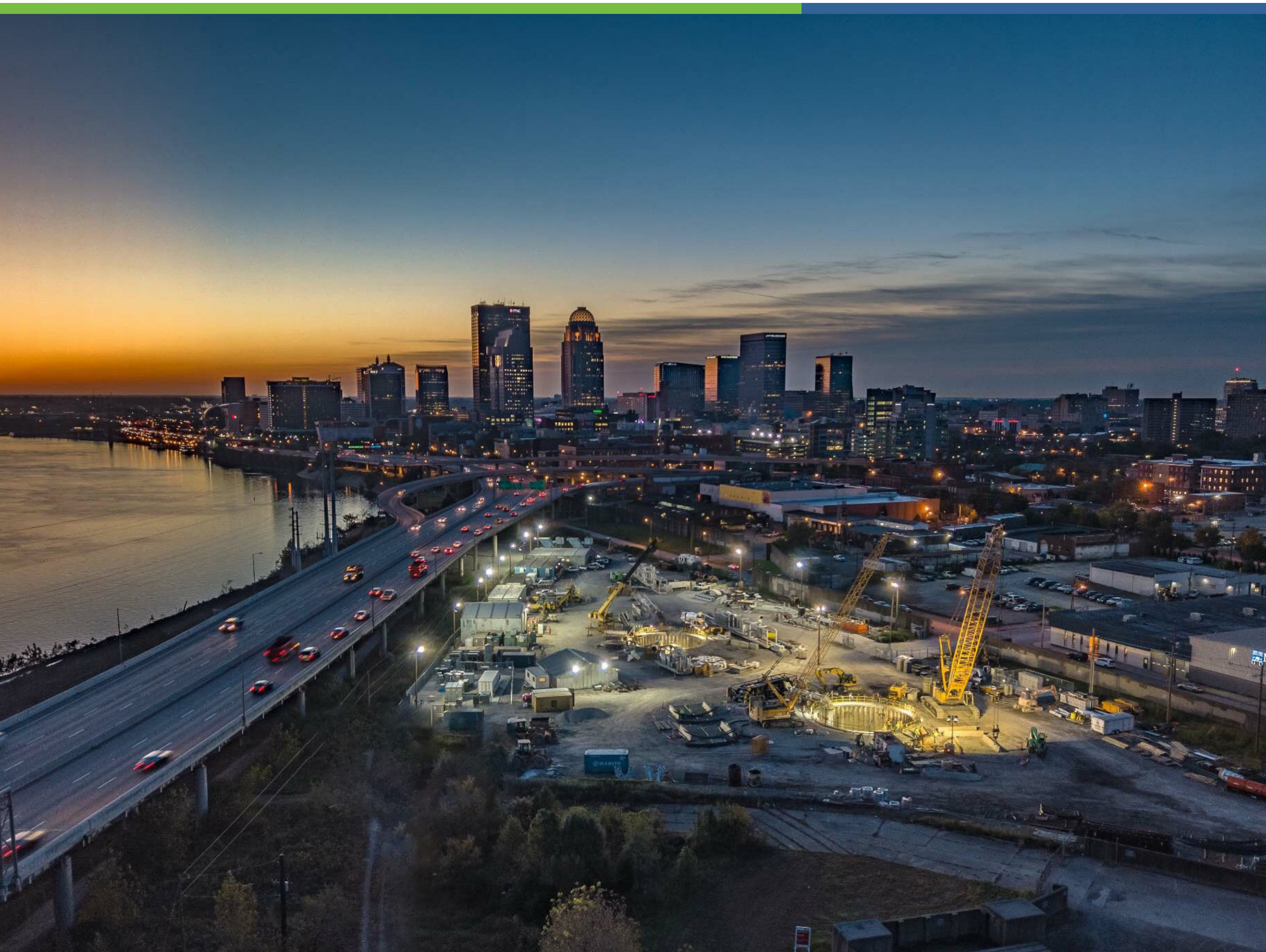
Louisville and Jefferson County
Metropolitan Sewer District

COMPREHENSIVE ANNUAL FINANCIAL REPORT

Fiscal Years Ended June 30, 2019 and 2018



msd
Safe, clean waterways

COMPREHENSIVE ANNUAL FINANCIAL REPORT

Louisville/Jefferson County Metropolitan Sewer District
Louisville, Kentucky

A Component Unit of Louisville/Jefferson County Metro Government
Commonwealth of Kentucky

Fiscal Years Ended June 30, 2019 and 2018

Prepared by the Department of Finance, Louisville MSD
Chad Collier, CFO, Secretary/Treasurer
Brad Good, Interim Director of Budget and Finance

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Safe, clean waterways

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MSD's 20-million-gallon combined sewer overflow basin sits underneath the Great Lawn and this new pavilion, which was a community benefit of the project.

INTRODUCTORY SECTION

700 West Liberty Street | Louisville, KY 40203-1911
Phone: 502.540.6000 | LouisvilleMSD.org

October 31, 2019

Letter of Transmittal

To the customers and investors of Louisville and Jefferson County Metropolitan Sewer District,

As Interim Budget & Finance Director of Louisville and Jefferson County Metropolitan Sewer District (MSD) it is my pleasure to present the Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2019.

Responsibility for the accuracy, completeness and fairness of the data presented herein, including all disclosures, rests with MSD. To provide a reasonable basis for making these representations, the management of MSD has established a comprehensive internal control framework that is designed to both protect its assets from loss, theft, or misuse and to compile sufficient reliable information for the preparation of MSD's financial statements in conformity with Generally Accepted Accounting Principles (GAAP).

MSD's comprehensive framework of internal controls has been designed to provide reasonable rather than absolute assurance that the financial statements will be free from material misstatement. To the best of MSD's knowledge and belief, the accompanying data is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of the operations of MSD. All disclosures necessary to enable the reader to understand MSD's financial activities have been included. GAAP requires that management provide a narrative to accompany the basic financial statements in the form of Management's Discussion and Analysis which is found beginning on page 3. This letter of transmittal is intended to be read in conjunction with that analysis.

MSD was created in 1946 as a public body corporate and subdivision of the Commonwealth of Kentucky. MSD has complete control, possession and supervision of the sewer and drainage systems within the majority of Louisville Metro, which now comprises all of Jefferson County, Kentucky. Chapter 76 of the Kentucky Revised Statutes authorizes MSD to construct additions, betterments, and extensions within its service area and to recover the cost of its services in accordance with rate schedules adopted by its Board.

MSD is considered a component unit of the Louisville/Jefferson County Metro Government. The Louisville Metro Mayor appoints, with the approval of the Louisville Metro Council, the members to MSD's governing Board, its Executive Director, Chief Engineer and Secretary/Treasurer. The Board, which has statutory authority to enter into contracts and agreements for the management, regulation and financing of MSD, manages its business and activities. The Board has full statutory responsibility for approving and revising MSD's annual budgets, for financing deficits and for disposition of surplus funds. MSD has no special financial relationship with the Louisville Metro Government; however, effective July 1, 2006, MSD began providing free sewer and drainage services to the Metro government. The value of these services in fiscal year 2019 was $6.4 million.

MSD is required by law and by its Revenue Bond Resolution to undergo an annual independent audit of its financial statements. The goal of the independent audit is to provide reasonable assurance that the financial statements of MSD for the fiscal years ended June 30, 2019 and 2018 are free of material misstatement. The independent audit involved examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements; assessing the accounting principles used and significant estimates made by management; and evaluating the overall financial statement presentation. The independent auditor's report can be found at the beginning of the financial section of this report.

During fiscal year 2019 one new individual joined MSD's Board of Directors. On June 25, 2019 Metro Council confirmed Louisville Metro Mayor Greg Fischer's appointment of Ricky Mason to the MSD Board. Mason represents Senatorial District 35. Mason replaced John Phelps who resigned February 27, 2019. Mason's term expires July 31, 2022.

Customer Base:
MSD's revenue is derived from sewer and stormwater service charges collected from residential, commercial, and industrial customers. Sewer service charges are distributed to respective customer classes on the basis of actual costs incurred to collect and treat wastewater. For fiscal 2019, 57% of MSD's sewer service charge revenue came from residential customers, 32% came from commercial customers and 11% from industrial customers. MSD also bills for stormwater services using equivalent service units (ESUs). An ESU is defined by MSD as 2,500 square feet of impervious area. For fiscal 2019, 38% of MSD's stormwater service charge revenue came from residential customers, 56% came from commercial customers and 6% from industrial customers.

Local Economy:
A study by the University of Louisville Urban Studies Institute (USI) projects Jefferson County will grow by 131,135 people, or 18%, between 2010 and 2040. USI predicts an increase in population within MSD's service area of nearly 12%. This translates to an approximate increase in wastewater flows of 7% during the next 20 years although growth is not expected to be uniform. Population growth outside the core market area (generally defined as the areas surrounding downtown that were not part of the original City of Louisville) is projected to continue at a faster pace than growth inside the core. Jefferson County is projected to gain 65,425 households, a 21% increase, between 2010 and 2040.

Trade and transportation are central to the Louisville economy. Louisville sits at the crossroads of three major Interstate highways, I-64, I-65, and I-71 and is home to the UPS Worldport air hub.

The United States Department of Labor's Bureau of Labor Statistics listed the unemployment rate for Jefferson County as 4.3% in June 2019 which was higher than the United States overall unemployment rate of 3.7% for the same time period. The latest published U.S. Census Bureau statistics lists median household income in Jefferson County as $49,439 (2017 dollars). Additional information on demographic and economic conditions for Louisville can be found in the Statistical Section of this report.

Major Initiatives:

- *Consent Decree work:* Thirteen years ago MSD began a $1.15 billion effort to eliminate sanitary sewer overflows and reduce combined sewer overflows by 98% in a typical rainfall year. Because much of Louisville's sewer system was installed nearly 100 years ago, rainwater can mix with wastewater and overwhelm the pipes. Rain can cause a combination of wastewater and stormwater to overflow into the Ohio River and our local streams. MSD's Consent Decree work addresses this issue and will be complete by the end of 2024.

  Underground storage basins and the Waterway Protection Tunnel are part of MSD's solution to prevent sewage from overflowing into Louisville's waterways. The basins and tunnel are designed to capture rainwater and sewage which would otherwise overwhelm the sewer system during rain events and flow untreated into our waterways. These underground storage areas retain the mixture of rainwater and sewage until the rain subsides and system capacity is available. Water is then conveyed to one of MSD's Water Quality Treatment Centers, treated, and returned to our local streams or the Ohio River. When the storage basins and tunnel are complete MSD will have approximately 250 million gallons of storage capacity.

- *Rate Increase:* On July 25, 2018 the MSD Board approved a rate increase of 6.9 percent for wastewater, drainage and EPA surcharges fees on all bills effective August 1, 2018. The average monthly residential wastewater bill (based on 5,000 gallons per month) increased by $3.23 from $46.87 to $50.10. Monthly stormwater drainage fees increased by $0.64 from $9.26 to $9.90. On the same date the Board approved MSD's capital budget for fiscal 2019 of $190 million. This budget is scaled to meet MSD's Consent Decree requirements and address other infrastructure needs within the financial constraints of the current rate increase.

- *Regionalization:* In July 2018 amendments to the Kentucky Interlocal Cooperation Act, (KRS 65.210 et seq.), became effective allowing any public agency to enter into agreements with another public agency, or agencies, to acquire by purchase or lease, any real or personal property, or any interest, right, easement, or privilege therein, outside of its municipal or jurisdictional boundaries in connection with the acquisition, construction, operation, repair or maintenance of any sewage, wastewater, or storm water facilities. This legislative change paved the way for MSD to purchase the City of Crestwood sewer system on May 31, 2019. Under the terms of a 1996 interlocal agreement, all the sanitary sewage systems, equipment, and facilities owned by Crestwood were leased by Crestwood and Oldham County to MSD. The acquisition of the system by MSD allows to continue providing a high level of service to Crestwood while maintaining competitive rates for existing Crestwood customers. The acquisition also gives MSD the opportunity to provide wastewater service to potential development in the area and achieve greater economies of scale. The Crestwood system had approximately 1700 customers at the date of acquisition.

- *Supplier Diversity and Community Benefits Programs:* On February 25, 2019 the MSD Board approved an enhanced Supplier Diversity Program and new Community Benefits Program. Both programs take effect on July 1, 2019. The program changes are the result of a Disparity Study completed in July 2018 by Mason Tillman Associates, Ltd. The study was commissioned to analyze MSD's contracting practices through a five-year period to determine if a statistically significant disparity existed in the MSD awards of contracts to willing and qualified minority and women-owned business (M/WBE). The study found significant evidence of disparity in the award of prime and subcontracts among African-American, Asian-Indian and Caucasian females. Based on these findings, new supplier diversity goals were approved for construction and construction-related services valued at or above $150,000. In addition, the enhanced Supplier Diversity Program will include a ten percent bid discount applied to bids up to $500,000 with a maximum discount not to exceed $50,000 on bids submitted by M/WBE vendors.

  In addition to the enhanced Supplier Diversity Program, the board also approved a Community Benefits Program to leverage the economic and social impact MSD has in the community with our large-scale engineering projects. The program will provide specific opportunities in workforce development, skills-trade training, small business outreach and mentorship. This program will also expose youth to careers in the water sector. MSD's vendors will provide a financial contribution, volunteer hours or in-kind services to local non-profits and schools. No dollars from this effort will come to MSD.

- *Innovation:* MSD has identified innovation as a key priority in our Strategic Business plan. The idea of innovation includes continually improving the service we provide; but, it's also the foundation for new lines of business and revenue. On February 26, 2019 MSD named its first Chief Innovation Officer, Kim Reed. Reed will lead innovation efforts for both MSD and Louisville Waster Company under a One Water shared service agreement. Together we will look for opportunities that build on our core strengths, bring value, and create potential new lines of revenue. A focus on innovation is key in order for MSD to remain resilient and successful.

Financial Planning:
MSD is focused on continuously strengthening its financial position through planning and analysis in order to meet its short-term and long-term operational and infrastructure plans.

MSD's short-term plan looks forward five years at a time. Formalized budgets are developed and approved annually by the Board for operating and capital spending. Budgets are developed with an eye toward maintaining operational efficiency and achieving incremental improvement of MSD's critical debt service coverage and debt to operating ratios.

MSD's long term financial planning window is 20 years and is supported by the 20 year Critical Repair and Reinvestment Program and a 20 year comprehensive financial model. The financial model enables MSD to analyze alternative scenarios in order to optimize resources in the face of competing priorities. Rate adjustments are carefully considered in conjunction with bond issues and other financing options with an eye toward maintaining affordability for the ratepayer. Key long term considerations are debt service coverage, maintaining level debt service payments, and maintaining adequate cash reserves.

Awards
The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to MSD for its comprehensive annual financial report (CAFR) for the fiscal year ended June 30, 2018. This was the 29th consecutive year that MSD has achieved this prestigious award. In order to be awarded a Certificate of Achievement, MSD must publish an easily readable and efficiently organized CAFR. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current CAFR continues to meet the Certificate of Achievement Program's requirements and we will submit it to GFOA to determine its eligibility for another certificate.

Acknowledgements
The Finance division of MSD has worked hard to produce the 2019 CAFR and I would like to thank them for their individual contributions. I would also like to take this opportunity to thank the MSD Board of Directors and the Executive Leadership Team for their continued support.

Respectfully Submitted,

Brad Good
Interim Director of Budget & Finance

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Louisville and Jefferson County

Metropolitan Sewer District, Kentucky

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2018

Christopher P. Morrill

Executive Director/CEO

Louisville and Jefferson County Metropolitan Sewer District Organization Chart

- Executive Director
  - Executive Offices
    - Executive Offices
    - Internal Audit
    - Facilities, Safety & Security
    - Customer Relations
    - Communications
  - Supply Chain & Economic Inclusion
    - Community Benefits
    - Procurement
    - Storeroom & Inventory
    - Supplier Diversity
  - Legal
    - Legal Services
  - Human Resources
    - HR Services
    - Training
  - Information & Technology
    - IT Administration
    - Applications
    - Technical Services
    - PC Support
    - LOJIC
  - Finance
    - Finance Administration
    - Revenue
    - Accounting
  - Engineering
    - Engineering Administration
    - Regulatory Compliance
    - GIS Services & Records
    - EngineeringTechnical Services
    - Infrastructure Planning
    - Development and Stormwater Services
    - MS4 Environmental Programs
    - Plumbing Modification Program
  - Operations
    - Operations Administration
    - Treatment Facilities
    - Treatment Facilities Maintenance
    - Laboratory
    - Collections System, Flood Protection and Emergency Response
    - Operations Control
    - Wastewater & Drainage
    - Support Services
    - Fleet Services
    - Operations Performance

BOARD OF DIRECTORS

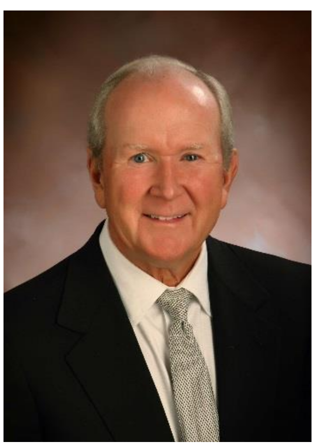
Cyndi Caudill
Chair

Dan Arbough
Vice Chair

Andrew Bailey

Keith Jackson

Ricky Mason



JT Sims

Jason Williams

Marita Willis

PRINCIPAL OFFICERS

James A. Parrott
Executive Director

Angela Akridge
Chief Engineer

Chad Collier
Chief Financial Officer
Secretary/Treasurer

Brian Bingham
Chief of Operations

Lynne Fleming
Human Resources Director

Paula Middleton Purifoy
General Counsel and
Legal Director

M. Tom Luckett
One Water
Chief Information Officer

Kimberly Reed
One Water
Chief Innovation Officer

Rene’ Lindsay
One Water
Chief Procurement Officer

MSD's 4-mile Waterway Protection Tunnel will protect the community and our waterways from combined sewer overflows.

Financial Section

Crowe LLP
Independent Member Crowe Global

INDEPENDENT AUDITOR'S REPORT

Board of Directors
Louisville and Jefferson County Metropolitan Sewer District
Louisville, Kentucky

Report on Financial Statements

We have audited the accompanying financial statements of the Louisville and Jefferson County Metropolitan Sewer District, a component unit of the Louisville-Jefferson County Metro Government, as of and for the years ended June 30, 2019 and 2018, and the related notes to the financial statements, which collectively comprise the Louisville and Jefferson County Metropolitan Sewer District's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

Auditor's Responsibility

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

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

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Louisville and Jefferson County Metropolitan Sewer District, as of June 30, 2019 and 2018, and the changes in financial position and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis on pages 3 through 11, the Schedule of Proportionate Share of the Net Pension Liability on page 54, and the Schedule of Pension Contributions on page 56, the Schedule of Proportionate Share of the Net OPEB Liability on page 57, and the Schedule of OPEB Contributions on page 58 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audits were conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Louisville and Jefferson County Metropolitan Sewer District's basic financial statements. The introductory and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements. The introductory and statistical sections have not been subjected to the auditing procedures applied in the audits of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by Governmental Auditing Standards

In accordance with *Government Auditing Standards,* we have also issued our report dated October 31, 2019 on our consideration of the Louisville and Jefferson County Metropolitan Sewer District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Louisville and Jefferson County Metropolitan Sewer District's internal control over financial reporting and compliance.

Crowe LLP

Crowe LLP

Louisville, Kentucky
October 31, 2019

The management of Louisville and Jefferson County Metropolitan Sewer District (MSD) present this Management's Discussion and Analysis (MD&A) for the fiscal year ended June 30, 2019 and 2018. This narrative provides the reader with condensed comparative financial data, an analysis of the results of our operations, a description of capital asset and long term debt activity, and a discussion of future economic factors that will impact our operations. This MD&A is intended to be read in conjunction with the financial statements immediately following this section.

FINANCIAL HIGHLIGHTS

- Total net position increased from fiscal 2018 to fiscal 2019 by $61.9 million, or 8.7%.
- Total assets and deferred outflows of resources increased $143.6 million, or 4.3%, from fiscal 2018 to fiscal 2019.
- MSD started a commercial paper program on July 10, 2018 to provide interim construction financing and provide additional liquidity support for the Bond Anticipation Note (BAN). This program saved MSD $1.6M in interest costs versus issuing a long-term revenue bond.
- Operating revenues increased in fiscal 2019 by $15.2 million, or 5.5% primarily due to a rate increase of 6.9% effective August 1, 2018.
- Operating expenses increased by $21.2 million, or 11.6% as a result of increases in depreciation and amortization expense of $9.9 million and service and administrative costs of $9.9 million over fiscal 2018.
- MSD maintained unrestricted cash and investments totaling $80.5 million as of June 30, 2019. This is equal to 283 days cash on hand compared to 293 days cash on hand at June 30, 2018.
- Total debt coverage was 1.54x for fiscal 2019 compared to 1.63x for fiscal 2018 while senior debt coverage was 1.81x for fiscal 2019 compared to 1.9x for fiscal 2018.

OVERVIEW OF THE FINANCIAL STATEMENTS

MSD uses the accrual basis of accounting to prepare its financial statements wherein revenues are recorded when earned and expenses are recorded at the time a liability is incurred. MD&A serves as a narrative introduction to the financial statements which consist of the following parts:

Statement of Net Position: This statement includes all of MSD's assets, liabilities and deferred outflow and inflow of resources. It provides information about the nature and amounts of investments in assets and the obligations to creditors. In addition, it provides the basis for computing rate of return, evaluating the capital structure of MSD and assessing the liquidity and financial flexibility of the organization.

Statement of Revenues, Expenses and Changes in Net Position: This statement identifies the revenues generated and expenses incurred during the fiscal year and helps the user to assess the financial efficiency of MSD during the time period for which the statement relates.

Statement of Cash Flows: This statement provides information related to MSD's cash receipts and cash expenditures during the fiscal year. It reports cash receipts, cash payments, and net changes in cash resulting from operations, investing, and financing activities.

Notes to the Financial Statements: The notes contain descriptions of the policies underlying the amounts displayed in the financial statements along with other information that is essential to a full understanding of the data provided in the financial statements.

Required Supplementary Information: Information is presented related to MSD's pension and Other Post-Employment Benefits (OPEB) including annual contributions made to the plans and annual investment returns.

Other supplemental information is presented for comparative analysis and is not part of the basic financial statements. Other supplemental information consists of:

Statistical Section: Ten years of financial statement information, operating indicators, and demographic information is presented for comparative analysis.

