plan and the Union Plan did not have investments in a single issuer that exceeded 5% of the respective plan's fiduciary net position at December 31, 2021 and 2020.

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 12/31/20	$ 57,862,641	$ 52,764,618	$ 5,098,023
Changes for the year:			
Service cost	1,909,209	-	1,909,209
Interest	4,097,579	-	4,097,579
Differences between expected and actual experience	(258,048)	-	(258,048)
Changes of benefit terms	-	-	-
Changes of assumptions	1,793,351	-	1,793,351
Employer contributions	-	2,822,303	(2,822,303)
Member contributions	-	314,238	(314,238)
Net investment income	-	8,159,447	(8,159,447)
Benefit payments, including refunds of employee contributions	(2,280,017)	(2,280,017)	-
Balances at 12/31/21	$ 63,124,715	$ 61,780,589	$ 1,344,126
Plan fiduciary net position as a percentage of total pension liability			97.87%

Net investment income includes $189,068 of trustee and other investment related expenses.

	Management Plan		
	Total Pension Liability	Plan Net Position	Net Pension Liability (Asset)
Balances at 12/31/19	$ 55,312,482	$ 42,783,287	$ 12,529,195
Changes for the year:			
Service cost	1,905,043	-	1,905,043
Interest	3,919,747	-	3,919,747
Differences between expected and actual experience	(1,020,214)	-	(1,020,214)
Changes of benefit terms	-	-	-
Changes of assumptions	-	-	-
Employer contributions	-	2,376,191	(2,376,191)
Member contributions	-	303,018	(303,018)
Net investment income	-	9,556,539	(9,556,539)
Benefit payments, including refunds of employee contributions	(2,254,417)	(2,254,417)	-
Balances at 12/31/20	$ 57,862,641	$ 52,764,618	$ 5,098,023
Plan fiduciary net position as a percentage of total pension liability			91.19%

Net investment income includes $178,140 of trustee and other investment related expenses.

	Union Plan		
	Total Pension Liability	Plan Net Position	Net Pension Liability (Asset)
Balances at 12/31/20	$ 142,117,429	$ 139,948,531	2,168,898
Changes for the year:			
Service cost	3,670,772	-	3,670,772
Interest	9,958,940	-	9,958,940
Differences between expected and actual experience	(1,173,412)	-	(1,173,412)
Changes of benefit terms	-	-	-
Changes of assumptions	4,384,772	-	4,384,772
Employer contributions	-	3,838,941	(3,838,941)
Member contributions	-	249,945	(249,945)
Net investment income	-	16,601,350	(16,601,350)
Benefit payments, including refunds of employee contributions	(6,494,076)	(6,494,076)	-
Balances at 12/31/21	$ 152,464,425	$ 154,144,691	$ (1,680,266)
Plan fiduciary net position as a percentage of the total pension liability			101.10%

Net investment income includes $382,474 of trustee and other investment related expenses.

	Union Plan		
	Total Pension Liability	Plan Net Position	Net Pension Liability (Asset)
Balances at 12/31/19	$ 136,126,927	$ 119,971,374	$ 16,155,553
Changes for the year:			
Service cost	3,355,451	-	3,355,451
Interest	9,538,363	-	9,538,363
Differences between expected and actual experience	(1,450,770)	-	(1,450,770)
Changes of benefit terms	492,165	-	492,165
Changes of assumptions	-	-	-
Employer contributions	-	3,252,204	(3,252,204)
Member contributions	-	245,136	(245,136)
Net investment income	-	22,424,524	(22,424,524)
Benefit payments, including refunds of employee contributions	(5,944,707)	(5,944,707)	-
Balances at 12/31/20	$ 142,117,429	$ 139,948,531	$ 2,168,898
Plan fiduciary net position as a percentage of the total pension liability			98.47%

Net investment income includes $459,032 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.

Changes in Actuarial Assumptions. The following actuarial assumptions were modified from 2020 to 2021:

- Interest rate: The valuation interest assumption has been reduced from 7.25% to 7.00%.
- Plan was amended to include longevity pay in compensation for benefit determination.
- The long-term inflation rate was increased from 2.30% to 2.40%

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 6.75%, 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 (5.75%) or 1% higher (7.75%) than the current rate:

	1% Decrease (5.75%)	Current Discount Rate (6.75%)	1% Increase (7.75%)
Management	$ 9,470,407	$ 1,344,126	$ (5,497,329)
Union	17,932,580	(1,680,266)	(18,137,460)
	$ 27,402,987	$ (336,140)	$ (23,634,789)