STATEMENT OF NET POSITION

FIGURE 1 - CONDENSED NET POSITION INFORMATION				2019-2018		2018-2017	
(amounts in thousands)	FY 2019	FY 2018	FY 2017	Increase (Decrease)	% Change	Increase (Decrease)	% Change
Unrestricted current assets	$ 116,928	$ 109,940	$ 83,085	$ 6,988	6.4%	$ 26,855	32.3%
Restricted current assets	52,520	29,987	42,129	22,533	75.1%	(12,142)	(28.8%)
Capital assets	3,118,659	2,925,982	2,742,037	192,677	6.6%	183,945	6.7%
Restricted non-current assets	76,678	152,438	124,192	(75,760)	(49.7%)	28,246	22.7%
Other non-current assets	31,644	32,221	32,768	(577)	(1.8%)	(547)	(1.7%)
Total assets	3,396,429	3,250,568	3,024,211	145,861	4.5%	226,357	7.5%
Deferred outflows of resources	52,018	54,267	35,911	(2,249)	(4.1%)	18,356	51.1%
Total assets and deferred outflows	3,448,447	3,304,835	3,060,122	143,612	4.3%	244,713	8.0%
Current liabilities	18,168	16,342	16,550	1,826	11.2%	(208)	(1.3%)
Current liabilities from restricted assets	95,537	108,978	82,654	(13,441)	(12.3%)	26,324	31.8%
Non-current liabilities	2,478,195	2,401,015	2,208,378	77,180	3.2%	192,637	8.7%
Total liabilities	2,591,900	2,526,335	2,307,582	65,565	2.6%	218,753	9.5%
Deferred inflows of resources	85,995	69,826	84,052	16,169	23.2%	(14,226)	(16.9%)
Total liabilities and deferred outflows	2,677,895	2,596,161	2,391,634	81,734	3.1%	204,527	8.6%
Net investment in capital assets	745,343	587,820	562,784	157,523	26.8%	25,036	4.4%
Restricted, net	81,207	156,425	150,386	(75,218)	(48.1%)	6,039	4.0%
Unrestricted	(55,998)	(35,571)	(44,682)	(20,427)	57.4%	9,111	(20.4%)
Total net position	770,552	708,674	668,488	61,878	8.7%	40,186	6.0%
Total liabilities , deferred inflows & net position	$ 3,448,447	$ 3,304,835	$ 3,060,122	$ 143,612	4.3%	$ 244,713	8.0%

Net Position: MSD's net position increased $61.9 million, or 8.7%, in fiscal 2019 and increased $40.2 million, or 6.0%, in fiscal 2018 (see Figure 1). Increases or decreases in net position serve as useful indicators of MSD's financial condition over time.

The largest portion of MSD's net position is its net investment in capital assets. Net investment in capital assets increased $157.5 million in fiscal 2019 and increased $25.0 million in fiscal 2018. Capital asset construction and acquisitions were funded in 2019 by $120 million of commercial paper notes[1], cash generated from operations, and contributions in aid of construction from developers. Capital asset construction and acquisitions were funded in 2018 by a $175 million revenue bond issue, cash generated from operations, and contributions in aid of construction from developers

Funds restricted for a specific purpose by bond covenants are classified as restricted net position. MSD is required to make monthly transfers to its debt service accounts sufficient to meet the semi-annual debt service payments on outstanding bonds. MSD also maintains debt reserve accounts and a $75 million Debt Service Reserve Surety policy equal to the maximum annual debt service requirements on its senior lien obligations. Restricted net position decreased $75.2 million from fiscal 2018 to fiscal 2019 as the remaining funds in the 2017 construction fund were spent and assets previously restricted for the debt reserve were freed up by the issuance of a Debt Service Reserve Surety policy were spent on construction. Restricted net position increased $6.0 million from fiscal 2017 to fiscal 2018 due to an increase in assets restricted for debt service.

[1] See Note 7 – Long-Term Debt

The remaining balance of MSD's net position is unrestricted and may be used for any allowable purpose. Unrestricted net position decreased $20.4 million from fiscal 2018 to fiscal 2019 as MSD's net investment [2]in capital assets increased. Unrestricted net position increased $9.1 million from fiscal 2017 to fiscal 2018 primarily from funds provided by operations.

Total assets and deferred outflows of resources increased by $143.6 million in fiscal 2019. This increase can be attributed primarily to additions to plant, lines and other facilities. Total assets and deferred outflows of resources increased by $244.7 million in fiscal 2018. This increase can be attributed primarily to additions to plant, lines and other facilities.

Total liabilities and deferred inflows of resources increased in 2019 by $81.7 million. Current liabilities decreased by $11.6 million. Noncurrent liabilities increased by $77.2 million as commercial paper issuances were offset by a reduction in bonds payable. Pension and OPEB obligations increased by $12.2 million. In fiscal 2018, total liabilities and deferred inflows of resources increased by $204.5 million due to the senior debt issued in fiscal 2018 and an increase in the net pension and OPEB liabilities.

STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

FIGURE 2 - CONDENSED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION INFORMATION

				2019-2018		2018-2017	
(amounts in thousands)	FY 2019	FY 2018	FY 2017	Increase (Decrease)	% Change	Increase (Decrease)	% Change
Operating revenues							
Service charges	$289,173	$274,504	$253,943	$ 14,669	5.3%	$ 20,561	8.1%
Other operating income	5,195	4,645	5,691	550	11.8%	(1,046)	(18.4%)
Total operating revenues	294,368	279,149	259,634	15,219	5.5%	19,515	7.5%
Non-operating revenues	18,692	16,529	14,273	2,163	13.1%	2,256	15.8%
Total revenues	313,060	295,678	273,907	17,382	5.9%	21,771	7.9%
Operating expenses							
Service and administrative costs	103,699	93,800	87,637	9,899	10.6%	6,163	7.0%
GASB 68/75 pension expense	12,243	10,852	2,512	1,391	12.8%	8,340	332.0%
Depreciation & amortization expense	87,882	77,954	77,156	9,928	12.7%	798	1.0%
Total operating expenses	203,824	182,606	167,305	21,218	11.6%	15,301	9.1%
Non-operating expenses							
Interest expense	96,214	90,779	88,286	5,435	6.0%	2,493	2.8%
Amortization of debt discount/premium	(11,527)	(12,051)	(10,631)	524	(4.3%)	(1,420)	13.4%
Change in fair value - swaps	13,597	(16,317)	(26,072)	29,914	(183.3%)	9,755	(37.4%)
Total non-operating expenses	98,284	62,411	51,583	35,873	57.5%	10,828	21.0%
Total expenses	302,108	245,017	218,888	57,091	23.3%	26,129	11.9%
Income before capital contributions	10,952	50,661	55,019	(39,709)	(78.4%)	(4,358)	(7.9%)
Capital contributions	50,926	12,726	12,889	38,200	300.2%	(163)	(1.3%)
Increase (decrease) in net position	61,878	63,387	67,908	(1,509)	(2.4%)	(4,521)	(6.7%)
Net position - begininng[2]	708,674	645,287	600,580	63,387	9.8%	44,707	7.4%
Net position - ending	$770,552	$708,674	$668,488	$ 61,878	8.7%	$ 40,186	6.0%

Operating Revenues: Operating revenues as of June 30, 2019 were $294.4 million (see Figure 2). This represents an increase of $15.2 million, or 5.5%, in fiscal 2019. The increase in operating revenues was driven by a Board-approved rate increase of 6.9% effective August 1, 2018. Wastewater service charges totaled $219.5 million which is an increase of $8.9 million, or 4.2%, from a year ago. Stormwater service charges were $69.7 million which represents an increase of $5.9 million, or 9.2%, from the same period one year ago. Other operating income was $5.2 million, which is $0.6 million more than one year ago.

[2] Net position as of July 1, 2018 was reduced by $23,201 related to the adoption of GASB Statement No. 75.

Operating revenues as of June 30, 2018 were $279.1 million. This represents an increase of $19.5 million, or 7.5%, in fiscal 2018. The increase in operating revenues was driven by a Board-approved rate increase of 6.9% effective August 1, 2017. Wastewater service charges totaled $210.6 million which is an increase of $15.7 million, or 8.0%, from fiscal 2017. Stormwater service charges were $63.8 million which represents an increase of $4.8 million, or 8.3%, from fiscal 2017. Other operating income was $4.6 million or $1.0 million less than fiscal 2017.

Non-operating Revenues: Non-operating revenues, which represent interest income earned on investments and the federal interest subsidy on MSD's Build America Bonds, increased $2.2 million in fiscal 2019 largely due to improved yields on the investment portfolio. Non-operating revenues increased $2.3 million in fiscal 2018 as the size of the investment portfolio increased.

Operating Expenses: Service and administrative costs increased by $9.9 million, or 10.6%, in fiscal 2019 from fiscal 2018. Salary and benefit costs increased $6.6 million to 49.8% of net service and administrative costs compared to 48.7% in fiscal 2018. This increase was made up of salary increases, workers compensation claim increases and higher CERS pension contributions. Utility expenses increased by $2.8 million due to higher peak-demand rates as a result of a February 2018 flooding event. Bad Debt expense totaled 1.29% of service charge revenue for fiscal 2019 compared to 1.43% for fiscal 2018.

Service and administrative costs increased by $6.2 million in fiscal 2018 from fiscal 2017. Labor costs increased $5.5 million, or 49.0% of net service and administrative costs compared to 49.5% in fiscal 2017. MSD incurred approximately $500 thousand in additional overtime expenses responding to a February 2018 flooding event. Merit increases and reorganizations account for the balance of the labor increase from fiscal 2017 to fiscal 2018. All of MSD's pump stations were placed in service for the flooding event which increased electrical expenses $2 million year over year and reset MSD's peak-demand electric rate. Bad Debt expense totaled 1.43% of service charge revenue for fiscal 2018 compared to 1.38% for fiscal 2017.

Non-operating Expenses: Non-operating expenses increased $35.9 million in fiscal 2019 from fiscal 2018. Net interest expense increased $5.4 million largely as a result of a decrease in capitalized interest expense due to a smaller construction in progress balance. The change in fair value of MSD's swap portfolio increased $29.9 million as interest rates increased. Non-operating expenses increased $10.8 million in fiscal 2018 from fiscal 2017. Net interest expense increased $2.5 million due to the issuance of the 2017A series revenue bonds. The change in fair value of MSD's swap portfolio increased $9.8 million as interest rates increased.

Capital Contributions: Capital contributions increased $38.2 million in fiscal 2019 from fiscal 2018. This increase was driven by an increase in contributions of stormwater infrastructure constructed by developers. In addition, MSD also received $3.3 million on its 2018 flood event property insurance claim. Capital contributions were essentially flat from fiscal 2017 to fiscal 2018, decreasing by $163 thousand. See Figure 3 below for additional information.

FIGURE 3 - CAPITAL CONTRIBUTIONS

				2019-2018		2018-2017	
(amounts in thousands)	FY 2019	FY 2018	FY 2017	Increase (Decrease)	% Change	Increase (Decrease)	% Change
Cash flows from:							
Developer's capital - stormwater	$ 29,286	$ -	$ -	$ 29,286	100.0%	$ -	0.0%
Developer's capital - wastewater	12,267	5,543	4,127	6,724	121.3%	1,416	34.3%
Federal grants	5,903	7,183	6,386	(1,280)	(17.8%)	797	12.5%
Capital recovery	156	-	-	156	100.0%	-	0.0%
Property owner assessments - capital	-	-	2,376	-	0.0%	(2,376)	(100.0%)
Miscellaneous claims recovery	3,314	-	-	3,314	100.0%	-	0.0%
Total capital contributions	$ 50,926	$ 12,726	$ 12,889	$ 38,200	300.2%	$ (163)	(1.3%)

STATEMENT OF CASH FLOWS

FIGURE 4 - CONDENDSED STATEMENT OF CASH FLOWS INFORMATION				2019-2018		2018-2017	
(amounts in thousands)	FY 2019	FY 2018	FY 2017	Increase (Decrease)	% Change	Increase (Decrease)	% Change
Cash flows from:							
Operating activities	$189,618	$181,561	$173,755	$ 8,057	4.4%	$ 7,806	4.5%
Capital and related financing activities	(245,133)	(147,727)	(197,246)	(97,406)	65.9%	49,519	(25.1%)
Investing activities	40,666	(51,717)	18,941	92,383	(178.6%)	(70,658)	(373.0%)
Change in cash and temporary investments	(14,849)	(17,883)	(4,550)	3,034	(17.0%)	(13,333)	293.0%
Cash and temporary investments, Beginning of year	81,662	99,545	104,095	(17,883)	(18.0%)	(4,550)	(4.4%)
Cash and temporary investments, End of year	$ 66,813	$ 81,662	$ 99,545	$ (14,849)	(18.2%)	$ (17,883)	(18.0%)

Cash and cash equivalents were $66.8 million at the end of fiscal 2019 which is a decrease of $14.8 million from fiscal 2018 or 18.2% (see Figure 4). Cash flows from operating activities increased as revenue and customer receipts grew. Cash used by financing activities in fiscal 2019 decreased primarily as a result of a reduction in borrowing. Cash provided by investing activities in fiscal 2019 increased as several bonds in the investment portfolio were called and MSD liquidated its commercial paper holdings to finance construction.

Cash and cash equivalents were $81.7 million at the end of fiscal 2018 which is a decrease of $17.9 million from fiscal 2017 or 18.0%. Cash flows from operating activities increased as revenue and customer receipts grew. Cash used by financing activities in fiscal 2018 increased primarily as a result of higher proceeds from the bond issue and related bond premiums compared to fiscal 2017. Cash provided by investing activities in fiscal 2018 decreased as investments in in money market funds were reinvested in U.S. agency and treasury securities.

CAPITAL ASSETS

FIGURE 5 - CAPITAL ASSETS NET OF DEPRECIATION					
(amounts in thousands)	FY 2019	FY 2018	Increase (Decrease) 2019-2018	FY 2017	Increase (Decrease) 2018-2017
Sewer lines	$ 1,292,272	$ 1,159,110	$ 133,162	$ 1,120,151	$ 38,959
Wastewater treatment facilities	222,196	229,950	(7,754)	244,482	(14,532)
Stormwater drainage facilities	651,346	410,390	240,956	401,729	8,661
Pumping and lift stations	159,063	111,902	47,161	103,085	8,817
Administrative facilities	11,869	11,827	42	13,411	(1,584)
Maintenance facilities	5,329	1,941	3,388	2,119	(178)
Machinery and equipment	28,188	10,015	18,173	7,580	2,435
Miscellaneous	2,074	2,357	(283)	4,150	(1,793)
Capitalized interest	285,821	276,835	8,986	264,108	12,727
Construction in progress	460,501	711,655	(251,154)	581,222	130,433
Total	$ 3,118,659	$ 2,925,982	$ 192,677	$ 2,742,037	$ 183,945

MSD's total capital assets net of depreciation increased by $192.7 million in fiscal 2019 (see Figure 5). Stormwater drainage facilities contained the biggest increase with $241 million of additions. For more detailed information, see Note 5, Capital Assets – Plant, Lines and Other Facilities, in the accompanying notes to the financial statements. Depreciation expense was $87.9 million or $9.9 million more than fiscal 2018.

MSD's total capital assets net of depreciation increased by $183.9 million in fiscal 2018 (see Figure 5). Construction in progress contained the biggest increase with $230.8 million of additions offset by $100.3 million of assets placed in service. Depreciation expense was $77.9 million or $797 thousand more than fiscal 2017.

DEBT ADMINISTRATION

FIGURE 6 - SCHEDULE OF BONDS AND OTHER FINANCING

(amounts in thousands)	FY 2019	FY 2018	Increase (Decrease) 2019-2018	FY 2017	Increase (Decrease) 2018-2017
Senior Revenue Bonds					
Series 2007A	$ -	$ -	$ -	$ 42,965	$ (42,965)
Series 2008A	-	-	-	65,520	(65,520)
Series 2009A	-	6,640	(6,640)	13,040	(6,400)
Series 2009B	35,155	52,975	(17,820)	69,725	(16,750)
Series 2009C	180,000	180,000	-	180,000	-
Series 2010A	330,000	330,000	-	330,000	-
Series 2011A	248,440	250,565	(2,125)	252,610	(2,045)
Series 2013A	115,790	115,790	-	115,790	-
Series 2013B	114,100	115,550	(1,450)	116,940	(1,390)
Series 2013C	99,375	99,500	(125)	99,625	(125)
Series 2014A	79,800	79,850	(50)	79,900	(50)
Series 2015A	173,360	173,735	(375)	174,280	(545)
Series 2015B	74,160	76,685	(2,525)	79,085	(2,400)
Series 2016A	149,530	149,760	(230)	150,000	(240)
Series 2016B	25,825	28,095	(2,270)	28,095	-
Series 2016C	67,685	67,685	-	67,685	-
Series 2017A	169,270	175,000	(5,730)	-	175,000
Series 2017B	33,670	34,520	(850)	-	34,520
Series 2018A	60,380	60,380	-	-	60,380
Bond Anticipation Notes					
Series 2016A	-	-	-	226,340	(226,340)
Series 2017A	-	226,340	(226,340)	-	226,340
Series 2018A	226,340	-	226,340	-	-
Other Subordinate Debt					
Commercial Paper Notes	120,000	-	120,000	-	-
Notes Payable - LOC	100	-	100	-	-
KIA Loan - A209-41	1,767	1,871	(104)	1,973	(102)
KIA Loan - A98-04	891	-	891	-	-
	$ 2,305,638	$2,224,941	$ 80,697	$2,093,573	$ 131,368

Excludes bond premiums/discounts

MSD ended fiscal 2019 with $2.3 billion in outstanding long-term debt compared to $2.2 billion in outstanding long-term debt at the end of fiscal 2018 (see Figure 6). Additional information on MSD's long-term debt can be found in Note 7 – Long-Term Debt. Short term debt outstanding payable from restricted assets at the end of fiscal 2019 totaled $95.5 million compared to $109.1 million at the end of fiscal 2018. Net interest expense totaled $84.7 million in fiscal 2019, an increase of $6.0 million from fiscal 2018.

MSD ended fiscal 2018 with $2.2 billion in outstanding long-term debt compared to $2.1 billion in outstanding long-term debt at the end of fiscal 2017. Short term debt outstanding payable from restricted assets at the end of fiscal 2018 totaled $108.9 million compared to $82.6 million at the end of fiscal 2017. Net interest expense totaled $78.7 million in fiscal 2018, an increase of $1.0 million from fiscal 2017.

FY2019 Significant Debt Transactions: On July 10, 2018 MSD introduced its Sewer and Drainage System Subordinated Program Notes Series 2018 Commercial Paper Sub-Series A-1 and A-2 totaling $500,000,000. During fiscal 2019 MSD issued $120 million in commercial paper notes all of which were used for capital improvement projects.

FY2018 Significant Debt Transactions: On August 22, 2017, MSD issued $175 million of revenue bonds, series 2017A. The proceeds of the series 2017A bonds were used to: (i) pay the costs of issuing the series 2017A bonds; (ii) make a deposit to the reserve account; and (iii) make a deposit to the construction and acquisition fund to pay the costs of improvements to MSD's sewer and drainage system.

On August 22, 2017, MSD issued $35.7 million of revenue refunding bonds, series 2017B. The proceeds of the series 2017B bonds, together with certain amounts in the reserve account, were used to: (i) currently refund $42.9 million of outstanding principal amount on MSD's sewer and drainage system revenue bonds, series 2007A, maturing May 15, 2018 through May 15, 2025, the proceeds of which were used to finance the costs of improvements to MSD's sewer and drainage system, and (ii) pay the cost of issuance of the series 2017B bonds. The refunding reduced debt service payments over the next 8 years by $9.5 million and resulted in a net present value savings of $7.8 million.

On May 31, 2018, MSD issued $60.3 million of revenue refunding bonds, series 2018A. The proceeds of the series 2018A bonds, together with certain amounts in the reserve account, were used to: (i) currently refund $63.3 million of outstanding principal amount on MSD's sewer and drainage system revenue bonds, series 2007A, maturing May 15, 2037 through May 15, 2038, the proceeds of which were used to finance the costs of improvements to MSD's sewer and drainage system, and (ii) pay the cost of issuance of the series 2018A bonds. The refunding reduced debt service payments over the next 20 years by $8.4 million and resulted in a net present value savings of $4.5 million.

Debt Service Ratio: Although net operating income is the most significant component of determining MSD's debt service coverage ratio, other sources, including investment income and current period payments of property owner assessments, are also included in "available revenues" and "net revenues" for purposes of demonstrating MSD's compliance with debt service ratio tests from the 1993 Sewer and Drainage System Revenue Bond Resolution.

The 1993 resolution and its supplements require MSD to provide available revenues sufficient to pay 110% of each year's aggregate net debt service on revenue bonds and 100% of operating expenses. Available revenues, as used for purposes of the resolution, means all revenues and other amounts received by MSD and pledged as security for payment of bonds issued pursuant to the resolution, but excludes interest income which is capitalized in accordance with generally accepted accounting principles.

Net operating expenses include all reasonable, ordinary, usual or necessary current expenses of maintenance, repair, and operation determined in accordance with generally accepted accounting principles and the enterprise basis of accounting. Operating expenses do not include reserves for extraordinary maintenance and repair or administrative and engineering expenses of MSD which are necessary or incidental to capital improvements for which debt has been issued and which may be paid from proceeds of such debt.

Aggregate net debt service is debt service on all bonds issued pursuant to the resolution including principal payments, excluding (i) interest expense which, in accordance with generally accepted accounting principles, is capitalized and which may be paid from the proceeds of debt and (ii) other amounts, if any, available or expected to be available in the ordinary course of business for payment of debt service.

MSD's debt service coverage ratio[3], calculated on the foregoing basis, was 181% in 2019, 190% in 2018 and 181% in 2017 (see Figure 7).

FIGURE 7 - DEBT SERVICE COVERAGE *(amounts in thousands)*	FY 2019	FY 2018	Increase (Decrease) 2019-2018	FY 2017	Increase (Decrease) 2018-2017
Total available revenues	$314,318	$296,912	5.9%	$275,282	7.9%
Total net operating expenses	103,699	93,800	10.6%	87,637	7.0%
Net revenue	210,619	203,112	3.7%	187,645	8.2%
Aggregate net debt service	$116,607	$107,088	8.9%	$103,699	3.3%
Debt service coverage ratio	181%	190%	(4.8%)	181%	4.8%

FUTURE ECONOMIC FACTORS

The MSD Board approved a 6.9% rate increase for wastewater and stormwater volume and service charges as well as optional and quality charge rates that are assessed to commercial and industrial wastewater customers effective August 1, 2019.

On September 6, 2019 Moody's Investors Service assigned its MIG 1 rating to MSD's $226.3 million sewer and drainage system subordinated Bond Anticipation notes, series 2019. Moody's maintained its Aa3 long-term rating and stable outlook on MSD's outstanding sewer and drainage system revenue bonds.

On September 6, 2019, S&P Global ratings assigned its SP-1+ rating to MSD's $226.3 million sewer and drainage system subordinated Bond Anticipation notes, series 2019. S&P maintained its AA long-term rating and stable outlook on MSD's outstanding sewer and drainage system revenue bonds and the A-1+ commercial paper program rating.

CONSENT DECREE

In April 2009, MSD agreed to enter into an amended Consent Decree with the Commonwealth of Kentucky's Environmental and Public Protection Cabinet (KEPPC) and the U.S. Environmental Protection Agency (EPA). The agreement calls for MSD to design and implement projects within specified deadlines that will eliminate sewer overflows in its service area. The cost of the projects is estimated to be $1.15 billion. MSD has submitted plans to finance the projects through additional bonds and future rate increases. In a letter dated June 6, 2014, MSD requested approval from the KEPPC and the EPA for the Integrated Overflow Abatement Plan (IOAP) 2012 Modifications, dated May 2014. The IOAP 2012 Modifications represents a revision to 28 separate projects set forth in the original IOAP, dated September 30, 2009. The IOAP modifications were approved and will supersede and replace the 2009 IOAP. To date, MSD has complied with all submittals and reports requirements contained in the amended Consent Decree. For additional information on the Consent Decree see Note 11 to the financial statements.

REQUESTS FOR ADDITIONAL INFORMATION

This report is intended to provide readers with a general overview of MSD's finances and to provide information regarding the receipts and uses of funds. If you need clarification regarding a statement(s) made in the report or need additional information, please contact the Louisville and Jefferson County Metropolitan Sewer District, 700 West Liberty Street, Louisville Kentucky 40203. You can also submit a request for additional information via MSD's website, www.msdlouky.org.

[3] Excludes GASB 68 pension expense and GASB 75 OPEB expense

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF NET POSITION
AS OF JUNE 30,
DOLLARS IN THOUSANDS

	2019	2018
Current Assets		
Unrestricted Current Assets		
Cash and cash equivalents	$ 43,728	$ 50,276
Investments	36,744	25,080
Accounts receivable, less allowance for		
doubtful accounts of $959 (2019), $1,030 (2018)	27,915	26,332
Inventories	4,623	4,407
Accrued interest receivable	957	1,116
Prepaid expenses and other current assets	2,961	2,729
Total unrestricted current assets	116,928	109,940
Restricted Current Assets		
Cash and cash equivalents	22,348	29,987
Investments	30,172	-
Total restricted current assets	52,520	29,987
Total Current Assets	169,448	139,927
Noncurrent Assets		
Unrestricted Noncurrent Assets		
Accounts receivable, non-current	13,730	14,250
Restricted Noncurrent Assets:		
Cash and cash equivalents	737	1,399
Investments	75,941	151,039
Other non-current assets	17,914	17,971
Total restricted non-current assets	94,592	170,409
Capital Assets		
Utility plant in service	3,962,588	3,432,754
Less allowance for depreciation	(1,304,430)	(1,218,427)
	2,658,158	2,214,327
Construction in progress	460,501	711,655
Net capital assets	3,118,659	2,925,982
Total Non-current Assets	3,226,981	3,110,641
Total Assets	3,396,429	3,250,568
Deferred Outflow of Resources		
Deferred outflow - pension	26,931	27,541
Deferred outflow - OPEB	10,571	9,392
Unamortized loss on refunding	14,516	17,334
Total deferred outflow of resources	52,018	54,267
Total Assets and Deferred Outflow of Resources	**$ 3,448,447**	**$ 3,304,835**

See the accompanying notes to the financial statements.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF NET POSITION
AS OF JUNE 30,
DOLLARS IN THOUSANDS

	2019	2018
Current Liabilities		
Current Liabilities To Be Paid From Unrestricted Assets		
Accounts payable	$ 10,567	$ 10,426
Accrued salaries and related benefits	7,601	5,916
Total unrestricted current liabilities	18,168	16,342
Current Liabilities To Be Paid From Restricted Assets		
Accounts payable and accrued expenses (capital), includes contractor retainage of $12,190 (2019), $14,818 (2018)	31,945	47,472
Accrued interest payable	17,819	18,455
Refundable deposits	2,928	2,861
Revenue bonds payable	42,200	40,190
Bank notes	100	-
State revolving fund notes	545	105
Total restricted current liabilities	95,537	109,083
Total Current Liabilities	113,705	125,425
Noncurrent Liabilities		
Bonds payable, net	1,994,761	2,047,168
Bond anticipation note	226,340	226,340
Commercial paper notes	120,000	-
State revolving fund notes	2,113	1,766
Net pension liability	104,511	93,517
Net OPEB obligation	30,470	32,119
Total Noncurrent Liabilities	2,478,195	2,400,910
Total Liabilities	2,591,900	2,526,335
Deferred Inflow of Resources		
Interest rate swaps	73,040	59,443
Deferred inflow - pension	3,198	3,832
Deferred inflow - OPEB	5,780	1,682
Other deferred inflows	3,977	4,869
Total deferred inflow of resources	85,995	69,826
Total Liabilities and Deferred Inflow of Resources	**$ 2,677,895**	**$ 2,596,161**
Net Position		
Net investment in capital assets	$ 745,343	$ 587,820
Assets restricted for debt service	99,026	174,880
Liabilities associated with restricted debt service	(17,819)	(18,455)
Unrestricted	(55,998)	(35,571)
Total net position	770,552	708,674
Total Liabilities, Deferred Inflow of Resources and Net Position	**$ 3,448,447**	**$ 3,304,835**

See the accompanying notes to the financial statements.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF UES, EXPENSES, AND CHANGES IN NET POSITION
FOR THE YEARS ENDED JUNE 30,
DOLLARS IN THOUSANDS

	2019	2018
Operating Revenues		
Service charges	$ 289,173	$ 274,504
Other operating income	5,195	4,645
Total operating revenues	294,368	279,149
Operating Expenses		
Service and administrative costs	103,699	93,800
GASB 68 pension/GASB 75 OPEB actuarial expense	12,243	10,852
Depreciation and amortization	87,882	77,954
Total operating expenses	203,824	182,606
Income from Operations	90,544	96,543
Non-operating Revenue (Expenses)		
Investment income	8,353	6,280
Build America bond refund	10,339	10,249
Interest expense - bonds	(94,831)	(95,041)
Interest expense - swaps	(6,468)	(7,724)
Interest expense - other	(13,497)	(9,873)
Amortization of debt discount / premium	14,344	15,198
Amortization of loss on refunding	(2,817)	(3,147)
Capitalized interest	18,582	21,859
Change in fair value - swaps	(13,597)	16,317
Total non-operating revenue (expenses) - net	(79,592)	(45,882)
Income before capital contributions	10,952	50,661
Capital contributions	50,926	12,726
Increase in net position	61,878	63,387
Net position, beginning	708,674	645,287
Net position, ending	$ 770,552	$ 708,674

See the accompanying notes to the financial statements.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF CASH FLOWS
FOR THE YEARS ENDED JUNE 30,
DOLLARS IN THOUSANDS

	2019	2018
Cash Flows from Operating Activities		
Cash received from customers	$ 292,791	$ 276,711
Cash paid to suppliers	(55,816)	(49,429)
Cash paid to employees	(47,357)	(45,721)
Net Cash Provided by Operating Activities	189,618	181,561
Cash Flows from Capital and Related Financing Activities		
Proceeds from issuance of revenue bonds	-	188,083
Proceeds from issuance of bond anticipation note	230,334	235,151
Proceeds from issuance of commercial paper	319,212	-
Payments for retirement of revenue bonds	(40,190)	(36,954)
Payments for retirement of bond anticipation note	(226,340)	(226,340)
Payments for retirement of commercial paper	(200,000)	-
Payments for retirement of other subordinated debt	(317)	(101)
Payments for interest expense	(108,511)	(102,394)
Payments for interest on swaps	(6,468)	(7,724)
Build America bond interest subsidy	10,339	10,248
Proceeds from capital grants	9,373	7,183
Proceeds from sale of capital assets	15	3
Payments for capital assets	(233,360)	(216,503)
Proceeds from assessments	780	1,621
Net Cash Provided (Used) by Capital and Related Financing	(245,133)	(147,727)
Cash Flows from Investing Activities		
Purchase of investments	(45,576)	(137,176)
Maturity of investments	80,004	78,503
Investment income	6,238	6,956
Net Cash Provided (Used) by Investing Activities	40,666	(51,717)
Net Increase (Decrease) in Cash and Cash Equivalents	(14,849)	(17,883)
Cash and Cash Equivalents, Beginning of Year	81,662	99,545
Cash and Cash Equivalents, End of Year	$ 66,813	$ 81,662

See the accompanying notes to the financial statements.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF CASH FLOWS (continued)
FOR THE YEARS ENDED JUNE 30,
DOLLARS IN THOUSANDS

Reconciliation of Operating Income to Net Cash provided by Operating Activities		
Income from operations	$ 90,544	$ 96,543
Adjustments to reconcile operating income to net cash provided by operating activities		
Depreciation and amortization	87,882	77,954
Accounts receivable	(1,644)	(2,999)
Inventories	(216)	(223)
Prepaid expense	(1,084)	(918)
Accounts payable	141	123
Customer deposits	67	561
Accrued liabilities	1,685	(332)
Pension liability	10,971	9,646
OPEB liability	1,272	1,206
Net Cash Provided by Operating Activities	$ 189,618	$ 181,561
Non-Cash Capital Financing and Investing Activities		
Contribution of plant, lines and other facilities by developers and property owners	$ 41,554	$ 5,542
Construction costs in accounts payable	31,945	47,472
Change in fair value of investments	(600)	1,777
Decrease in interest rate swap deferred revenue	918	918
Change in fair value - swap agreements	(13,597)	16,317
Bonds issued for refunding of debt	-	94,900

See the accompanying notes to the financial statements.

NOTE 1 – SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the Louisville and Jefferson County Metropolitan Sewer District (MSD), a discreetly presented component unit of Louisville/Jefferson County Metro Government, are prepared in conformity with accounting principles generally accepted in the United States of America as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. MSD follows GASB Pronouncements as codified under GASB 62, including electing to report as a regulated operation. MSD uses proprietary fund accounting (enterprise fund). Due to the election as a regulated operation under GASB 62, to meet industry accounting standards and follow transactional intent, MSD uses, as applicable, ASC 980, Regulated Accounting.

Reporting Entity: MSD is a public body corporate, and political subdivision of the Commonwealth of Kentucky. MSD was created in 1946 pursuant to Chapter 76 of the Kentucky Revised Statutes, in the interest of the public health and for the purpose of providing adequate sewer and drainage facilities in the urbanized area of the Louisville Metropolitan Area. Pursuant to Chapter 76, MSD is governed by a Board which consists of eight members who are appointed by the Mayor of Louisville Metro Government, subject to approval of Louisville Metro Council. Not more than five Board members may be of the same political party. However, there is not a continuing supervisory relationship exercised by Louisville Metro Government over MSD with respect to MSD's statutory public functions.

Chapter 76 authorizes MSD to provide sewer and drainage facilities and services. MSD is further authorized by the statute to establish and collect service charges and to budget accordingly for operations and maintenance, capital outlays and debt service on obligations it is authorized by the statute to incur. No special financing relationship exists between Louisville Metro Government and MSD, nor is Louisville Metro Government empowered by law or custom to approve MSD’s operating or capital budgets; nor are they responsible for financing deficits or disposing of surplus funds.

MSD has complete control, possession and supervision of the sewer and drainage system in large portions of Jefferson County, and has statutory authority to construct additions, betterments and extensions within its service area. Additionally, MSD has statutory responsibility for approval of the design and proper construction of sewer and drainage facilities within the County's boundaries. There are cities within the County that, by statute, have the option of using MSD sewer services on a contractual basis. Third and fourth class cities also have the option of obtaining drainage services from MSD. MSD’s enterprise business activities are managed by its Board, which has statutory authority to elect officers, enact bylaws and enter into agreements and contracts for the management and regulation of MSD's affairs.

MSD's revenue is derived from sewer and drainage service charges which are collected from residential, commercial and industrial customers. MSD controls the collection of all revenue, disbursement of payables and title to all sewer and drainage assets. Sewer service charges are distributed among customer classes on the basis of actual costs incurred to collect and treat wastewater. Drainage service charges are distributed among customer classes on the basis of actual costs of drainage services per equivalent unit of impervious surface.

Changes in MSD's service charges are implemented by MSD's Board, but no change in the service charge schedule is final within the Louisville Metro area until approval by Louisville Metro Council. However, the statute provides that such approval may not be arbitrarily withheld and that the schedule shall be sufficient to provide revenues for the operation and maintenance of the system and for debt service. By ordinance, Louisville Metro Government has provided that MSD’s Board may amend its service charge schedule to maintain a debt service ratio of 1.10 for MSD’s sewer and drainage revenue bonds, and that such amendments will be effective within the metropolitan area when adopted by MSD's Board, so long as the amended rates do not generate additional revenue from service charges in excess of 7% during the twelve months succeeding the period in which the deficiency was identified.

Chapter 76 permits MSD to finance sewer and drainage system construction, acquisition and other capital improvements through the issuance of its revenue bonds and with the proceeds of governmental grants, property owner contributions in aid of construction and bonds and loans for which pledge of repayment is subordinated to the pledge of all revenues given by MSD for the security of its revenue bond holders. MSD indebtedness does not constitute indebtedness of Louisville Metro Government or the Commonwealth, but Louisville Metro Government must authorize by ordinance the issuance by MSD of revenue bonds to finance projects within the Metropolitan area.

Basis of Accounting: The sewer and drainage system owned and operated by MSD is accounted for using a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of the system are included on the statement of net position. Total net position is segregated into net investment in capital assets, restricted for payment of bond principal and interest and unrestricted. Operating statements present increases (e.g., revenues) and decreases (e.g., expenses) in net position. MSD utilizes the accrual basis of accounting wherein revenues are recorded when earned and expenses are recorded at the time the liability is incurred.

Cash and Cash Equivalents: For purposes of the Statements of Cash Flows, MSD includes repurchase agreements and other investments with an original maturity of three months or less in cash and cash equivalents.

Restricted and Unrestricted Funds: Restricted funds are reserved for the purpose of bond debt service, funding of capital construction, cost of issuance, and debt service reserves. Unrestricted funds, generated from service fees and other operating income, are used to pay for operating expenses. When an expense or outlay is incurred for which both restricted and unrestricted net position is available, it is MSD's practice is to use revenue from operations to finance construction, then to reimburse from restricted net position for construction as it is needed.

Investment Securities*:* Investments are stated at fair value. Investment income consists of interest income and the change in fair value of investments[1]. Investment income is reduced by estimated federal arbitrage liability.[2]

Revenues, Expenses and Receivables: Operating revenues are those revenues that are generated directly from the primary activity of MSD. These revenues are wastewater and stormwater service charges and other operating income. The Louisville Water Company is responsible for the billing and collection of these charges on behalf of MSD on a monthly basis. Operating expenses are expenses incurred through the activities of operating and maintaining MSD facilities.

Non-operating revenues and expenses are comprised of investment and financing earnings and costs, changes in the fair value of derivatives, as well as contributions from outside sources.

Accounts receivable are stated at the amount management expects to collect from outstanding customer accounts. Accounts are considered past due 30 days from the invoice date. Management provides an allowance for doubtful account that is based on historical collection experience and a review of the current status of individual accounts. Accounts that remain outstanding after management has exerted reasonable collection efforts are written off through a charge to allowance for doubtful accounts and a credit to accounts receivable. The allowance for doubtful accounts was valued at June 30, 2019 and June 30, 2018 as $959,140 and $1,029,900, respectively.

Assessment receivables represent amounts billed to residents to have sewer lines installed in their neighborhood. Assessment receivables are considered past due once the balance is 90 days in arrears. Management considers all amounts collectible on the basis that liens are placed on properties at the time of assessment.

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[1] See Note 2 – Deposits and Investments
[2] See Note 7 – Long-Term Debt

Inventory: Inventory is stated at cost. Inventory consists of supplies and parts used in the operation of MSD's treatment plants and for the maintenance of sewers, fleet vehicles and other related equipment. Inventory totaled $4,622,556 at June 30, 2019 and $4,407,450 at June 30, 2018.

Contributed Capital and Construction Grants: MSD finances construction of sewer and drainage plant, lines and other facilities, in part, through government grants and contributions from property owners and developers. Governmental grants in aid of construction represent the estimated portion of construction costs incurred for which grants are expected to be paid to MSD by the governmental grantor. These amounts are recorded as a receivable and revenues from contributions at the time the related expenditures are incurred. Revenues from contributions are part of the change in net position. Government grants in aid of construction and other recoveries at June 30, 2019 and June 30, 2018 were $9,372,512 and $7,183,167, respectively. Contributed capital in the form of sewer and drainage infrastructure constructed by developers at June 30, 2019 and June 30, 2018 were $41,553,937 and $5,542,366, respectively.

Capital Assets - Plant, Lines and Other Facilities: Plant, lines and other facilities are recorded at historical cost or, if contributed, at acquisition value as determined by engineering estimates on the date the contribution is received. It is MSD's policy to depreciate the costs of these assets over their estimated useful lives on a straight line basis[3].

Estimated useful lives on depreciable assets are as follows:

Buildings and other structures	30 - 50 years
Land improvements	10 - 30 years
Miscellaneous machinery	10 - 20 years
Vehicles	6 - 12 years
Equipment, heavy	15 - 30 years
Equipment, light	5 - 15 years
Sewer lines and drainage channels	20 - 80 years

Costs incurred for capital construction and acquisition are carried in construction in progress until disposition or completion of the related projects. The major components of construction in progress are sewer lines, wastewater treatment and stormwater facilities. Costs relating to projects not pursued are expensed, while costs relating to completed projects are capitalized as plant, lines and other facilities.

Capitalized Interest: Interest capitalized on projects funded from bond proceeds is recorded as the average cumulative expenditures multiplied by the weighted average borrowing rate.[4] Interest is not capitalized on project costs that are reimbursed by contributions of capital from government, property owners and developers.

Impairment of Capital Assets: In accordance with GASB Statement No. 42, *Accounting and Financial Reporting for Impairment of Capital Assets and for Insurance Recoveries*, management evaluates prominent events or changes in circumstances affecting capital assets to determine whether impairment of a capital asset has occurred. Such events or changes in circumstances that may be indicative of impairment include evidence of physical damage, enactment or approval of laws or regulations, other changes in environmental factors, technology changes or evidence of obsolescence, changes in the manor of duration of use of a capital asset, and construction stoppage. A capital asset is generally considered impaired if both (a) the decline in service utility of the capital asset is large in magnitude and (b) the event or change in circumstance is outside the normal life cycle of the capital asset. In fiscal 2019, MSD recognized an impairment loss of $3,209,647 which was the remaining book value of one of the four dryers that comprise the drum dryer asset at the Morris Forman Water Quality Treatment Center. The dryer is no longer in use.

[3] See Note 5 – Capital Assets – Plant, Lines, and Other Facilities
[4] See Note 6 – Capitalized Interest

The impairment loss was recognized as a component of depreciation expense. No impairment losses were recognized in fiscal 2018.

Bonds Payable: Bonds payable are recorded at the principal amount outstanding, net of any applicable premium or discount[5].

Bonds outstanding, which have been refunded and economically defeased, are not included in long-term debt. The related assets are not included in investments. Any loss on refunding, which is the difference between the reacquisition price and the net carrying amount of the old debt, is deferred outflow of resources and amortized as a component of interest expense over the shorter of either 1) the original life of the refunded debt or 2) the life of the refunding debt.

MSD enters into interest rate swap agreements to modify interest rates on outstanding debt. MSD records the net interest expenditures resulting from these agreements and amortizes gains/losses resulting from the termination of these agreements until the original termination date of the agreement. Derivative instruments are reported at fair value as deferred inflow of resources. Changes in fair value of derivative instruments are reported in non-operating revenue (expenses) on the Statement of Revenues, Expenses and Changes in Net Position.

Bond issue costs are capitalized and amortized over the life of the respective bond issue using the straight-line method, which approximates the effective interest method, pursuant to the election of regulatory operation under GASB 62, as they are deemed recoverable through future rates.

Original issue discounts and premiums on bonds are amortized as a component of interest expense using the straight-line method, which approximates the effective interest method, over the lives of the bonds to which they relate.

Compensated Absences: Vacation and personal pay benefits are accrued as accumulated and vested by MSD employees.

Allocation of Overhead: MSD allocates overhead costs to its core business processes: operations and maintenance; design, construction and acquisition of plant lines and other facilities; and subsidiary business enterprises.

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 assumptions and estimates 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.

Income Tax Status: MSD is exempt from federal income tax under the Internal Revenue Code as a political subdivision of the Commonwealth of Kentucky.

Adoption of New Accounting Pronouncements: Effective July 1, 2018, MSD adopted the following GASB pronouncements:

- Statement No. 83*: Certain Asset Retirement Obligations*
- Statement No. 88: *Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements*

GASB Statement No. 83 does not have a material impact on MSD's financial reporting at this time.

Note 7 provides information about MSD's debt as required by GASB Statement No. 88.

[5] See Note 7 – Long-Term Debt

Recent Accounting Pronouncements: GASB has issued additional guidance that is not yet effective. MSD is currently reviewing the provisions of the following GASB Statements to determine the impact of implementation in future periods.

- Statement No. 84*: Fiduciary Activities (fiscal 2020)*
- Statement No. 87: *Leases (fiscal 2021)*
- Statement No. 89: *Accounting for Interest Cost Incurred Before The End of a Construction Period (fiscal 2020)*
- Statement No. 90: *Majority Equity Interests – An Amendment of GASB Statements No 14 and No. 61 (fiscal 2020)*
- Statement No. 91: *Conduit Debt Obligations (fiscal 2022)*

Reclassifications: Prior period financial statement amounts have been reclassified to conform to current period presentation. These reclassifications had no effect on the changes in net position or total net position.

NOTE 2 – CASH DEPOSITS AND INVESTMENTS

A reconciliation of cash, cash equivalents and investments as shown on the Comparative Statement of Net Position for MSD is as follows:

(dollars in thousands)	June 30, 2019	June 30, 2018
Reported in Statements of Net Position:		
Cash and cash equivalents		
Unrestricted	$ 43,728	$ 50,276
Restricted - current	22,348	29,987
Restricted - noncurrent	737	1,399
Total cash and cash equivalents	66,813	81,662
Investments		
Unrestricted	36,744	25,080
Restricted - current	30,172	-
Restricted - noncurrent	75,941	151,039
Total investments	142,857	176,119
Total Cash, Cash Equivalents and Investments	$ 209,670	$ 257,781

The following comparative schedule presents the cash, cash equivalents and investments in MSD's portfolio at fair value with investment maturities and credit risk ratings from Moody's Investors Service.

June 30, 2019 *(dollars in thousands)*		Reported Value	Weighted Average Maturity in Years	Credit Rating
U.S. treasuries	$	19,550	1.22	Aaa
U.S. agency securities		78,402	1.25	Aaa
Municipal bonds		44,805	13.47	Aa
Money market funds		27,688	0.08	Aaa
Repurchase agreement/cash		39,125		
Certificate of Deposit		100	0.00	
Total cash, cash equivalents and investments	$	209,670	4.27	
Accrued interest	$	957		

June 30, 2018 *(dollars in thousands)*		Reported Value	Weighted Average Maturity in Years	Credit Rating
U.S. treasuries	$	41,898	2.44	Aaa
U.S. agency securities		47,315	2.52	Aaa
Municipal bonds		61,826	16.12	Aa
Money market funds		34,303	0.03	Aaa
Commercial paper		49,908	0.14	Prime-1
Repurchase agreement/cash		22,431		
Certificate of Deposit		100	0.67	
Total cash, cash equivalents and investments	$	257,781	5.24	
Accrued interest	$	1,116		

Section 66.480 of the Kentucky Revised Statutes and MSD's bond resolutions authorize MSD to invest money subject to its control in, among other securities, (i) obligations of the United States and of its agencies and instrumentalities, including obligations subject to repurchase agreements, (ii) certificates of deposit or other interest-bearing accounts of any bank or savings and loan institution which are insured by the Federal Deposit Insurance Corporation or, to the extent not so insured, collateralized by obligations described in clause (i) above, (iii) securities issued by a state or local government, or any instrumentality or agency thereof, in the United States, and rated in either of the two highest categories by a nationally recognized rating agency, and (iv) money market mutual funds investing in any of the securities described above. MSD bond resolutions and covenants contain similar restrictions.

Investments are made based upon prevailing market conditions at the time of the transaction with the intent to hold the instrument until maturity. With this strategy, investments would be expected to reach maturity with limited realized gains or losses. If the yield of the portfolio can be improved upon by the sale of an investment, prior to its maturity, with the reinvestment of the proceeds, then this provision is also allowed.

Concentration of Credit Risk: MSD's Investment Policy (The Policy) requires that investments be diversified to eliminate the risk of loss resulting from over-concentration of assets in a specific maturity, a specific issuer, or a specific class of securities. Section 4.4.1 of The Policy limits the amount of money invested at any time in one or more categories of the investments authorized by KRS 66.480 1e, 1f, 1g, and 1i shall not exceed 20% of the total amount invested.