Pension Expense and Deferred Inflows/Outflows of Resources Related to Pensions. For the years ended December 31, 2021 and 2020, the Authority recognized pension expense of $3,093,570 and $9,130,301, respectively. At December 31, 2021 and 2020, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	2021	
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 769,893	$ 3,979,601
Changes of assumptions	11,512,193	-
Net difference between projected and actual earnings on pension plan investments	7,572,529	24,123,484
Contributions made subsequent to the measurement date	6,975,495	-
	$ 26,830,110	$ 28,103,085

	2020	
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 1,240,099	$ 3,320,659
Changes of assumptions	8,203,646	-
Net difference between projected and actual earnings on pension plan investments	11,476,545	21,812,713
Contributions made subsequent to the measurement date	6,661,244	-
	$ 27,581,534	$ 25,133,372

Deferred outflows of resources related to Authority pension contributions subsequent to the measurement date of $6,975,495 and $6,661,244 will be recognized as a reduction of the net pension liability in the years ending December 31, 2022 and 2021, respectively. 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 Ending December 31,	Deferred Outflows	Deferred Inflows
2022	$ 6,740,939	$ 9,778,710
2023	6,349,329	7,123,049
2024	2,166,158	7,106,953
2025	1,748,622	2,942,480
2026	1,439,248	622,067
2027	768,643	358,107
2028	534,728	143,099
2029	106,948	28,620
	$ 19,854,615	$ 28,103,085

8. Postemployment Benefits Other Than Pensions

General Information About the OPEB Plans. 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, which is a defined benefit, single-employer plan administered by the Authority. No assets are accumulated in a trust that meets the criteria of paragraph 4 of GASB Statement 75. This plan does not issue stand-alone Financial Statements.

In accordance with the Authority's Policy and Procedures Manual for Management Employees, certain healthcare benefits and life insurance are provided to all management employees, and their dependents, who retire on or after attaining age 55 with at least ten years of credited service. These benefits cease when the retiree turns 65.

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 and their dependents 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 and their dependents 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.

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.

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

Active employees	425
Retired employees with health coverage	20
Retired employees with life insurance only	144
Total active and inactive employees	589

Actuarial Assumptions. The methods and assumptions are as follows:

- Discount rate, using Fidelity Fixed Income Market Data for Municipal GO AA Yield Curve at 20 years: 2.00%
- Actuarial cost method: Individual Entry Age Normal Level Percent of Pay
- Salary increase: 4.0% annually

Mortality rate – Base mortality tables are applied to participant categories as follows:

- Active participants and terminated participants with deferred benefits: PubG-2010(A) Employee Table
- Non-disabled participants in payment status: PubG-2010(A) Retiree Table
- Disabled participants: PubNS-2010 Disabled Retiree Table

For the January 1, 2021 valuation, fully-generational mortality improvement for all participant categories is projected under Scale MP-2020. For the January 1, 2019 valuation, fully-generational mortality improvement for all participant categories was projected under Scale MP-2018. In the GASB 75 information as of the December 31, 2019 measurement date, the MP-2019 scale was employed. The MP scale is updated annually by the Society of Actuaries. Annual updates to the MP scale will be applied to each future actuarial valuation. The MP scale update is treated as an actuarial experience gain or loss, rather than as an assumption change.

- Short- and long-term medical and prescription drug trend assumptions used to project healthcare costs and drug coverage premiums were revised. The short-term trend was revised to consider more recent data. The long term trend, beginning in 2028, was revised using an updated Society of Actuaries (SOA) Long Term Healthcare Cost Trends Model.

- Historical trend rates, which are needed for normal cost allocation under Entry Age method:

Year	Medical Trend	Drug Trend	Year	Medical and Drug Trend
2019	6.80%	5.60%	1990	8.80%
2017	5.70%	5.20%	1985	8.70%
2015	6.80%	11.10%	1980	10.80%
2010	7.60%	6.40%	1975	15.80%
2005	10.40%	10.50%	1970	13.40%
2000	10.90%	10.90%	1965	11.10%
1995	5.30%	5.30%		

The Retirement assumption was selected based upon a study of plan experience for the period 2009 to 2019. The assumption will be monitored against actual plan experience to ensure that it remains reasonable.

Changes in Actuarial Assumptions. The discount rate changed from 2.75% to 2.00% as of December 31, 2020.