Interest Rate Risk: MSD minimizes interest rate risk by structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations, thereby avoiding the need to sell securities on the open market prior to maturity. The weighted average maturity in years represents the interest rate risk for MSD.

Custodial Credit Risk: This is the risk that, in the event of the failure of the counterparty, MSD would not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. The collateral provided by financial institutions is considered adequate to cover all balances in excess of limits set forth by the Federal Deposit Insurance Corporation. All of MSD's investments are held by MSD or in the name of MSD by a Trustee.

Foreign Currency Risk: This risk relates to any potential adverse effects on the fair value of an investment from changes in exchange rates. MSD did not hold any foreign currency as of June 30, 2019 and 2018.

Fair Value Measurement: GASB 72 requires MSD to disclose how we measure the fair value of investments and the underlying valuation techniques. Debt and equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for these securities or repurchase agreements. Debt securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing approach. Matrix pricing is used to value securities based on the securities' relationship to the benchmark quoted prices. A comparative statement of investments subject to fair value measurements and valuation techniques follows:

June 30, 2019 *(dollars in thousands)*	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments by fair value level:				
U.S. treasuries	$ -	$ 19,550	$ -	$ 19,550
U.S. agencies	-	78,402	-	78,402
State and municipal obligations	-	44,805	-	44,805
Total investments by fair value level	$ -	$ 142,757	$ -	$ 142,757

June 30, 2018 *(dollars in thousands)*	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments by fair value level:				
Commercial paper	$ -	$ 49,908	$ -	$ 49,908
U.S. treasuries	-	41,898	-	41,898
U.S. agencies	-	47,315	-	47,315
State and municipal obligations	-	61,826	-	61,826
Total investments by fair value level	$ -	$ 200,947	$ -	$ 200,947

NOTE 3 - RESTRICTED CASH, CASH EQUIVALENTS, AND INVESTMENTS

MSD's revenue bond resolution provides that MSD shall maintain in a debt service reserve account a balance equal to the maximum annual aggregate gross principal and interest due on all outstanding revenue bonds which is $151,136,081; or, in lieu of cash and investments in that amount, a letter of credit or policy of bond insurance payable in that amount. On June 26, 2019 MSD purchased a Debt Service Reserve Surety Policy (The Reserve Policy) from Build America Mutual Assurance Company with a maximum policy limit of $75,000,000. The Reserve Policy terminates on May 15, 2048 which is the date of the last principal payment on MSD's outstanding revenue bonds. Draws under The Reserve Policy may only be used to make payments of principal and interest on the bonds. Cash and investments in the debt service reserve funds shall be transferred to the debt service funds for payment of debt service on the bonds before any draw may be made on The Reserve Policy. Cash and investments restricted for debt service reserve at June 30, 2019 totaled $76,678,594. Total assets restricted for debt service were $99,026,252 which includes the debt service reserve and other debt service trust accounts of $22,347,658. Cash and investments restricted for debt service reserve at June 30, 2018 totaled $152,437,753. Total assets restricted for debt service were $174,879,768 which includes the debt service reserve and other debt service trust accounts of $22,442,015.

Cash, cash equivalents and investments segregated in accounts restricted for authorized construction include proceeds from issuance of MSD bonds at June 30, 2019 and 2018 totaled $30,171,774 and $7,545,439, respectively. Total restricted cash, cash equivalents, and investments at June 30, 2019 and 2018 totaled $129,198,026 and $182,425,207, respectively.

NOTE 4 - SCHEDULE OF NET POSITION

A comparative schedule of net position follows:

(dollars in thousands)	June 30, 2019	June 30, 2018
Net investment in capital assets:		
Plant, lines and other facilities net of depreciation	$ 3,118,659	$ 2,925,982
Outstanding debt that applies to plant, lines and other facilities	(2,386,059)	(2,315,569)
Unspent bond proceeds - construction	30,172	7,545
Accounts payable and accrued expenses (capital)	(31,945)	(47,472)
Deferred outflows and inflows of resources	14,516	17,334
Total	745,343	587,820
Restricted for:		
Assets restricted for debt service	99,026	174,880
Liabilities associated with restricted debt service	(17,819)	(18,455)
	81,207	156,425
Assets restricted for construction	30,172	7,545
Unspent bond proceeds - construction	(30,172)	(7,545)
	-	-
Net position, restricted	81,207	156,425
Unrestricted net position	(55,998)	(35,571)
Total net position	$ 770,552	$ 708,674

NOTE 5 - CAPITAL ASSETS - PLANT, LINES AND OTHER FACILITIES

A comparative schedule of plant, lines and other facilities follows:

June 30, 2019 *(dollars in thousands)*	Beginning Balance	Transfers In/ Additions	Retirements / Reclassifications	Ending Balance
Capital assets:				
Sewer lines	$ 1,497,090	$ 151,801	$ -	$ 1,648,891
Wastewater treatment facilities/goodwill	648,503	20,538	-	669,041
Stormwater drainage facilities	561,341	255,787	-	817,128
Pumping and lift stations	183,795	57,168	-	240,963
Administrative facilities	50,818	916	-	51,734
Maintenance facilities	8,504	3,570	-	12,074
Machinery and equipment	66,321	21,637	(705)	87,253
Miscellaneous	31,086	540	-	31,626
Capitalized interest	385,296	18,582	-	403,878
Total capital assets	3,432,754	530,539	(705)	3,962,588
Less accumulated depreciation and amortization:				
Sewer lines	(337,980)	(18,638)	-	(356,618)
Wastewater treatment facilities/goodwill	(418,553)	(28,214)	-	(446,767)
Stormwater drainage facilities	(150,951)	(14,831)	-	(165,782)
Pumping and lift stations	(71,893)	(10,008)	-	(81,901)
Administrative facilities	(38,991)	(875)	-	(39,866)
Maintenance facilities	(6,563)	(183)	-	(6,746)
Machinery and equipment	(56,306)	(3,152)	392	(59,066)
Miscellaneous	(28,729)	(823)	-	(29,552)
Capitalized interest	(108,461)	(9,671)	-	(118,132)
Total accumulated depreciation/amortization	(1,218,427)	(86,395)	392	(1,304,430)
Construction in progress	711,655	177,984	(429,138)	460,501
Net capital assets	$ 2,925,982	$ 622,128	$ (429,451)	$ 3,118,659

Capital assets include non-depreciable assets for land related to the facilities and pumping and lift stations. The carrying value was $16,577,077 and $16,337,982 at June 30, 2019 and 2018 respectively.

June 30, 2018 *(dollars in thousands)*	Beginning Balance	Transfers In/ Additions	Retirements / Reclassifications	Ending Balance
Capital assets:				
Sewer lines	$ 1,440,360	$ 5,785	$ 50,945	$ 1,497,090
Wastewater treatment facilities/goodwill	638,048	415	10,040	648,503
Stormwater drainage facilities	542,271	414	18,656	561,341
Pumping and lift stations	166,158	-	17,637	183,795
Administrative facilities	50,818	-	-	50,818
Maintenance facilities	8,504	-	-	8,504
Machinery and equipment	66,169	187	(35)	66,321
Miscellaneous	31,086	-	-	31,086
Capitalized interest	363,437	21,859	-	385,296
Total capital assets	3,306,851	28,660	97,243	3,432,754
Less accumulated depreciation and amortization:				
Sewer lines	(320,209)	(17,771)	-	(337,980)
Wastewater treatment facilities/goodwill	(393,566)	(24,987)	-	(418,553)
Stormwater drainage facilities	(140,542)	(10,409)	-	(150,951)
Pumping and lift stations	(63,073)	(8,820)	-	(71,893)
Administrative facilities	(37,407)	(1,584)	-	(38,991)
Maintenance facilities	(6,385)	(178)	-	(6,563)
Machinery and equipment	(58,589)	(1,993)	4,276	(56,306)
Miscellaneous	(26,936)	(1,793)	-	(28,729)
Capitalized interest	(99,329)	(9,132)	-	(108,461)
Total accumulated depreciation/amortization	(1,146,036)	(76,667)	4,276	(1,218,427)
Construction in progress	581,222	232,041	(101,608)	711,655
Net capital assets	$ 2,742,037	$ 184,034	$ (89)	$ 2,925,982

NOTE 6 - CAPITALIZED INTEREST

A comparative schedule of capitalized interest and net interest expense reported in non-operating expenses follows:

(dollars in thousands)	June 30, 2019	June 30, 2018
Interest incurred	$ 103,270	$ 100,587
Less interest capitalization	(18,582)	(21,859)
Interest expense, net	$ 84,688	$ 78,728

NOTE 7 - LONG-TERM DEBT

Revenue Bonds: MSD long-term revenue bonds are publicly issued to provide sufficient funding for sewer and drainage projects approved for construction. MSD has pledged all revenues to the payment of principal and interest on its outstanding revenue bonds.

Federal tax regulations generally require the periodic payment to the U.S. Treasury of investment earnings on the proceeds of an issue of tax-exempt municipal bonds to the extent those earnings exceed the yield on the bonds. Such payments, known as arbitrage rebate, are normally payable every fifth year following the issuance of a Series of bonds and upon the retirement of the bond issue. MSD has arbitrage calculations performed as needed by an independent third party to comply with these regulations. As of June 30, 2019 and 2018, MSD's accrued liability for arbitrage rebate was $483,905 and $369,019, respectively.

Fiscal Year 2019 Significant Debt Transactions: There were no revenue bond transactions in Fiscal Year 2019.

Fiscal Year 2018 Significant Debt Transactions: On May 31, 2018, MSD issued $60,380,000 of revenue refunding bonds, Series 2018A. The proceeds of the Series 2018A bonds, together with certain amounts in the reserve account, were used to: (i) currently refund $63,335,000 of outstanding principal amount on MSD's sewer and drainage system revenue bonds, Series 2007A, maturing May 15, 2037 through May 15, 2038, the proceeds of which were used to finance the costs of improvements to MSD's sewer and drainage system, and (ii) pay the cost of issuance of the Series 2018A bonds. The refunding reduced debt service payments over the next 20 years by $8,452,933 and resulted in a net present value savings of $4,514,627.

On August 22, 2017, MSD issued $175,000,000 of revenue bonds, Series 2017A. The proceeds of the Series 2017A bonds were used to: (i) pay the costs of issuing the Series 2017A bonds; (ii) make a deposit to the reserve account; and (iii) make a deposit to the construction and acquisition fund to pay the costs of improvements to MSD's sewer and drainage system.

On August 22, 2017, MSD issued $35,725,000 of revenue refunding bonds, Series 2017B. The proceeds of the Series 2017B bonds, together with certain amounts in the reserve account, were used to: (i) currently refund $42,965,000 of outstanding principal amount on MSD's sewer and drainage system revenue bonds, Series 2007A, maturing May 15, 2018 through May 15, 2025, the proceeds of which were used to finance the costs of improvements to MSD's sewer and drainage system, and (ii) pay the cost of issuance of the Series 2017B bonds. The refunding reduced debt service payments over the next 8 years by $9,570,028 and resulted in a net present value savings of $7,860,700.

Debt Service Covenant: A debt service coverage ratio covenant has been established under the 1993 Sewer and Drainage System Revenue Master Bond Resolution. MSD was in compliance with the ratio covenant as of June 30, 2019 and 2018.

MSD's Sewer and Drainage Revenue Bond Resolution adopted December 7, 1992 specifies that upon the occurrence of any event of default a Judge in the Circuit Court of Jefferson County can appoint a trustee to represent all Bondholders and the trustee may declare all bonds due and payable. MSD has remedies available under the Resolution to cure the event of default even after all bonds are declared due and payable.

Refunded Debt: The portion of the 2009B Series revenue bonds that were advance refunded with the 2016C Series revenue bonds are being paid from an escrow account. As of June 30, 2019, the amount outstanding on the Series 2009B is $50,665,000 maturing on November 15, 2019.

A comparative schedule of bonds payable at June 30, 2019 and 2018 follows:

(dollars in thousands) Revenue Bonds	Original Issue Amount	Interest Rates	Final Payment In	Outstanding as of June 30: 2019	2018
2009A Series Revenue Bonds	76,275	5.00%	2022	-	6,640
2009B Series Revenue Bonds	225,770	2.00% - 5.00%	2023	35,155	52,975
2009C Series Revenue Bonds	180,000	5.98%	2040	180,000	180,000
2010A Series Revenue Bonds	330,000	6.25%	2043	330,000	330,000
2011A Series Revenue Bonds	263,360	3.00% - 5.00%	2034	248,440	250,565
2013A Series Revenue Bonds	115,790	4.00%	2036	115,790	115,790
2013B Series Revenue Bonds	119,515	4.00% - 5.00%	2038	114,100	115,550
2013C Series Revenue Bonds	100,000	3.00% - 5.00%	2044	99,375	99,500
2014A Series Revenue Bonds	80,000	4.00% - 5.00%	2045	79,800	79,850
2015A Series Revenue Bonds	175,000	3.125% - 5.00%	2046	173,360	173,735
2015B Series Revenue Bonds	81,750	2.65% - 5.00%	2038	74,160	76,685
2016A Series Revenue Bonds	150,000	3.00% - 5.00%	2047	149,530	149,760
2016B Series Revenue Bonds	28,315	2.00% - 5.00%	2036	25,825	28,095
2016C Series Revenue Bonds	67,685	5.00%	2023	67,685	67,685
2017A Series Revenue Bonds	175,000	3.00% - 5.00%	2048	169,270	175,000
2017B Series Revenue Bonds	35,725	5.00%	2025	33,670	34,520
2018A Series Revenue Bonds	60,380	4.00%	2038	60,380	60,380
Total bonds payable				1,956,540	1,996,730
Less: current maturities				(42,200)	(40,190)
Add : unamortized premium/discount				80,421	90,628
Total bonds payable, net				$ 1,994,761	$ 2,047,168

A schedule of future revenue bond debt service requirements after June 30, 2019 follows:

(dollars in thousands)	Revenue Bonds		
	Principal	Interest	Total
Year Ending June 30,			
2020	$ 42,200	$ 93,058	$ 135,258
2021	44,230	91,030	135,260
2022	46,435	88,821	135,256
2023	48,755	86,503	135,258
2024	46,740	84,067	130,807
2025-2029	276,530	383,085	659,615
2030-2034	207,245	327,158	534,403
2035-2039	493,830	257,486	751,316
2040-2044	538,640	121,625	660,265
2045-2049	211,935	16,867	228,802
	$ 1,956,540	$ 1,549,700	$ 3,506,240

A comparative summary of current and long-term revenue bond activity follows:

(dollars in thousands)	June 30,	
	2019	2018
Revenue bonds - beginning of year, net	$ 1,996,730	$ 1,865,260
Bonds issued	-	271,105
Principal paid on bonds and bond refunding	(40,190)	(139,635)
Revenue bonds - end of year, net	$ 1,956,540	$ 1,996,730

Commercial Paper Program: On July 10, 2018 MSD introduced its Sewer and Drainage System Subordinated Program Notes Series 2018 Commercial Paper sub-Series consisting of $250,000,000 Commercial Paper Notes, Series 2018A-1 and $250,000,000 Commercial Paper Notes Series 2018A-2. The commercial paper notes will be used for the purpose of (i) financing the cost of improvements or additions to the System and (ii) refinancing other Program Notes. Program Notes are issued as Senior Subordinated Debt of MSD, secured, on a parity with the Series 2018 Bond Anticipation Notes and any other outstanding or hereafter issued Senior Subordinated Debt of MSD, by a subordinate and junior lien on the Revenues of the System, subject to the prior and senior lien on such Revenues of all Bonds issued and outstanding under the Bond Resolution. Program Notes (both Commercial Paper Notes and Direct Purchase Notes) may be issued in an aggregate principal amount not to exceed $500,000,000 at any one time outstanding.

Commercial Paper Notes may be issued and sold, at public or private sale, as taxable or tax-exempt notes, maturing in 270 days or less (but in any event not later than July 1, 2021) as determined by MSD, and bearing interest at a rate or rates determined by MSD (not in excess of 12% per annum for taxable notes or 10% per annum for tax-exempt notes). Commercial Paper Notes are payable only from (i) proceeds of the sale of other Commercial Paper Notes issued under the Program Note Resolution and used to refund outstanding Commercial Paper Notes, (ii) the proceeds of Direct Purchase Notes or other loans from the Banks (as defined below) used to refund outstanding Commercial Paper Notes, and (iii) the proceeds of Bonds issued to pay outstanding Commercial Paper Notes.

Liquidity support for the Commercial Paper Series 2018A-1 is provided by Bank of America, N.A (BANA) pursuant to a 3-year Revolving Credit Agreement dated July 1, 2018. BANA has provided a commitment of $250,000,000 for the payment of the principal of and interest on the Commercial Paper Notes Series 2018A-1 which is the maximum amount available to be drawn under the BANA Revolving Credit Agreement. MSD and BANA entered into a Note Purchase Agreement dated July 1, 2018 providing for the purchase of Direct Purchase Notes by BANA up to the aggregate principal amount of $250,000,000. The BANA Revolving Credit Agreement and the BANA Note Purchase Agreement provided that the aggregate principal amount of Commercial Paper Notes Series 2018A-1 and the BANA Direct Purchase Notes shall not exceed $250,000,000. Merrill Lynch, Pierce, Fenner & Smith Inc. is acting as dealer for the Commercial Paper Notes Series 2018A-1.

Liquidity support for the Commercial Paper Series 2018A-2 is provided by JPMorgan Chase Bank (JPMCB) pursuant to a 3-year revolving credit agreement dated July 1, 2018. JPMCB has provided a commitment of $250,000,000 for the payment of the principal of and interest on the Commercial Paper Notes Series 2018A-1 which is the maximum amount available to be drawn under the JPMCB Revolving Credit Agreement. MSD and JPMCB entered into a Note Purchase Agreement dated July 1, 2018 providing for the purchase of Direct Purchase Notes by JPMCB up to the aggregate principal amount of $250,000,000. The JPMCB Revolving Credit Agreement and the JPMCB Note Purchase Agreement provided that the aggregate principal amount of Commercial Paper Notes Series 2018A-1 and the JPMCB Direct Purchase Notes shall not exceed $250,000,000. J.P. Morgan Securities is acting as dealer for the Commercial Paper Notes Series 2018A-2.

The issuance of commercial paper is further supported by an Issuing and Paying Agency Agreement with U.S. Bank National Association.

Upon the occurrence of any special event of default the commitment shall immediately terminate with respect to all Commercial Paper Notes and the bank shall have no obligation to make any loan or to fund any outstanding Commercial Paper Note.

Upon the occurrence of an event of default that is not a special event of default, the bank may, by notice to MSD, terminate the commitment, if any (except as provided below), deliver a notice of no-issuance to MSD and to the Issuing and Paying Agent directing the Issuing and Paying Agent to cease issuing all Commercial Paper Notes. The available commitment shall immediately be reduced to the then outstanding principal amount of Commercial Paper Notes plus the amount of interest to accrue on such notes and the available commitment shall be further reduced in a similar manner when such Commercial Paper Notes mature provided the commitment does not terminate, and the right of the bank to accelerate the maturity of the note and the loans shall not effect the obligation of the bank to make loans in aggregate principal amount equal to the commitment to the extent necessary for MSD to make required payment s of principal on the Commercial Paper Notes issued and sold prior to the date upon which the notice of no-issuance is received by the Issuing and Paying Agent; provided further that if any loans are made that would not have been made but for the application of the preceding provision, such loans shall be immediately due and payable on the date such loans are made.

Moody’s Investors Service, Inc. and Standard and Poor’s Ratings Services assigned ratings of P-1 and A-1+, respectively, to the Commercial Paper Notes on June 29, 2018.

Commercial paper notes of $120,000,000 were outstanding as of June 30, 2019 in accordance with the respective Revolving Credit Agreements. Interest rates on the notes outstanding range from 1.43% to 1.75% and maturities range from 1 to 80 days. The outstanding notes had an average rate of 1.62% and an average maturity of 31 days. MSD intends to reissue maturing commercial paper in accordance with the refinancing terms of the Revolving Credit Agreements and periodically refund such maturities with proceeds from the issuance of long-term revenue bonds. Consistent with this intent, and since MSD has the available $500,000,000 credit facility described above, MSD has classified all outstanding commercial paper notes as long-term debt.

A direct purchase note of $100,000 is outstanding as of June 30, 2019 in accordance with the terms of the JPMCB Note Purchase Agreement. This note has a maturity of June 30, 2020 and carries an interest rate of 2.67%.

Kentucky Infrastructure Authority State Revolving Fund (SRF) Loans: On May 31, 2019, MSD acquired the Crestwood Wastewater Collection system pursuant to the terms and conditions of an Interlocal Agreement dated April 9, 2019. The Wastewater Collection System, which consists of existing wastewater pumping stations, collector, trunk, and interceptor sewers and pipes, mains, laterals, manholes, and other facilities was acquired for a price of $2,157,807 on an "as is," "where-is" basis. The acquisition did not include any stormwater or drainage assets or facilities.

The purchase price was paid, in part, by MSD's assumption of a between Crestwood and the Kentucky Infrastructure Authority in the amount $1,103,340 and payment in full by MSD of the balance of the loan between Crestwood and PNC Bank in the amount of $755,736. The purchase price was paid by MSD, but shall be borne by customers and users of the Wastewater Collection System through collection by MSD of rates, rentals and charges from such customers and users of the system.

MSD's SRF loans are considered direct placement debt and carry interest rates ranging between 3% and 3.8%. Under the Assistance Agreements entered into with the Kentucky Infrastructure Authority, upon the occurrence and continuance of any event of default the Authority may declare all payments due at a default rate of 8%. At June 30, 2019 and 2018 MSD had the following SRF direct placement debt outstanding:

(dollars in thousands)	June 30, 2019	June 30, 2018
SRF debt - beginning of year	$ 1,871	$ 1,972
Debt incurred	1,104	-
Principal paid on debt	(317)	(101)
SRF debt - end of year	$ 2,658	$ 1,871

Derivatives: At June 30, 2019 and 2018 MSD had the following derivative instruments outstanding:

Item	Counter-Party	Initial Notional Amount	Current Notional Amount	MSD Payment Terms	Fair Value as of June 30 2019	Fair Value as of June 30 2018	Bond Issue to which Swap Relates	Change in Fair Value
A	Wells Fargo	$180,716	$180,716	4.4215%	$ (58,428)	$ (47,545)	BAN	$ (10,883)
B	Bank of America	56,433	45,284	4.4215%	(14,612)	(11,898)	BAN	(2,714)
	Total	$237,149	$226,000		$ (73,040)	$ (59,443)		$ (13,597)

(dollars in thousands)

Both swaps have termination dates of May 15, 2033. Payments are due on the fifteenth of each month. MSD receipt terms are 67% of the 30-day London Inter-Bank Offered Rate (LIBOR).

A comparative summary of the change in fair value of the swaps for the years ended June 30, 2019 and 2018 follows:

(dollars in thousands)	June 30, 2019	June 30, 2018
Fair value - beginning of year	$ (59,443)	$ (75,760)
Change in fair value	(13,597)	16,317
Fair value - end of year	$ (73,040)	$ (59,443)

MSD's swaps are measured at fair value using significant other observable inputs (level 2) with a mid-market derivative valuation using a 67% of LIBOR Fixed Payer Swap rate.

MSD originally entered into these interest rate swaps as a hedging derivative instrument in anticipation of refinancing the 1999 Series bonds at their call date. The swaps remain in the portfolio to lower interest rate risk associated with the Bond Anticipation Note (BAN). The total of investment derivatives is reported as interest rate swaps on the Statement of Net Position. All changes in fair value of the derivatives are recorded as a separate component of non-operating revenue (expense). MSD's two outstanding swaps are structured so that the notional amount of the swap decreases over time corresponding to the proposed payoff of the BAN.

MSD has implemented steps to safeguard it against the risks associated with the aforementioned swap transactions. If the counter-party does not maintain A1/A+ ratings from Moody's and Standard and Poor's, the swaps contain provisions that require them to be marked to market weekly with monthly statements sent to MSD and the value will be collateralized with U.S. Treasury and Agency securities with the securities held by a tri-party custodian approved by MSD.

All costs of collateralization will be borne by the downgraded party who must post the collateral. In addition, the swaps were awarded to multiple firms to further mitigate the credit risk associated with the transactions. The credit ratings as of June 30th, 2019 for the counter-parties are as follows:

	Credit Ratings	
	Moody's	**Standard & Poor's**
Bank of America, N.A.	P-1	A-1
Wells Fargo Bank, N.A.	P-1	A-1+

The agreements also provide for automatic termination if MSD's unenhanced bond rating is downgraded below BBB/Baa. MSD's obligations under all of its outstanding swap agreements are unsecured and subordinate to all bonds issued and outstanding. The positive and negative fair values of the swap agreements were provided by a third-party financial advisor. The net swap payments made in fiscal 2019 and fiscal 2018 were $6,468,589 and $7,724,335, respectively.

Swap Terminations: MSD entered into swaps and other derivative contracts to lock in long term rates in advance of issuing long term debt to create and manage variable rate exposure in its debt portfolio and to take advantage of market opportunities to hedge embedded interest rate risk and tax regulation risk that exists on its statement of net position.

Upon a termination of a swap, any termination receipt or payment is amortized into income or expense until the original expiration date of that swap. Any unamortized portion of the receipt or payment is recorded as a deferred debit or credit in long-term liabilities. MSD has swap agreement terminations with deferred inflow of resources balances accreting to non-operating revenue as follows:

- On January 24, 2001, MSD terminated a nineteen-year interest rate swap agreement for $100,000,000 of its fixed-rate 1999 Series sewer and drainage revenue bonds. The termination of this swap agreement resulted in the receipt of a payment in the amount of $7,935,000. This payment will be amortized annually into income until 2019, the original termination date on the agreement.

- In April 2006, MSD entered into a swap agreement with Deutsche Bank AG for an initial notional amount of $171,405,000 which provided that beginning May 15, 2006, a net payment will be made based on MSD paying 78.78% of the 3-month LIBOR index on the notional amount and receiving 73.45% of the 5-year LIBOR Index on the notional amount. On January 23, 2008, MSD terminated this swap agreement and received a termination payment of $4,170,000 that will be amortized until 2023, the original termination date of the agreement.

- On January 25, 2008, MSD terminated a twenty-seven year floating to floating (basis) interest rate swap agreement with a notional amount of $282,165,000. MSD entered into this agreement with Morgan Stanley in April 2006 and paid 67% of the 1-month LIBOR index and received 62.2% of the 5-year LIBOR index. The termination of this swap agreement resulted in the receipt of a payment in the amount of $5,756,000. This payment will be amortized annually into income until 2033, the original termination date of the agreement.

- In May and June of 2013, MSD terminated two floating to fixed interest rate swap agreements, two basis swap agreements and three reversal swap agreements. Additionally, MSD partially terminated two floating to fixed interest rate swap agreements. The termination value of all swap agreements resulted in a net payment by MSD of $152,000. This action will result in a savings of $13,500,000 over the next ten years.

Line of Credit: MSD secured an uncommitted $25,000,000 line of credit in October 2015. As of June 30, 2019 and 2018 MSD does not owe anything on its line of credit. There was no activity on the line of credit in fiscal Year 2019 or 2018.

NOTE 8 – BOND ANTICIPATION NOTES

On November 9, 2018 MSD issued $226,340,000 of sewer and drainage system subordinated bond anticipation notes (BAN), Series 2018, with a coupon rate of 4.0% and an effective interest rate of 2.08%. The proceeds of the notes were used to refinance the 2017 notes. The 2018 notes mature on November 1, 2019.

On November 14, 2017 MSD issued $226,340,000 of sewer and drainage system subordinated bond anticipation notes (BAN), Series 2017, with a coupon rate of 5.0% and an effective interest rate of 1.04%. The proceeds of the notes were used to refinance the 2016 notes. The 2017 notes matured on November 12, 2018.

Under GASB 62, the BAN is considered a noncurrent liability because MSD intends to replace the Series 2018 BAN with a new BAN in November 2019 which will extend the debt to October 2020. BAN are publicly offered and used to finance capital projects. Total BAN outstanding at June 30, 2019 and June 30, 2018 was $226,340,000 and $226,340,000, respectively.

MSD's Subordinated Bond Resolution adopted April 26, 2010 specifies upon the occurrence and continuance of any event of default the paying agent shall, by notice delivered to MSD, declare the principal and interest of all notes immediately due and payable. MSD has remedies under the resolution to cure the event of default and annul the declaration of acceleration.

NOTE 9 - RISK MANAGEMENT

MSD is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; natural disasters; and injuries to MSD's employees. These risks are provided through the insurance programs described below.

Self-Insurance – Group Liability: MSD participates in the Louisville Area Governmental Self-Insurance Trust (LAGIT). LAGIT, which is certified by the Kentucky Department of Insurance to practice as a group liability self-insurance trust, was created on January 1, 1987. LAGIT members currently include Louisville Metro Government, six smaller cities, and six government agencies. LAGIT was formed to provide better risk protection and lower cost liability insurance by sharing the risk with all of its members. MSD's payments to LAGIT are reflected on the financial statements as an expense. LAGIT provides, after a $300,000 deductible, various liability coverages up to $5,000,000 per occurrence. Excess insurance may provide an additional $2,000,000 of coverage, above the LAGIT $5,000,000, to MSD. The amount of coverage available to MSD could be limited by the total assets of LAGIT and/or claims of other Members under the excess insurance policy. For fiscal 2019, LAGIT did not make any MSD claim payments.

MSD maintained additional excess liability coverage for fiscal 2019. Scottsdale Insurance Company (A+) provided $5,000,000 of excess liability coverage beyond the $7,000,000 provided through LAGIT. Gemini Insurance Company (A+) provided another $15,000,000 of excess liability coverage beyond $12,000,000. In total, MSD maintained liability coverage of $27,000,000.

For fiscal 2018, LAGIT provided, after a $300,000 deductible, various liability coverages up to $5,000,000 per occurrence. Excess insurance provided an additional $2,000,000 of coverage, above the LAGIT $5,000,000 to MSD. The amount of coverage available to MSD was limited by the total assets of LAGIT and/or claims of other Members under the excess insurance policy. For fiscal 2018, LAGIT did not make any MSD claim payments.

MSD maintained additional excess liability coverage for fiscal 2018. Hallmark Specialty Insurance Company (A-) provided $5,000,000 of excess liability coverage beyond the $7,000,000 provided through LAGIT. Gemini Insurance Company (A+) provided another $15,000,000 of excess liability coverage beyond $12,000,000. In total, MSD maintained liability coverage of $27,000,000.

Workers Compensation Insurance: MSD has chosen to self-insure the basic worker's compensation insurance. Claims administration is handled by a third-party administrator and includes claims monitoring check issuance, settlement negotiations and loss control services. Liabilities are reported when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated. A separate insurance policy provides maximum coverage of $1,000,000 per occurrence and aggregate.

A roll forward of worker's compensation claims follows:

(dollars in thousands)		June 30,	
	2019	2018	2017
Liability - beginning of year	$ 1,557	$ 1,701	$ 1,270
Claims and changes in estimates	1,945	755	1,207
Payments	(1,176)	(899)	(776)
Liability - end of year	$ 2,326	$ 1,557	$ 1,701

Self-Insurance – Property: MSD joined the Louisville Area Governmental General Insurance Trust (LAGGIT) in September 2002. LAGGIT was created to provide lower cost to participants and broader coverage for property risks. MSD is responsible for covered property damage up to $100,000 except for flood and vehicle collision coverage, which have separate deductibles. LAGGIT provides coverage for the next $1,000,000 per occurrence, except for Flood Zone A locations. An excess insurance policy with a third-party carrier covers claims in excess of $1,100,000.

MSD was affected by Ohio River flooding in February of 2018 and made a claim on the LAGGIT policy that is currently reserved at $5,300,000. To date, MSD has received $3,120,154 on this claim.

NOTE 10 - DEFERRED COMPENSATION

MSD offers its employees deferred compensation plans created in accordance with Internal Revenue Service Code Sections 401(k) and 457. These plans, available to all MSD employees, permit them to defer the payment of a portion of their salary until future years. Participation in these plans is voluntary and MSD makes no contributions to these plans on behalf of the employee. The deferred compensation is not available to employees until termination, retirement, death, or unforeseen emergency. All amounts of compensation deferred, including the investments and earnings thereon, vest with the employee and are not subject to the claims of MSD's general creditors.

NOTE 11 - COMMITMENTS AND CONTINGENCIES

Sale of Sewer Assessments*:* MSD has entered into agreements to sell sanitary sewer assessments to a local bank. These assessments reflect the portion of the cost that residents pay to have sewer lines installed in their neighborhood. Residents are given the opportunity to pay the assessment in full or to finance it over a twenty-year period at 7% interest per annum. The original agreement called for the bank to accept up to $25,000,000 of outstanding assessments and for MSD to receive 104% of the face value of the assessments.

The subsequent agreement allows an additional $5,000,000 of assessments to be sold to the bank at face value. These agreements give the bank the option to place the assessments back with MSD if the property owner's payments are 90 days in arrears or the property owner does not respond to the bank's demand for payment within a 90-day period after the issuance of the assessment. Sales to the bank are net of any subsequent repurchases of warrants by MSD. The unpaid principal balance of loans held by the bank at June 30, 2019 and 2018 was $717,057 and $964,127, respectively.

EPA Consent Decree: In August 2005, MSD agreed to enter into a Consent Decree with the Commonwealth of Kentucky's Environmental and Public Protection Cabinet (The Cabinet) and the U.S. Environmental Protection Agency (EPA). The Consent Decree called for MSD to submit a final Long-Term Control Plan (LTCP) to The Cabinet/EPA for review and joint approval by December 31, 2008, which was completed. The final LTCP includes schedules, deadlines, and timetables for projects to be completed by December 31, 2020. In addition, a Sanitary Sewer Discharge Plan (SSDP) was due by December 31, 2008, which was completed. The SSDP includes schedules and deadlines for capital projects to be completed by the end of 2024. Also, MSD agreed to pay a civil penalty to the Commonwealth of Kentucky in the amount of $1,000,000 to resolve the violations alleged in The Cabinet's and EPA's complaints up through the date of entry of the Consent Decree. The agreement also calls for MSD to perform supplemental environmental projects (SEPS) at an amount of not less than $2,250,000. MSD neither admitted nor denied the alleged violations but acknowledged that discharges occurred and accepted the obligations imposed in the Consent Decree. The Consent Decree, as negotiated, was entered by the U.S. District Court Judge on August 12, 2005.

In April 2009, MSD agreed to enter into an Amended Consent Decree with the Commonwealth of Kentucky's Environmental and Public Protection Cabinet (KEPPC) and the EPA. The agreement called for MSD to design and implement projects within specified deadlines that will eliminate sewer overflows in its service area. In a letter dated June 6, 2014, MSD requested approval from the KEPPC and the EPA for the IOAP 2012 Modifications, dated May 2014. The IOAP 2012 Modifications represent a revision to 28 separate projects set forth in the original IOAP, dated September 30, 2009. The IOAP Modifications were approved and will supersede and replace the 2009 IOAP. To date, MSD has complied with all submittals and reports requirements contained in the Amended Consent Decree. The enforcement actions initiated by the EPA are not unique in the wastewater treatment industry. Several wastewater utilities have signed, or are in the process of signing, Consent Decrees. In the opinion of MSD, the resolution of any violations will not result in material adverse effect on the operation, property or finances of MSD. The cost of the capital improvements required to be completed under the Amended Consent Decree is currently estimated to be $1,149,000,000 of which MSD has spent $882,707,577 as of June 30, 2019. MSD continues to diligently monitor costs and does not expect further significant cost increases.

Claims and Litigation: MSD is a defendant in various lawsuits. Although the outcome of these lawsuits is not presently determinable, it is the opinion of the MSD's management that resolution of these matters will not have a material adverse effect on the financial statements of MSD.

Construction Commitments: The value of construction contracts signed where work has not yet been performed amounted to $168,225,446 at June 30, 2019 and was $164,846,843 at June 30, 2018.

NOTE 12 - SUBSEQUENT EVENTS

Rate Increase: On August 1, 2019, MSD's rates for wastewater and stormwater service charges increased by 6.9%.

Series 2019: On August 19, 2019, MSD issued $30,910,000 of revenue refunding bonds, Series 2019. The proceeds of the Series 2019 bonds, together with certain amounts in the debt service account, were used to: (i) currently refund $35,155,000 of outstanding principal amount on MSD's sewer and drainage system revenue bonds, Series 2009B, maturing May 15, 2020 through May 15, 2023, the proceeds of which were used to pay, or to refund earlier Series of bond and notes issued to pay, the costs of improvements to MSD's sewer and drainage system, and (ii) pay the cost of issuance of the Series 2019 bonds. The refunding reduced debt service payments over the next 4 years by $5,107,297 and resulted in a net present value savings of $2,573,449.

2019 BAN Sale: On September 19, 2019, MSD sold $226,340,000 of sewer and drainage system subordinated bond anticipation notes (BAN), Series 2019, with a coupon rate of 3.0% and an effective interest rate of 1.37%. The proceeds of the notes will be used to refund the 2018 notes that mature on November 1, 2019. The 2019 notes closed on September 26, 2019 and mature on October 23, 2020.

Oldham County Environmental Authority Acquisition – On September 30, 2019, the MSD Board approved an Interlocal Agreement (ILA) between the County of Oldham, Kentucky, Oldham County Environmental Authority (OCEA) and MSD for wastewater collection and treatment services and authorized the Executive Director to negotiate a purchase and sale of the OCEA wastewater system. MSD would assume approximately $28,000,000 in outstanding debt and acquire approximately 6,200 customers under the terms of the ILA.

Commercial Paper Program: Commercial paper notes of $120,000,000 are outstanding as of October 31, 2019 in accordance with the respective Revolving Credit Agreements. Interest rates on the notes outstanding range from 1.20% to 1.49% and maturities range from 5 to 77 days. MSD intends to reissue maturing commercial paper in accordance with the refinancing terms of the Revolving Credit Agreements and periodically refund such maturities with proceeds from the issuance of long-term revenue bonds.

Hite Creek SRF Loan: MSD has received a conditional commitment from the Kentucky Infrastructure Authority and the Kentucky Energy and Environment Cabinet for a state revolving fund loan in an amount not to exceed $24,200,000 to finance the rehabilitation of aging infrastructure at the MSD's Hite Creek Water Quality Treatment Center. The capacity of the treatment center will be expanded so as to eliminate sanitary sewer overflows upstream of the treatment center and allow for future growth. MSD plans to execute an Assistance Agreement for this project with the Authority in fiscal year 2020. Interest will be payable semiannually at a fixed rate of 2% per annum commencing after funds are first drawn on the loan. The loan will be repaid over a period not to exceed 20 years from the date the project is placed in operation.

Nightingale SRF Loan: MSD has received a conditional commitment from the Kentucky Infrastructure Authority and the Kentucky Energy and Environment Cabinet for a state revolving fund loan in an amount not to exceed $3,870,000 to finance the Nightingale Inflow & Infiltration Elimination project. Elimination of inflow and infiltration creates a more efficient treatment system and reduces capacity needs downstream. MSD plans to execute an Assistance Agreement for this project with the Authority in fiscal year 2020. Interest will be payable semiannually at a fixed rate of 2% per annum commencing after funds are first drawn on the loan. The loan will be repaid over a period not to exceed 20 years from the date the project is placed in operation.

NOTE 13 - DEFINED BENEFIT PENSION AND OTHER POSTEMPLOYMENT BENEFITS PLAN – COST SHARING - CERS

General Information about the Pension and OPEB Plan: All full-time and eligible part-time employees of MSD participate in County Employee Retirement System (CERS), a cost-sharing, multiple-employer defined benefit pension plan administered by the Kentucky Retirement System (KRS), an agency of the Commonwealth. Under the provisions of Kentucky Revised Statute Section 78.520, the Board of Trustees (the Board) of KRS administers CERS, Kentucky Employee Retirement System, and State Police Retirement System. Although the assets of the systems are invested as a whole, each system's assets are used only for the payment of benefits to members of that plan, and a pro rata share of administrative costs.

The plan provides for retirement, disability and death benefits to plan members. Retirement benefits may also be extended to beneficiaries of plan members under certain circumstances. Under the provisions of Kentucky Revised Statute Section 61.701, the Board of KRS also administers the Kentucky Retirement Systems Insurance Fund. The statutes provide for a single insurance fund to provide group hospital and medical benefits to retirees drawing a benefit from the three pension funds administered by KRS. The assets of the insurance fund are invested as a whole. KRS and the Commonwealth have statutory authority to determine Plan benefits and employer contributions.

KRS issues a publicly available financial report that includes financial statements and required supplementary information for CERS. The report may be obtained by writing to Kentucky Retirement System, Perimeter Park West, 1260 Louisville Road, Frankfort, Kentucky 40601, or it may be found at the KRS website at www.kyret.ky.gov.

Basis of Accounting: For purposes of measuring the net pension and other post-employment benefits plan (OPEB) liabilities, deferred outflow of resources and deferred inflow of resources related to pensions and OPEB, pension and OPEB expense, information about the fiduciary net position of CERS and additions to/deductions from CERS's fiduciary net position have been determined on the same basis as they are reported by CERS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Pension Benefits Provided:

The information below summarizes the major retirement benefit provisions of CERS-Nonhazardous. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Members whose participation began before 8/1/2004:

Age and Service Requirement: Age 65 with at least one month of Nonhazardous duty service credit, or at any age with 27 or more years of service credit.

Benefit: If a member has at least 48 months of service, the monthly benefit is 2.20% times final average compensation times years of service depending on participation and retirement dates. Final compensation is calculated by taking the average of the highest five (5) fiscal years of salary. If the number of months of service credit during the five (5) year period is less than forty-eight (48), one (1) or more additional fiscal years shall be used. If a member has less than 48 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest.

Members whose participation began on or after 8/1/2004, but before 9/1/2008:

Age and Service Requirement: Age 65 with at least one month of Nonhazardous duty service credit, or at any age with 27 or more years of service credit.

Benefit: If a member has at least 48 months of service, the monthly benefit is 2.00% multiplied by final average compensation, multiplied by years of service. Final compensation is calculated by taking the average of the highest five (5) fiscal years of salary. If the number of months of service credit during the five (5) year period is less than forty-eight (48), one (1) or more additional fiscal years shall be used. If a member has less than 48 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest.

Members whose participation began on or after 9/1/2008, but before 1/1/2014:

Age and Service Requirement: Age 65 with 60 months of Nonhazardous duty service credit, or age 57 if age plus service equals at least 87.

Benefit: The monthly benefit is the following benefit factor based on service credit at retirement plus 2.00% for each year of service greater than 30 years, multiplied by final average compensation, multiplied by years of service.

Service Credit	Benefit Factor
10 years or less	1.10%
10+ - 20 years	1.30%
20+ - 26 years	1.50%
26+ - 30 years	1.75%

Final compensation is calculated by taking the average of the last (not highest) five (5) complete fiscal years of salary. Each fiscal year used to determine final compensation must contain twelve (12) months of service credit.

Members whose participation began on or after 1/1/2014:

Age and Service Requirement: Age 65 with 60 months of Nonhazardous duty service credit, or age 57 if age plus service equals at least 87.

Benefit: Each year that a member is an active contributing member to the System, the member contributes 5% of creditable compensation, and the member's employer contributes 4.00% of creditable compensation, which is a portion of the total employer contribution, into a hypothetical account. The hypothetical account will earn interest annually on both the member's and employer's contribution at a minimum rate of 4%. If the System's geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year. Upon retirement the hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or annuitized into a single life annuity option.

OPEB Benefits Provided:

The information below summarizes the major retirement benefit provisions of CERS-Nonhazardous. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Insurance Tier 1: Participation began before 7/1/2003

Benefit Eligibility**:** Recipient of a retirement allowance

Benefit: The percentage of member premiums paid by the retirement system are dependent on the number of years of service. Benefits also include duty disability retirements, duty death in service, non-duty death in service and surviving spouse of a retiree.

Insurance Tier 2: Participation began on or after 7/1/2003, but before 9/1/2008

Benefit Eligibility: Recipient of a retirement allowance with at least 120 months of service at retirement

Benefit: The system provides a monthly contribution subsidy of $10 for each year of earned service. The monthly contribution is increased by 1.5% each July 1. Benefits also include duty disability retirements, duty death in service and non-duty death in service.

Insurance Tier 3: Participation began on or after 9/1/2008

Benefit Eligibility: Recipient of a retirement allowance with at least 180 months of service at retirement

Benefit: The system provides a monthly contribution subsidy of $10 for each year of earned service. The monthly contribution is increased by 1.5% each July 1. Benefits also include duty disability retirements, duty death in service and non-duty death in service.

Contributions*:* MSD was required to contribute at an actuarially determined rate determined by Statute. Per Kentucky Revised Statute Section 78.545(33) normal contribution and past service contribution rates shall be determined by the KRS Board on the basis of an annual valuation last preceding July 1 of a new biennium. The KRS Board may amend contribution rates as of the first day of July of the second year of a biennium, if it is determined on the basis of a subsequent actuarial valuation that amended contribution rates are necessary to satisfy requirements determined in accordance with actuarial bases adopted by the KRS Board.

For the fiscal years ended June 30, 2019 and 2018, participating employers contributed 21.48% (16.22% allocated to pension and 5.26% allocated to OPEB) and 19.18% (14.48% allocated to pension and 4.70% allocated to OPEB) as set by KRS, respectively, of each Nonhazardous employee's creditable compensation. These percentages are inclusive of both pension and insurance payments for employers. Administrative costs of KRS are financed through employer contributions and investments earnings.

MSD has met 100% of the contribution funding requirement for the fiscal years ended June 30, 2019 and 2018. Total current year contributions recognized by the Plan were $9,976,816 ($7,533,704 related to pension and $2,443,112 related to OPEB) and $8,207,009 ($6,195,907 related to pension and $2,011,102 related to OPEB) for the years ended June 30, 2019 and 2018, respectively. The OPEB contribution amounts do not include the implicit subsidies reported in the amount of $491,549 and $392,546, respectively.

Members whose participation began before 9/1/2008:

Nonhazardous member contributions equal 5% of all creditable compensation. Interest paid on the members' accounts is currently 2.5%; and per statute shall not be less than 2.0%. Members are entitled to a full refund of contributions with interest.

Members whose participation began on or after 9/1/2008, but before 1/1/2014:
Nonhazardous member contributions equal to 6% of all creditable compensation, with 5% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Interest paid on the members' accounts will be set at 2.5%. Members are entitled to a full refund of contributions and interest in their individual account, however, the 1% contributed to the insurance fund is non-refundable.

Members whose participation began on or after 1/1/2014

Nonhazardous member contributions equal to 6% of all creditable compensation, with 5% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Members are entitled to a full refund of contributions and interest on the member's portion of the hypothetical account, however, the 1% contributed to the insurance fund is non-refundable.