Changes in the Total OPEB Liability. The changes in the total OPEB liability of the Authority for the year ended December 31, 2021 were as follows:

	Total OPEB Liability	
	2021	2020
Balance at January 1	$ 13,901,968	$ 12,087,137
Changes for the year:		
Service cost	957,087	880,548
Interest	395,674	533,331
Differences between expected and actual experience	(1,256,794)	(1,636,646)
Changes of benefit terms	-	1,669,049
Changes of assumptions	727,289	891,029
Benefits paid	(650,284)	(522,480)
Balance at December 31	$ 14,074,940	$ 13,901,968

Sensitivity of the Total OPEB Liability to Changes in the Discount Rate. The following represents the total OPEB liability calculated using the stated discount rate, as well as what the total OPEB liability would be if it was calculated using a discount rate that is one-percentage-point lower or one-percentage-point higher than the current rate:

1% Decrease (1.00%)	Current Discount Rate (2.00%)	1% Increase (3.00%)
$ 15,164,166	$ 14,074,940	$ 13,109,877

Sensitivity of the Total OPEB Liability to Changes in the Medical Trend Rate. The following presents the total OPEB liability calculated using the stated medical trend assumption, as well as what the total OPEB liability would be if it was calculated using a medical trend rate that is one-percentage-point lower or one-percentage-point higher than the current rate:

	1% Decrease	Current	1% Increase
Initial rate	5.25%	6.25%	7.25%
Ultimate rate	3.00%	4.00%	5.00%
	$ 12,978,632	$ 14,074,940	$ 15,372,187

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEBs. For the years ended December 31, 2021 and 2020, the Authority recognized OPEB expense of $1,064,305 and $2,845,386, respectively. Cash payments into the plan are included in fringe benefits on the statement of revenues, expenses, and changes in net position and any remaining excess (deficiency) is reported as OPEB expense, net.

	December 31, 2021		December 31, 2020	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ -	$ 3,730,554	$ -	$ 2,937,220
Changes in assumptions or other inputs	1,631,627	203,822	1,108,049	232,529
Subtotal, to be recognized in future OPEB expense	1,631,627	3,934,376	1,108,049	3,169,749
Employer payments for OPEB subsequent to measurement date and before fiscal year-end (expected claims)	760,709	-	650,284	-
Total	$ 2,392,336	$ 3,934,376	$ 1,758,333	$ 3,169,749

The deferred inflows and outflows related to OPEBs at December 31, 2021 will be recognized in OPEB expense as follows:

Year Ending December 31	Deferred Outflows	Deferred Inflows
2022	$ 203,711	$ 492,167
2023	203,711	492,167
2024	203,711	492,167
2025	203,711	492,167
2026	203,711	492,167
Thereafter	613,072	1,473,541
	$ 1,631,627	$ 3,934,376

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 Environmental Protection Agency’s (EPA) Combined Sewer Overflow control policy is a national framework for controlling combined sewer overflows through the NPDES permitting program. The policy provides guidance on how communities and wastewater treatment plants such as the Authority and its customers with Combined Sewer Overflows can achieve Clean Water Act (CWA) goals in a flexible, cost-effective manner. The CSO Policy identifies the plan as a Long Term Wet Weather Control Plan, the name is adopted as Wet Weather Plan (WWP) to include both Combined Sewer Overflows and Sanitary Sewer Overflows.

The Authority has been implementing the requirements in their Consent Decree since it's entry in 2008. On January 29, 2013, the Authority submitted a Wet Weather Plan to the US EPA, PA DEP, and ACHD (Agencies) pursuant to the terms of the Consent Decree. The Wet Weather Plan contained a "Selected Plan" that the Authority identified as capable of achieving compliance with the requirements of the Consent Decree and the goals of the Clean Water Act, but costs prohibitive for its rate payers. The Wet Weather Plan also contained three alternatives, each with costs exceeding $2 billion. Following the January 2013 Wet Weather Plan submission, the Agencies worked cooperatively with the Authority in modifying the Consent Decree to allow the Authority to develop an adaptative schedule that would establish interim measures and final measures designed to reduce Combined Sewer Overflows discharges and eliminate Sanitary Sewer Overflows, in accordance with the requirements of the Consent Decree and the goals of the Clean Water Act, while keeping the cost of controls affordable for the Authority's rate payers. As a result of these discussions, the Authority submitted revised portions of the Wet Weather Plan to the Agencies on January 9, 2019, with the title "Clean Water Plan" (CWP). The Agencies conditionally approved portions of the Clean Water Plan on September 26, 2019, which only become effective upon entry by the Court of a Modified Consent Decree.

On October 2, 2019, the Modified Consent Decree was published in the Federal Register for a sixty (60) day public comment period. On May 12, 2020, the Modified Consent Decree was entered into Court and replaced the original Consent Decree entered in January 2008. The modified Consent Decree afforded a longer timetable, through the year 2036 and allows the Authority and our customer municipalities to use the best of evolving technology to meet the terms of the Modified Consent Decree.

The Clean Water Plan, as approved in the modified Consent Decree, includes 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 demonstrate compliance with applicable receiving stream water quality standards. These conveyance system improvements include deep regional conveyance and storage tunnels with associated structures and consolidated sewers. The final design for the tunnels is just beginning, along with obtaining the required permits for construction and acquiring land for tunnel launching and retrieval areas.

11. Clean Water Assistance Fund

In January 2017, the Authority created the Clean Water Assistance Fund to help families pay their sewage treatment bills. This program serves low-income residential customers in the 83 municipalities that the Authority serves. It is administered by Dollar Energy. The Authority initially contributed approximately $1 million to establish this fund and contributed approximately $350,000 and $815,000 in additional funding in 2021 and 2020, respectively. During 2021 and 2020, the fund paid approximately $231,000 and $236,000, respectively to approved applicants. To date, the Clean Water Assistance Fund has helped over 3,300 customers.

12. Green Revitalization of Our Waterways

The Authority created the Green Revitalization of Our Waterways (GROW) program in June 2017. The GROW program allows for any municipality or municipal sewer authority within the Authority's service area to apply for grants that may be used to install green storm water reduction technology, remove streams from the sewer system, reduce the amount of water seeping in through groundwater, or to separate out storm sewers. As part of the grant agreement, awardees are required to operate and maintain the project for at least 20 years. As of December 31, 2021, 146 grants have been approved. Payments made as of the end of 2021 total $11,305,866, of which $6,773,297 is included in depreciable assets and the remainder is included in construction in progress. As of December 31, 2021, the Authority has committed to $50,571,002 in grants that will be drawn upon in future years.