Pension Plan Information for June 30, 2019 Financial Statements:

Total Pension Liability: The total pension liability was determined by an actuarial valuation as of June 30, 2017 with a roll forward to June 30, 2018. An expected total pension liability was determined at June 30, 2018 using standard roll forward techniques. The following actuarial assumptions were applied to all periods included in the measurement:

Price Inflation	2.30%
Salary increases	3.05%, average, including inflation
Investment rate of return	6.25%, net of pension plan investment expense, including inflation

The mortality table used for active members is RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females). For healthy retired members and beneficiaries, the mortality table used is the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females). For disabled members, the RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2008 – June 30, 2013.

Discount rate assumptions:

(a) Discount Rate: The discount rate used to measure the total pension liability was 6.25%.

(b) Projected Cash Flows: The projection of cash flows used to determine the discount rate assumed the local employers and plan members would contribute the statutorily determined contribution rate of projected compensation over the remaining 25-year amortization period of the unfunded actuarial accrued liability. The actuarial determined contribution rate is adjusted to reflect the phase-in of anticipated gains on actuarial value of assets over the first four years of the projection period.

(c) Long-Term Rate of Return: The long-term expected return on plan assets is reviewed as part of the regular experience studies prepared every five years for the System. The most recent analysis, performed for the period covering fiscal years 2008 through 2013 is outlined in a report dated April 30, 2014. However, the Board of KRS has the authority to review the assumptions on a more frequent basis and adopt new assumptions prior to the next scheduled experience study. The long-term expected rate of return was determined by using a building-block method in which best-estimate ranges of expected future real rate of returns are developed for each asset class. The ranges are combined by weighting the expected future real rate of return by the target asset allocation percentage.

(d) Municipal Bond Rate: The discount rate determination does not use a municipal bond rate.

(e) Periods of Projected Benefit Payments: The long-term assumed rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

(f) Assumed Asset Allocation: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
US equity	**17.50%**	
US Large Cap	5.00%	4.50%
US Mid Cap	6.00%	4.50%
US Small Cap	6.50%	5.50%
Non US Equity	**17.50%**	
International Developed	12.50%	6.50%
Emerging Markets	5.00%	7.25%
Global Bonds	4.00%	3.00%
Credit Fixed	**24.00%**	
Global IG Credit	2.00%	3.75%
High Yield	7.00%	5.50%
EMD	5.00%	6.00%
Illiquid Private	10.00%	8.50%
Private equity	10.00%	6.50%
Real Estate	5.00%	9.00%
Absolute Return	10.00%	5.00%
Real Return	10.00%	7.00%
Cash	2.00%	1.50%
Total	**100.00%**	

The long-term expected rate of return on pension plan assets was established by the KRS Board of Trustees at 6.25% based on a blending of the factors described above.

(g) Sensitivity Analysis: This paragraph requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents MSD's allocated portion of the net pension liability of the System, calculated using the discount rate of 6.25%, as well as what MSD's allocated portion of the net pension liability would be if it were calculated using a discount rate that is 1 percentage-point lower (5.25%) or 1 percentage-point higher (7.25%) than the current rate:

(dollars in thousands)	1% Decrease (5.25%)	Current Discount Rate (6.25%)	1% Increase (7.25%)
MSD's net pension liability	$ 131,569	$ 104,511	$ 81,842

Employer's Portion of the Collective Net Pension Liability: MSD's proportionate share of the net pension liability, as indicated in the prior table, is $104,511,092 or approximately 1.7%. The net pension liability was distributed based on 2018 actual employer contributions to the plan.

Measurement Date: June 30, 2017 is the actuarial valuation date and June 30, 2018 is the measurement date upon which the total pension liability is based.

Changes in Assumptions and Benefit Terms: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total pension liability have not changed except during the 2018 legislative session, House Bill 185 was enacted, which updated the benefit provisions for active members who die in the line of duty. Benefits paid to the spouses of deceased members have been increased from 25% of the member's final rate of pay to 75% of the member's average pay. If the member does not have a surviving spouse, benefits paid to surviving dependent children have been increased from 10% of the member's final pay rate to 50% of average pay for one child, 65% of average pay for two children, or 75% of average pay for three children. The total pension liability as of June 30, 2018 was determined using these updated benefit provisions.

Changes Since Measurement Date: There were no changes between the measurement date of the collective net pension liability and the employer's reporting date.

Pension Expense: MSD was allocated pension expense of $18,467,215 related to the CERS for the year ending June 30, 2019.

Deferred Outflows and Deferred Inflows: Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense, they are labeled as deferred inflows. If they will increase pension expense, they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period. Deferred inflows and outflows as of the Measurement Date include:

(dollars in thousands)	Deferred Outflow of Resources	Deferred Inflow of Resources
Difference between expected and actual experience	$ 3,409	$ 1,530
Change of assumptions	10,214	-
Changes in proportion and differences between employer contributions and proportionate shares of contributions	5,774	415
Differences between expected and actual investment earning on plan investments	-	1,253
	19,397	3,198
Contributions subsequent to the measurement date	7,534	-
Total	$ 26,931	$ 3,198

Deferred outflows of resources resulting from employer contributions subsequent to the measurement date of $7,533,704 will be recognized as a reduction of net pension liability in the year ending June 30, 2020. The remainder of the deferred outflows and deferred inflows of resources are amortized over three to five years with remaining amortization as follows:

(dollars in thousands)	
Year Ending June 30:	
2020	$ 10,791
2021	6,418
2022	(449)
2023	(561)
	$ 16,199

Pension Plan Fiduciary Net Position: Detailed information about the pension plans' fiduciary net position is available in the separately issued pension plan financial reports.

OPEB Information for June 30, 2019 Financial Statements:

Total OPEB Liability: The total other post-employment benefits plan (OPEB) was determined by an actuarial valuation as of June 30, 2017 rolled forward to 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Price inflation	2.30%
Payroll growth rate	2.00%
Salary increases	3.05%, average
Investment rate of return	6.25%
Healthcare trend rates	
Pre-65	Initial trend starting at 7.00% at January 1, 2020 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 12 years.
Post-65	Initial trend starting at 5.00% at January 1, 2020 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 10 years.

The mortality table used for active members is RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females). For healthy retired members and beneficiaries, the mortality table used is the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females). For disabled members, the RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2008 – June 30, 2013.

Discount rate assumptions:

(a) Discount Rate: The discount rate used to measure the total OPEB liability was 5.85%, which was increased from the 5.84% discount rate used in the prior year.

(b) Projected Cash Flows: The projection of cash flows used to determine the discount rate assumed the local employers and plan members would contribute the actuarially determined contribution rate of projected compensation over the remaining 25-year amortization period of the unfunded actuarial accrued liability.

(c) Long-Term Rate of Return: The long-term expected return on plan assets is reviewed as part of the regular experience studies prepared every five years for the System. The most recent analysis, performed for the period covering fiscal years 2008 through 2013 is outlined in a report dated April 30, 2014. However, the Board of KRS has the authority to review the assumptions on a more frequent basis and adopt new assumptions prior to the next scheduled experience study. The long-term expected rate of return was determined by using a building-block method in which best-estimate ranges of expected future real rate of returns are developed for each asset class. The ranges are combined by weighting the expected future real rate of return by the target asset allocation percentage.

(d) Municipal Bond Rate: The discount rate determination used a municipal bond rate of 3.62% as reported in Fidelity Index's "20 – Year Municipal GO AA Index" as of June 30, 2018.

(e) Period of Projected Benefit Payments: Current assets, future contributions, and investment earnings are projected to be sufficient to pay the projected benefit payments from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the system's actuarial determined contributions, and it is the actuary's understanding that any cost associated with the implicit subsidy will not be paid out of the system's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

(f) Assumed Asset Allocations: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
US equity	**17.50%**	
US Large Cap	5.00%	4.50%
US Mid Cap	6.00%	4.50%
US Small Cap	6.50%	5.50%
Non US Equity	**17.50%**	
International Developed	12.50%	6.50%
Emerging Markets	5.00%	7.25%
Global Bonds	4.00%	3.00%
Credit Fixed	**24.00%**	
Global IG Credit	2.00%	3.75%
High Yield	7.00%	5.50%
EMD	5.00%	6.00%
Illiquid Private	10.00%	8.50%
Private equity	10.00%	6.50%
Real Estate	5.00%	9.00%
Absolute Return	10.00%	5.00%
Real Return	10.00%	7.00%
Cash	2.00%	1.50%
Total	**100.00%**	

The long-term expected rate of return on pension plan assets was established by the KRS Board of Trustees at 6.25% based on a blending of the factors described above.

(g) Sensitivity Analysis: This paragraph requires disclosure of the sensitivity of the net OPEB liability to changes in the discount rate and changes in the healthcare cost trend rate.

The following presents MSD's allocated portion of the net OPEB liability of the System, calculated using the discount rate of 5.85%, as well as what the MSD's allocated portion of the System's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower (4.85%) or 1-percentage-point higher (6.85%) than the current rate for Nonhazardous:

(dollars in thousands)	1% Decrease (4.85%)	Current Discount Rate (5.85%)	1% Increase (6.85%)
MSD's net OPEB liability	$ 39,576	$ 30,470	$ 22,714

The following presents the MSD's allocated portion of the net OPEB liability of the System, calculated using the healthcare cost trend rate of percent, as well as what the MSD's allocated portion of the System's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate for Nonhazardous:

(dollars in thousands)	1% Decrease	Current Healthcare Cost Trend Rate	1% Increase
MSD's net OPEB liability	$ 22,685	$ 30,470	$ 39,646

Employer's Portion of the Collective OPEB Liability: MSD's proportionate share of the net OPEB liability, as indicated in the prior table, is $30,470,346 or approximately 1.7%. The net OPEB liability was distributed based on 2018 actual employer contributions to the plan.

Measurement Date: June 30, 2017 is the actuarial valuation date and June 30, 2018 is the measurement date upon which the total OPEB liability is based.

Changes in Assumptions and Benefit Terms: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total OPEB liability have not changed except during the 2018 legislative session, House Bill 185 was enacted, which updated the benefit provisions for active members who die in the line of duty. The system shall now pay 100% of the insurance premium for spouses and children of all active members who die in the line of duty. The total OPEB liability as of June 30, 2018 was determined using these updated benefit provisions.

Changes Since Measurement Date: There were no changes between the measurement date of the collective net OPEB liability and the employer's reporting date.

OPEB Expense: MSD was allocated OPEB expense of $4,165,841 related to the CERS for the year ending June 30, 2019.

Deferred Outflows and Deferred Inflows: Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce OPEB expense they are labeled as deferred inflows. If they will increase OPEB expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period. Deferred inflows and outflows as of the Measurement Date include:

(dollars in thousands)	Deferred Outflow of Resources	Deferred Inflow of Resources
Difference between expected and actual experience	$ -	$ 3,551
Change of assumptions	6,085	70
Changes in proportion and differences between employer contributions and proportionate shares of contributions	1,551	60
Differences between expected and actual investment earning on plan investments	-	2,099
	7,636	5,780
Contributions subsequent to the measurement date	2,935	-
Total	$ 10,571	$ 5,780

Deferred outflows of resources resulting from employer contributions subsequent to the measurement date of $2,934,661 which include the implicit subsidy reported of $491,549, will be recognized as a reduction of net OPEB liability in the year ending June 30, 2020. The remainder of the deferred outflows and deferred inflows of resources are amortized over three to five years with remaining amortization as follows:

(dollars in thousands)		
Year Ending June 30:		
2020	$	387
2021		387
2022		387
2023		795
2024		13
Thereafter		(113)
	$	1,856

OPEB Plan Fiduciary Net Position: Detailed information about the OPEB plans' fiduciary net position is available in the separately issued OPEB plan financial reports.

Pension Plan Information for June 30, 2018 Financial Statements:

Total Pension Liability: The total pension liability was determined by an actuarial valuation as of June 30, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Price Inflation	2.30%
Salary increases	3.05%, average, including inflation
Investment rate of return	6.25%, net of pension plan investment expense, including inflation

The mortality table used for active members is RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females). For healthy retired members and beneficiaries, the mortality table used is the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females). For disabled members, the RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2008 – June 30, 2013.

Discount rate assumptions:

(a) Discount Rate: The discount rate used to measure the total pension liability was 6.25%, which was reduced from the 7.50% discount rate used in the prior year.

(b) Projected Cash Flows: The projection of cash flows used to determine the discount rate assumed the local employers and plan members would contribute the statutorily determined contribution rate of projected compensation over the remaining 26-year amortization period of the unfunded actuarial accrued liability. The actuarial determined contribution rate is adjusted to reflect the phase-in of anticipated gains on actuarial value of assets over the first four years of the projection period.

(c) Long-Term Rate of Return: The long-term expected return on plan assets is reviewed as part of the regular experience studies prepared every five years for the System. The most recent analysis, performed for the period covering fiscal years 2008 through 2013 is outlined in a report dated April 30, 2014. However, the Board of KRS has the authority to review the assumptions on a more frequent basis and adopt new assumptions prior to the next scheduled experience study. The long-term expected rate of return was determined by using a building-block method in which best-estimate ranges of expected future real rate of returns are developed for each asset class. The ranges are combined by weighting the expected future real rate of return by the target asset allocation percentage.

(d) Municipal Bond Rate: The discount rate determination does not use a municipal bond rate.

(e) Periods of Projected Benefit Payments: The long-term assumed rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

(f) Assumed Asset Allocation: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
US equity	17.50%	5.97%
International equity	17.50%	7.85%
Global bonds	4.00%	2.63%
Global credit	2.00%	3.63%
High yield	7.00%	5.75%
Emerging market debt	5.00%	5.50%
Private credit	10.00%	8.75%
Real estate	5.00%	7.63%
Absolute return	10.00%	5.63%
Real return	10.00%	6.13%
Private equity	10.00%	8.25%
Cash	2.00%	1.88%
	100.00%	

The long-term expected rate of return on pension plan assets was established by the KRS Board of Trustees at 6.25% based on a blending of the factors described above.

(g) Sensitivity Analysis: This paragraph requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents MSD's allocated portion of the net pension liability of the System, calculated using the discount rate of 6.25%, as well as what MSD's allocated portion of the net pension liability would be if it were calculated using a discount rate that is 1 percentage-point lower (5.25%) or 1 percentage-point higher (7.25%) than the current rate:

(dollars in thousands)	1% Decrease (5.25%)	Current Discount Rate (6.25%)	1% Increase (7.25%)
MSD's net pension liability	$ 117,945	$ 93,517	$ 73,083

Employer's Portion of the Collective Net Pension Liability: MSD's proportionate share of the net pension liability, as indicated in the prior table, is $93,516,713 or approximately 1.6%. The net pension liability was distributed based on 2017 actual employer contributions to the plan.

Measurement Date: June 30, 2017 is the actuarial valuation date and measurement date upon which the total pension liability is based.

Changes in Assumptions and Benefit Terms: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total pension liability have been updated as follows:

- The assumed investment rate of return was decreased from 7.50% to 6.25%.
- The assumed rate of inflation was reduced from 3.25% to 2.30%.
- Payroll growth assumption was reduced from 4.00% to 3.05%.

Changes Since Measurement Date: There were no changes between the measurement date of the collective net pension liability and the employer's reporting date.
Pension Expense: MSD was allocated pension expense of $15,988,493 related to the CERS for the year ending June 30, 2018.

Deferred Outflows and Deferred Inflows: Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense they are labeled as deferred inflows. If they will increase pension expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period. Deferred inflows and outflows as of the Measurement Date include:

(dollars in thousands)	Deferred Outflow of Resources	Deferred Inflow of Resources
Difference between expected and actual experience	$ 116	$ 2,374
Change of assumptions	17,256	-
Changes in proportion and differences between employer contributions and proportionate shares of contributions	2,816	1,458
Differences between expected and actual investment earning on plan investments	1,157	-
	21,345	3,832
Contributions subsequent to the measurement date	6,196	-
Total	$ 27,541	$ 3,832

Deferred outflows of resources resulting from employer contributions subsequent to the measurement date of $6,195,907 will be recognized as a reduction of net pension liability in the year ending June 30, 2019. The remainder of the deferred outflows and deferred inflows of resources are amortized over three to five years with remaining amortization as follows:

(dollars in thousands)	
Year Ending June 30:	
2019	$ 7,232
2020	7,782
2021	3,700
2022	(1,201)
	$ 17,513

Pension Plan Fiduciary Net Position: Detailed information about the pension plans' fiduciary net position is available in the separately issued pension plan financial reports.

OPEB Information for June 30, 2018 Financial Statements:

Total OPEB Liability: The total OPEB plan was determined by an actuarial valuation as of June 30, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Price inflation	2.30%
Payroll growth rate	2.00%
Salary increases	3.05%, average
Investment rate of return	6.25%
Healthcare trend rates	
Pre-65	Initial trend starting at 7.25% at January 1, 2019 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 13 years.
Post-65	Initial trend starting at 5.10% at January 1, 2019 and gradually decreasing to an ultimate trend rate of 4.05% over a period of 11 years.

The mortality table used for active members is RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females). For healthy retired members and beneficiaries, the mortality table used is the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females). For disabled members, the RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2008 – June 30, 2013.

Discount rate assumptions:

(h) Discount Rate: The discount rate used to measure the total OPEB liability was 5.84%, which was reduced from the 6.89% discount rate used in the prior year.

(i) Projected Cash Flows: The projection of cash flows used to determine the discount rate assumed the local employers and plan members would contribute the actuarially determined contribution rate of projected compensation over the remaining 26-year amortization period of the unfunded actuarial accrued liability.

(j) Long-Term Rate of Return: The long-term expected return on plan assets is reviewed as part of the regular experience studies prepared every five years for the System. The most recent analysis, performed for the period covering fiscal years 2008 through 2013 is outlined in a report dated April 30, 2014. However, the Board of KRS has the authority to review the assumptions on a more frequent basis and adopt new assumptions prior to the next scheduled experience study. The long-term expected rate of return was determined by using a building-block method in which best-estimate ranges of expected future real rate of returns are developed for each asset class. The ranges are combined by weighting the expected future real rate of return by the target asset allocation percentage.

(k) Municipal Bond Rate: The discount rate determination used a municipal bond rate of 3.56% as reported in Fidelity Index's "20 – Year Municipal GO AA Index" as of June 30, 2017.

(l) Period of Projected Benefit Payments: Current assets, future contributions, and investment earnings are projected to be sufficient to pay the projected benefit payments from the retirement system. However, the cost associated with the implicit employer subsidy is not currently being included in the calculation of the system's actuarial determined contributions, and it is the actuary's understanding that any cost associated with the implicit subsidy will not be paid out of the system's trust. Therefore, the municipal bond rate was applied to future expected benefit payments associated with the implicit subsidy.

(m) Assumed Asset Allocations: The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
US equity	17.50%	5.97%
International equity	17.50%	7.85%
Global bonds	4.00%	2.63%
Global credit	2.00%	3.63%
High yield	7.00%	5.75%
Emerging market debt	5.00%	5.50%
Private credit	10.00%	8.75%
Real estate	5.00%	7.63%
Absolute return	10.00%	5.63%
Real return	10.00%	6.13%
Private equity	10.00%	8.25%
Cash	2.00%	1.88%
	100.00%	

The long-term expected rate of return on pension plan assets was established by the KRS Board of Trustees at 6.25% based on a blending of the factors described above.

(n) Sensitivity Analysis: This paragraph requires disclosure of the sensitivity of the net OPEB liability to changes in the discount rate and changes in the healthcare cost trend rate.

The following presents MSD's allocated portion of the net OPEB liability of the System, calculated using the discount rate of 5.84%, as well as what the MSD's allocated portion of the System's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower (4.84%) or 1-percentage-point higher (6.84%) than the current rate for Nonhazardous:

(dollars in thousands)	1% Decrease (4.84%)	Current Discount Rate (5.84%)	1% Increase (6.84%)
MSD's net OPEB liability	$ 40,869	$ 32,119	$ 24,387

The following presents the MSD's allocated portion of the net OPEB liability of the System, calculated using the healthcare cost trend rate of percent, as well as what the MSD's allocated portion of the System's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate for Nonhazardous:

(dollars in thousands)	1% Decrease	Current Healthcare Cost Trend Rate	1% Increase
MSD's net OPEB liability	$ 24,637	$ 32,119	$ 41,845

Employer's Portion of the Collective OPEB Liability: MSD's proportionate share of the net OPEB liability, as indicated in the prior table, is $32,118,692 or approximately 1.6%. The net OPEB liability was distributed based on 2017 actual employer contributions to the plan.
Measurement Date: June 30, 2017 is the actuarial valuation date and measurement date upon which the total pension liability is based.

Changes in Assumptions and Benefit Terms: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total OPEB liability have been updated as follows:

- The assumed investment rate of return was decreased from 7.50% to 6.25%.
- The assumed rate of inflation was reduced from 3.25% to 2.30%.
- Payroll growth assumption was reduced from 4.00% to 3.05%.

Changes Since Measurement Date: There were no changes between the measurement date of the collective net OPEB liability and the employer's reporting date.

OPEB Expense: MSD was allocated OPEB expense of $3,660,044 related to the CERS for the year ending June 30, 2018.

Deferred Outflows and Deferred Inflows: Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce OPEB expense they are labeled as deferred inflows. If they will increase OPEB expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period. Deferred inflows and outflows as of the Measurement Date include:

(dollars in thousands)	Deferred Outflow of Resources	Deferred Inflow of Resources
Difference between expected and actual experience	$ -	$ 89
Change of assumptions	6,989	-
Changes in proportion and differences between employer contributions and proportionate shares of contributions	-	75
Differences between expected and actual investment earning on plan investments	-	1,518
	6,989	1,682
Contributions subsequent to the measurement date	2,404	-
Total	$ 9,393	$ 1,682

Deferred outflows of resources resulting from employer contributions subsequent to the measurement date of $2,403,648 which include the implicit subsidy reported of $392,546, will be recognized as a reduction of net OPEB liability in the year ending June 30, 2019. The remainder of the deferred outflows and deferred inflows of resources are amortized over three to five years with remaining amortization as follows:

(dollars in thousands)	
Year Ending June 30:	
2019	$ 913
2020	913
2021	913
2022	913
2023	1,293
Thereafter	362
	$ 5,307

OPEB Plan Fiduciary Net Position: Detailed information about the OPEB plans' fiduciary net position is available in the separately issued OPEB plan financial reports.

Louisville and Jefferson County Metropolitan Sewer District
Schedule of Proportionate Share of the Net Pension Liability
For the Years Ended June 30,
(dollars in thousands)

	2019	2018	2017	2016	2015
MSD's proportion of the net pension liability	1.72%	1.60%	1.51%	1.60%	1.60%
MSD's proportionate share of the net pension liability	$104,511	$93,517	$74,132	$68,653	$51,988
MSD's covered payroll	45,859	43,084	39,596	37,900	37,100
MSD's proportion of the net pension liability as a percentage of its covered payroll	227.9%	217.1%	187.2%	181.1%	140.1%
Plan fiduciary net postion as a percentage of the total pension liability	53.54%	53.32%	55.50%	59.97%	66.80%

Notes:
1) The amounts presented for each fiscal year were determined as of the prior year end.
2) This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, governments should present information for those years that information is available.