ALLEGHENY COUNTY SANITARY AUTHORITY

NOTES TO FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2021 AND 2020

13. Total Debt Service Schedule

	Series of 2013	Series of 2015	Series of 2016	Series of 2018	Series of 2020	Combined Debt Service	Annual Debt Service
June 1, 2022	$ 1,612,056	$ 4,624,813	$ 2,097,100	$ 3,524,478	$ 4,025,031	$ 15,883,478	
December 1, 2022	1,612,056	34,834,813	2,097,100	3,524,478	2,964,356	45,032,803	$ 60,916,281
June 1, 2023	1,612,056	3,872,813	2,097,100	3,524,478	4,074,356	15,180,803	
December 1, 2023	1,612,056	35,592,813	2,097,100	3,524,478	2,947,706	45,774,153	60,954,956
June 1, 2024	1,612,056	3,090,213	2,097,100	3,769,478	7,247,706	17,816,553	
December 1, 2024	7,112,056	17,820,213	8,812,100	3,518,353	2,861,706	40,124,428	57,940,981
June 1, 2025	1,489,894	2,735,150	1,929,225	3,958,353	7,301,706	17,414,328	
December 1, 2025	8,989,894	12,540,150	10,719,225	3,507,353	2,772,906	38,529,528	55,943,856
June 1, 2026	1,312,019	2,509,203	1,709,475	7,317,353	16,547,907	29,395,957	
December 1, 2026	8,812,019	4,649,203	1,854,475	3,412,103	2,428,531	21,156,331	50,552,288
June 1, 2027	1,124,519	2,478,441	1,706,575	7,417,103	7,123,531	19,850,169	
December 1, 2027	8,624,519	13,263,441	2,181,575	3,311,978	2,311,156	29,692,669	49,542,838
June 1, 2028	938,519	2,208,816	1,697,075	7,521,978	7,246,156	19,612,544	
December 1, 2028	6,438,519	13,528,816	2,192,075	3,206,728	2,187,781	27,553,919	47,166,463
June 1, 2029	807,319	1,962,666	1,687,175	7,631,728	7,372,781	19,461,669	
December 1, 2029	3,307,319	13,777,666	2,202,175	3,096,103	2,058,156	24,441,419	43,903,088
June 1, 2030	754,819	1,667,291	1,676,875	7,746,103	7,513,156	19,358,244	
December 1, 2030	754,819	14,072,291	2,206,875	2,979,853	1,921,778	21,935,616	41,293,860
June 1, 2031	754,819	1,357,166	1,666,275	7,824,853	5,671,781	17,274,894	
December 1, 2031	754,819	3,952,166	12,651,275	2,901,122	1,828,031	22,087,413	39,362,307
June 1, 2032	754,819	1,313,375	1,446,575	7,951,122	5,768,031	17,233,922	
December 1, 2032	754,819	3,993,375	12,876,575	2,774,872	1,729,531	22,129,172	39,363,094
June 1, 2033	754,819	1,246,375	1,217,975	8,039,872	5,854,531	17,113,572	
December 1, 2033	754,819	4,061,375	13,107,975	2,686,025	1,638,431	22,248,625	39,362,197
June 1, 2034	754,819	1,176,000	980,175	8,151,025	5,918,431	16,980,450	
December 1, 2034	754,819	4,131,000	13,340,175	2,576,725	1,577,631	22,380,350	39,360,800
June 1, 2035	754,819	1,102,125	732,975	8,266,725	5,982,631	16,839,275	
December 1, 2035	754,819	4,207,125	13,587,975	2,462,925	1,513,297	22,526,141	39,365,416
June 1, 2036	754,819	1,024,500	475,875	8,382,925	6,058,297	16,696,416	
December 1, 2036	754,819	4,284,500	13,840,875	2,344,525	1,446,724	22,671,443	39,367,859
June 1, 2037	754,819	943,000	208,575	8,509,525	6,131,725	16,547,644	
December 1, 2037	754,819	4,363,000	14,113,575	2,221,225	1,366,300	22,818,919	39,366,563
June 1, 2038	754,819	857,500	-	8,636,225	17,716,300	27,964,844	
December 1, 2038	754,819	4,447,500	-	2,092,925	1,110,500	8,405,744	36,370,588
June 1, 2039	754,819	767,750	-	8,802,925	17,980,500	28,305,994	
December 1, 2039	754,819	4,537,750	-	1,925,175	846,475	8,064,219	36,370,213
June 1, 2040	754,819	673,500	-	8,980,175	18,256,473	28,664,967	
December 1, 2040	754,819	4,633,500	-	1,748,800	573,900	7,711,019	36,375,986
June 1, 2041	754,819	574,500	-	9,163,800	2,953,900	13,447,019	
December 1, 2041	9,789,819	4,734,500	-	1,563,425	526,300	16,614,044	30,061,063
June 1, 2042	517,650	470,500	-	9,358,425	3,006,300	13,352,875	
December 1, 2042	6,897,650	4,835,500	-	1,368,550	476,700	13,578,400	26,931,275
June 1, 2043	350,175	361,375	-	9,563,550	3,056,700	13,331,800	
December 1, 2043	6,855,175	4,946,375	-	1,163,675	425,100	13,390,325	26,722,125
June 1, 2044	179,419	246,750	-	9,778,675	3,110,100	13,314,944	
December 1, 2044	7,014,419	5,061,750	-	948,300	371,400	13,395,869	26,710,813
June 1, 2045	-	126,375	-	11,228,300	3,166,400	14,521,075	
December 1, 2045	-	5,181,375	-	691,300	315,500	6,188,175	20,709,250
June 1, 2046	-	-	-	11,756,300	3,225,500	14,981,800	
December 1, 2046	-	-	-	470,000	257,300	727,300	15,709,100
June 1, 2047	-	-	-	11,985,000	3,282,300	15,267,300	
December 1, 2047	-	-	-	239,700	196,800	436,500	15,703,800
June 1, 2048	-	-	-	12,224,700	3,346,800	15,571,500	
December 1, 2048	-	-	-	-	133,800	133,800	15,705,300
June 1, 2049	-	-	-	-	3,413,800	3,413,800	
December 1, 2049	-	-	-	-	68,200	68,200	3,482,000
June 1, 2050	-	-	-	-	3,478,200	3,478,200	
December 1, 2050	-	-	-	-	-	-	3,478,200
	$ 105,982,020	$ 264,840,394	$ 151,307,250	$ 281,275,870	$ 234,687,026	$ 1,038,092,560	$ 1,038,092,560

REQUIRED SUPPLEMENTARY INFORMATION

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF CHANGES IN THE NET
PENSION LIABILITY AND RELATED RATIOS - MANAGEMENT

YEARS ENDED DECEMBER 31,

	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability:							
Service cost	$ 1,909,209	$ 1,905,043	$ 1,826,493	$ 1,668,851	$ 1,420,751	$ 1,193,822	$ 1,012,344
Interest	4,097,579	3,919,747	3,650,643	3,420,033	3,135,922	2,864,194	2,597,036
Differences between expected and actual experience	(258,048)	(1,020,214)	832,893	(70,800)	816,498	1,043,646	163,825
Changes of benefit terms	-	-	-	-	228,011	-	-
Changes of assumptions	1,793,351	-	1,093,916	-	1,342,644	-	1,178,962
Benefit payments, including refunds of member contributions	(2,280,017)	(2,254,417)	(2,112,745)	(1,807,432)	(1,757,159)	(1,591,493)	(1,495,819)
Net Changes in Total Pension Liability	5,262,074	2,550,159	5,291,200	3,210,652	5,186,667	3,510,169	3,456,348
Total Pension Liability - Beginning	57,862,641	55,312,482	50,021,282	46,810,630	41,623,963	38,113,794	34,657,446
Total Pension Liability - Ending (a)	$ 63,124,715	$ 57,862,641	$ 55,312,482	$ 50,021,282	$ 46,810,630	$ 41,623,963	$ 38,113,794
Plan Fiduciary Net Position:							
Plan member contributions	$ 314,238	$ 303,018	$ 276,848	$ 266,378	$ 242,438	$ 215,651	$ 217,014
Employer actuarially recommended contributions	2,822,303	2,376,191	2,516,460	1,916,633	1,795,051	1,642,817	1,647,664
Net investment income	8,159,448	9,556,538	(1,796,686)	5,367,534	2,427,121	(64,985)	3,062,959
Benefit payments, including refunds of member contributions	(2,280,017)	(2,254,417)	(2,112,745)	(1,807,432)	(1,757,159)	(1,591,493)	(1,495,819)
Net Change in Plan Fiduciary Net Position	9,015,972	9,981,330	(1,116,123)	5,743,113	2,707,451	201,990	3,431,818
Plan Fiduciary Net Position - Beginning	52,764,617	42,783,287	43,899,410	38,156,297	35,448,846	35,246,856	31,815,038
Plan Fiduciary Net Position - Ending (b)	$ 61,780,589	$ 52,764,617	$ 42,783,287	$ 43,899,410	$ 38,156,297	$ 35,448,846	$ 35,246,856
Net Pension Liability (Asset) - Ending (a-b)	$ 1,344,126	$ 5,098,024	$ 12,529,195	$ 6,121,872	$ 8,654,333	$ 6,175,117	$ 2,866,938
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	97.87%	91.19%	77.35%	87.76%	81.51%	85.16%	92.48%
Covered Payroll	$ 10,923,002	$ 10,732,570	$ 10,179,102	$ 9,342,295	$ 8,594,987	$ 7,340,502	$ 6,455,960
Net Pension Liability as a Percentage of Covered Payroll	12.31%	47.50%	123.09%	65.53%	100.69%	84.12%	44.41%

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF CHANGES IN THE NET
PENSION LIABILITY AND RELATED RATIOS - UNION

YEARS ENDED DECEMBER 31,

	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability:							
Service cost	$ 3,670,772	$ 3,355,451	$ 3,140,218	$ 2,944,731	$ 2,616,615	$ 2,476,956	$ 2,293,999
Interest	9,958,940	9,538,363	8,965,814	8,525,299	8,080,735	7,634,199	7,030,443
Differences between expected and actual experience	(1,173,412)	(1,450,770)	(1,116,208)	(238,155)	(179,689)	389,969	(415,816)
Changes of benefit terms	-	492,165	-	-	603,344	-	-
Changes of assumptions	4,384,772	-	6,285,011	-	3,411,383	-	3,319,486
Benefit payments, including refunds of member contributions	(6,494,076)	(5,944,707)	(5,526,297)	(5,052,414)	(4,763,085)	(4,509,841)	(4,067,193)
Net Changes in Total Pension Liability	10,346,996	5,990,502	11,748,538	6,179,461	9,769,303	5,991,283	8,160,919
Total Pension Liability - Beginning	142,117,429	136,126,927	124,378,389	118,198,928	108,429,625	102,438,342	94,277,423
Total Pension Liability - Ending (a)	$ 152,464,425	$ 142,117,429	$ 136,126,927	$ 124,378,389	$ 118,198,928	$ 108,429,625	$ 102,438,342
Plan Fiduciary Net Position:							
Plan member contributions	$ 249,945	$ 245,136	$ 230,428	$ 219,633	$ 205,330	$ 194,364	$ 179,401
Employer actuarially recommended contributions	3,838,941	3,252,204	3,085,110	3,059,402	3,307,866	3,170,502	3,124,830
Net investment income	16,601,350	22,424,524	(4,901,833)	18,425,789	7,341,987	(1,652,268)	12,699,402
Benefit payments, including refunds of member contributions	(6,494,076)	(5,944,707)	(5,526,297)	(5,052,414)	(4,763,085)	(4,509,841)	(4,067,193)
Net Change in Plan Fiduciary Net Position	14,196,160	19,977,157	(7,112,592)	16,652,410	6,092,098	(2,797,243)	11,936,440
Plan Fiduciary Net Position - Beginning	139,948,531	119,971,374	127,083,966	110,431,556	104,339,458	107,136,701	95,200,261
Plan Fiduciary Net Position - Ending (b)	$ 154,144,691	$ 139,948,531	$ 119,971,374	$ 127,083,966	$ 110,431,556	$ 104,339,458	$ 107,136,701
Net Pension Liability (Asset) - Ending (a-b)	$ (1,680,266)	$ 2,168,898	$ 16,155,553	$ (2,705,577)	$ 7,767,372	$ 4,090,167	$ (4,698,359)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	101.10%	98.47%	88.13%	102.18%	93.43%	96.23%	104.59%
Covered Payroll	$ 22,793,758	$ 21,089,748	$ 20,346,885	$ 19,156,669	$ 18,107,692	$ 17,147,336	$ 16,613,080
Net Pension Liability (Asset) as a Percentage of Covered Payroll	-7.37%	10.28%	79.40%	-14.12%	42.90%	23.85%	-28.28%