Changes in Assumptions and Benefit Terms:

2015: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total pension liability have been updated as described in Schedule D of the CERS actuary report. The changes are noted below:

- The assumed investment rate of return was decreased from 7.75% to 7.50%.
- The assumed rate of inflation was reduced from 3.50% to 3.25%.
- The assumed rate of wage inflation was reduced from 1.00% to 0.75%.
- Payroll growth assumption was reduced from 4.50% to 4.00%.
- The mortality table used for active members is RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females).
- For healthy retired members and beneficiaries, the mortality table used is the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females). For disabled members, the RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted.
- The assumed rates of Retirement, withdrawal and disability were updated to more accurately reflect experience.

2016: There were no changes in assumptions and benefit terms since the prior measurement date.

2017: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total pension liability have been updated as follows:

- The assumed investment rate of return was decreased from 7.50% to 6.25%.
- The assumed rate of inflation was reduced from 3.25% to 2.30%.
- Payroll growth assumption was reduced form 4.00% to 3.05%.

2018: Since the prior measurement date, there have been no changes in actuarial assumptions. However, during the 2018 legislative session, House Bill 185 was enacted, which updated the benefit provisions for active members who die in the line of duty. Benefits paid to the spouses of deceased members have been increased from 25% of the member's final rate of pay to 75% of the member's average pay. If the member does not have a surviving spouse, benefits paid to surviving dependent children have been increased from 10% of the member's final pay rate to 50% of average pay for one child, 65% of average pay for two children, or 75% of average pay for three children. The total pension liability as of June 30, 2018 was determined using these updated benefit provisions.

Louisville and Jefferson County Metropolitan Sewer District
Schedule of Employer Contributions - Pension
For the Years Ended June 30,
(dollars in thousands)

	2019	2018	2017	2016	2015
Statutorily required contribution for pension	$ 7,534	$ 6,196	$ 5,279	$ 4,767	$ 4,576
Contribution in relation to the statutorily required contribution	(7,534)	(6,196)	(5,279)	(4,767)	(4,576)
Annual contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
MSD contributions as a percentage of statutorily required contribution for pension	100%	100%	100%	100%	100%
MSD covered payroll	$ 48,391	$45,859	$43,084	$39,596	$37,900
Contributions as a percentage of MSD's covered payroll	15.57%	13.51%	12.25%	12.04%	12.07%

Notes:

1) This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, governments should present information for those years that information is available.

Louisville and Jefferson County Metropolitan Sewer District
Schedule of Proportionate Share of the Net OPEB Liability
For the Years Ended June 30,
(dollars in thousands)

	2019	2018
MSD's proportion of the net OPEB liability	1.72%	1.60%
MSD's proportionate share of the net OPEB liability	$30,470	$32,119
MSD's covered payroll	45,859	43,084
MSD's proportion of the net OPEB liability as a percentage of its covered payroll	66.44%	74.55%
Plan fiduciary net position as a percentage of the total OPEB liability	57.62%	52.39%

Notes:

1) This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, governments should present information for those years that information is available.

Changes in Assumptions and Benefit Terms:

2017: Since the prior measurement date, the demographic and economic assumptions that affect the measurement of the total OPEB liability have been updated as follows:

- The assumed rate of return was decreased form 7.5% to 6.25%.
- The assumed rate of inflation was reduced from 3.25% to 2.3%.
- Payroll growth assumption was reduced from 4.0% to 3.05%.

2018: Since the prior measurement date, there have been no changes in actuarial assumptions. However, during the 2018 legislative session, House Bill 185 was enacted, which updated the benefit provisions for active members who die in the line of duty. The system shall now pay 100% of the insurance premium for spouses and children of all active members who die in the line of duty. The total OPEB liability as of June 30, 2018 was determined using these updated benefit provisions.

Louisville and Jefferson County Metropolitan Sewer District
Schedule of Employer Contributions - OPEB
For the Years Ended June 30,
(dollars in thousands)

	2019	2018
Statutorily required contribution	$ 2,443	$ 2,011
Contributions in relation to the statutorily required contribution	(2,443)	(2,011)
Annual contribution deficiency (excess)	$ -	$ -
MSD contributions as a percentage of statutorily required contribution for OPEB	100%	100%
MSD covered payroll	$48,391	$45,859
Contributions as a percentage of MSD's covered paryoll	5.05%	4.39%

Notes:

1) This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, governments should present information for those years that information is available.

Protecting our city's waterways is our mission. A significant portion of that mission is the collection and proper treatment of wastewater before we release it back into our local waterways. Cedar Creek Water Quality Treatment Center, shown above, is one of five MSD wastewater treatment facilities.

STATISTICAL SECTION

This section of the Louisville & Jefferson County Metropolitan Sewer District's (MSD) Comprehensive Annual Financial Report presents detailed information as a supplement to the information presented in the financial statements and note disclosures to assist readers in assessing MSD's overall financial health.

This schedule presents information to help readers assess MSD's debt burden and MSD's ability to issue additional debt in the future.

These schedules contain trend information to help readers understand how MSD's financial performance and position have changed over time. The information presented includes changes in net assets, an analysis of revenues and expenses and a comparative statement of cash flows

This schedule contains information to help readers assess MSD's most significant revenue sources.

These schedules contain service and infrastructure data to help the reader understand how the information in MSD's financial report relates to the services that it provides. The information provided includes service and administration costs, project schedules, and water treatment capacity.

These schedules offer demographic and economic indicators to help readers understand the environment within which MSD operates.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT

COMPARATIVE SCHEDULE OF DEBT SERVICE COVERAGE

YEARS ENDED JUNE 30

DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Revenues:										
Service charges	$ 289,173	$ 274,504	$ 253,943	$ 238,480	$ 225,462	$ 214,056	$ 205,222	$ 190,482	$ 183,297	$ 168,610
Other operating income	5,195	4,645	5,691	4,810	4,407	2,576	4,823	1,756	2,379	2,980
Assessments	1,258	1,232	1,375	9,457	1,901	2,129	2,392	2,405	2,740	7,093
Investment income	18,692	16,531	14,273	17,278	17,623	20,330	20,119	40,687	33,700	36,045
Less: capitalized investment income	-	-	-	-	-	-	(3,817)	(1,851)	(12,134)	(5,990)
Total revenues	314,318	296,912	275,282	270,025	249,393	239,091	228,739	233,479	209,982	208,738
Operating expenses:										
Service and administrative costs[1]	142,082	131,948	119,586	117,671	106,301	108,814	108,041	108,325	107,307	101,068
Less: capitalized overhead	(38,383)	(38,148)	(31,949)	(30,516)	(30,056)	(33,568)	(33,110)	(33,200)	(30,308)	(28,129)
Capitalization Rate	27%	29%	27%	26%	28%	31%	31%	31%	28%	28%
Total operating expenses	103,699	93,800	87,637	87,155	76,245	75,246	74,931	75,125	76,999	72,939
Net revenues	210,619	203,112	187,645	182,870	173,148	163,845	153,808	158,354	132,983	135,799
Aggregate debt service:										
Current maturities of long-term debt	40,358	33,906	33,655	31,825	29,415	28,525	27,035	25,740	24,840	23,785
Interest expense - senior lien	94,831	95,041	90,117	86,818	83,404	80,613	92,616	89,243	78,954	69,949
Less: capitalized interest expense	(18,582)	(21,859)	(20,074)	(21,051)	(20,511)	(19,103)	(26,358)	(26,384)	(25,195)	(13,910)
Aggregate net debt service	$ 116,607	$ 107,088	$ 103,698	$ 97,592	$ 92,308	$ 90,035	$ 93,293	$ 88,599	$ 78,599	$ 79,824
Debt service coverage ratio[2]	181%	190%	181%	187%	188%	182%	165%	179%	169%	170%

[1]Excludes the actuarial portion of changes to GASB 68 pension expense and GASB 75 OPEB for the year

[2]Excludes the actuarial portion of changes to GASB 68 pension expense and GASB 75 OPEB for the year

This table has been prepared using the definitions of revenue, expense and debt service contained in MSD's 1993 Sewer & Drainage System Revenue Bond Resolution.

The 1993 Resolution and its supplements require MSD to provide "Available Revenues", as defined in the Resolution, sufficient to pay 110% of each fiscal year's "Aggregate Net Debt Service" on Revenue Bonds and 100% of "Operating Expenses". "Available Revenues", as used only for purposes of the Resolution, means all revenues and other amounts received by MSD and pledged as security for payment of Bonds issued pursuant to the Resolution, but excludes any interest income which is capitalized in accordance with generally accepted accounting principles. "Operating Expenses" includes all reasonable, ordinary, usual or necessary current expenses of maintenance, repair and operation determined in accordance with generally accepted accounting principles and the enterprise basis of accounting. "Operating Expenses" does not include reserves for extraordinary maintenance and repair, nor does it include administrative and engineering expenses of MSD which are necessary or incidental to capital improvements for which debt has been issued and which may be paid from the proceeds of such debt. "Aggregate Net Debt Service" is aggregate current principal and interest requirements on all Bonds issued pursuant to the Resolution, excluding (i) interest expense, which in accordance with generally accepted accounting principles, is capitalized and which may be paid from the proceeds of debt, and (ii) other amounts, if any, available, or expected to become available in the ordinary course for payment of principal and interest, and not included in "Available Revenues".

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF NET POSITION
ASSETS AND DEFERRED OUTFLOW OF RESOURCES
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Current Assets:										
Unrestricted cash and cash equivalents	$ 43,728	$ 50,276	$ 42,449	$ 69,481	$ 63,013	$ 84,780	$ 66,376	$ 12,040	$ 34,508	$ 24,700
Unrestricted investments	36,744	25,080	10,095	100	100	100	100	100	100	100
Restricted cash and cash equivalents	22,348	29,987	19,454	5,379	16,342	39,507	62,249	227,327	112,559	58,923
Restricted investments	30,172	-	22,675	14,999	-	-	90,574	94,639	294,868	394,880
Accounts receivable	27,915	26,332	23,480	26,696	23,787	21,809	18,465	16,666	17,789	15,779
Inventories	4,623	4,407	4,184	4,210	3,981	3,808	3,579	3,484	3,435	3,110
Prepaid expenses and other current assets	3,918	3,845	2,877	3,184	2,880	2,636	2,110	1,862	2,841	2,513
Total current assets	**169,448**	**139,927**	**125,214**	**124,049**	**110,103**	**152,640**	**243,453**	**356,118**	**466,100**	**500,005**
Plant, Lines and Other facilities:										
Completed projects	3,984,619	3,432,754	3,306,851	3,155,696	2,777,788	2,753,762	2,702,448	2,560,403	2,498,355	2,445,755
Less: Accumulated depreciation	(1,326,461)	(1,218,427)	(1,146,036)	(1,070,108)	(1,008,503)	(946,427)	(884,199)	(825,205)	(768,423)	(734,552)
	2,658,158	2,214,327	2,160,815	2,085,588	1,769,285	1,807,335	1,818,249	1,735,198	1,729,932	1,711,203
Construction in progress	460,501	711,655	581,222	487,674	623,181	463,167	371,816	370,350	272,850	140,134
Net plant, lines and other facilities	3,118,659	2,925,982	2,742,037	2,573,262	2,392,466	2,270,502	2,190,065	2,105,548	2,002,782	1,851,337
Other non-current assets	108,322	184,659	156,960	178,762	169,587	154,717	36,262	35,876	36,611	35,945
Total non-current assets	**3,226,981**	**3,110,641**	**2,898,997**	**2,752,024**	**2,562,053**	**2,425,219**	**2,226,327**	**2,141,424**	**2,039,393**	**1,887,282**
Total assets	**3,396,429**	**3,250,568**	**3,024,211**	**2,876,073**	**2,672,156**	**2,577,859**	**2,469,780**	**2,497,542**	**2,505,493**	**2,387,287**
Deferred outflow of resources	52,018	54,267	35,911	23,708	20,407	22,862	13,511	15,176	16,842	18,507
Total assets and deferred outflows	**$ 3,448,447**	**$ 3,304,835**	**$ 3,060,122**	**$ 2,899,781**	**$ 2,692,563**	**$ 2,600,721**	**$ 2,483,291**	**$ 2,512,718**	**$ 2,522,335**	**$ 2,405,794**

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENT OF NET POSITION
LIABILITIES, DEFERRED INFLOW OF RESOURCES AND NET POSITION
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Liabilities:										
Current liabilities (payable from current assets):										
Accounts payable and accrued expenses	$ 18,168	$ 16,342	$ 16,550	$ 17,420	$ 14,936	$ 13,653	$ 12,693	$ 16,470	$ 15,732	$ 11,141
Total current liabilities (payable from current assets)	18,168	16,342	16,550	17,420	14,936	13,653	12,693	16,470	15,732	11,141
Current liabilities (payable from restricted assets):										
Accounts payable and accrued expenses	31,945	47,472	30,764	33,271	30,607	14,712	16,168	12,656	15,105	13,692
Accrued interest	17,819	18,455	15,935	17,533	13,036	12,834	12,458	13,959	12,360	14,701
Current maturities of bonds payable	42,200	40,190	33,655	31,825	29,415	28,525	27,035	25,740	24,840	23,785
Bank notes	100	-	-	-	-	-	-	-	-	-
State revolving fund notes	545	105	-	-	-	-	-	-	-	-
Refundable deposits	2,928	2,861	2,300	2,557	1,639	1,568	1,137	1,013	1,341	1,622
Total current liabilities (payable from restricted assets)	95,537	109,083	82,654	85,186	74,697	57,639	56,798	53,368	53,646	53,800
Non-current liabilities:										
Bonds payable	1,914,340	1,956,540	1,831,605	1,722,745	1,583,390	1,549,700	1,478,225	1,536,770	1,591,670	1,302,000
Bond anticiaption note	226,340	226,340	226,340	226,340	226,340	226,340	226,340	226,340	226,340	452,680
Commercial paper notes	120,000	-	-	-	-	-	-	-	-	-
State revolving fund notes	2,113	1,766	-	-	-	-	-	-	-	-
Other subordinated debt	-	-	1,973	2,072	2,168	2,261	2,351	-	-	-
Unamortized debt premium/discount	80,421	90,628	74,328	67,462	60,797	60,263	56,764	45,841	25,646	9,562
Net Pension liability and OPEB liability	134,981	125,636	74,132	68,653	51,988	58,825	-	-	-	-
Other long-term liabilities	-	-	-	690	944	761	973	5,663	5,561	1,630
Total long-term debt	2,478,195	2,400,910	2,208,378	2,087,962	1,925,627	1,898,150	1,764,653	1,814,614	1,849,217	1,765,872
Total liabilities	2,591,900	2,526,335	2,307,582	2,190,568	2,015,260	1,969,442	1,834,144	1,884,452	1,918,595	1,830,813
Deferred inflow of resources	85,995	69,826	84,052	108,633	92,233	82,293	82,233	119,680	67,948	82,185
Net position:										
Net investment in capital assets	745,343	587,820	562,784	501,675	506,187	418,784	365,225	313,575	363,334	450,753
Restricted, net	81,207	156,425	150,386	84,639	80,424	148,451	136,939	157,002	141,217	334,186
Unrestricted	(55,998)	(35,571)	(44,682)	14,266	(1,541)	(18,249)	64,750	38,009	31,241	(292,143)
Total net assets	770,552	708,674	668,488	600,580	585,070	548,986	566,914	508,586	535,792	492,796
Total liabilities, deferred inflows and net position	**$ 3,448,447**	**$ 3,304,835**	**$ 3,060,122**	**$ 2,899,781**	**$ 2,692,563**	**$ 2,600,721**	**$ 2,483,291**	**$ 2,512,718**	**$ 2,522,335**	**$ 2,405,794**

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Operating revenue:										
Wastewater service charges	$ 219,467	$ 210,636	$ 194,965	$ 183,592	$ 173,895	$ 165,599	$ 159,791	$ 149,626	$ 145,880	$ 133,853
Stormwater service charges	69,706	63,868	58,978	54,888	51,567	48,457	45,431	40,856	37,417	34,757
Other operating income	5,195	4,645	5,691	4,810	4,407	2,576	4,823	1,756	2,379	2,980
Total operating revenue	294,368	279,149	259,634	243,290	229,869	216,632	210,045	192,238	185,676	171,590
Operating expenses:										
Service and administrative costs	154,325	142,711	122,098	121,674	106,174	108,814	108,041	108,326	107,307	101,068
Capitalization/recovery of cost	(38,383)	(38,147)	(31,949)	(30,516)	(30,056)	(33,568)	(32,200)	(30,860)	(30,472)	(28,129)
Capitalized overhead (over) under applied	-	88	-	-	-	-	(910)	(2,340)	164	(2,988)
Depreciation and amortization	87,882	77,954	77,156	62,820	63,321	63,516	60,335	60,527	58,741	58,513
Total operating expenses	203,824	182,606	167,305	153,978	139,439	138,762	135,266	135,653	135,740	128,464
Income (loss) from operations	90,544	96,543	92,329	89,312	90,430	77,870	74,779	56,585	49,936	43,126
Non-operating revenue (expense):										
Investment income	8,353	6,280	4,047	7,559	7,527	10,234	3,695	29,682	25,916	33,785
Build America bond refund	10,339	10,249	10,226	10,332	10,096	10,096	10,986	10,986	7,978	2,260
Interest expense - bonds	(94,831)	(95,041)	(90,117)	(86,818)	(83,404)	(80,613)	(92,616)	(89,243)	(78,954)	(69,949)
Interest expense - swaps	(6,468)	(7,724)	(8,926)	(9,514)	(9,737)	(9,733)	(10,200)	(11,235)	(11,627)	(8,815)
Interest expense - other	(13,497)	(9,873)	(9,317)	(8,601)	(4,611)	(4,629)	(4,829)	(6,595)	(4,896)	(6,819)
Amortization of debt discount/premium	14,344	15,198	13,701	12,052	7,887	7,296	6,735	7,032	3,063	3,096
Amoritzation of loss on refunding	(2,817)	(3,147)	(3,070)	(1,949)	(1,980)	(2,552)	-	-	-	-
Capitalized interest	18,582	21,859	20,074	21,051	20,511	19,103	26,358	26,384	25,195	13,910
Decrease upon hedge termination	-	-	-	-	-	-	-	-	-	(58,556)
Change in fair values - swaps	(13,597)	16,317	26,072	(22,951)	(5,240)	(1,222)	36,286	(52,897)	22,638	(19,889)
Total non-operating revenue (expenses), net	(79,592)	(45,882)	(37,310)	(78,839)	(58,951)	(52,020)	(23,585)	(85,886)	(10,687)	(110,977)
Net income / (loss) before contributions	10,952	50,661	55,019	10,473	31,479	25,850	51,194	(29,301)	39,249	(67,851)
Contributions										
Property owner assessments	-	-	2,376	-	-	-	-	-	334	(545)
All other	50,926	12,726	10,513	5,037	4,605	8,103	7,134	2,095	3,413	4,105
Increase (decrease) in net position	61,878	63,387	67,908	15,510	36,084	33,953	58,328	(27,206)	42,996	(64,291)
Net position, beginning of year	708,674	668,488	600,580	585,070	548,986	566,914	508,586	535,792	492,796	557,087
Restatement for GASB 68 implementation	-	-	-	-	-	(51,881)	-	-	-	-
Restatement for GASB 75 implementation	-	(23,201)	-	-	-	-	-	-	-	-
Net Position, beginning of year, as restated	708,674	645,287	600,580	585,070	548,986	515,033	508,586	535,792	492,796	557,087
Net position, end of year	$ 770,552	$ 708,674	$ 668,488	$ 600,580	$ 585,070	$ 548,986	$ 566,914	$ 508,586	$ 535,792	$ 492,796

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE STATEMENTS OF CASH FLOWS
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Cash flows from operating activities:										
Cash received from customers	$ 292,791	$ 276,711	$ 262,055	$ 240,202	$ 227,976	$ 213,215	$ 207,905	$ 193,446	$ 182,976	$ 171,641
Cash paid to suppliers and employees	(103,173)	(95,150)	(88,300)	(85,202)	(75,258)	(73,175)	(79,926)	(76,077)	(72,566)	(72,426)
Net cash provided by operating activities	189,618	181,561	173,755	155,000	152,718	140,040	127,979	117,369	110,410	99,215
Cash flows from capital and related financing activities:										
Proceeds from issuance of revenue bonds	-	175,000	150,000	175,000	80,000	100,000	115,790	263,360	330,000	405,770
Proceeds from subordinated debt	226,340	226,340	226,340	226,340	226,340	226,340	228,735	226,340	226,340	452,680
Proceeds from issuance of commercial paper	319,212	-	-	-	-	-	-	-	-	-
Premium from sale of bonds	3,994	21,894	15,715	16,887	-	-	-	-	-	-
Build America bond refund	10,339	10,248	10,226	10,332	10,096	10,096	10,986	10,986	7,978	2,260
Principal paid on debt	(266,847)	(263,395)	(271,064)	(255,291)	(271,853)	(253,465)	(399,424)	(543,700)	(491,955)	(488,275)
Payments for retirement of commercial paper	(200,000)	-	-	-	-	-	-	-	-	-
Interest and fees paid on debt	(108,511)	(102,394)	(103,919)	(92,246)	-	-	-	-	-	-
Interest paid on swaps	(6,468)	(7,724)	(8,926)	(9,514)	(9,737)	(9,733)	(10,200)	(11,235)	(11,627)	(8,832)
Proceeds from capital grants	9,373	7,183	6,386	91	-	-	-	-	-	-
Proceeds from sale of capital assets	15	3	10	614	-	-	-	-	-	-
Payments for capital assets	(233,360)	(216,503)	(220,892)	(213,996)	-	-	-	-	-	-
Proceeds from assessments	780	1,621	1,254	2,329	-	-	-	-	-	-
Assessments extended	-	-	(2,376)	-	-	-	-	-	-	-
Capital contributed by governments, property owners & developers	-	-	-	-	4,605	8,103	7,134	2,095	3,747	3,560
Assessments receivable	-	-	-	-	2,050	1,695	1,833	1,930	1,676	2,998
Interest income - assessments	-	-	-	-	340	687	731	852	994	1,588
Interest paid on revenue bonds	-	-	-	-	(87,813)	(91,719)	(98,944)	(94,240)	(86,191)	(70,192)
Acquisition and construction of capital assets	-	-	-	-	(147,842)	(121,237)	(113,144)	(119,988)	(167,816)	(86,590)
Acquisition of non-operating property	-	-	-	-	(247)	(211)	(223)	(213)	(221)	(484)
Net cash provided (used) by capital and related financing activities	(245,133)	(147,727)	(197,246)	(139,454)	(194,061)	(129,444)	(256,726)	(263,813)	(187,075)	214,483
Cash flows from investing activities:										
Change in investments	34,428	(56,798)	15,990	(15,047)	1,052	(30,642)	4,064	200,229	100,012	(325,944)
Investment income	6,238	5,081	2,951	5,626	13,974	15,708	13,941	38,515	40,097	37,329
Net cash provided (used) by investing activities	40,666	(51,717)	18,941	(9,421)	15,026	(14,934)	18,005	238,744	140,109	(288,615)
Net increase (decrease) in cash and cash equivalents	(14,849)	(17,883)	(4,550)	6,125	(26,317)	(4,338)	(110,742)	92,300	63,444	25,083
Cash and cash equivalents, beginning of year	81,662	99,545	104,095	97,970	124,287	128,625	239,367	147,067	83,623	58,540
Cash and cash equivalents, end of year	$ 66,813	$ 81,662	$ 99,545	$ 104,095	$ 97,970	$ 124,287	$ 128,625	$ 239,367	$ 147,067	$ 83,623

Presentation and classification of items in the Cash flows from capital and related financing activities section was changed to provide better clarity beginning with the 2017 CAFR. Prior years were not reclassified and are shown as originally presented.