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF AUTHORITY'S CONTRIBUTIONS

YEARS ENDED DECEMBER 31,

	2021	2020	2019	2018	2017
Actuarially determined contribution:					
Management	$ 2,955,679	$ 2,822,303	$ 2,376,191	$ 2,516,461	$ 1,916,633
Union	4,019,816	3,838,941	3,252,204	3,085,109	3,059,402
	6,975,495	6,661,244	5,628,395	5,601,570	4,976,035
Contributions in relation to the actuarially determined contribution:					
Management	2,955,679	2,822,303	2,376,191	2,516,461	1,916,633
Union	4,019,816	3,838,941	3,252,204	3,085,109	3,059,402
	6,975,495	6,661,244	5,628,395	5,601,570	4,976,035
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll:					
Management	$ 11,647,992	$ 10,923,002	$ 10,732,570	$ 10,179,102	$ 9,342,295
Union	22,832,500	22,793,758	21,089,748	20,346,885	19,156,669
	$ 34,480,492	$ 33,716,760	$ 31,822,318	$ 30,525,987	$ 28,498,964
Contributions as a percentage of covered payroll	20.23%	19.76%	17.69%	18.35%	17.46%

	2016	2015	2014	2013	2012
Actuarially determined contribution:					
Management	$ 1,795,051	$ 1,642,817	$ 1,647,664	$ 1,606,029	$ 1,529,224
Union	3,307,866	3,170,502	3,124,830	2,260,312	2,199,113
	5,102,917	4,813,319	4,772,494	3,866,341	3,728,337
Contributions in relation to the actuarially determined contribution:					
Management	1,795,051	1,642,817	1,647,664	1,606,104	1,529,224
Union	3,307,866	3,170,502	3,124,830	2,260,313	2,199,952
	5,102,917	4,813,319	4,772,494	3,866,417	3,729,176
Contribution deficiency (excess)	$ -	$ -	$ -	$ (76)	$ (839)
Covered payroll:					
Management	$ 8,594,987	$ 7,340,502	$ 6,455,960	$ 7,066,389	$ 6,957,730
Union	18,107,692	17,147,336	16,613,080	16,193,768	15,871,099
	$ 26,702,679	$ 24,487,838	$ 23,069,040	$ 23,260,157	$ 22,828,829
Contributions as a percentage of covered payroll	19.11%	19.66%	20.69%	16.62%	16.33%

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		
	Entry Age Normal - Management Plan		
Amortization method	Level-dollar monthly payments - Union Plan		
	Level-dollar monthly payments - Management Plan		
Remaining amortization period	15 years	Union Plan	
	15 years	Management Plan	
Asset valuation method	Smoothed market value (without phase-in) - Union Plan		
	Smoothed market value (with phase-in) - Management Plan		
Years ended December 31,	2021	2020	
Inflation	2.40%	2.30%	Union Plan
	2.40%	2.30%	Management Plan
Salary increases	4.00%	4.00%	Union Plan
	4.00%	4.00%	Management Plan
Investment rate of return (gross return assumption)	7.00%	7.25%	Union Plan
	7.00%	7.25%	Management Plan

Mortality - Union Plan

Base mortality tables are applied to participant categories as follows:

- Active participants and terminated participants with deferred benefits: PubG-2010(A) Employee Table
- Non-disabled participants in payment status: PubG-2010(A) Retiree Table
- Disabled participants: PubNS-2010 Disabled Retiree Table
- Surviving beneficiaries: Pub-2010(A) Contingent Survivor Table

For the January 1, 2021 valuation, fully-generational mortality improvement for all participant categories is projected under Scale MP-2020. For the January 1, 2020 valuation, fully-generational mortality improvement for all participant categories was projected under Scale MP-2019. The MP scale is updated annually by the Society of Actuaries. Annual updates to the MP scale will be applied to each future actuarial valuation. The MP scale update is treated as an actuarial experience gain or loss, rather than as an assumption change.

Mortality - Management Plan

Base mortality tables are applied to participant categories as follows:

- Active participants and terminated participants with deferred benefits: PubG-2010(A) Employee Table
- Non-disabled participants in payment status: PubG-2010(A) Retiree Table
- Disabled participants: PubNS-2010 Disabled Retiree Table
- Surviving beneficiaries: Pub-2010(A) Contingent Survivor Table

For the January 1, 2021 valuation, fully-generational mortality improvement for all participant categories is projected under Scale MP-2020. For the January 1, 2020 valuation, fully-generational mortality improvement for all participant categories was projected under Scale MP-2019 The MP scale is updated annually by the Society of Actuaries. Annual updates to the MP scale will be applied to each future actuarial valuation. The MP scale update is treated as an actuarial experience gain or loss, rather than as an assumption change.

Note: the mortality improvement assumptions were updated as of the December 31, 2006, 2010, 2012, 2014, 2015, 2016, 2019, 2020, and 2021 valuations.

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF CHANGES IN THE TOTAL OPEB LIABILITY AND RELATED RATIOS

YEAR ENDED DECEMBER 31,
LAST TEN YEARS*

	2021	2020	2019
Total OPEB Liability:			
Service cost	$ 957,087	$ 880,548	$ 976,634
Interest	395,674	533,331	463,583
Differences between expected and actual experience	(1,256,794)	(1,636,646)	(1,823,758)
Changes of benefit terms	-	1,669,049	-
Changes of assumptions	727,289	891,029	(289,943)
Benefit payments, including refunds of member contributions	(650,284)	(522,480)	(536,537)
Net Changes in Total OPEB Liability	172,972	1,814,831	(1,210,021)
Total OPEB Liability - Beginning	13,901,968	12,087,137	13,297,158
Total OPEB Liability - Ending (a)	$ 14,074,940	$ 13,901,968	$ 12,087,137
Covered Payroll	$ 33,716,760	$ 31,822,318	$ 30,525,987
Net OPEB Liability as a Percentage of Covered Payroll	41.74%	43.69%	39.60%

* Until a full 10-year trend is compiled, the required information for the Plan is presented for as many years as are available.

SUPPLEMENTARY INFORMATION

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF INVESTMENTS AND OTHER ASSETS

YEAR ENDED DECEMBER 31, 2021

	Cash and Cash Equivalents	Investments	Accrued Interest Receivable	Total
Current Account:				
Revenue Fund	$ 256,262,201	$ -	$ -	$ 256,262,201
Special Accounts:				
Capital Facilities Fund	84,064,768	-	-	84,064,768
Construction Fund 2018	51,065,579	-	-	51,065,579
Construction Fund 2020	70,019,606	-	-	70,019,606
	205,149,953	-	-	205,149,953
Debt Service Accounts:				
Debt Service Fund	6,112	-	-	6,112
Total	$ 461,418,266	$ -	$ -	$ 461,418,266

ALLEGHENY COUNTY SANITARY AUTHORITY

SCHEDULE OF INVESTMENTS AND OTHER ASSETS

YEAR ENDED DECEMBER 31, 2020

	Cash and Cash Equivalents	Investments	Accrued Interest Receivable	Total
Current Account:				
Revenue Fund	$ 209,431,473	$ -	$ -	$ 209,431,473
Special Accounts:				
Capital Facilities Fund	81,936,033	-	-	81,936,033
Construction Fund 2018	120,873,880	-	-	120,873,880
Construction Fund 2020	69,999,530	-	-	69,999,530
	272,809,443	-	-	272,809,443
Debt Service Accounts:				
Debt Service Fund	5,919	-	-	5,919
Total	$ 482,246,835	$ -	$ -	$ 482,246,835