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE SUMMARIES OF OPERATING REVENUE
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Service charges:										
Wastewater service charges:										
Residential	$ 122,830	$ 116,458	$ 108,809	$ 101,405	$ 96,563	$ 89,691	$ 86,409	$ 80,779	$ 78,552	$ 73,228
Commercial	71,054	66,651	61,860	58,343	62,257	58,812	57,192	53,116	46,598	42,741
Industrial	23,171	24,439	21,218	19,878	17,605	19,738	19,536	18,063	21,498	18,948
Other - net	6,803	7,517	6,853	8,186	2,806	2,611	2,267	2,219	1,847	1,756
Free sewer to Metro Government	(4,391)	(4,429)	(3,775)	(4,220)	(5,336)	(5,253)	(5,613)	(4,551)	(2,615)	(2,820)
Total wastewater service charges	219,467	210,636	194,965	183,592	173,895	165,599	159,791	149,626	145,880	133,853
Stormwater service charges:										
Residential	25,716	23,811	22,111	20,439	20,090	18,522	17,372	15,907	14,776	13,613
Commercial	38,775	35,778	35,372	32,971	28,936	27,910	26,123	23,017	20,862	19,433
Industrial	4,373	3,864	3,445	3,219	3,030	3,112	2,956	2,575	2,351	2,189
Other - net	2,834	2,533	-	-	-	-	-	-	-	-
Free drainage to Metro Government	(1,992)	(2,118)	(1,950)	(1,741)	(489)	(1,087)	(1,020)	(643)	(572)	(478)
Total stormwater service charges	69,706	63,868	58,978	54,888	51,567	48,457	45,431	40,856	37,417	34,757
Total service charges	289,173	274,504	253,943	238,480	225,462	214,056	205,222	190,482	183,297	168,610
Other operating income:										
Capacity charges	3,552	3,132	3,318	2,087	2,667	1,620	1,624	335	446	564
Connection fees	14	76	(723)	1,118	379	133	93	64	71	68
Regional facilities fees	-	-	-	16	34	-	-	-	-	-
Reserve capacity charges	-	-	-	-	-	-	64	-	-	11
Wastewater miscellaneous	1,629	1,437	3,096	1,589	1,327	823	2,984	1,299	1,804	2,279
Stormwater miscellaneous	-	-	-	-	-	-	58	58	58	58
Total other operating income	5,195	4,645	5,691	4,810	4,407	2,576	4,823	1,756	2,379	2,980
Total operating revenue	$ 294,368	$ 279,149	$ 259,634	$ 243,290	$ 229,869	$ 216,632	$ 210,045	$ 192,238	$ 185,676	$ 171,590

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE SUMMARIES OF SERVICE AND ADMINISTRATIVE COSTS
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Service and administrative costs:										
Labor	$ 71,379	$ 64,718	$ 59,183	$ 55,229	$ 54,378	$ 57,249	$ 55,028	$ 55,010	$ 56,358	$ 52,945
Utilities	19,520	16,640	14,427	18,256	13,817	14,563	12,821	14,555	13,853	11,879
Materials and supplies	8,639	8,647	7,976	4,183	9,706	8,151	8,990	8,972	9,043	9,031
Professional services	2,992	3,985	4,127	4,169	2,839	1,932	3,942	2,416	2,624	2,363
Maintenance and repairs	4,875	7,208	9,116	10,007	7,915	9,096	10,866	11,090	10,054	8,847
Billing and collections	5,868	5,755	5,467	4,853	4,327	4,095	4,904	4,309	4,318	4,461
Chemicals and fuel	6,154	5,706	6,375	5,697	5,297	5,143	5,907	5,714	5,702	6,099
Biosolids disposal	3,333	2,616	2,651	2,245	1,967	1,795	1,709	1,759	2,035	2,186
All other	20,435	17,665	11,142	13,960	6,520	7,238	4,369	4,901	3,694	3,638
Service and administrative costs[1]	143,195	132,940	120,464	118,599	106,766	109,262	108,536	108,726	107,681	101,449
Less: Recovery of cost										
Capitalized project cost	(38,383)	(38,147)	(31,949)	(30,516)	(30,056)	(33,568)	(33,110)	(33,200)	(30,472)	(28,129)
Revenue recoveries	(1,113)	(993)	(878)	(928)	(465)	(448)	(495)	(400)	(374)	(381)
Recovery of cost	(39,496)	(39,140)	(32,827)	(31,444)	(30,521)	(34,016)	(33,605)	(33,600)	(30,846)	(28,510)
Net service and administrative costs	$ 103,699	$ 93,800	$ 87,637	$ 87,155	$ 76,245	$ 75,246	$ 74,931	$ 75,126	$ 76,835	$ 72,939

[1]Excludes the actuarial portion of changes to GASB 68 pension expense and GASB 75 OPEB for the year

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
COMPARATIVE SCHEDULES OF PLANT, LINES AND OTHER FACILITIES
YEARS ENDED JUNE 30
DOLLARS IN THOUSANDS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Completed projects										
Sewer lines	$ 1,648,891	$ 1,497,090	$ 1,440,360	$ 1,379,153	$ 1,277,745	$ 1,274,180	$ 1,265,437	$ 1,179,685	$ 1,159,437	$ 1,134,637
Wastewater treatment facilities	669,041	648,503	637,166	629,083	489,292	489,289	479,998	479,226	471,190	470,527
Stormwater drainage facilities	839,159	561,341	542,271	515,898	448,853	448,899	443,577	437,139	434,943	427,431
Pumping and lift stations	240,963	183,795	166,158	139,651	96,812	96,819	89,503	73,023	71,122	70,643
Administrative facilities	51,734	50,818	50,817	49,342	49,342	49,342	49,317	46,068	46,078	45,561
Maintenance facilities	12,074	8,504	8,504	8,504	8,037	8,037	8,037	8,037	8,037	7,827
Machinery, equipment and other	118,879	97,407	98,138	90,702	85,395	85,395	83,882	77,068	71,923	93,240
Capitalized interest	403,878	385,296	363,437	343,363	322,312	301,800	282,697	260,157	235,624	222,564
Total completed projects	3,984,619	3,432,754	3,306,851	3,155,696	2,777,788	2,753,761	2,702,448	2,560,403	2,498,354	2,472,430
Less accumulated depreciation	(1,326,461)	(1,218,427)	(1,146,036)	(1,070,108)	(1,008,503)	(946,426)	(884,199)	(825,205)	(768,423)	(734,552)
Total completed projects - net	2,658,158	2,214,327	2,160,815	2,085,588	1,769,285	1,807,335	1,818,249	1,735,198	1,729,931	1,737,878
Total construction in progress	460,501	711,655	581,222	487,674	623,181	463,167	371,816	370,350	272,850	140,134
Total net plant, lines and other facilities	$ 3,118,659	$ 2,925,982	$ 2,742,037	$ 2,573,262	$ 2,392,466	$ 2,270,502	$ 2,190,065	$ 2,105,548	$ 2,002,781	$ 1,878,012

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
MISCELLANEOUS OPERATING INDICATORS
YEARS ENDED JUNE 30

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Miscellaneous Operating Indicators										
Miles of sewers	3,348	3,463	3,322	3,293	3,240	3,263	3,240	3,332	3,200	3,207
Number of treatment plants	5	5	5	5	16	19	19	20	20	21
Number of service connections	285,156	283,936	280,489	280,063	253,462	240,174	239,334	235,136	230,240	228,580
Daily average treatment (MGD)	173	150	112	139	143	141	131	145	142	143
Daily treatment capacity (MGD)	200	200	170	170	177	177	177	173	173	174

MGD - millions of gallons per day

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
WASTEWATER TREATMENT PLANT CAPACITY
2019

Plant	Design Capacity MGD	Avg Daily Flow MGD	Eventual Capacity MGD	Customer Base Residential	Customer Base Commercial	Customer Base Industrial	Customer Base Total	Year Built	Treatment Process
Morris Forman	120.0	100.6	120.0	131,528	15,757	383	147,668	1958	Secondary added in 1976.
Derek R. Guthrie*	60.0	55.9	60.0	66,216	4,101	36	70,353	1986	Secondary
Hite Creek	6.0	4.9	9.0	11,036	691	9	11,736	1970	Tertiary: sand filter
Cedar Creek	7.5	7.2	11.3	18,253	1,135	11	19,399	1995	Tertiary: sand filter
Floyd's Fork	6.5	4.8	9.8	9,429	536	4	9,969	2001	Tertiary: sand filter
Total treatment system	200.0	173.4	215.1	236,462	22,220	443	259,125		

*Formerly known as the West County WTP
Source: MSD Engineering Department

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
GREATER LOUISVILLE, KENTUCKY / INDIANA
EMPLOYERS OF 1,000 EMPLOYEES OR MORE

	2019		2018		2017		2016		2015		2014		2013		2012		2011		2010		
Employers	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Rank	Employees	Type of business
United Parcel Service, Inc.	1	23,533	1	21,233	1	22,354	1	22,080	1	22,189	1	20,931	1	20,047	1	20,117	1	20,388	1	20,125	P Air cargo transport and distribution
Jefferson County, KY Public Schools	2	14,250	2	14,476	2	14,553	2	14,739	2	14,719	2	14,676	2	14,269	2	14,366	2	13,840	2	13,964	G Primary and secondary education
Ford Motor Company	3	13,042	3	12,600	3	12,600	3	12,990	5	9,028	5	8,987	6	8,512	5	8,696	11	3,847	9	5,397	P Vehicle manufacturing
Norton Healthcare (formerly Alliant Health)	4	12,579	4	12,247	5	11,944	5	11,389	4	10,739	4	10,245	4	9,666	4	9,658	4	9,421	4	8,698	N Hospital and health care facilities
Humana, Inc.	5	12,000	5	12,000	4	12,500	4	12,500	3	12,900	3	12,371	3	11,235	3	11,000	3	10,017	3	9,400	P Group health insurance/HMOs
The Kroger Company	6	9,235	12	3,079	12	3,079	11	4,626	10	4,892	10	5,417	10	5,152	-	-	-	-	-	-	P Grocery Retailer
Baptist Healthcare System	7	8,143	9	6,159	7	6,786	10	4,995	9	5,116	11	5,339	11	4,854	11	4,219	12	3,752	12	3,889	N Hospital and health care facilities
Walmart Inc.	8	6,650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Grocery Retailer
University of Louisville	9	6,394	6	6,933	6	7,065	7	6,375	6	6,264	7	6,161	7	6,187	6	6,273	6	5,746	5	6,352	G Higher education
Kentucky One Health Inc (formerly Jewish Hosp)	10	6,000	10	6,000	10	6,000	9	6,000	7	6,000	9	5,602	5	8,893	7	5,898	5	5,819	6	5,782	N Hospital and health care facilities
General Electric Company	10	6,000	10	6,000	10	6,000	9	6,000	7	6,000	6	6,230	8	6,000	9	5,000	10	3,988	11	4,100	P Appliance manufacturing
Louisville-Jefferson County Metro Government	12	5,987	8	6,226	9	6,192	8	6,095	8	5,584	8	5,654	9	5,651	8	5,689	7	5,706	7	5,765	G City/County Government
Amazon.com	13	5,700	7	6,500	8	6,500	6	6,500	7	6,000	-	-	-	-	-	-	-	-	-	-	P Logistics & Customer Service
Spectrum (formerly Charter Communications)	14	2,330	13	2,400	15	2,400	33	1,200	35	1,131	34	1,200	-	-	-	-	-	-	-	-	P Call Center
Oldham County Public Schools	15	2,325	24	1,567	23	1,638	24	1,604	15	2,300	23	1,576	22	1,602	19	1,690	21	1,689	28	1,500	G Primary and secondary education
Manna Inc	16	2,300	14	2,300	14	2,600	12	3,120	13	2,400	16	2,250	-	-	-	-	-	-	-	-	P Food service provider
LG&E and KU Energy (formerly EON)	17	2,208	16	2,162	17	2,201	18	2,211	18	1,993	18	2,178	16	2,131	16	2,066	19	1,976	19	1,976	P Gas & Electric Utility
Roman Catholic Archdiocese of Louisville	18	2,202	15	2,252	13	2,660	17	2,263	17	2,237	14	2,260	14	2,345	13	2,352	15	2,416	17	2,142	N Religious, educational, social services
Robley Rex VA Medical Center	19	1,876	18	1,816	21	1,800	21	1,900	19	1,800	20	1,703	18	1,799	18	1,728	22	1,671	24	1,596	N Hospital and health care facilities
BrightSpring Health Services	20	1,800	17	1,948	19	1,948	14	2,435	28	1,312	35	1,054	-	-	-	-	-	-	-	-	P Health care provider
Samtec Inc.	21	1,700	26	1,500	35	1,200	29	1,300	-	-	-	-	-	-	-	-	-	-	-	-	P Electronic connectors & microelectronics products
U.S. Postal Service	22	1,691	20	1,691	20	1,896	23	1,659	12	2,401	13	2,546	13	2,509	-	-	14	2,653	18	1,991	G Mail distribution
Bullitt County Public Schools	23	1,649	19	1,736	22	1,718	22	1,739	21	1,671	22	1,633	21	1,629	-	-	-	-	-	-	G Primary and secondary education
Rawlings Group	24	1,520	29	1,440	28	1,332	30	1,211	-	-	-	-	-	-	-	-	-	-	-	-	P Insurance subrogation
Churchill Downs Inc.	25	1,508	25	1,515	25	1,526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Racing, gaming and online entertainment
New Albany - Floyd County Schools	26	1,500	21	1,652	26	1,405	25	1,600	22	1,622	21	1,648	20	1,640	-	-	-	-	-	-	G Primary and secondary education
Texas Roadhouse Inc.	26	1,500	26	1,500	29	1,320	35	1,179	-	-	-	-	-	-	-	-	-	-	-	-	P Food service provider
Papa John's International	28	1,485	22	1,626	18	2,088	19	2,088	30	1,279	25	1,503	35	1,143	-	-	-	-	-	-	P Quick service restaurant
US Census Bureau	29	1,330	33	1,209	38	1,185	38	1,037	-	-	-	-	-	-	-	-	-	-	-	-	N Government
Anthem, Inc.	30	1,320	32	1,269	34	1,238	29	1,300	26	1,350	32	1,139	37	1,100	34	1,122	35	1,150	36	1,276	P Health Insurance sales and services
Brown-Forman Corp.	31	1,300	30	1,300	31	1,304	29	1,300	31	1,266	31	1,256	32	1,244	31	1,196	34	1,184	37	1,240	P Distilled spirits manufacturing
Centerstone of Kentucky (formerly Seven Counties)	32	1,266	31	1,284	27	1,340	36	1,165	34	1,168	33	1,129	36	1,111	30	1,215	32	1,202	40	1,187	N Health care provider
Greater Clark County, IN School Corp.	33	1,251	28	1,447	32	1,295	32	1,247	24	1,447	24	1,303	30	1,357	27	1,346	28	1,364	30	1,395	G Primary and secondary education
Kindred Healthcare (formerly Vencor Inc.)	34	1,246	23	1,571	16	2,216	16	2,381	16	2,244	17	2,249	17	2,130	15	2,252	18	2,297	16	2,224	P Long-term health care, facilities
JBS USA	35	1,200	34	1,200	37	1,189	34	1,180	-	-	-	-	-	-	-	-	-	-	-	-	P Pork Products
Faurecia	35	1,200	34	1,200	40	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Exhaust systems, interiors & seat systems
Malone Workforce Solutions	37	1,182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Grocery Retailer
Horseshoe Southern IN (formerly Caesars')	38	1,135	38	1,160	33	1,239	31	1,252	29	1,303	29	1,404	26	1,418	25	1,437	31	1,244	26	1,540	P Gaming and entertainment resort
Martinrea Heavy Stamping	39	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Grocery Retailer
Signature Healthcare	40	1,093	-	-	24	1,558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N Post-acute and long-term care provider
Clark Memorial Hospital	41	1,011	39	1,060	-	-	33	1,225	33	1,225	30	1,270	-	-	-	-	-	-	-	-	P Health care provider
ADP Inc.	42	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Grocery Retailer
LSC Communications (formerly Publisher's Printing)	-	-	34	1,200	35	1,200	27	1,400	25	1,413	28	1,432	24	1,516	24	1,450	27	1,367	27	1,500	P Trade, professional, special printing
PNC Bank	-	-	37	1,175	39	1,175	26	1,500	23	1,569	-	-	-	-	-	-	-	-	-	-	P Financial Services
Mortenson Dental Partners	-	-	40	1,047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P Dental Services
Commonwealth of Kentucky	-	-	-	-	-	-	13	2,514	11	3,794	12	4,042	12	4,161	10	4,232	9	4,488	10	4,361	G General purpose government
U.S. Federal Government	-	-	-	-	-	-	15	2,406	14	2,397	15	2,252	15	2,191	12	2,676	13	2,855	13	3,575	G General purpose government
Yum! Brands Inc. (formerly Tricon)	-	-	-	-	30	1,314	28	1,343	32	1,226	30	1,270	23	1,544	22	1,558	23	1,640	21	1,757	P Food service provider
Floyd Memorial Hospital & Health Services	-	-	-	-	-	-	20	1,950	20	1,756	19	1,769	19	1,711	20	1,612	24	1,546	29	1,473	P Hospital and health services provider
Securitas Security Services USA Inc.	-	-	-	-	-	-	-	-	27	1,328	26	1,476	25	-	21	1,598	33	1,191	41	1,150	P Security Services
Shelby County Public Schools	-	-	-	-	40	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	G Primary and secondary education
Al J Schneider Co	-	-	-	-	40	1,000	37	1,047	37	1,000	36	1,050	-	-	-	-	-	-	-	-	P Hotel / Restaurants
American Commercial Lines	-	-	-	-	-	-	-	-	36	1,100	-	-	-	-	-	-	-	-	-	-	P Marine Transportation Service
Total employees		173,741		156,680		162,558		164,045		155,163		144,205		134,747		120,446		114,457		115,355	

P=for-profit organization N=not-for-profit organization G=governmental organization
Source: Business First of Louisville, KY

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
ROLE OF OUTSTANDING DEBT AND MISCELLANEOUS DEMOGRAPHIC INFORMATION

Fiscal Year	Debt *(In 000's)*	Population*	Personal Income***	Percentage of Personal Income	Unemployment Rate**	# of MSD Employees	# of MSD Service Connections	Miles of Sewer Line
2010	$ 1,786,633	742,324	$ 29,921,911	5.97%	9.8%	651	228,580	3,207
2011	$ 1,851,655	746,372	$ 31,154,544	5.94%	9.9%	655	230,240	3,200
2012	$ 1,834,691	750,828	$ 32,592,092	5.63%	8.4%	666	235,136	3,232
2013	$ 1,790,715	756,832	$ 33,314,513	5.38%	8.2%	649	239,334	3,240
2014	$ 1,867,089	760,026	$ 34,609,792	5.39%	6.4%	606	240,174	3,263
2015	$ 1,902,110	763,623	$ 34,575,582	5.50%	4.9%	591	253,462	3,288
2016	$ 2,050,444	764,378	$ 36,517,217	5.62%	4.6%	617	280,063	3,293
2017	$ 2,167,901	765,352	$ 37,813,140	5.73%	4.6%	626	280,489	3,322
2018	$ 2,315,569	770,517	N/A	N/A	4.3%	632	283,936	3,463
2019	$ 2,386,059	N/A	N/A	N/A	4.5%	645	285,156	3,348

*Source: U.S. Census Bureau (https://www.census.gov/quickfacts/fact/table/jeffersoncountykentucky/PST045216)
**Source: Workforce Kentucky Website (www.workforcekentucky.ky.gov) (https://kcews.ky.gov/KYLMI)
***Source: Bureau of Economic Analysis website (www.bea.gov)

LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT
TOP 10 WASTEWATER AND STORMWATER CUSTOMERS

Rank	Customer Name		FY '19 Wastewater Billed	Percent Total Wastewater Revenue
1	Lubrizol Advanced Material**	$	2,624,019	1.20%
2	Heaven Hill Distilleries	$	2,534,543	1.15%
3	Swift Pork Co.	$	1,682,013	0.77%
4	Ford Motor Co.	$	936,605	0.43%
5	Haier US Appliance Solutions	$	905,940	0.41%
6	Early Times Distillery	$	904,479	0.41%
7	Ford Motor Co.	$	699,736	0.32%
8	Rohm & Haas	$	684,947	0.31%
9	UPS Air District	$	471,240	0.21%
10	Louisville Metro Housing Authority	$	439,959	0.20%
	Total	**$**	**11,883,482**	**5.41%**
	Total FY 19 Wastewater Revenue:	$	219,467,413	

Rank	Customer Name		FY '18 Wastewater Billed	Percent Total Wastewater Revenue
1	Heaven Hill Distilleries	$	5,291,401	2.41%
2	Swift Pork Co.	$	2,824,203	1.29%
3	Lubrizol Advanced Material**	$	2,335,162	1.06%
4	Early Times Distillery	$	998,464	0.45%
5	Ford Motor Co.	$	917,546	0.42%
6	Haier US Appliance Solutions	$	880,309	0.40%
7	Rohm & Haas	$	646,918	0.29%
8	Ford Motor Co.	$	643,713	0.29%
9	Louisville Metro Housing Authority	$	634,232	0.29%
10	Dean Milk	$	580,608	0.26%
	Total	**$**	**15,752,556**	**7.18%**
	Total FY 18 Wastewater Revenue:	$	210,635,803	

Rank	Customer Name		FY '19 Stormwater Billed	Percent Total Stormwater Revenue
1	Regional Airport Authority - Standiford	$	1,383,778	1.99%
2	United Parcel Service	$	647,327	0.93%
3	Ford Motor Co	$	380,467	0.55%
4	Lit Industrial Limited Partner	$	288,795	0.41%
5	Regional Airport Authority - Bowman	$	269,386	0.39%
6	Kentucky State Fair	$	268,485	0.39%
7	The U of L Campus	$	244,840	0.35%
8	Seaboard Systems	$	230,126	0.33%
9	Churchill Downs	$	222,877	0.32%
10	Lou Jeff County Redev Auth	$	206,864	0.30%
	Total	**$**	**4,142,945**	**5.94%**
	Total FY 19 Stormwater Revenue:	$	69,705,739	

Rank	Customer Name		FY '18 Stormwater Billed	Percent Total Stormwater Revenue
1	Regional Airport Authority - Standiford	$	1,258,666	1.81%
2	United Parcel Service	$	610,278	0.88%
3	Ford Motor Co	$	359,114	0.52%
4	Lit Industrial Limited Partner	$	275,407	0.40%
5	Regional Airport Authority - Bowman	$	251,264	0.36%
6	Kentucky State Fair	$	250,477	0.36%
7	The U of L Campus	$	230,236	0.33%
8	Seaboard Systems	$	217,057	0.31%
9	Churchill Downs	$	208,239	0.30%
10	Lou Jeff County Redev Auth	$	198,156	0.28%
	Total	**$**	**3,858,893**	**5.54%**
	Total FY 18 Stormwater Revenue:	$	63,868,122	

* LIT Industrial Limited was formerly known as Trammell Crow Co.
**Lubrizol Advanced Material was formerly known as Oxy Vinyls

On the front cover:
MSD's Waterway Protection Tunnel construction site and downtown Louisville glow in the setting sun.

Safe, clean waterways

700 West Liberty Street
Louisville, KY 40203-1911
LouisvilleMSD.org
Customer Relations
502.540.6000

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